WoMaster

COVER

User Manual

ThingsMaster

Industrial IIoT Platform

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ThingsMaster Industrial IIoT Platform

User Manual

About This Manual

This user manual is intended to guide a professional installer to install and to configure the ThingsMaster dashboard. It includes procedures to assist you in avoiding unforeseen problems.

NOTE:

Only qualified and trained personnel should be involved with installation, inspection, and repairs of this switch.

Disclaimer

WoMaster reserves the right to make changes to this Manual or to the product hardware at any time without notice. Information provided here is intended to be accurate and reliable. However, it might not cover all details and variations in the equipment and does not claim to provide for every possible contingency met in the process of installation, operation, or maintenance. Should further information be required or should particular problem arise which are not covered sufficiently for the user's purposes, the matter should be referred to WoMaster. Users must be aware that updates and amendments will be made from time to time to add new information and/or correct possible unintentional technical or typographical mistakes. It is the user's responsibility to determine whether there have been any such updates or amendments of the Manual. WoMaster assumes no responsibility for its use by the third parties.

WoMaster Online Technical Services

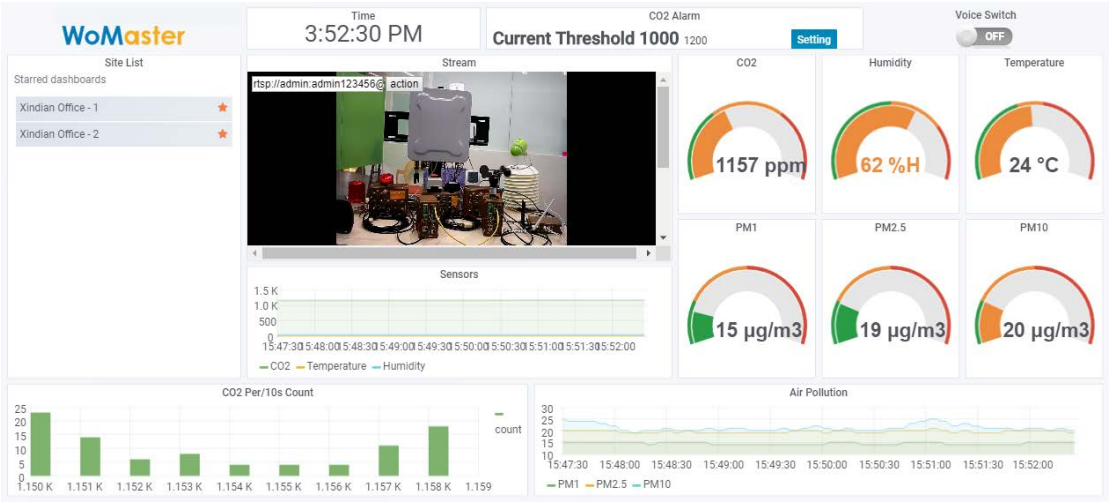
At WoMaster, you can use the online service forms to request the support. The submitted forms are stored in server for WoMaster team member to assign tasks and monitor the status of your service. Please feel free to write to help@womaster.eu if you encounter any problems.

TABLE OF CONTENTS

1. INTRODUCTION

1.1 OVERVIEW

ThingsMaster is an intelligent private IIOT platform that fits for your private IIOT platform requirement. It provides flexible and secured access from any web browser either in PC or smart phone. It also supports RTSP streaming which allows you to broadcast from cloud to remote gateways via Voice over IP. Field site video surveillance is also supported from the cloud for environment monitor via IP cameras. ThingsMaster enables fast, flexible, secured dashboard for multi-user and supports MQTT and RESTful APIs for easy access to data from an IIoT gateway. It is also designed for central network management such as device configuration, firmware version upgrade, and fault alert and event records.



Model Name	Description
SCB1200	Industrial Smart City Box with 4GT PoE + 2GF, 1GT WAN, IIoT interfaces
ThingsMaster–1GW (trial version)	1 gateways and each gateway supports 20 Modbus tags
ThingsMaster–10GW	10 gateways and each gateway supports 20 Modbus tags
ThingsMaster–50GW	50 gateways and each gateway supports 20 Modbus tags
ThingsMaster–100GW	100 gateways and each gateway supports 20 Modbus tags

1.2 MAJOR FEATURES

Below are the major features of ThingsMaster:

Dynamic, Fast and Flexible Dashboards

- Provides multi-tenant, multi-user management, each logged-in user has its own Dashboard configuration.
- Provide a variety of data sources to obtain data
- Provide a variety of Widgets to display data.
- Provides flexible themes.
- Meet RWD (Responsive Web Design) requirements for desktop and mobile devices.

Fast and flexible graphs options

Fast and flexible client side graphs with many options and also some various panel plugins in order to visualize metrics and logs in different ways.

Diverse Industrial IoT Solutions

- Industrial 4.0 Solution for Monitor machine downtime duration/occurrence, yield rate, productivity, achievement rate, etc.
- Smart Environment Control Solution for Monitor PM1/2.5/10, CO2, temperature, humidity, radiation, wind speed, etc.
- Smart Water Quality Control Solution for Monitor water EC, DO, PH, NH3-N, etc.
- Smart Bus Tracking Solution for Monitor bus route, speed, fuel, etc.
- Smart Metering Solution for Monitor district energy consumed, water consumed, etc.
- Smart Energy Solution for Monitor meter voltage, frequency, power, current, energy consumption, etc.
- Smart Farming Solution for Monitor silos weights, silos temperature, silos humidity, etc.

1.3 SYSTEM REQUIREMENTS

Host PC

- Memory: 8GB DDR3
- CPU: Intel i5 4 core Processor
- Hard Disk: at least 20G free space
- Network Adapter: at least one NIC
- Sound Card: with microphone input

Virtual Machine

- Memory: Minimum 1GB
- Processor: 1
- Hard Disk: (Maximum size 30GB)
- Network Controller: 1 adapter

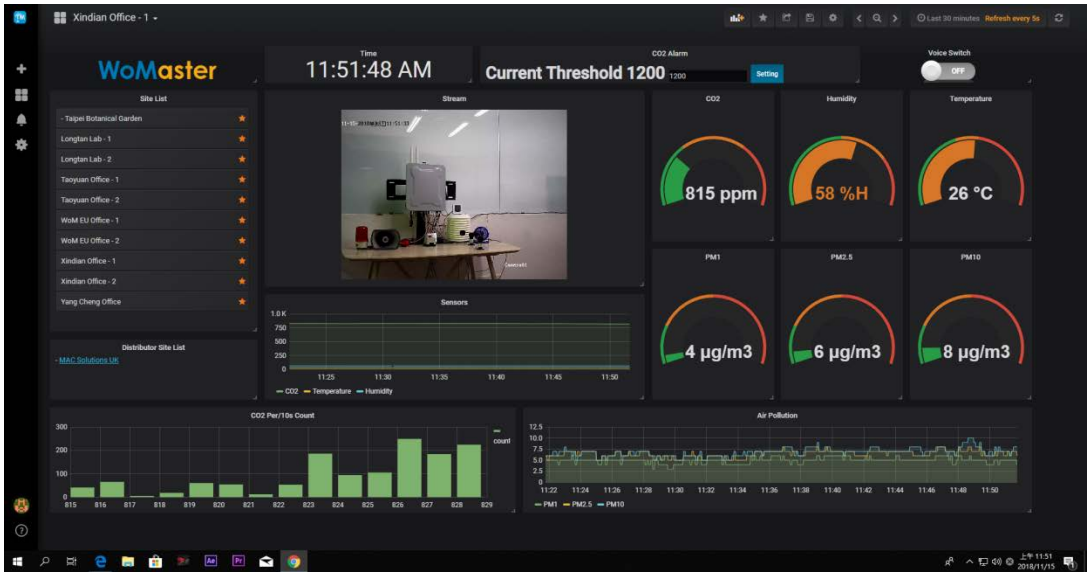
- Sound Card: Auto detect
- Display: Auto detect

2. THINGSMASTER DASHBOARD

ThingsMaster is an IIoT Cloud Platform for managing on-site equipment of Industrial Plant Networks from any place, at any times, providing instant and secure access from any web browser. Field site video surveillance stream and sensor data are available anytime and anywhere. WoMaster has several kinds of ThingsMaster dashboard. User can arrange the dashboard or use the default dashboard that has been provided.

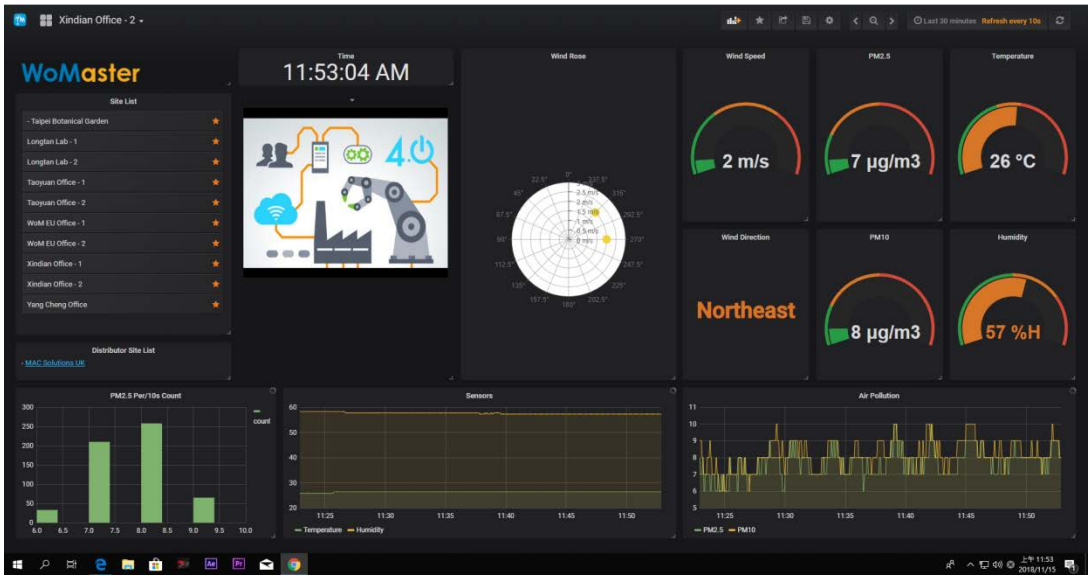
2.1 DEMO SITE – SCB1200

This dashboard is included the CO2, Temperature, Humidity sensor and graph, IP Camera, CO2 threshold button and VoIP button. The interface is as below:



2.2 DEMO SITE 2

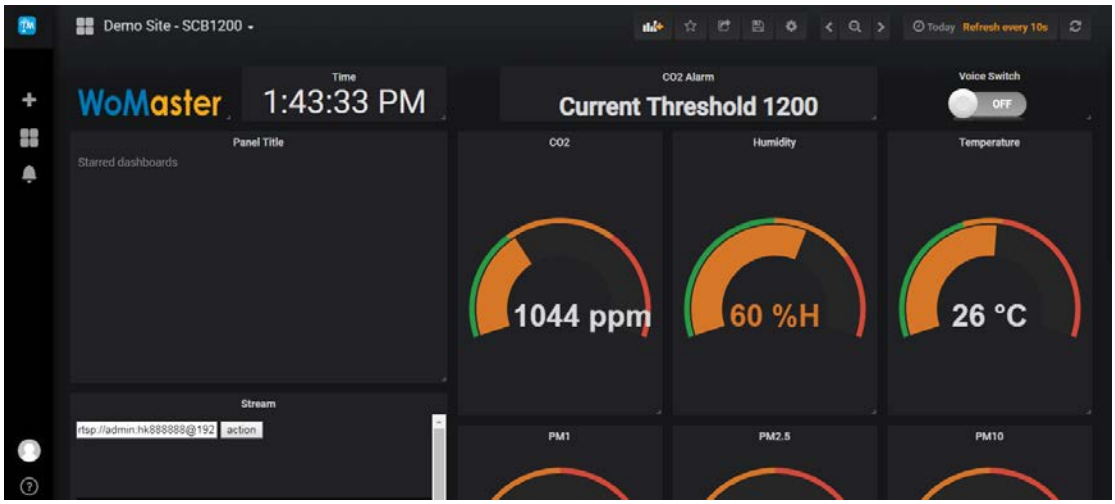
This dashboard is included the Wind Rose graph, Wind Speed and Direction, PM2.5, PM10, Temperature and Humidity sensor and graph.



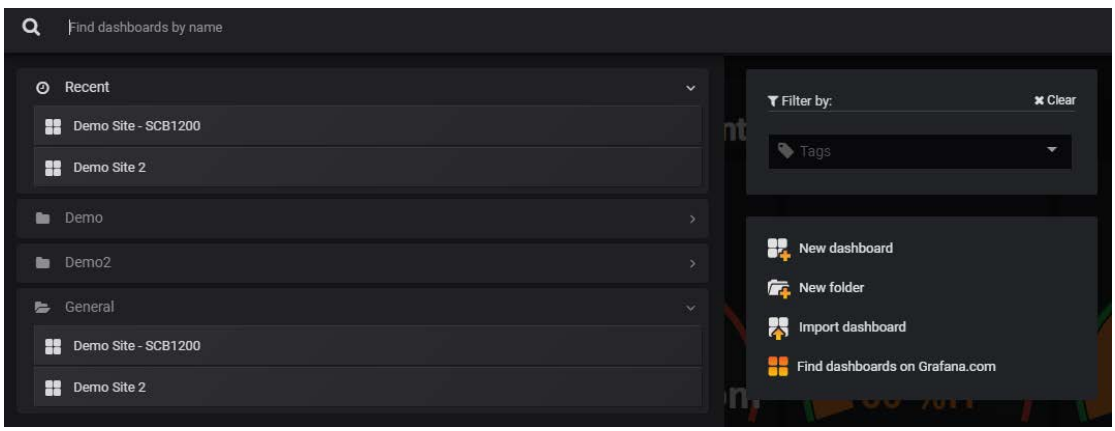
3. THINGSMASTER DASHBOARD CONFIGURATION

Login page – In this login page a default account has been provided by WoMaster (Username: user, Password: user).

After success with the login page, the current active dashboard will appear.



User can choose which dashboard that user wants to activate, by clicking the dropdown list at the top of the interface. And then the dashboard list will appear.

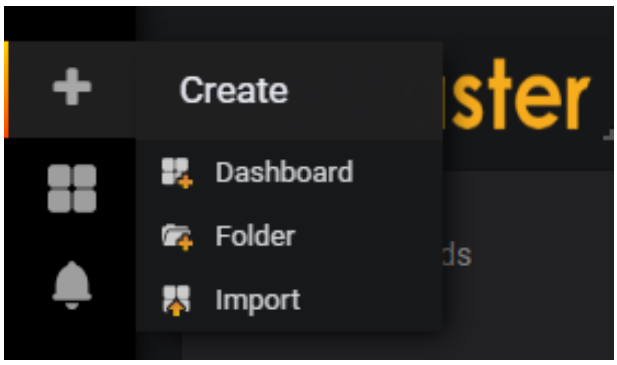


3.1 CREATE AND MANAGE DASHBOARD PANEL

On the left side of the dashboard, user will see the dashboard panel. User can manage and create the dashboard here.

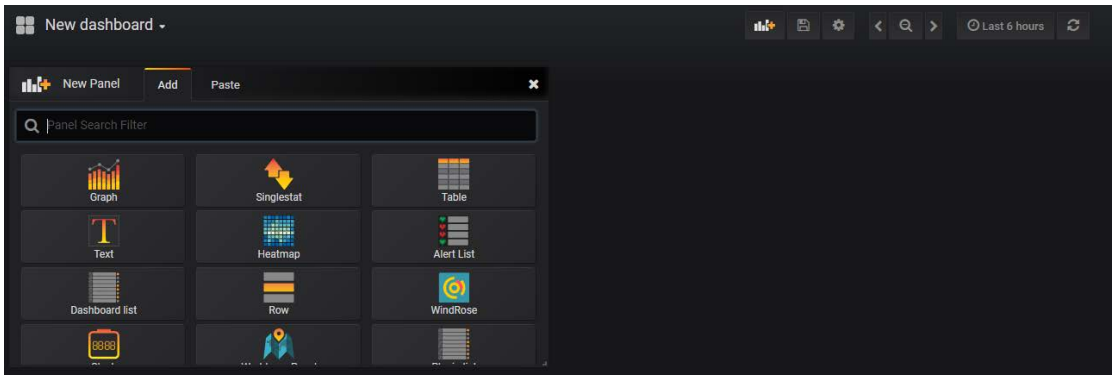
3.1.1 CREATE

When user move the mouse cursor over the create panel, then several option will appear.



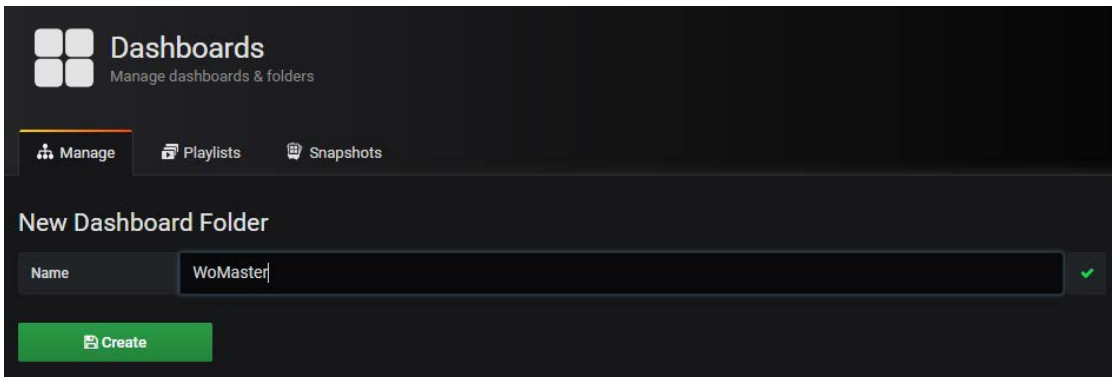
Create Dashboard.

By clicking the Dashboard, a new dashboard interface will appear. Then user can change the graph that user want to use. In this section user may design their dashboard.

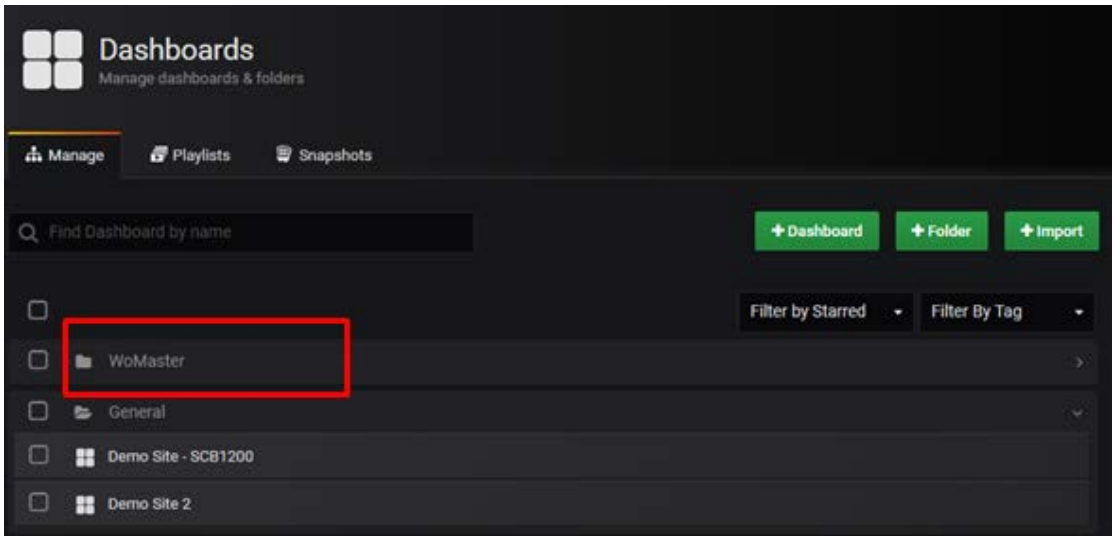


Create Folder

By clicking the Folder, this feature is used to create a folder for assigning the dashboard belongs to which folder.

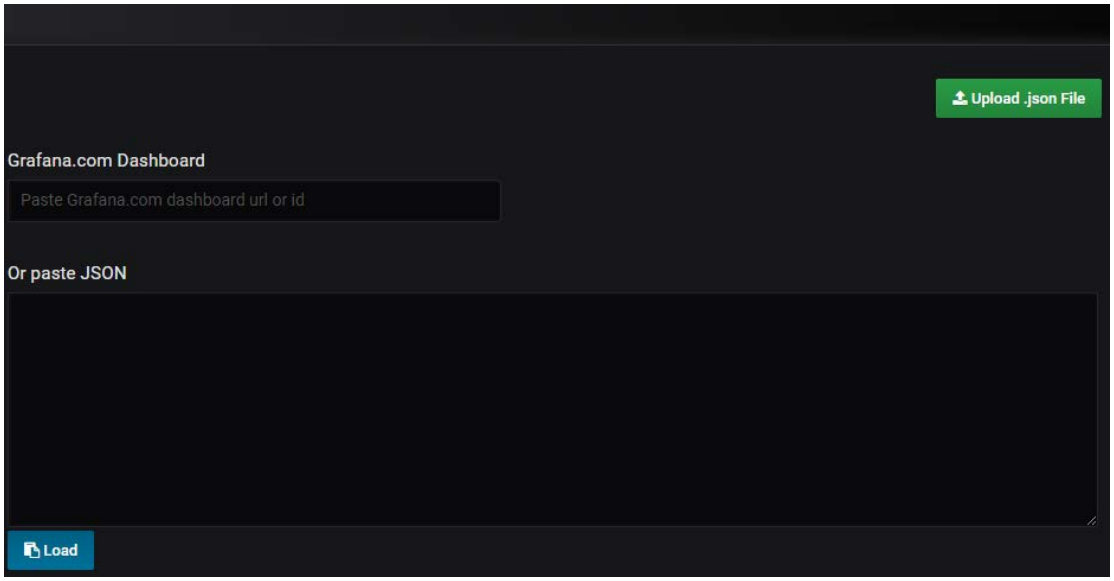


Click Create and a new dashboard folder will appear on the Dashboard Manage page.

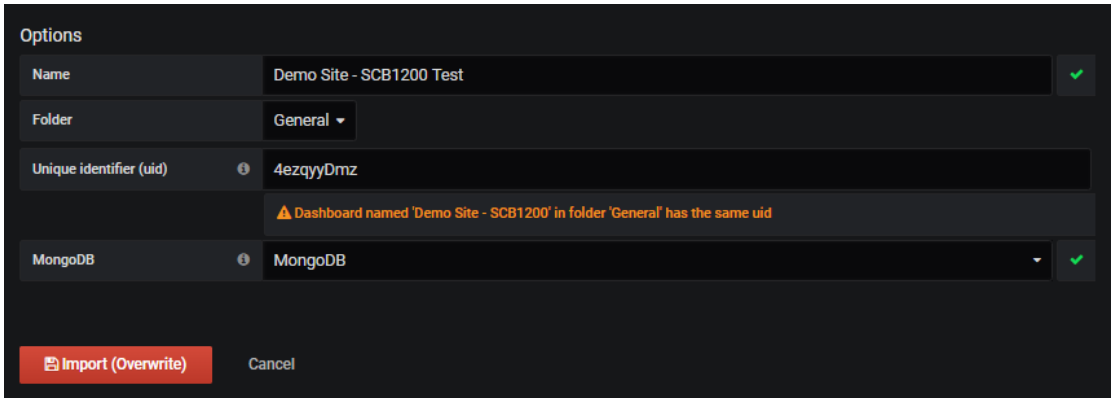


Import Dashboard

In this section user can import the JSON file that user has. Or copy and upload the JSON file from the other dashboard that user has been created. (Refer to the top panel section -> Share dashboard)

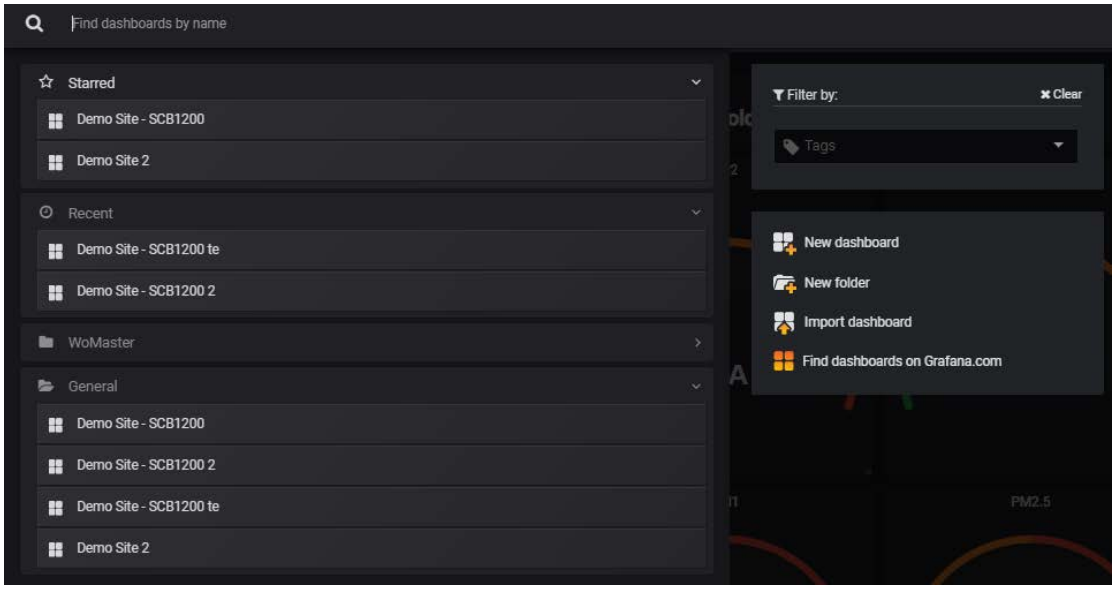


Clicks upload .json File to import the dashboard. Enter different name for the dashboard and click change UID (enter new UID – cannot be the same with the other dashboard's UID). Set the data source to MongoDB. Then click import (Overwrite) or Import. The Import (Overwrite) button will appear when the UID is the same as the dashboard's UID.

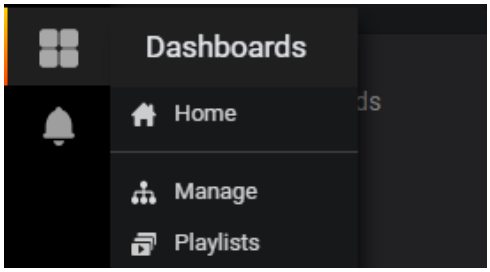


Import button will appear after user change the UID to different UID.

After click Import and new dashboard will appear on the list.



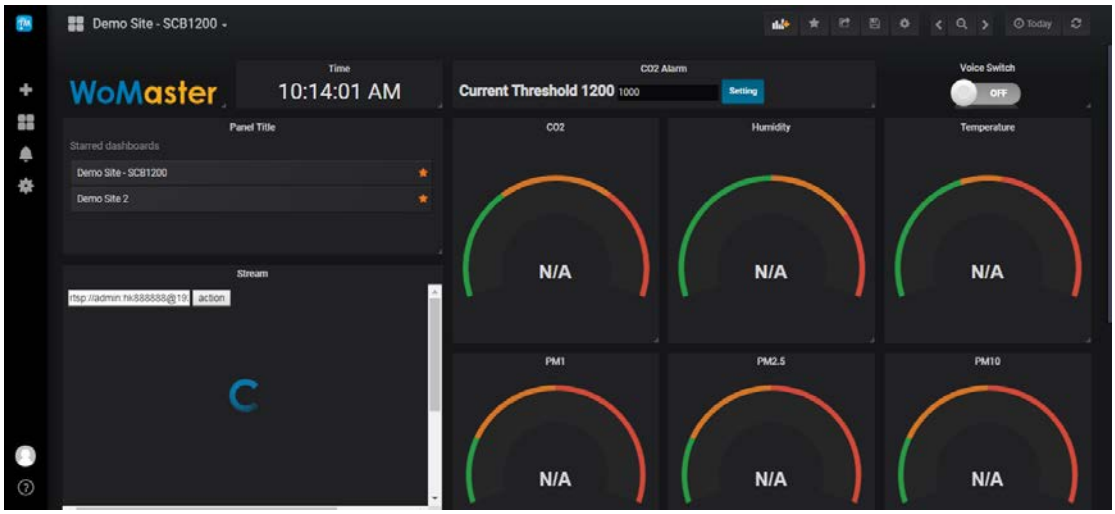
3.1.2 DASHBOARDS MANAGEMENT



This Dashboard management menu is used to manage the dashboard that has been created by user. User can assign the dashboard to the specific folder or create a playlist in order to monitor the dashboard easily.

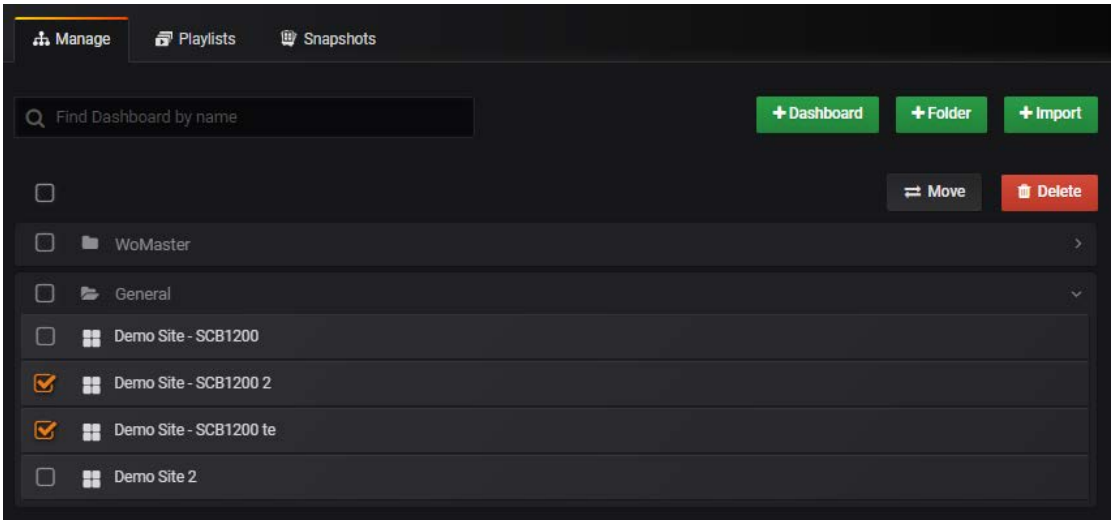
Home

By clicking home it will bring user to the current active dashboard.

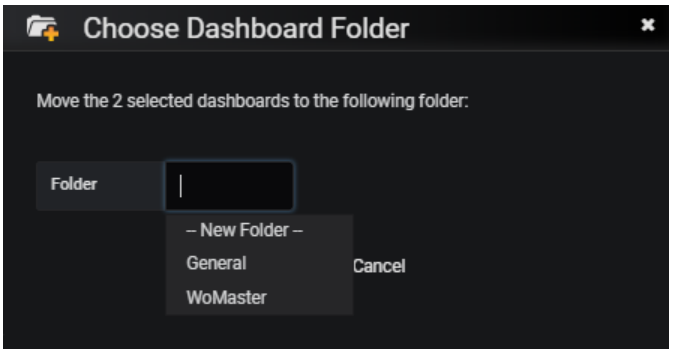


Manage

This feature is used to manage the dashboard and the folder or even import a new dashboard..

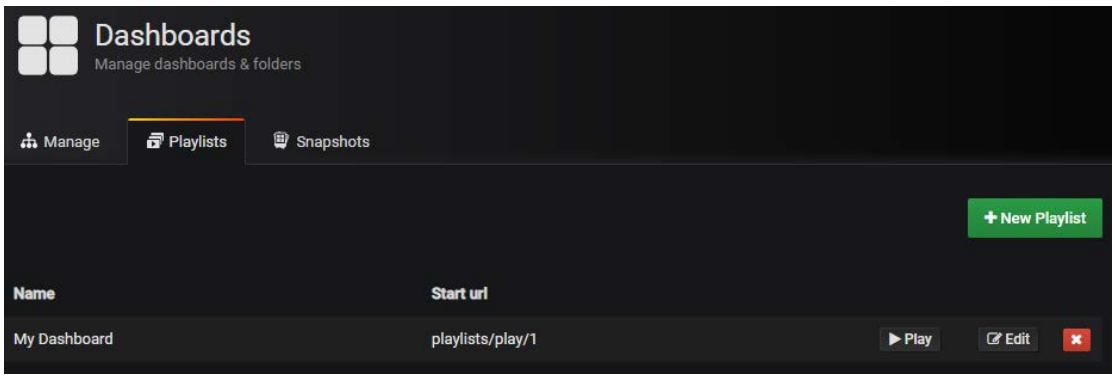


By selecting the dashboard from the list, user also can delete the dashboard or move the dashboard to the specific folder.



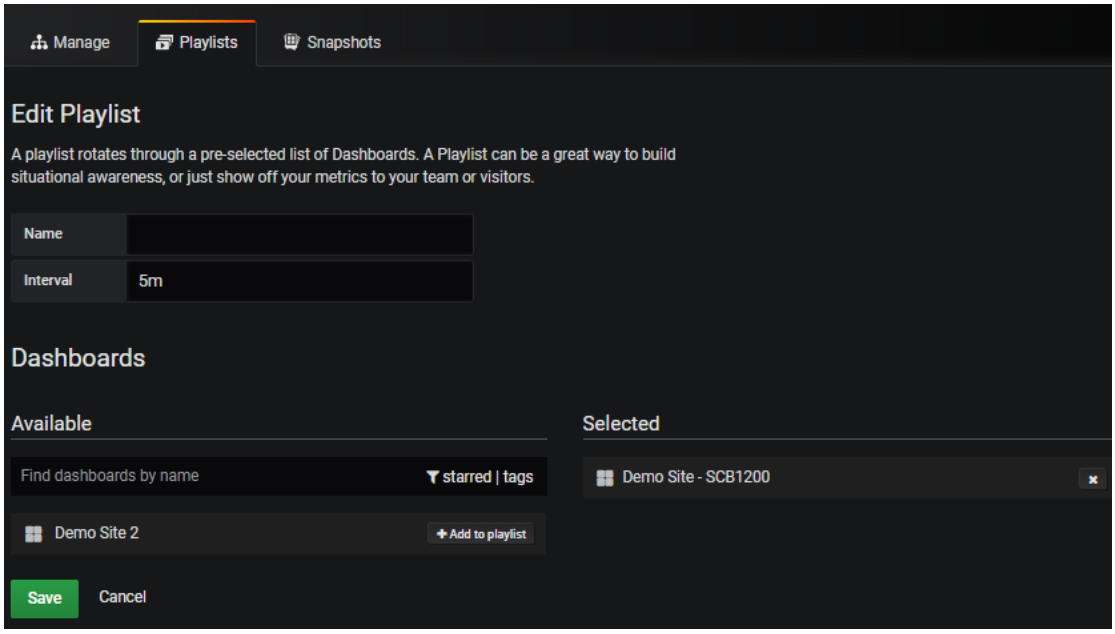
Playlists

This feature is used to create a playlist rotates based on the selected dashboard, so user doesn't need to click the other dashboard to check. A playlist rotates through a pre-selected list of Dashboards. A Playlist can be a great way to build situational awareness, or just show off the metrics. Click play to start the dashboard playlist rotates.

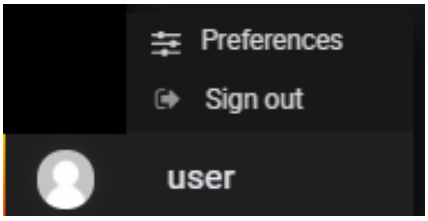


New Playlist

Click the new playlist by selecting the dashboard to assign it to the playlist rotate. Then click Save, to keep the playlist.

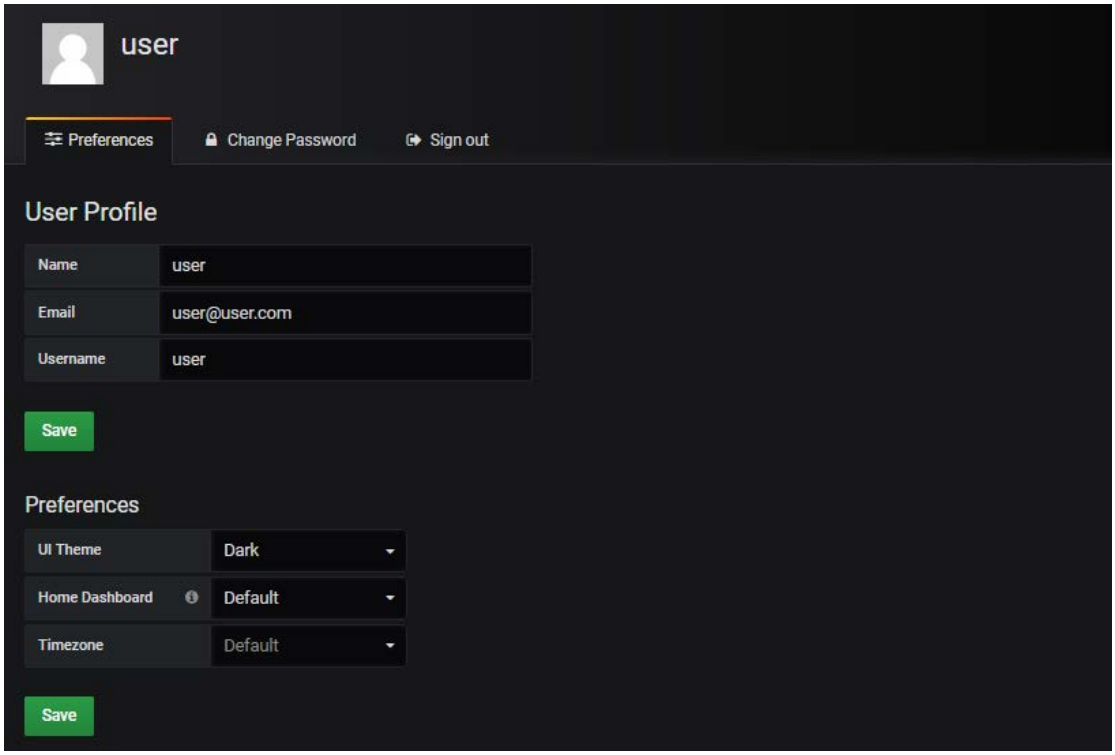


3.2 USER PANEL

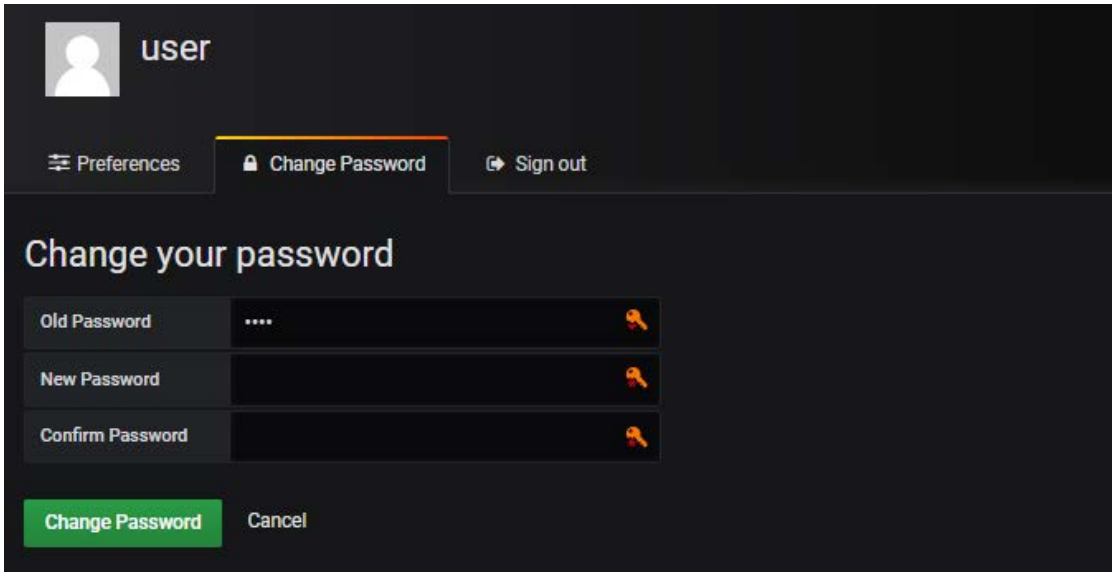


Preferences

On this page, use can configure the user profile, set up the UI theme (Dark / Light), set up the home dashboard, and set up the Timezone (Default, Local browser time, and UTC)



Change Password



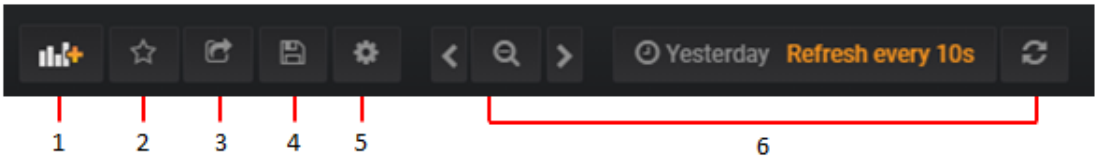
For the security concern and the convenience, please change the password.

Sign Out

Clicks sign out, in order to sign out from the ThingsMaster dashboard.

3.3 TOP PANEL

At the top side of the dashboard, there are several panels that can be used to modify or configure the dashboard interface.



1 – Add Panel

2 – Mark as Favorite

3 – Share Dashboard

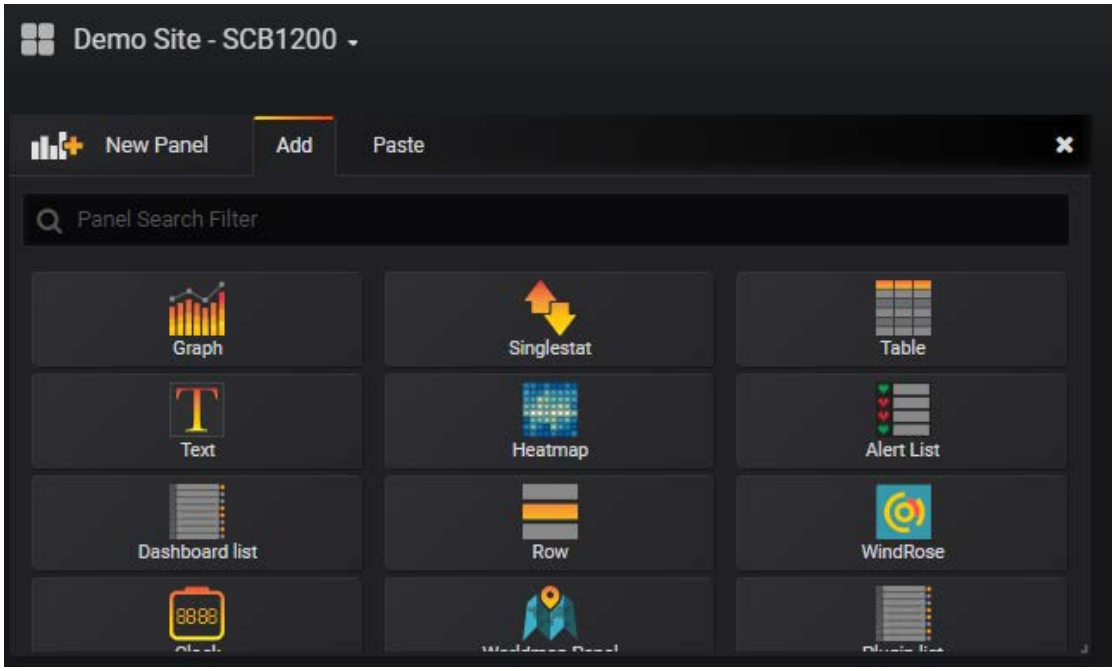
4 – Save Dashboard (CTRL + S)

5 – Setting

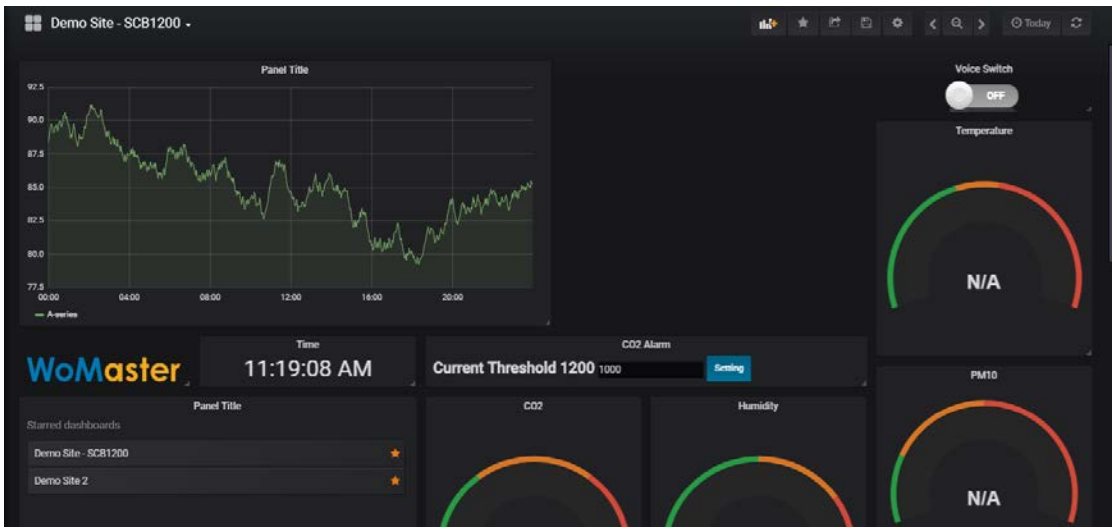
6 – Time Range + Refresh

ADD PANEL

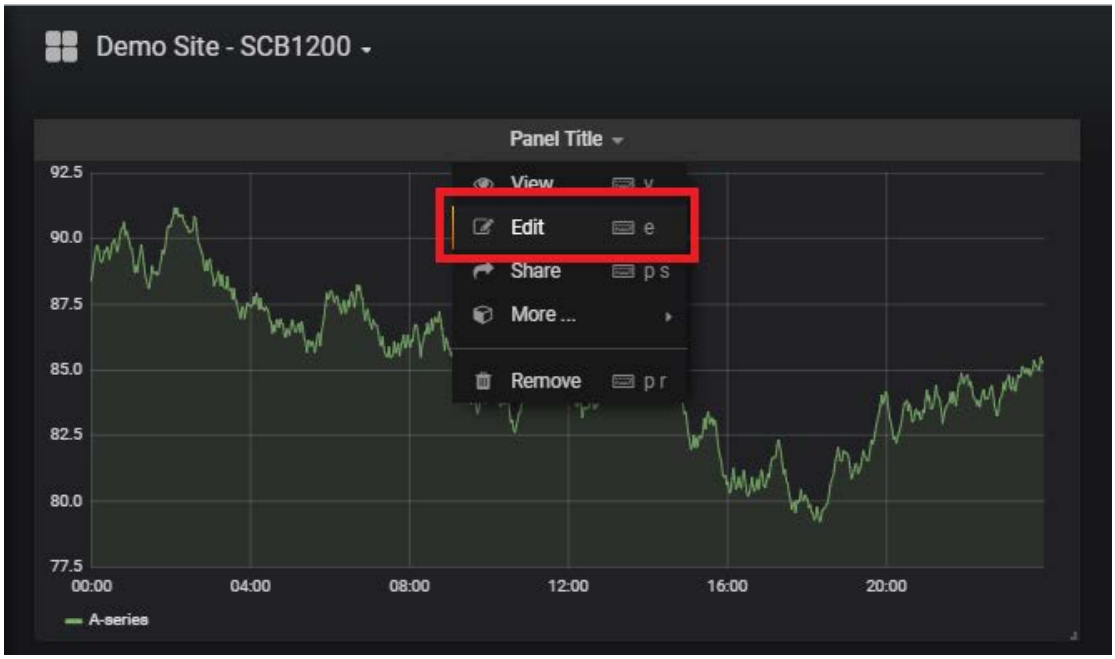
By using this panel, user can visualize the data that was uploaded from the sensor to the dashboard. So from this panel user can check the statistics data as well.



Try to choose a panel, for the example below we try to use graph panel.



At the first time user will see a random data that appear on the graph panel. User needs to change the metric to specify the data source. The data source will be default data at the first time, so user will see that the data on the graph is changing randomly. In this panel user may edit the content.



After get into the edit mode user will see the interface as below.

Example:

If user wants to add more graph. Please try to follow the step below:

1. Click Add panel -> choose a graph -> Click edit from the dropdown list.
2. Click Add Query at the metric tab.
3. Copy paste the code from the other sensor query

db.data.aggregate ([

{ "$match" : { "$and" : [{ "start" : {"$gte" : "$from", "$lte" : "$to"}, "end" : {"$lte" : "$to"} },

{ "IPADD" : "192.168.0.20"}]}}, ----- > don't change this part

{"$sort" : {"at" : 1}},

{"$project" : { "name" : "CO2", "value" : "$CO2", "at" : "$at", "_id" : 0} }]) ------- > check the Modbus device in web GUI **IoT – Modbus Device**

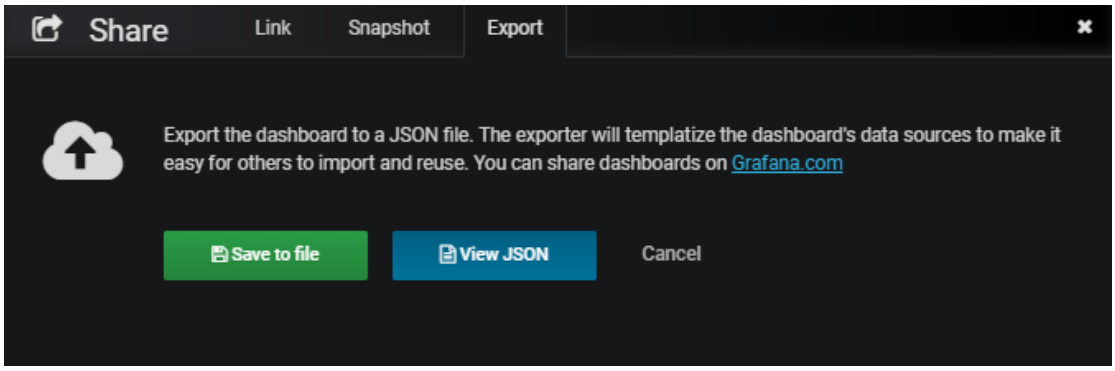
What you need to do is to change the name tag and the value (Mentioned in red color) and a new line will appear on the graph.

MARK AS FAVORITE

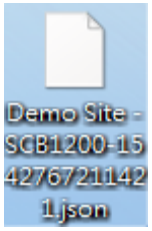
From the top panel, user can click on Mark as favorite button, to add up the starred dashboard. Every time user clicks the button a new list will appear on the Starred Dashboard. To remove it from the list just click the star on the list, and it will directly remove from the list**.**

SHARE DASHBOARD

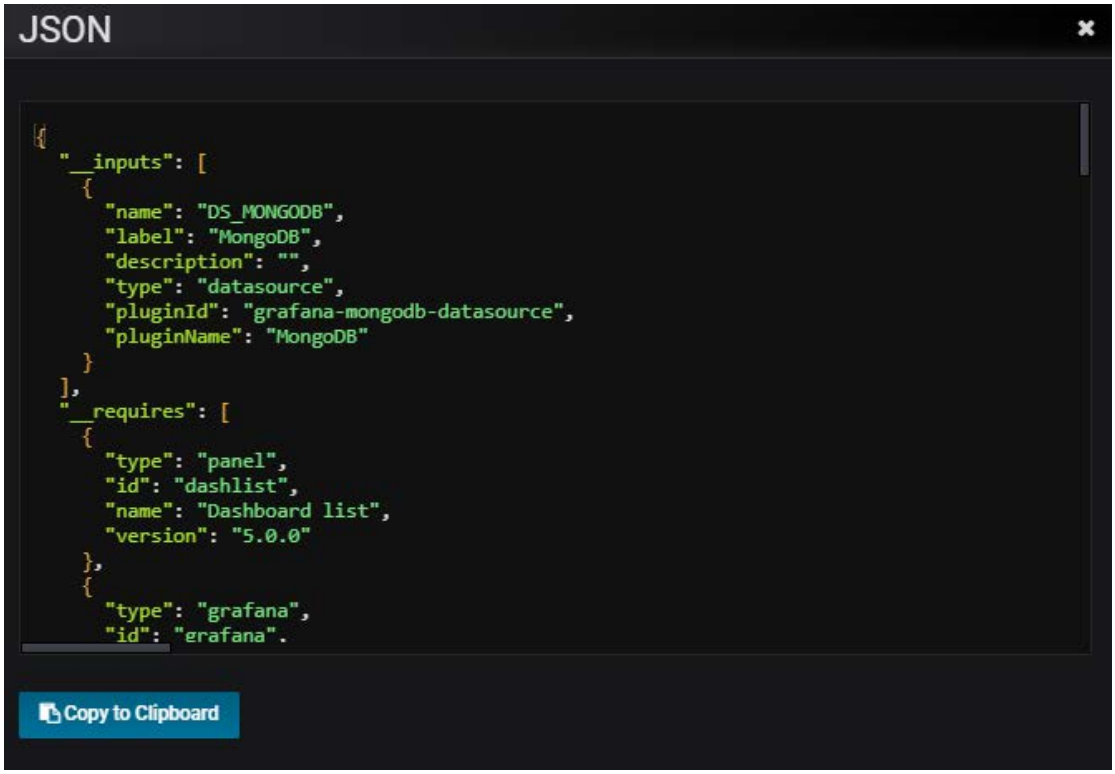
To export the dashboard, user can get the JSON file and do the copy paste. In this section user can save the JSON file. Or directly open the JSON file.



Save to File – save the JSON in a file, so later user can import the JSON file to create or duplicate the dashboard.

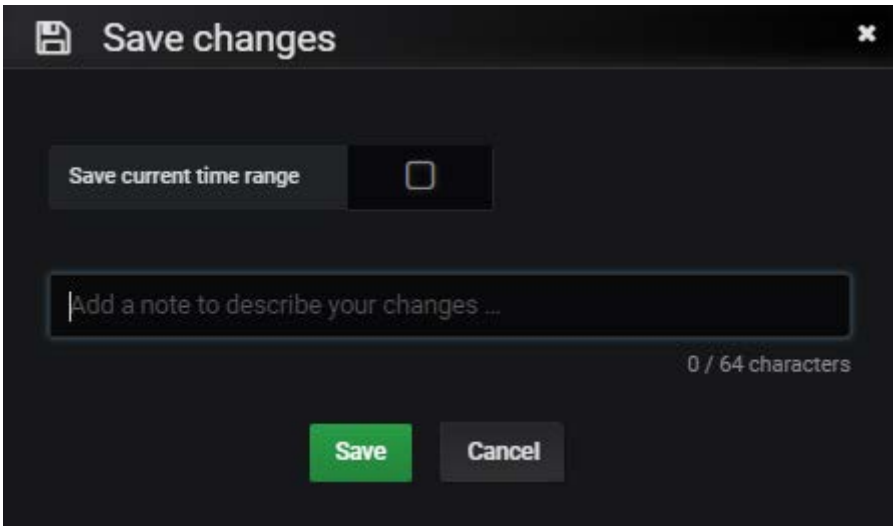


View JSON – user can see the JSON file from the dashboard and easily copy paste the code.



SAVE DASHBOARD

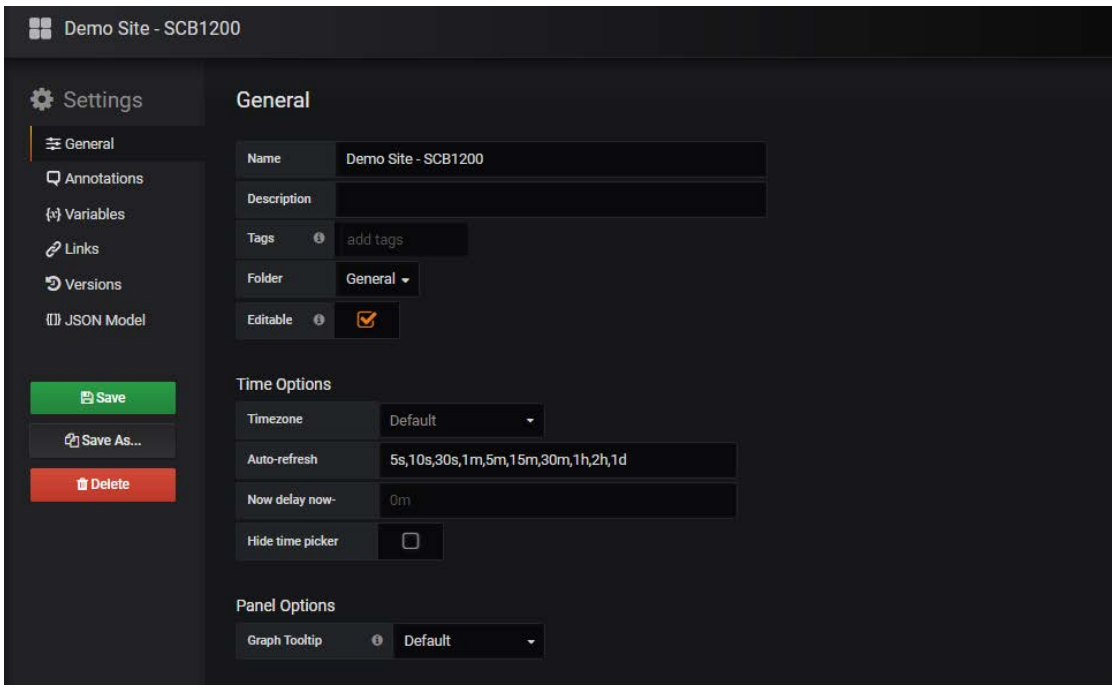
Clicks save to keep the current dashboard configuration. User can put a name or without a name to save the configuration**.**



SETTING

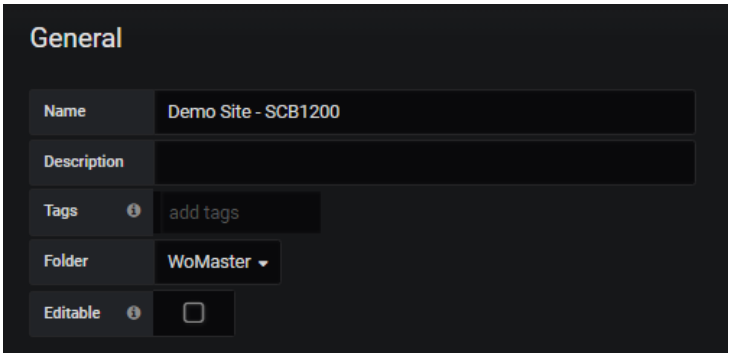
This setting page is used to configure all of the dashboard interface and general setting. It consists of several sections:

- General – In this section user can set the dashboard name and description and also user can move the dashboard to the specific folder.



Make the Dashboard cannot be edited.

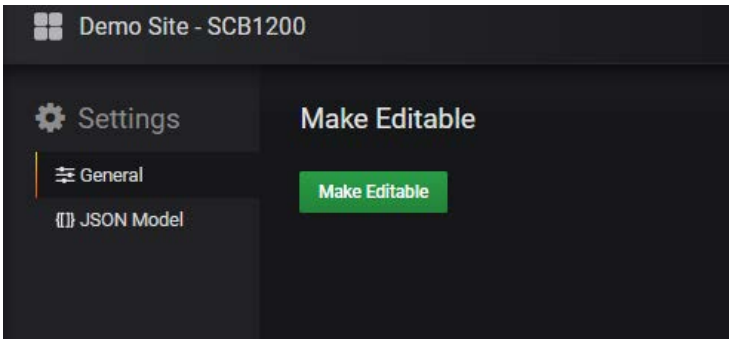
Besides, user can make the dashboard cannot be edited by unchecking the **Editable** option.



After that user needs to save the configuration then reload the dashboard. User will see the dashboard cannot be edited.

Editable Dashboard

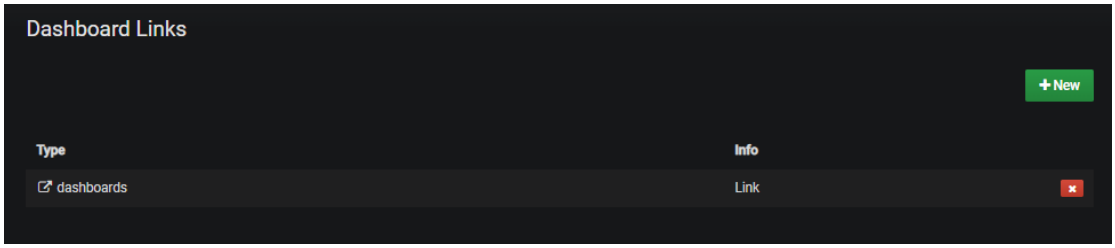
To make the dashboard editable then go to the setting page click Make Editable, save the configuration and reload the dashboard.



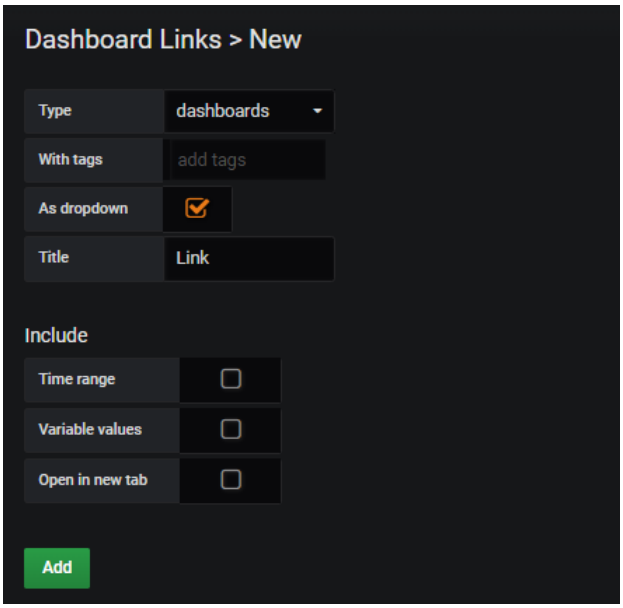
- Annotations – Annotations provide a way to mark points on the graph with rich events. User can press CTRL + Click on the graph.

- Variables - Variables enable more interactive and dynamic dashboards. Instead of hard-coding things like server or sensor names in your metric queries you can use variables in their place. Variables are shown as dropdown select boxes at the top of the dashboard. These dropdowns make it easy to change the data being displayed in your dashboard.

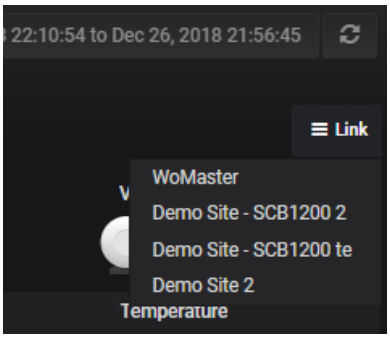
- Links - Dashboard Links allow user to place links to other dashboards and web sites directly in below the dashboard header.



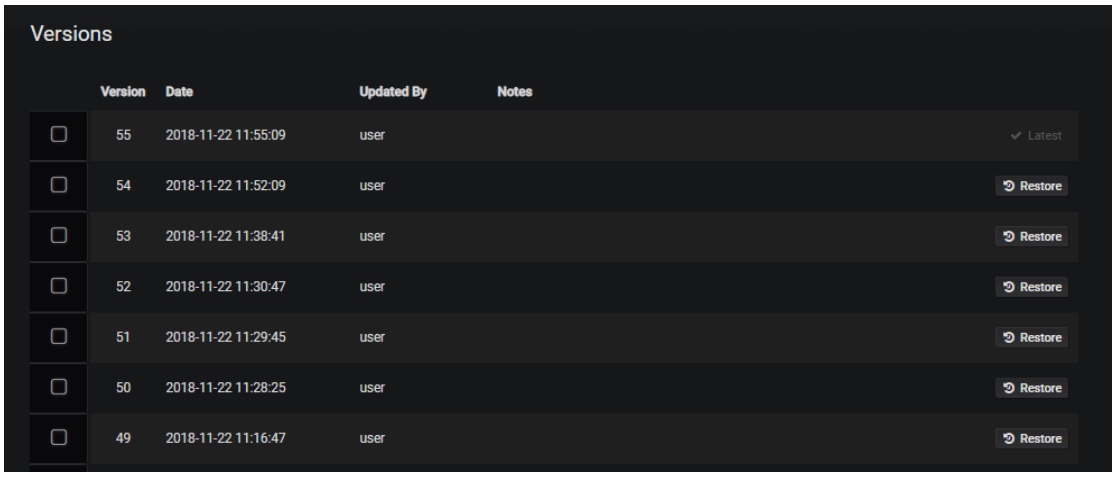
Click New to add the link



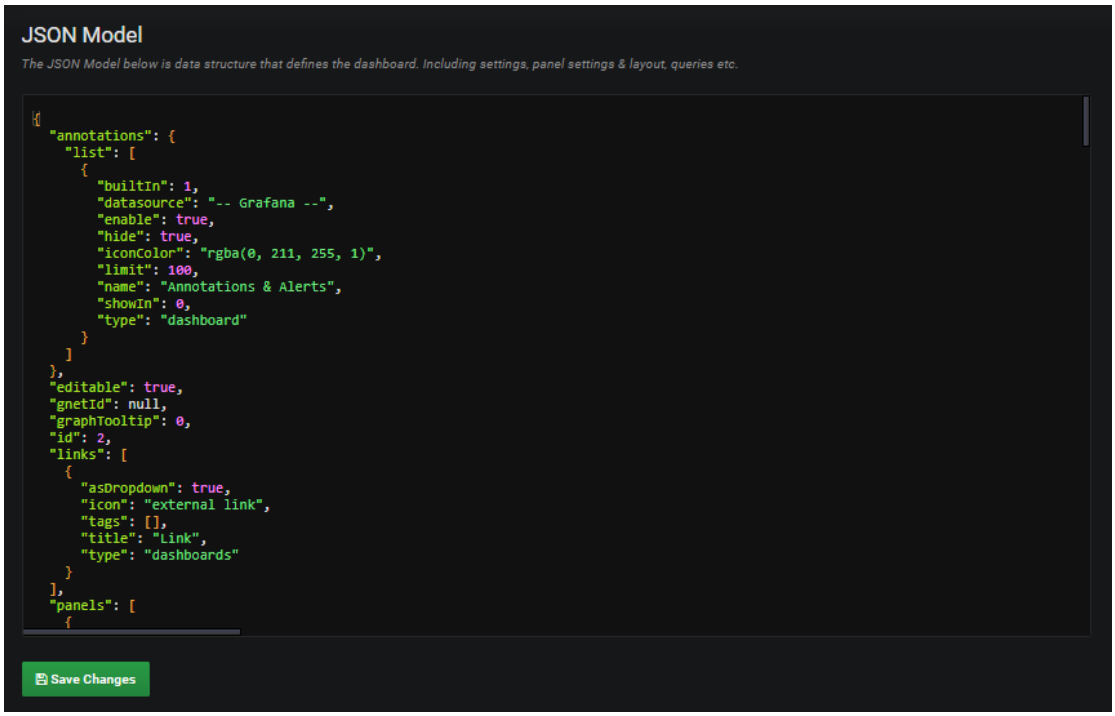
After click Add then go to the dashboard, user will see at the top right side of the dashboard a button appear.



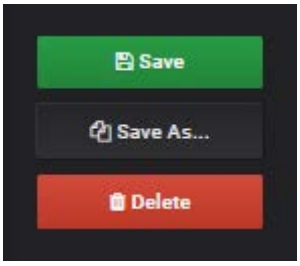
- Versions – Shows the ThingsMaster activity history by the user.



- JSON Model – shows the current JSON code from the current dashboard. User can edit the JSON file.



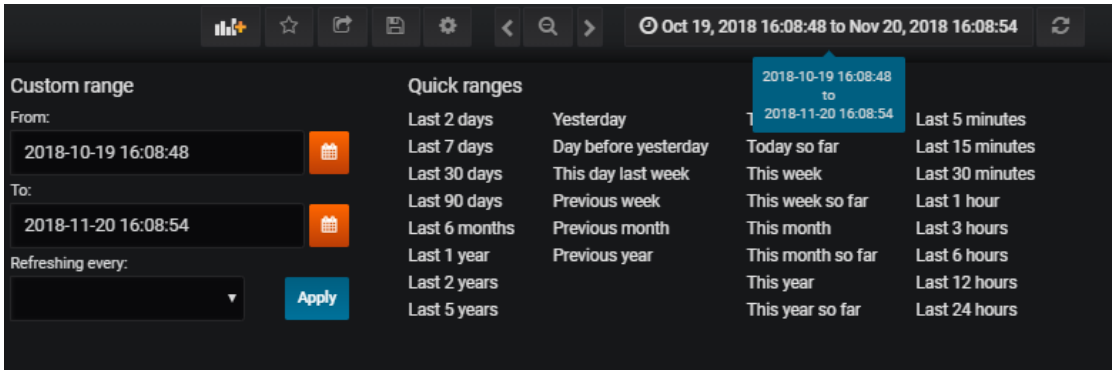
- **Save, Save As, and Delete –** to save the configuration and delete the dashboard.



TIME RANGE PANEL

By using this panel user can check the data from the dashboard based on the time range.

At the right side it has refresh button to refresh the ThingsMaster data.

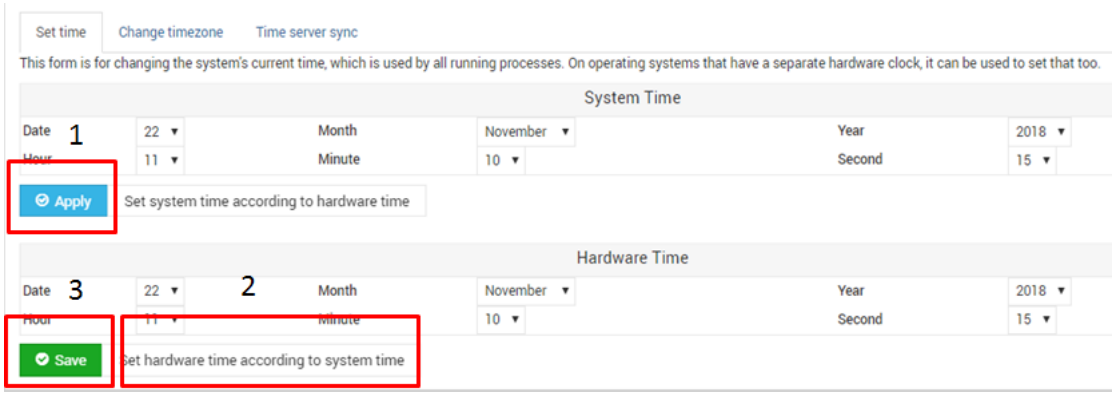


If the data doesn't appear, please check the Webmin setting to synchronize the time or the web GUI setting (please refer to the Demo Box SCB QIG).

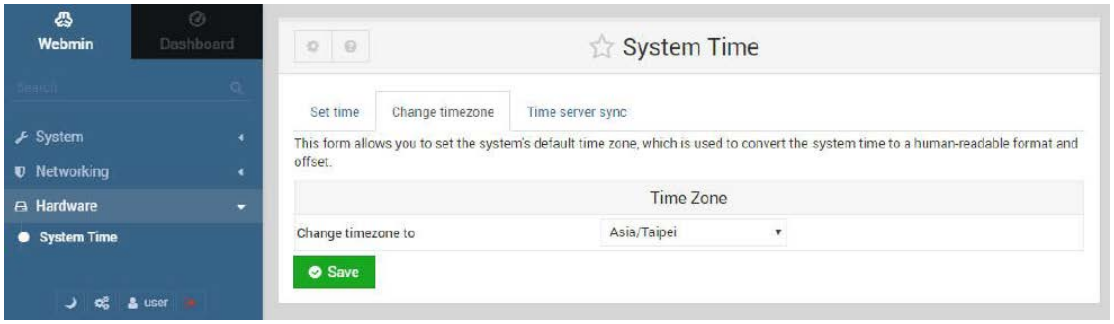
Configure Date & Time of the ThingsMaster Virtual Machine.

Please adjust the time and change time zone of the VM first. User can configure it from the Webmin interface. Go to **Hardware -> System Time -> Set Time (set the time here) -> Change Time Zone**

Set the System time according to the hardware.

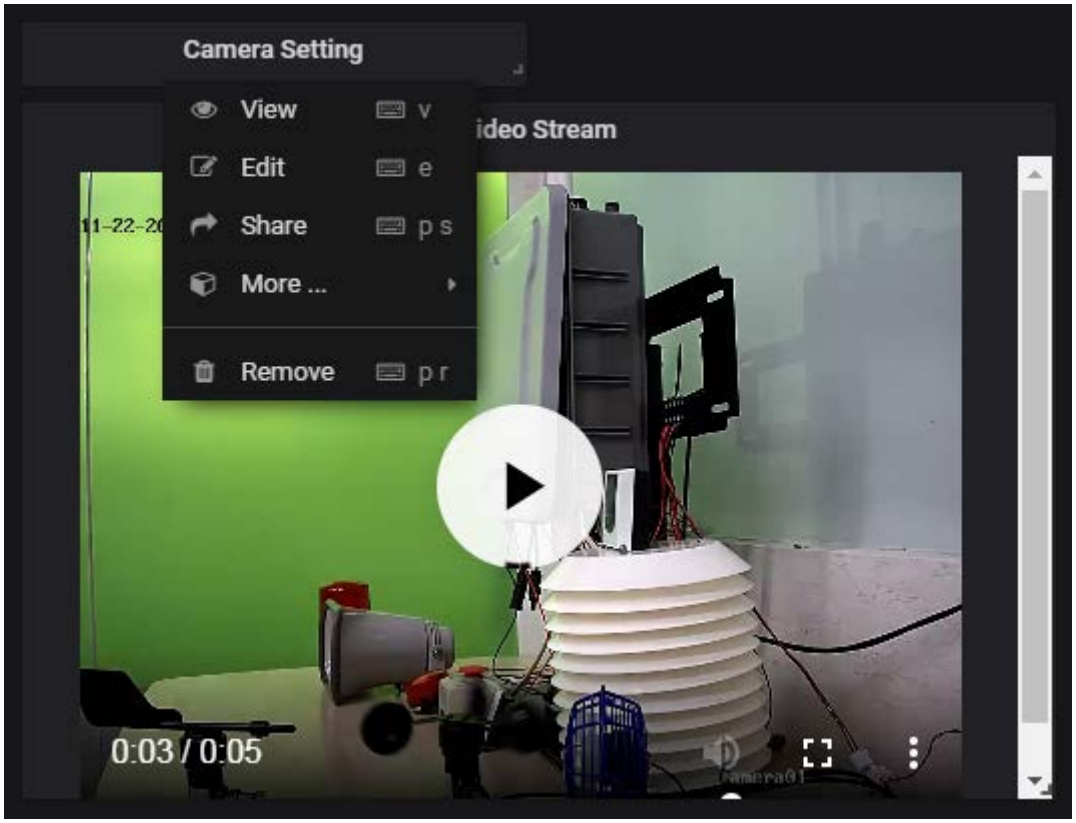


Change the time zone to current user's time zone.



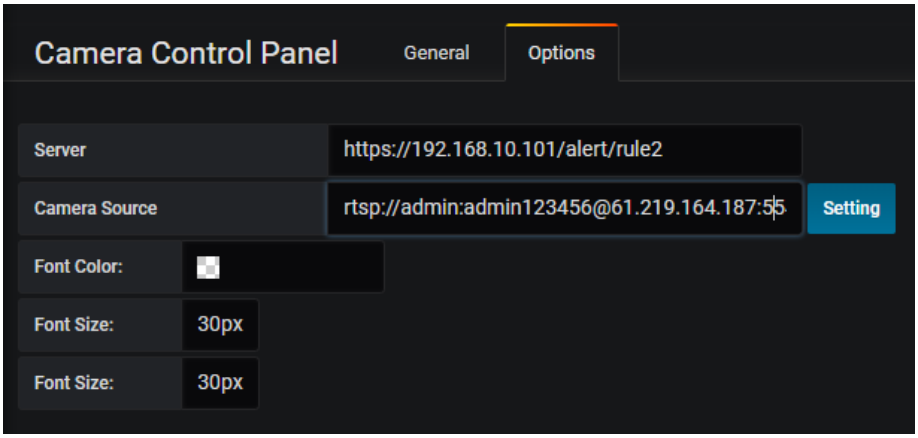
3.4 CAMERA, CO2 ALARM, VOIP, AND GRAPH CONFIGURATION

IP CAMERA



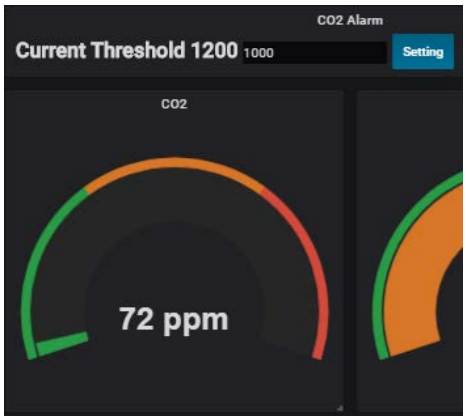
Go to **Camera Setting -> Edit.**

- In case if user has the same username and password for the IP Camera then, user just needs to change the Camera Source from "rtsp://**admin:hk888888@192.168.10.102**:554" -> rtsp://**admin:hk888888@xxx.xxx.xxx.xxx**:554
- In case user has different username, password and IP Address user needs to change all of it rtsp://**"username":"password"@"IP Address"**:554
- In case user has different server IP Address, then user needs to change the server IP Address. Server: "**https://192.168.10.101/alert/rule2**" -> "**https://xxx.xxx.xxx.xxx/alert/rule2**"



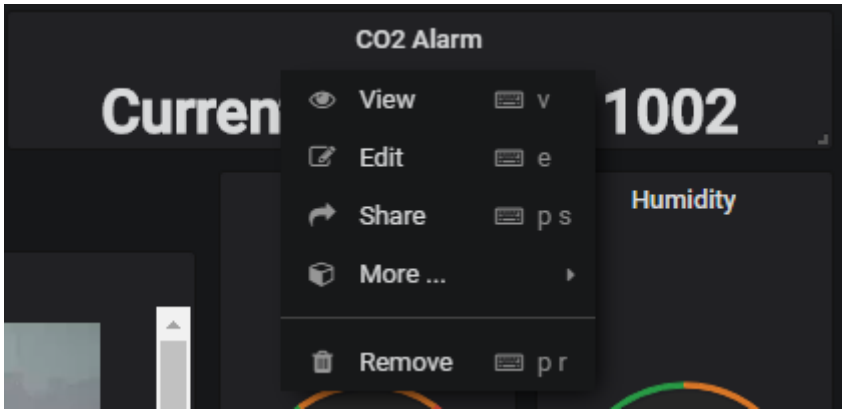
CO2 ALARM THRESHOLD

This CO2 Alarm threshold is related with the CO2 Sensor, whenever the value of the CO2 is over the threshold that we have been set up, it will trigger the alarm or the relay output.

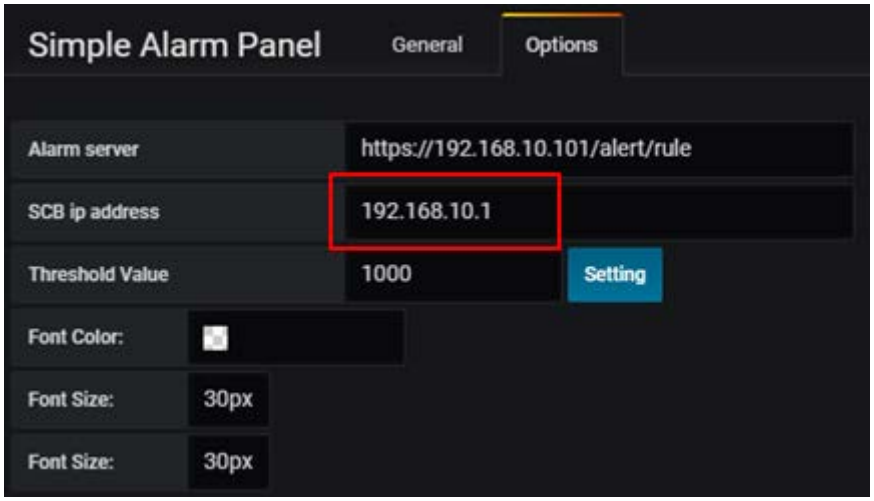


User can configure the value, the maximum number is 2000 and the default value is 1200.

Important please make sure user sets up the SCB IP Address, in case user has several dashboard. **Go to CO2 Alarm dropdown list -> Edit.**



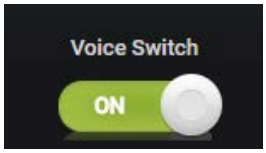
Change the SCB IP address, to make sure if dashboard belongs to which SCB. So every time user set the threshold it will affect the correct dashboard.



VOIP

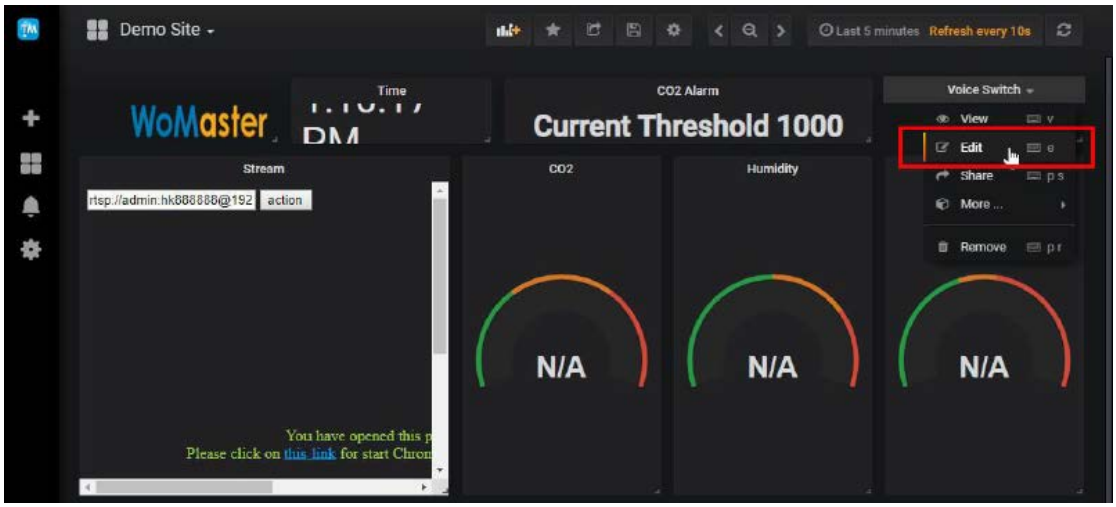
Test the Audio/VOIP

The ThingsMaster dashboard provides the Voice Switch button. To activate the VOIP feature please switch the ON/OFF button.



Audio/VoIP configuration: modify the IP address of the Device & ThingsMaster.

Set the value from the Voice Switch setting panel. Click the drop down list -> Click Edit.



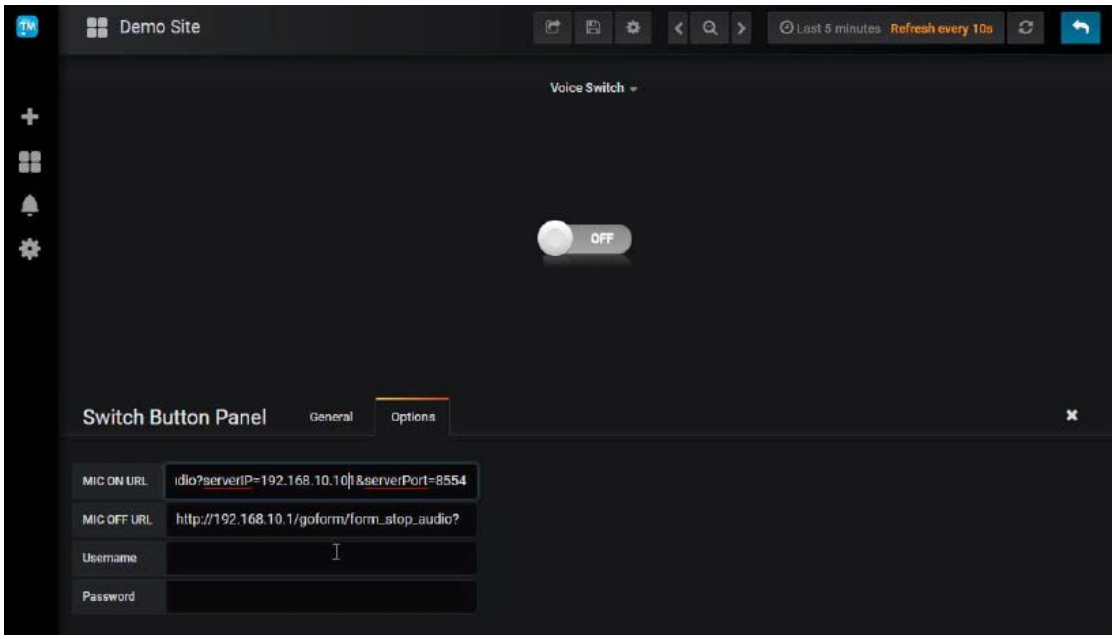
Set the value of Device IP based on the IP Address of the router or the Smart City Box.

MIC ON URL:

http://DEVICE_IP/goform/form_play_audio?serverIP=SERVER_IP&serverPort=8554

MIC OFF URL:

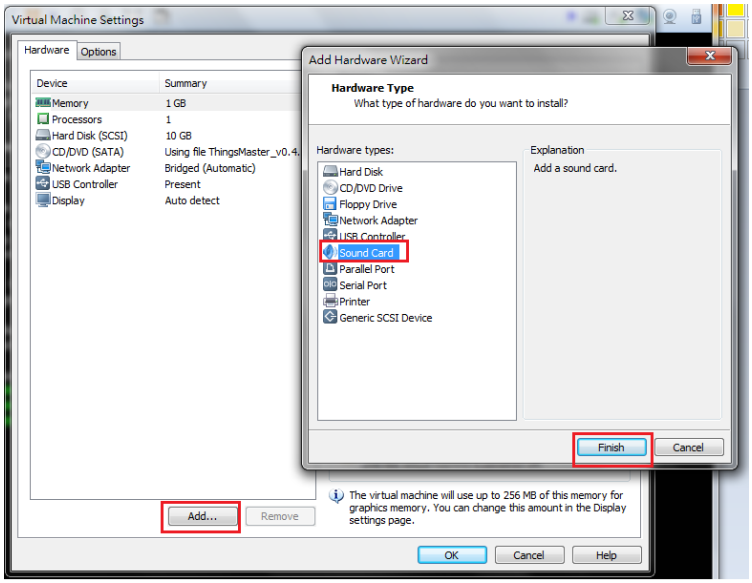
http://DEVICE_IP/goform/form_stop_audio?



Add the SoundCard hardware to Virtual Machine configuration.

Because the default setting does not include the SoundCard hardware, then user need to add it. Add the soundcard hardware, so user can use any kind of microphones to make a sound through the Voice Switch feature.

Hardware Tab -> Click Add button -> Choose SoundCard -> finish.



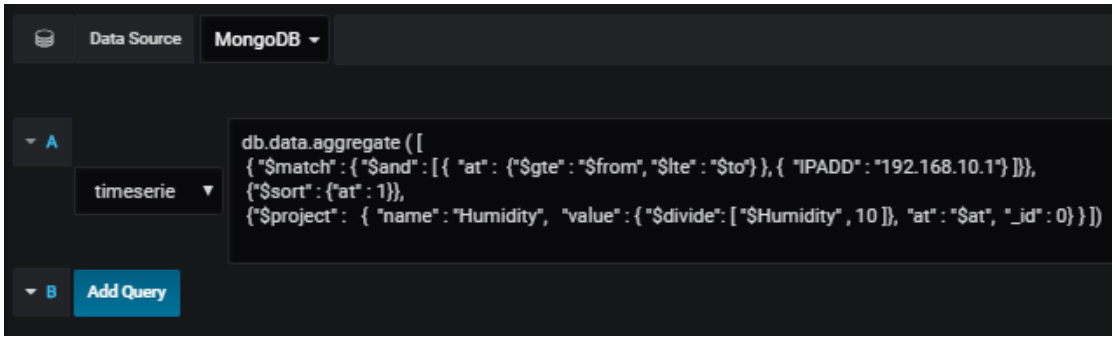
After user added the Sound Card hardware, please restart the Virtual Machine.

GRAPH VISUALIZATION

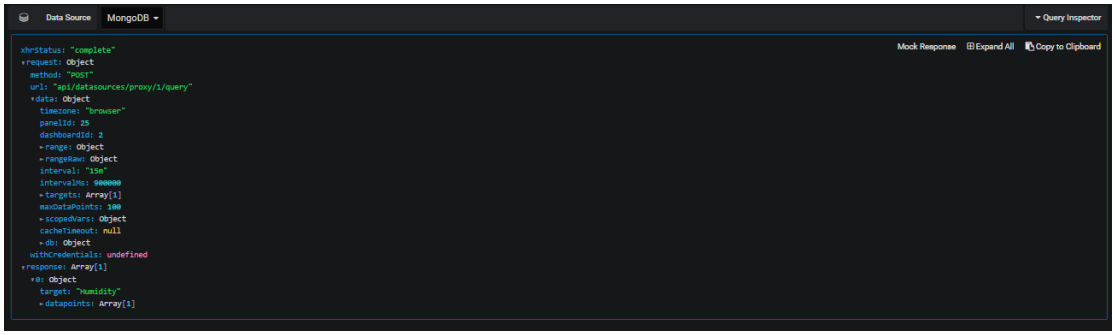
In every sensor visualization, such as CO2, PM2.5, PM10, Temperature, Humidity, Wind Speed, Wind Direction, Air pollution, and etc.. All of the visualization user can decide it by themselves; user can choose the singlestat or the graph based on the needs. (Refer to the Add Panel). Clicks the dropdown list -> Edit.

Singlestat

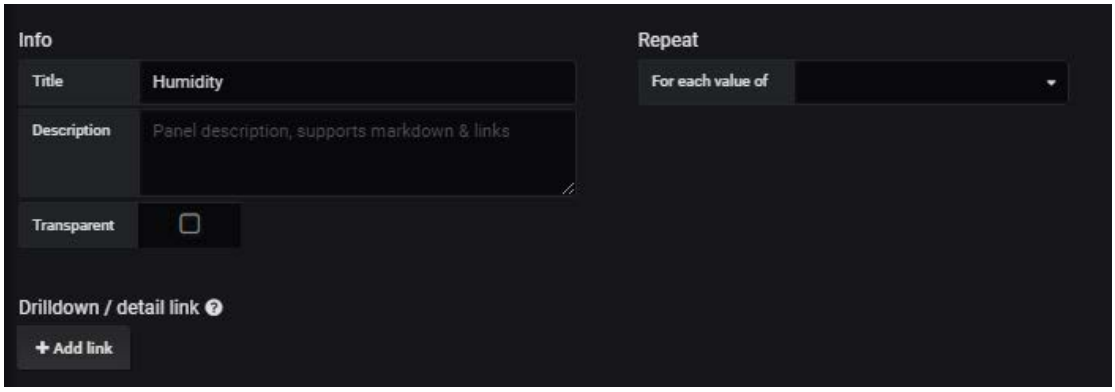
In ThingsMaster, there are 3 major tab menus here General, Metrics, and Option. **To add more data please refer to Add Panel section.**



User can check the query by clicking the query inspector.

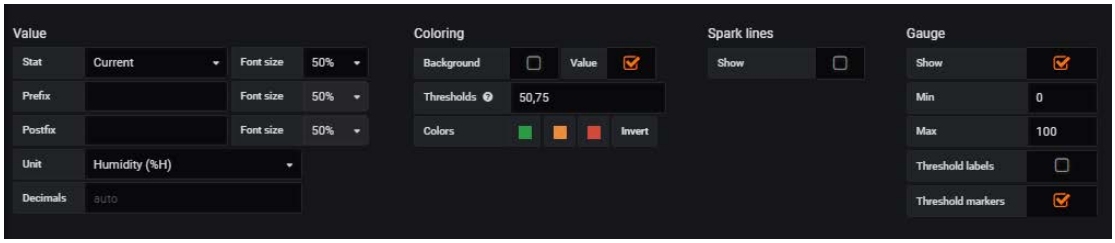


General – in this section user can put the singlestat title and write a description.

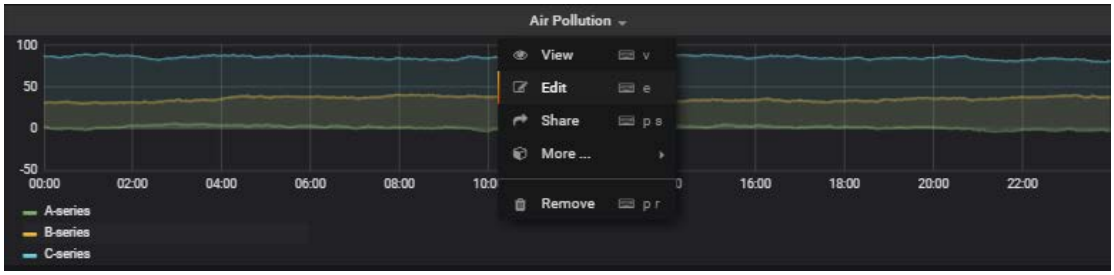


Metrics – this section provides the data source that needs to be visualized on the singlestat. User can choose the data source from the dropdown list, for testing the data user can choose the data source from the list and it will show random value for the singlestat. (Refer to Add Panel for more information)

Option – this section provides the configuration for the singlestat interface (Value setting, Coloring, Spark lines and Gauge setting). User can set up the value and the unit for the value in this section.

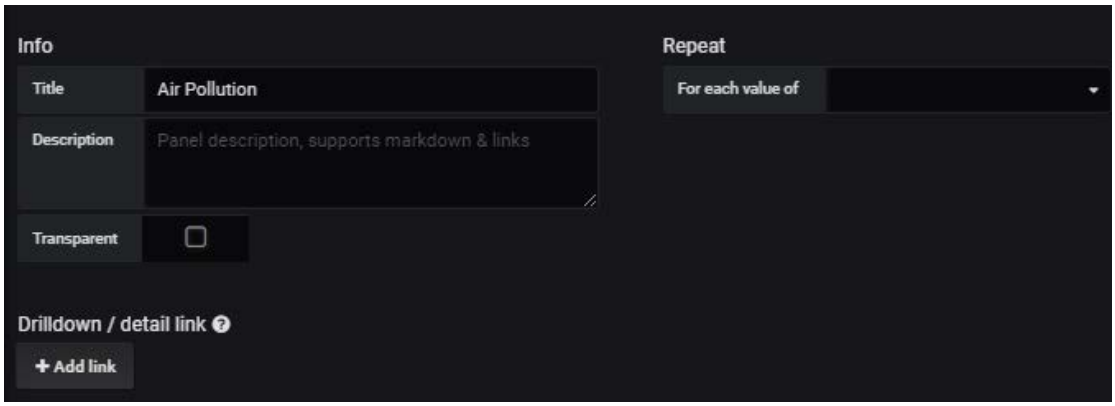


Graph



There are several configuration sections for this graph, general, metrics, axes, legend, and display.

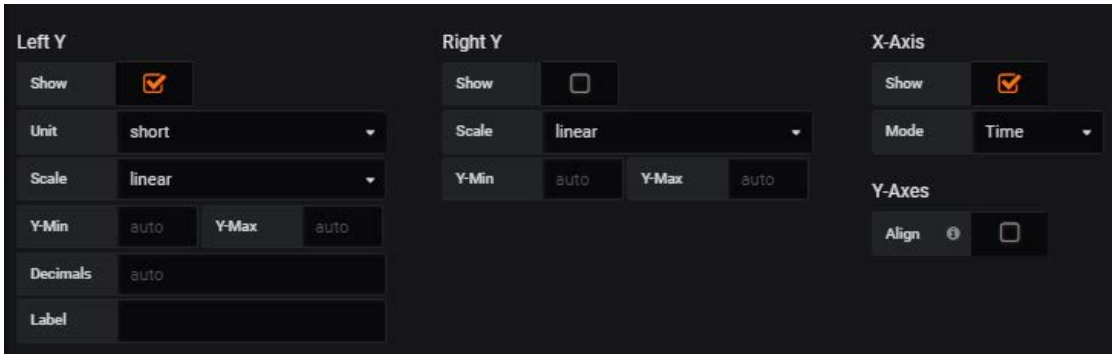
General – in this section user can put the graph title and write a description.



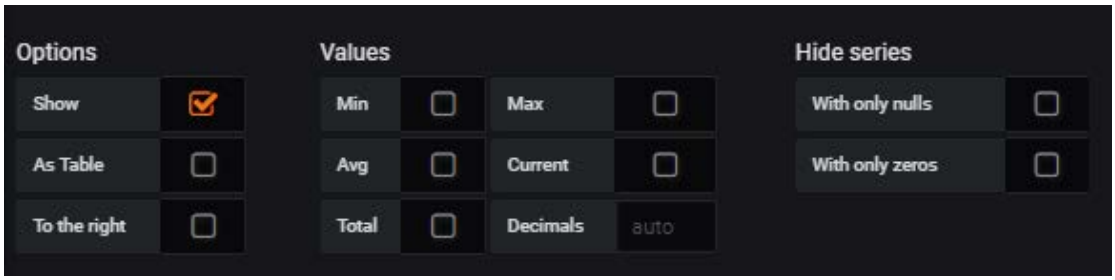
Metrics – this section provides the data source that needs to be visualized on the graph. User can choose the data source from the dropdown list, for testing the data user can choose the data source from the list and it will show random value for the graph. (Refer to Add Panel for more information).

User can put alias for each graph and this section allows user to duplicate and hide the graph. For Add query section please refer to the Add panel section.

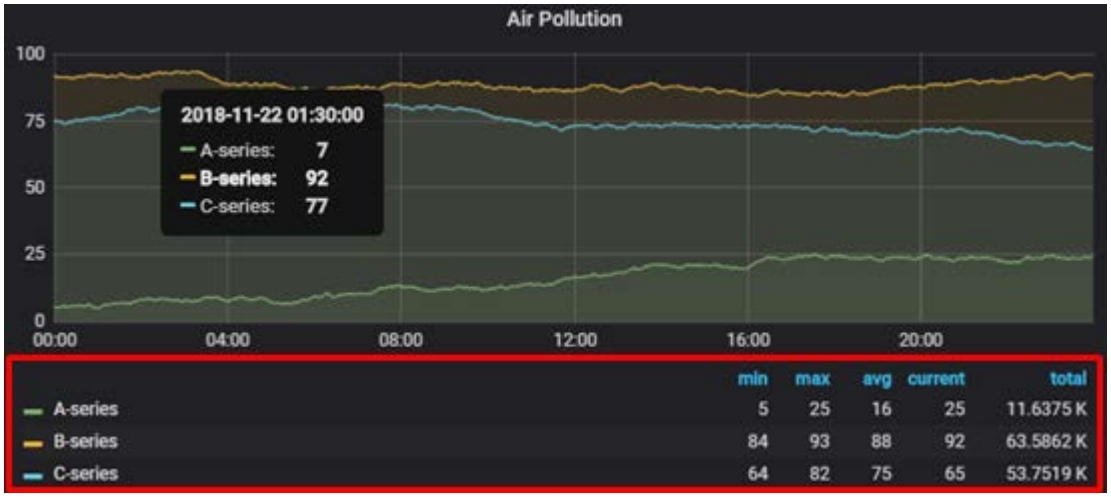
Axes – this section is used to configure the Y and X side of the graph. User can configure how they want to show the graph what value and what unit that needs to be showed.



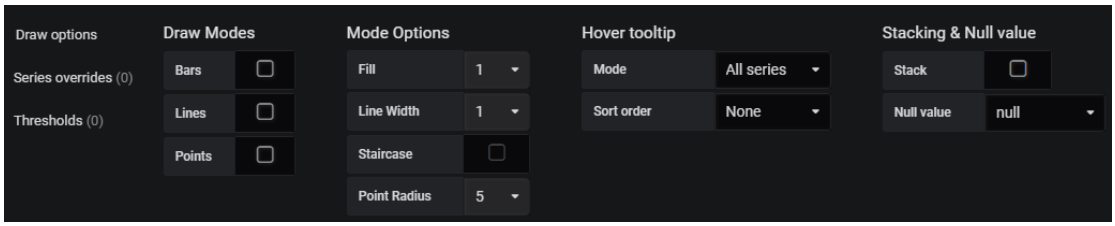
Legend – this section allows user to configure the legend for each graph. For what values that need to be shown, user can configure it here.



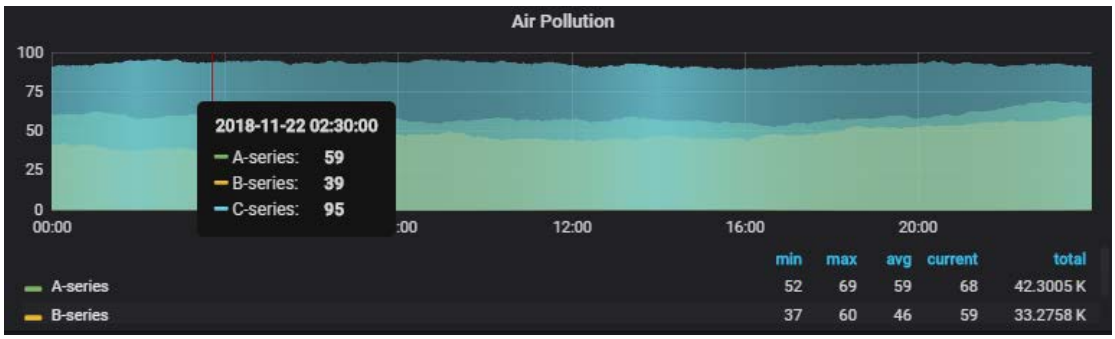
This configuration is related with the legend below the graph.



Display – it allows user to configure the graph interface. In this section user can configure the draw option, thresholds and the series overrides.



The configuration is related with the graph style. Below is the bars draw modes.



VERSION CONTROL

Version	Modification	By	Date
V1.0	Released (This User Manual belongs to ThingsMaster V1.5)	Yohan	29/11/2018