BRTSys

IoT Portal

Sense | Monitor | Control

USER GUIDE

Portal Web Application

(Release 2.3.0)

Document Version: 2.1

Issue Date: 2 1-10-2025

Table of Contents

1. About This Guide

This guide explains the usage of IoTPortal Web Application. **The screenshots used are for illustration purpose only**.

1.1 Intended Audience

The intended audience will be System Integrators, Technical / Administrative users who will assist in realizing the capabilities, functions, and the full benefits of the product.

1.2 Document References

Document Name	Document Type	Format
BRTSYS_AN_086_IoTPortal User Guide – Introduction	Application Note/ User Guide	PDF
BRTSYS_AN_088_IoTPortal User Guide – Android Mobile App		
BRTSYS_AN_089_IoTPortal User Guide – iOS Mobile App		
BRTSYS_AN_091_IoTPortal - LoRaWAN Getting Started Guide		

1.3 What's New in IoTPortal 2.3.0?

- Support for LoRaWAN node devices
- Improvements in energy and water consumption charts

1.4 Known Issues and Limitations

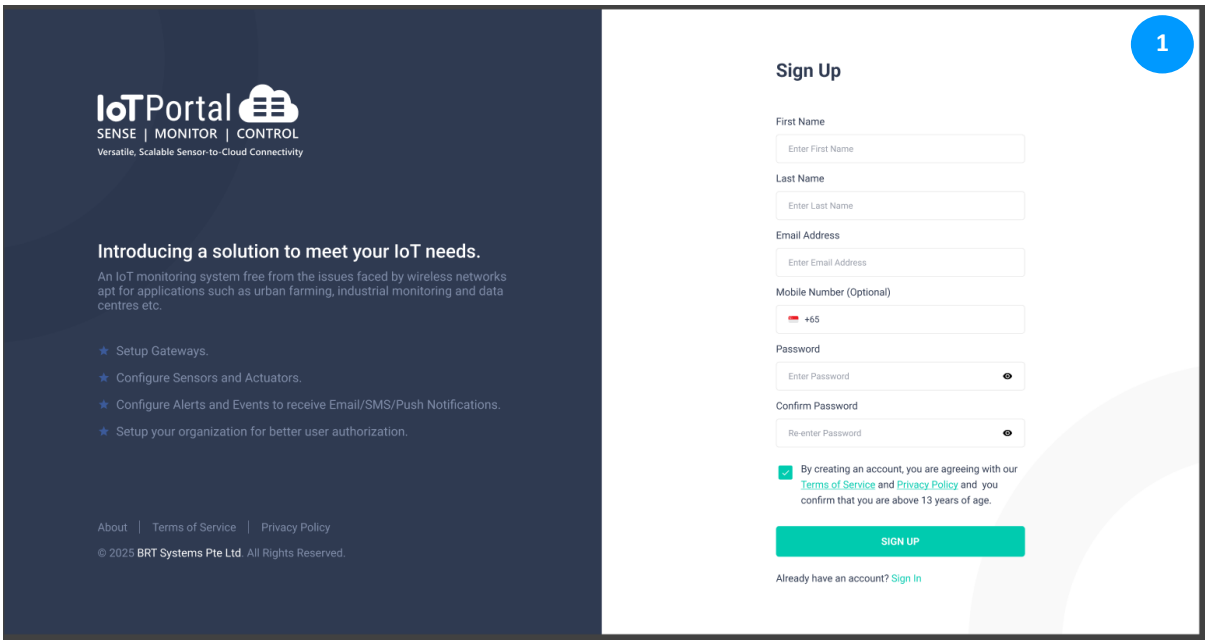
NA

2. Registration

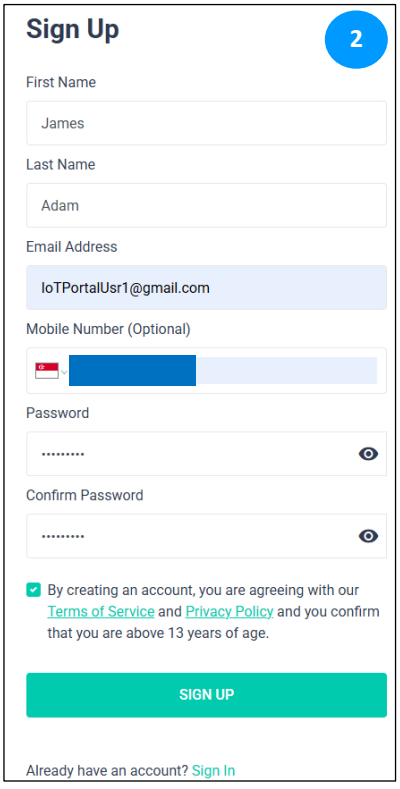
The IoTPortal Web Application is a browser-based GUI application that serves as a one-stop management tool, enabling administrators to configure and manage dashboards, Gateways, Events, Notification and Subscriptions. Open any supported web browser *(Chrome / Mozilla Firefox)* and enter the URL, for example - https://www.iotportal.com.

2.1 IoTPortal Account Sign Up

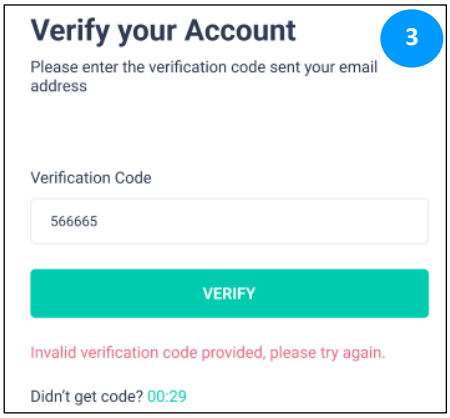
1. Access the IoTPortal website – https://www.iotportal.com/.

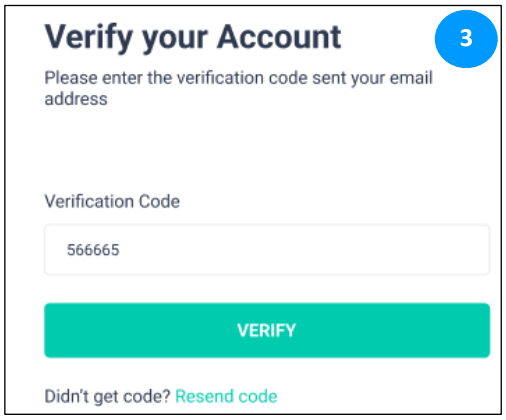


2. Sign up for a new account or sign in with an existing account. New users must review the *Terms of Service & Privacy Policy* and accept them by ticking the checkbox.



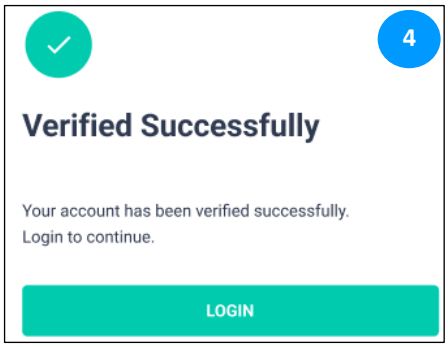
3. Enter the **Verification Code** sent to the registered email address and click **[VERIFY]**.





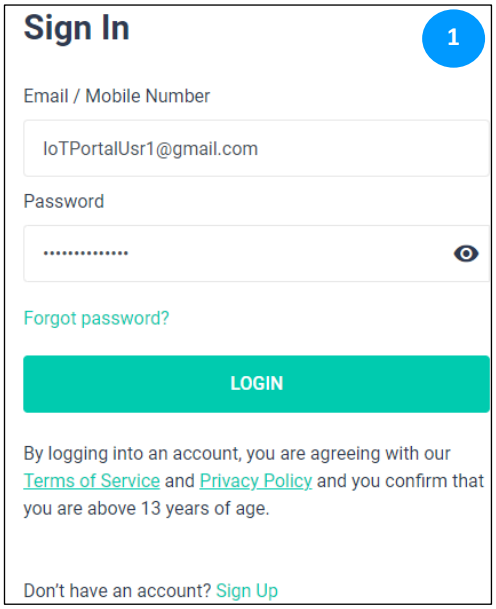
If the session timeouts, click the [Resend code] button to receive a new code.

4. Upon successful verification, click **[LOGIN]**.

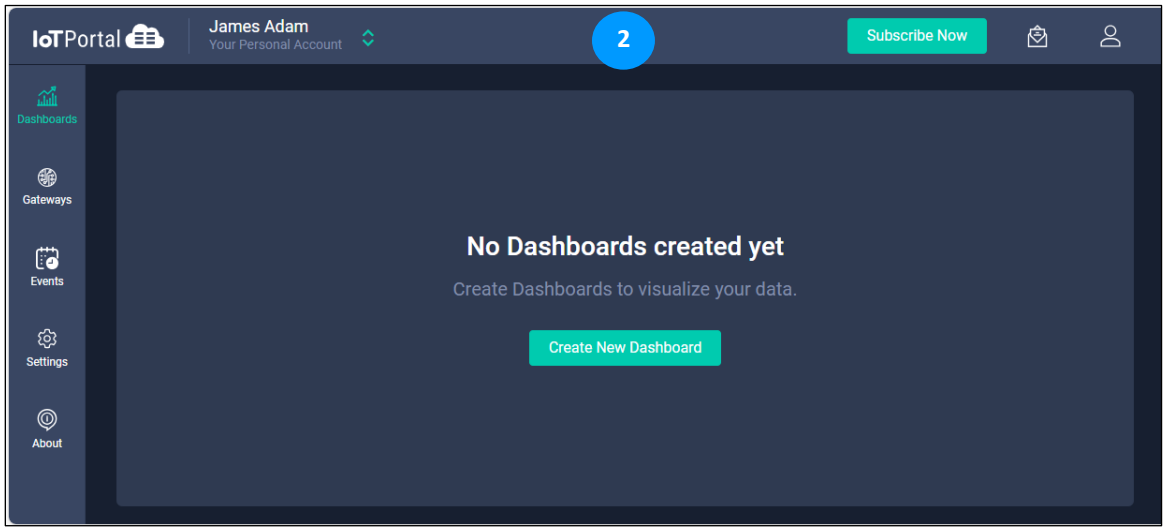


2.2 Sign In

1. Enter the *Email Id/Mobile Number* & *Password*.

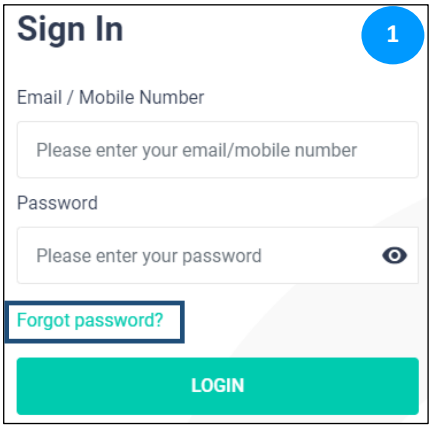


2. Click **[LOGIN].** Upon successfully logging in, Web Management Console user interface is displayed with an empty Dashboard.

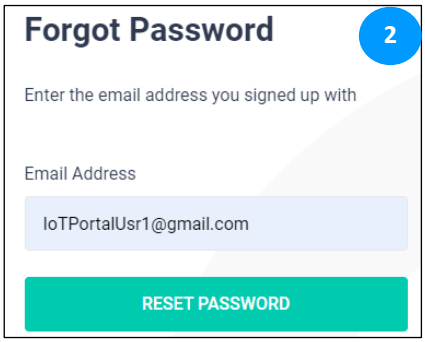


2.3 Forgot Password

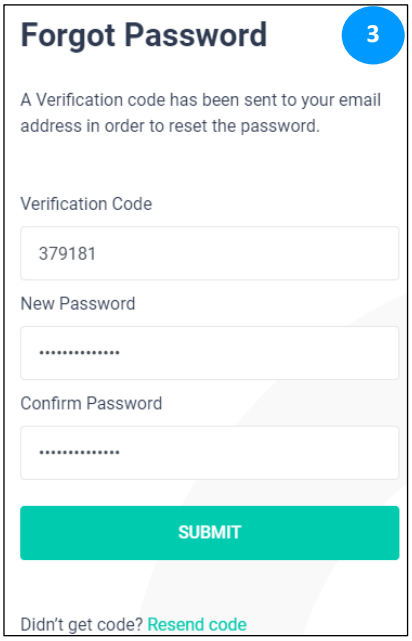
1. Click **Forgot Password** link.



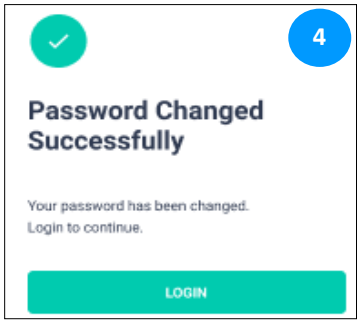
2. Enter the registered *Email Address* & click **[RESET PASSWORD].**



3. Enter the *Verification Code* (sent to your registered email); *New Password* and *Confirm Password*. Click **[Submit]**.

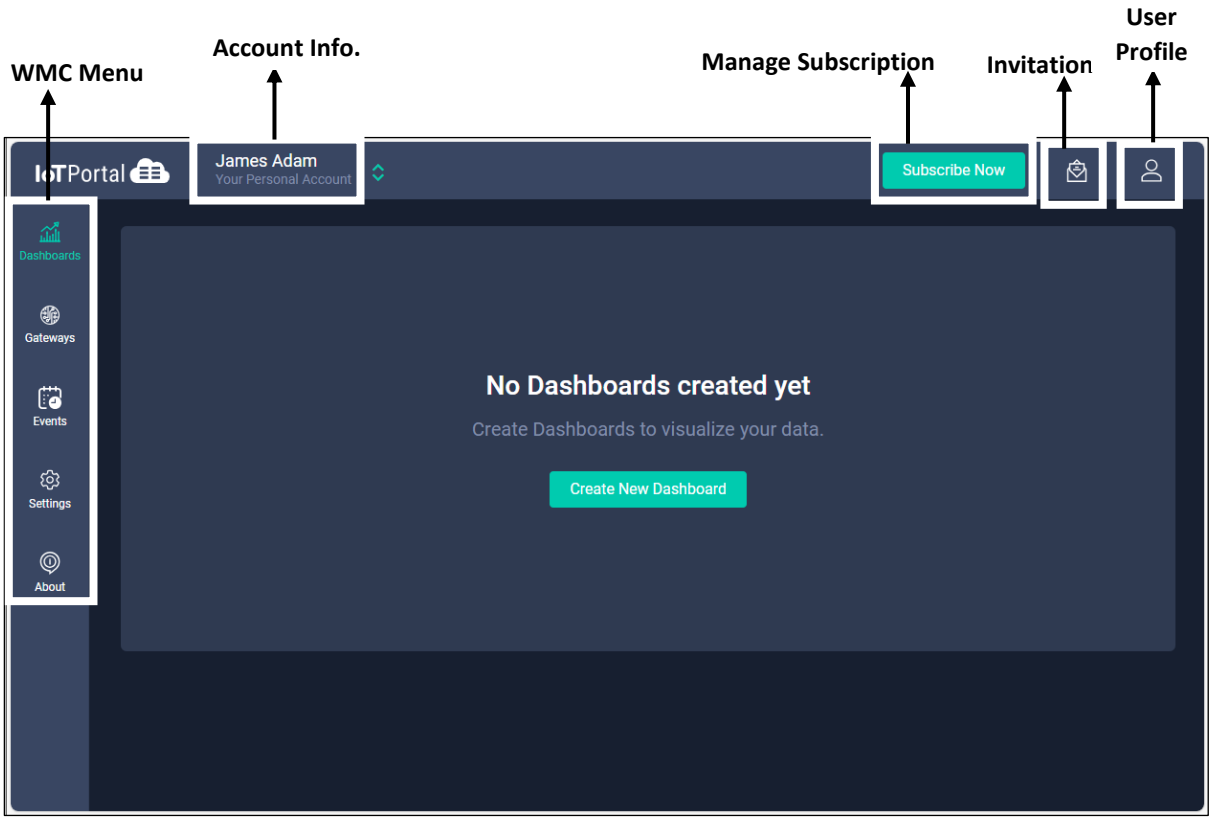


4. If successful, an appropriate message indicating the same is displayed.



NOTE:
"Attempt limit exceeded, please try after some time" – message is displayed if the user enters an invalid verification code more than 5 times. Please try again after 30 minutes.

3. GUI Overview



4. Menu Overview

The IoTPortal Web Management Console main menu is displayed on the left and can be extended by clicking on it to display the sub menus. The following table provides an overview of menu items and their functions.

Menu	Sub-menu	Functionality
Dashboards	-	→ *The dashboard function allows users to create dashboards for data visualization in real time. Users can create dashboards and add attributes for Gateways, Sensors (Temperature, Humidity, Ambient Light etc.), Actuators and Other Chart (Count of Events, Count of Email, SMS, Notification).*
Gateways	*All Gateways*	→ *View /Add/Edit/Delete/Search all Gateway Information*
	Gateway Groups	→ *View/Add/Edit/Delete/Search Gateway Groups*
	Standalone Gateways	→ *View/Add/Edit/Delete/Search Standalone Gateways*
Events	-	→ *View/Add/Edit/Delete/Search Events*
Organisation*		→ *View/Edit/Delete organisation*
Settings		→ *Manage API Access Keys*
About	-	→ *To view information pertaining to WMC version / Terms of Services / Privacy Statement / License*

Table 1 – IoTPortal / LoRaWAN Node Web Application Menu

***** This menu will be displayed only after adding an organisation.

Each menu/submenu/function will be discussed in detail in the following sections.

5. Gateway Registration

Gateway registration is the first step in using the WMC. It is the process by which a gateway announces its presence to the IoTPortal service, without which it cannot provide service. Registration is completed when the user adds the gateway to their account. This is a two-step process that involves both the user and the gateway.

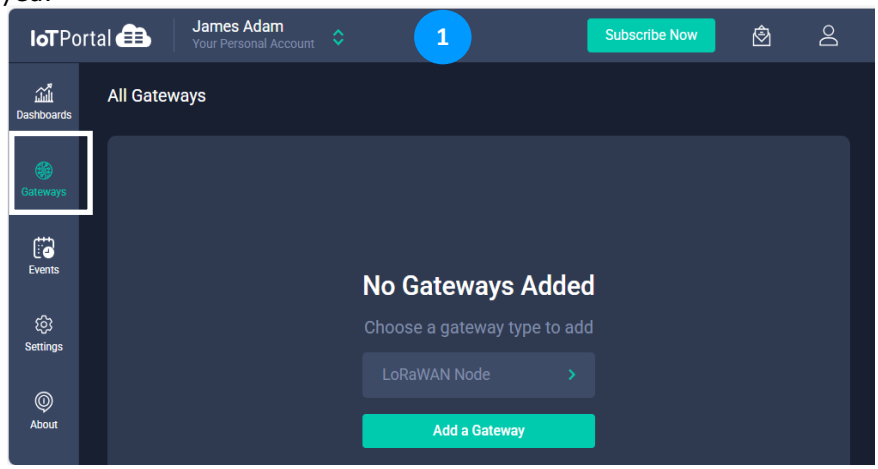
See sections 6 and 6.5 for details on adding an IoTPortal Gateway /LoRaWAN node, respectively.

6. Add Gateway

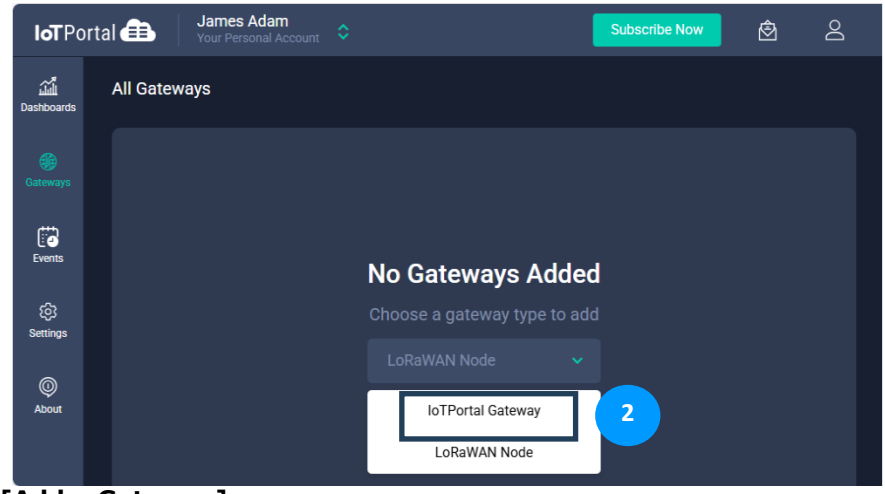
6.1 Register / Add IoTPortal Gateway

To register / add IoT Portal Gateway,

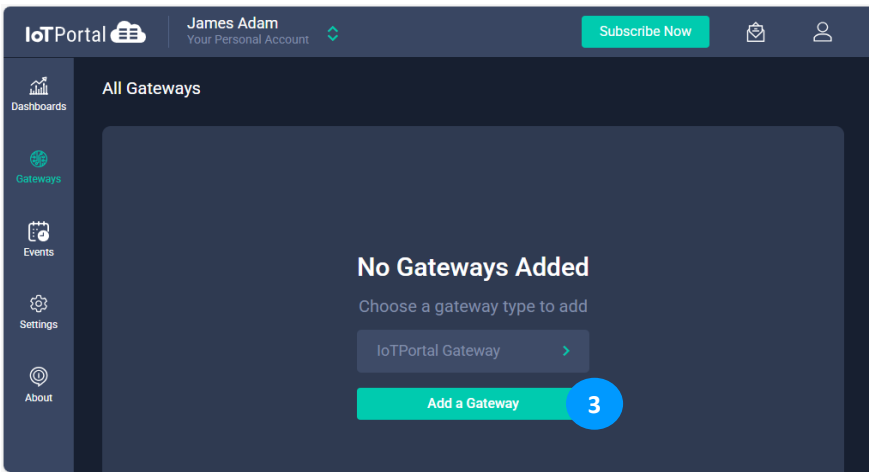
1. Click **Gateways** from the menu. For first time users, there will not be any connected Gateways displayed.



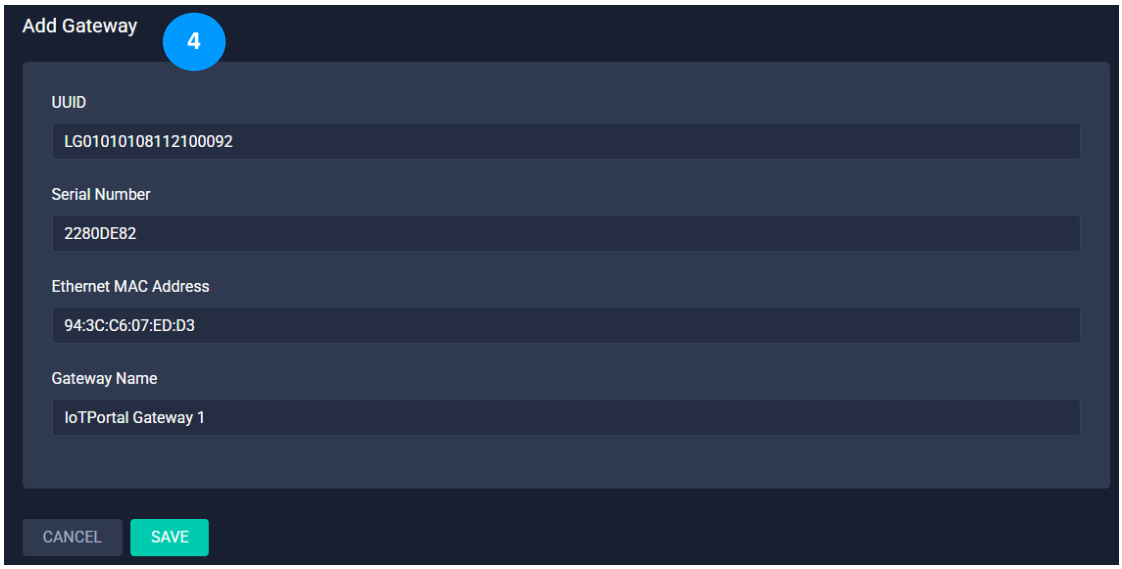
2. From the drop-down menu **>** select *IoTPortal Gateway*.



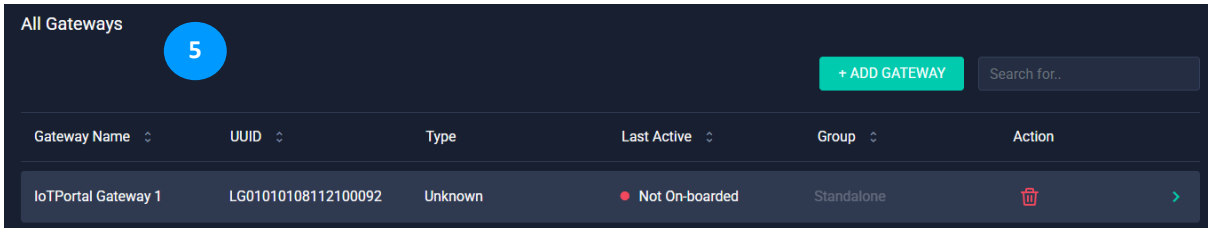
3. Click **[Add a Gateway]**.



4. Enter the *UUID, Serial Number (Product Key), MAC Address (ETH ID).* The Gateway details can be found on the label on the back of the device.
Enter the Gateway Name; Click **[SAVE]**.



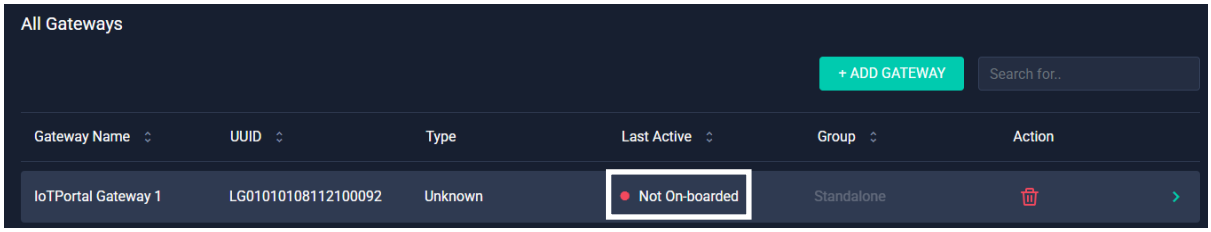
5. The newly added IoTPortal gateway is displayed as part of the table.



NOTE: At any point of time, if any error message is encountered, try adding the gateway again.

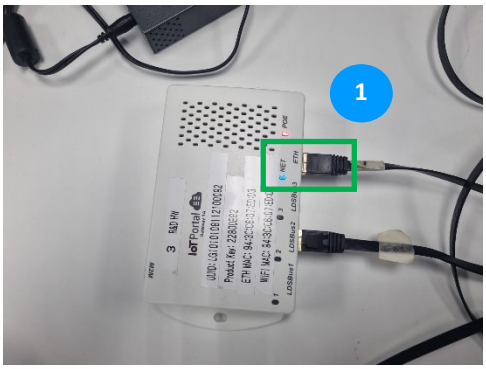
6.2 On-board IoTPortal Gateway

On-boarding is the process by which an IoTPortal gateway connects to the local network, and it is performed independently of the IoTPortal Cloud. Upon adding the gateway, user has to on-board the device before using it. The gateway that needs to be on-boarded is indicated with the Status – *"Not On-boarded" (RED Colour)*.

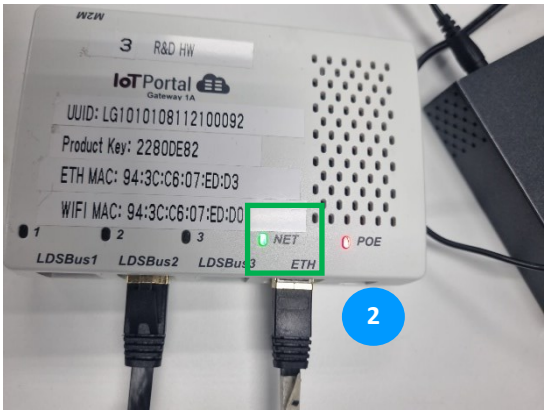


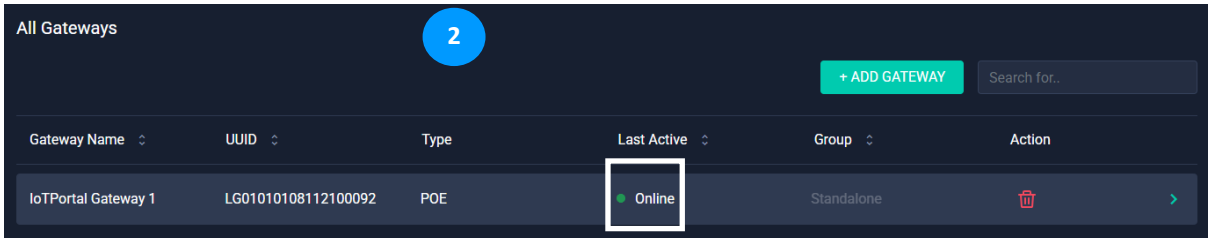
To on-board IoTPortal Gateway using Ethernet,

1. Connect the IoTPortal Gateway to an Ethernet Network. Connection verification will be in progress.



2. Upon successfully establishing connection, the IoTPortal gateway is on-boarded successfully and the Last Active status changes to *"Online"* (indicated with a GREEN colour).



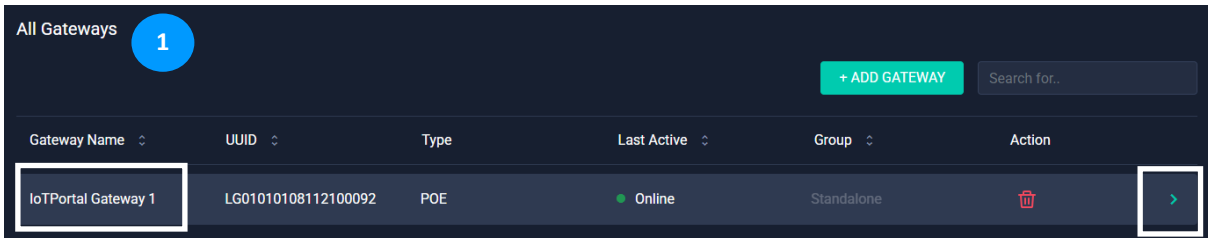


NOTE: The Web Management Console only supports "onboarding via ethernet" feature. Alternatively, users can onboard via Wi-Fi or Ethernet using the IoTPortal Mobile App.

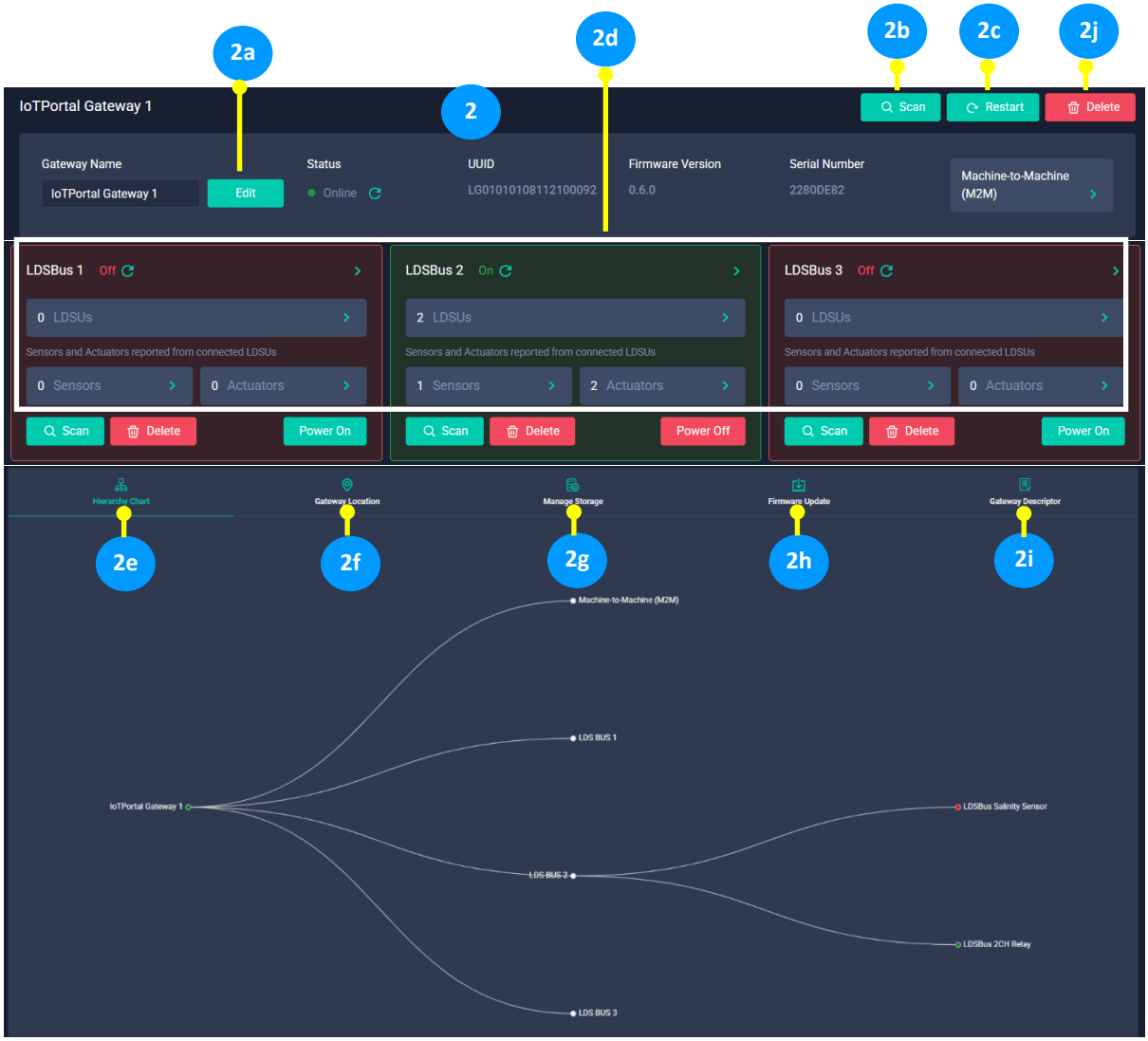
6.3 View IoTPortal Gateway Details

To view details of the gateway,

1. Click on the **Gateway name** or **>**.



2. The gateway details *(Gateway Name; Status; UUID; Firmware Version; Serial Number*) are displayed.



a. Click **[Edit]** to update the gateway name.
b. Click **[Scan]** to perform a gateway scan and discover the list LDSU devices connected to the gateway.
c. Click **[Restart]** to restart the gateway.
d. Click **[LDS BUS 1/2/3]** to manage LDSU devices connected to the respective ports.

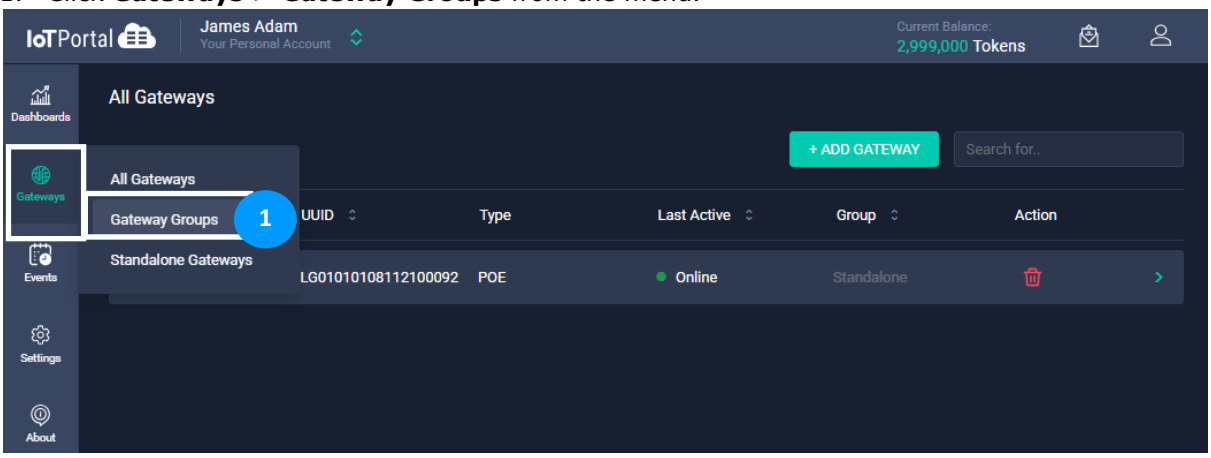
e. Click **[Hierarchy Chart]** function link to view the visual representation of the relationship between Gateway and its LDSBus devices.
f. Click **[Gateway Location]** function link to view/update the gateway location (based on your browser location).
g. Click **[Manage Storage]** function link to view / manage the storage space.
h. Click **[Firmware Update]** function link to update the firmware version for the selected gateway.
i. Click **[Gateway Descriptor]** function link to view the gateway descriptors.
j. Click **[Delete]** to delete/un-register gateway device.

6.4 Create New IoTPortal Gateway Group

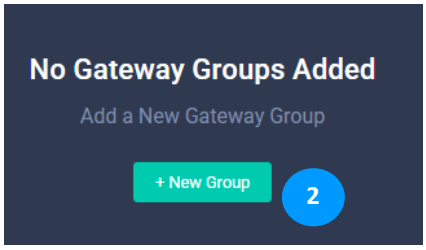
Gateways can be organized into groups to facilitate gateway administration. For example, firmware updates can be applied to all gateways in the group.

To create new gateway group –

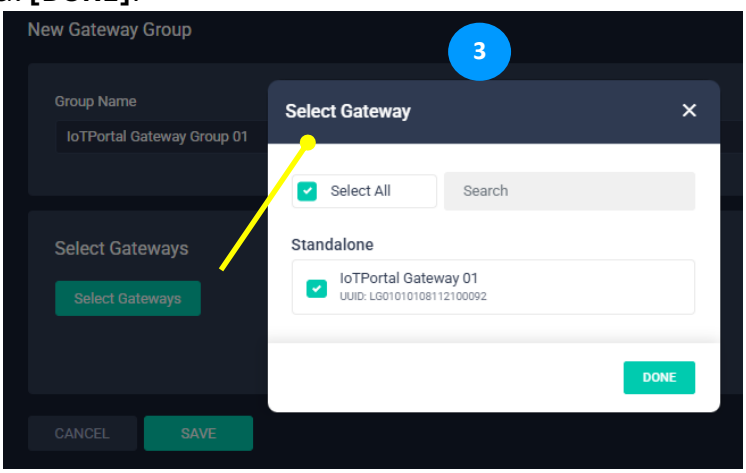
1. Click **Gateways > Gateway Groups** from the menu.



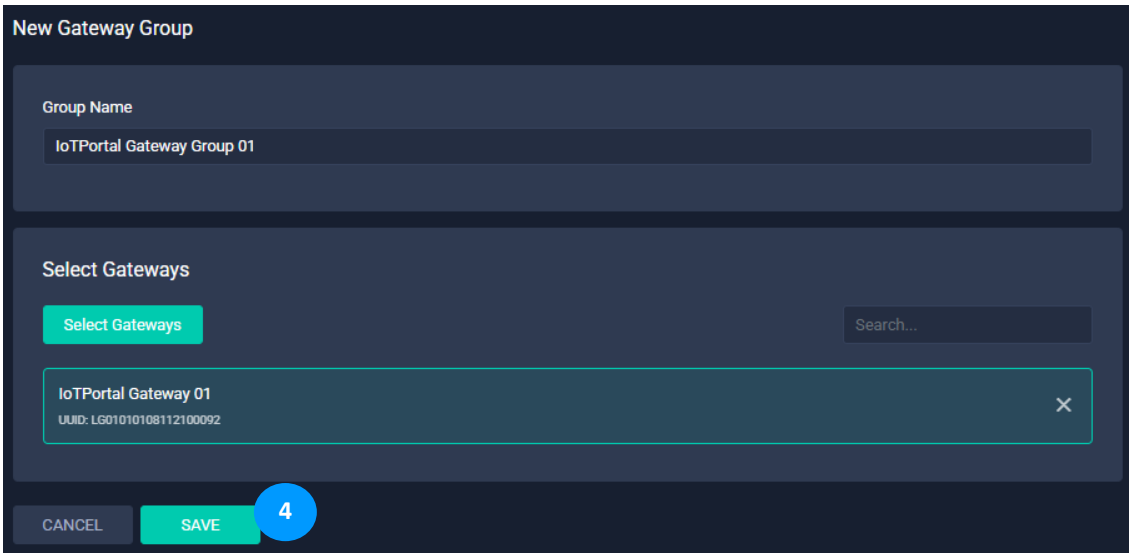
2. For first time users, there will not be any Gateway Groups displayed. Click **[+New Group]**.



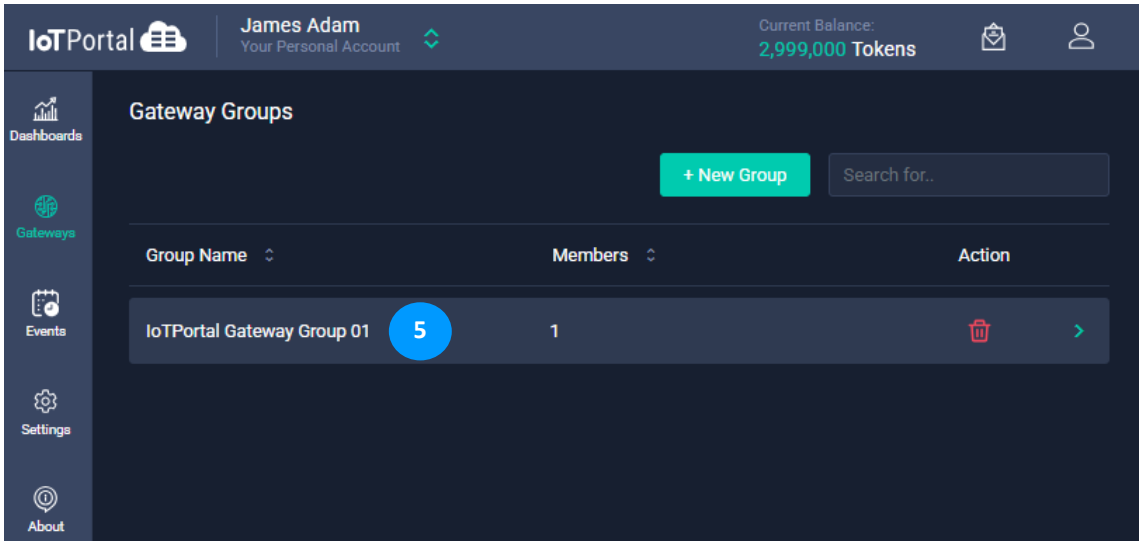
3. Enter a *Group Name;* Select the *member gateways* of this Gateway Group by clicking **[Select Gateways]**; Click **[DONE]**.



4. The selected gateway(s) are displayed. Click **[SAVE]**.



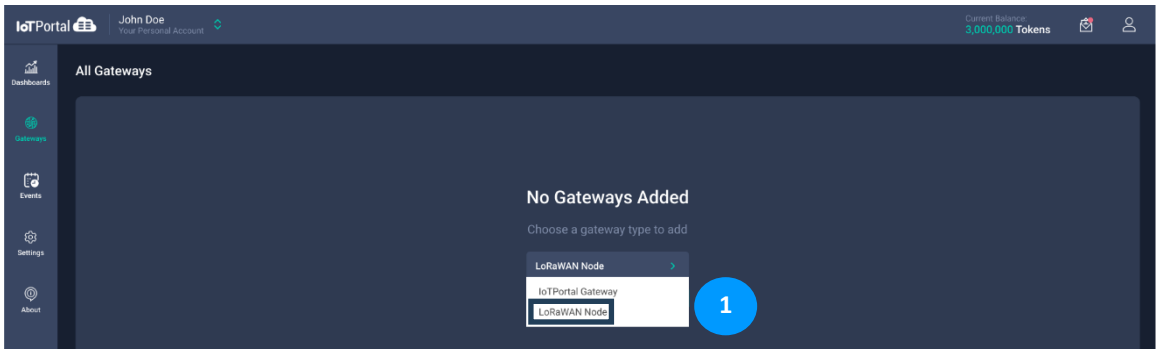
5. New Gateway Group is created successfully.



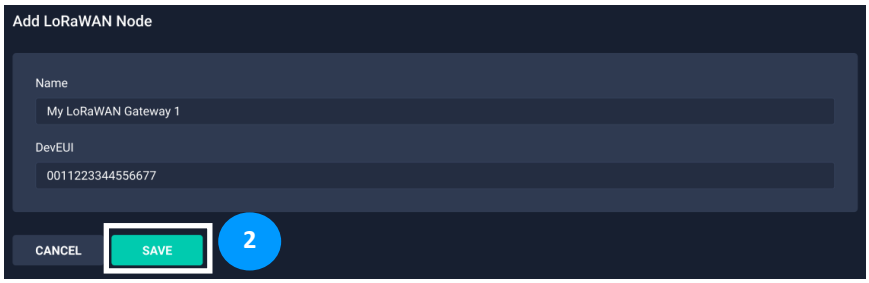
6.5 Add LoRaWAN Node

To register / add LoRaWAN node:

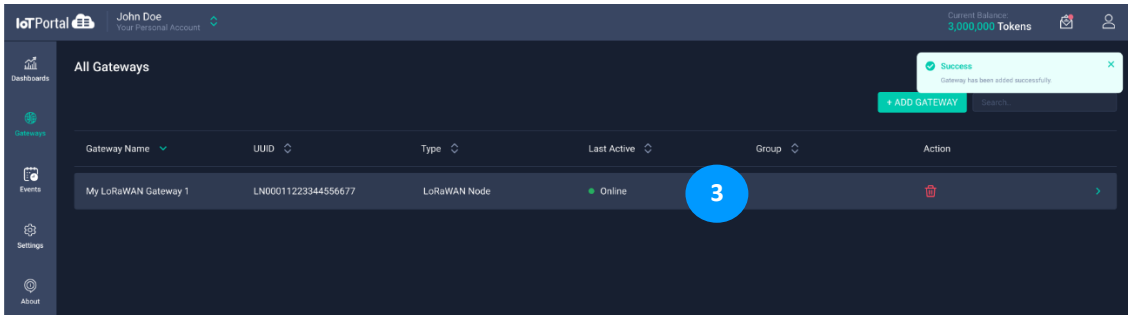
1. Click **Gateways** from the menu. From the drop-down menu, select *LoRaWAN Node*.



2. Enter the *DevEUI (Device Identifier)* and Gateway Name and Click **[SAVE]**.



3. The newly added LoRaWAN gateway is displayed. At any point of time, if any error message is encountered, try adding the gateway again.

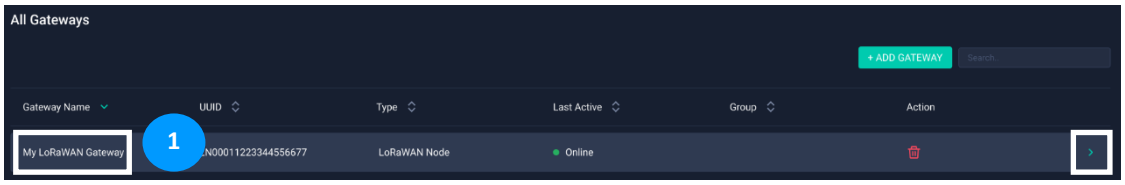


NOTE: Any reference to a LoRaWAN gateway in the sections below actually refers to a LoRaWAN node(i.e. LoRaWAN Modbus Bridge)

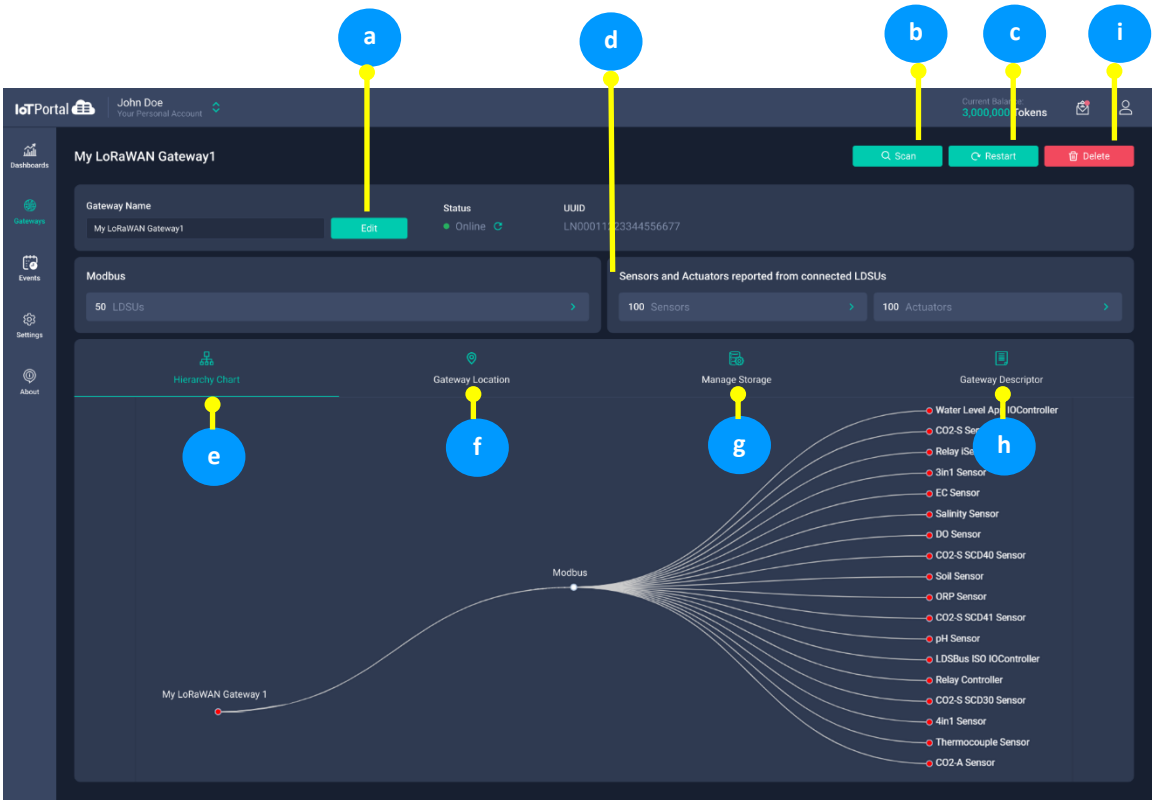
6.6 View LoRaWAN Node Details

To view details of the node:

1. Click on the **Gateway name** or **>**.



2. The gateway details *(Gateway Name; Status; UUID*) are displayed.



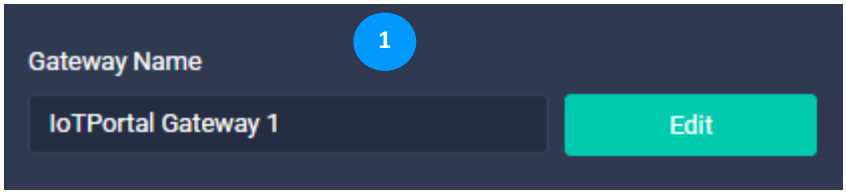
a. Edit gateway name.
b. Perform a gateway scan and discover the list of Modbus devices connected to the gateway.
c. Restart the gateway.
d. Manage the connected Modbus devices.
e. View the visual representation of the relationship between Gateway(LoRAWAN Modbus bridge) and the Modbus devices.
f. View/Update the gateway location (based on your browser location).
g. View / manage the storage space.
h. View the gateway descriptors.
i. Delete/un-register gateway device.

7. IoTPortal Gateway Features

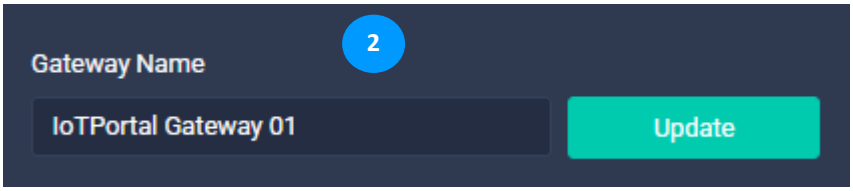
7.1 Edit IoTPortal Gateway Name

To edit gateway,

1. Click **[Edit].**



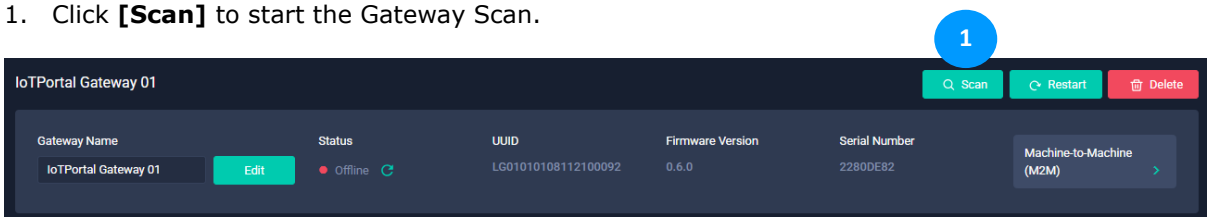
2. Edit the *Gateway Name* as required and click **[Update]**. An appropriate message indicating the update is displayed.



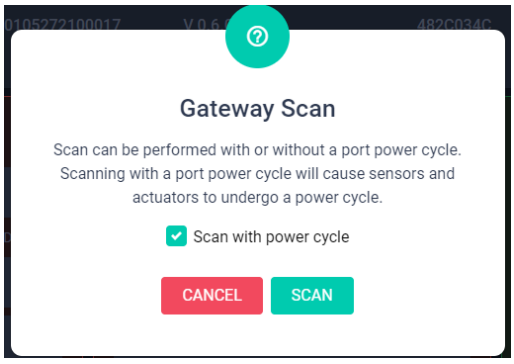
7.2 IoTPortal Gateway Scan

The Gateway Scan has two options, namely – *1. Scan with Power Cycle* and 2. *Scan without Power Cycle*.

1. Click **[Scan]** to start the Gateway Scan.

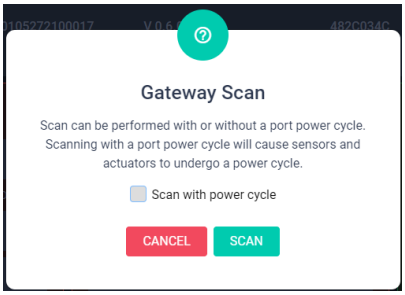


A scan request may cause events to be falsely triggered. This message may be ignored if you have already disabled all events on this gateway. Click **[SCAN]**.



Scan with Power Cycle: Selecting this checkbox will restart and discover all the connected devices on all the 3 ports.

NOTE: The Scan with power cycle option, if triggered, will affect all the connected actuators and restart the actuators.



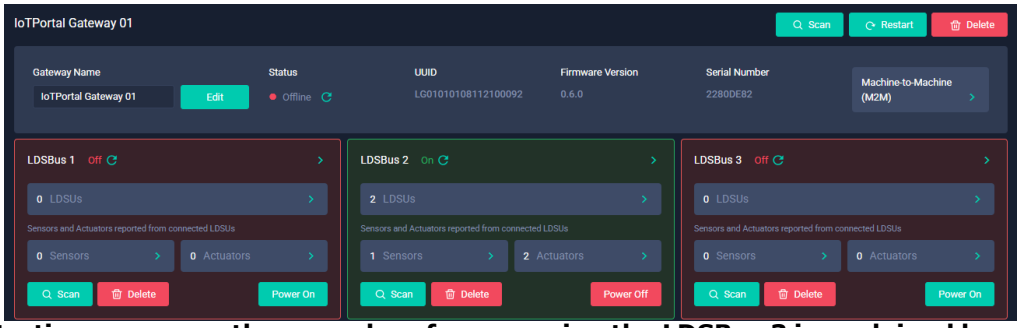
Scan without Power Cycle: De-selecting this checkbox will just discover all the connected devices on all the 3 ports.

A gateway scan can be initiated by a user (via the mobile app or the Web Client). The IoTPortal shall not initiate a gateway can unless the user requests it. LDSU scan results are reported to the IoTPortal and may contain information about newly discovered LDSUs or LDSUs that are no longer accessible (offline devices).

NOTE: The scan must be performed sequentially, meaning, scan and wait for LDSBus 1 Scan to complete, verify whether the devices are online/offline, and then perform LDSBus 2 Scan and LDSBus 3 Scan.

7.3 Manage LDSBus Ports

The gateway has 3 LDSBus ports. Each LDSBus port can connect to multiple LDSUs (up to 80 LDSUs) via LDSBus Quad-T Junctions.

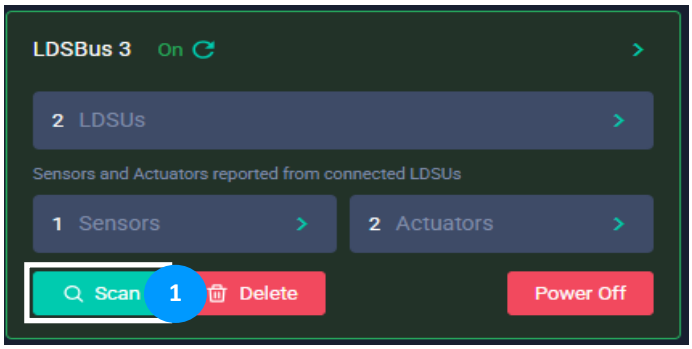


For Illustration purposes, the procedure for managing the LDSBus 3 is explained here. The same procedure can be used for managing LDSBus 1 and LDSBus 2.

The LDSBus port has the following features – *Scan, Delete* and *Port Power Control*.

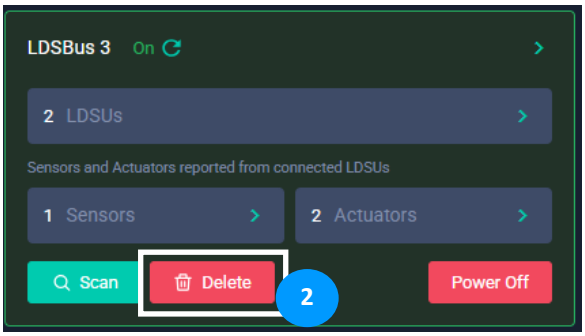
1. Click **[Scan]** to get the latest list of LDSUs[1].

   The system will turn on the LDSBus port power and discover the connected LDSUs; list the number of **LDSUs** connected to LDSBus Port 3 and categorize the associated sensor and actuators to the LDSUs.

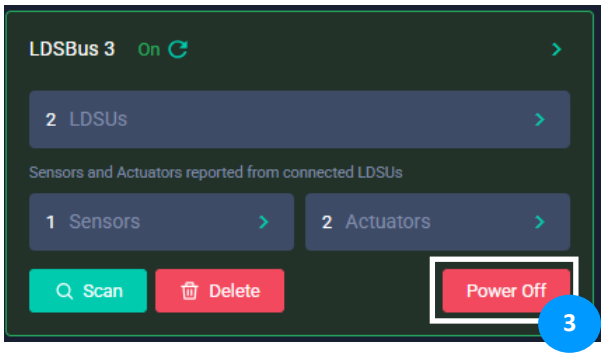


[1] Long Distance Sensor Units (LDSUs) can be LDSBus Sensors / Adapters (*for example – 4in1 Sensor, pH Sensor Adapter, CO2 Sensor, EC Sensor Adapter etc.)* and LDSBus Controllers *(Relay Controller, IR Blaster, IO Controller, etc.)*

2. Click **[Delete]** to remove all the connected LDSUs from the port. Download the LDSU data before performing a delete operation.



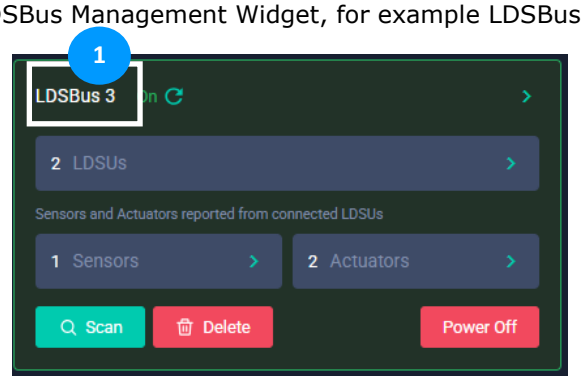
3. Click **[Power Off]** to control the port power (Power Off / Power ON). A confirmation message will be displayed. Click **[YES]** to continue or **[NO]** to discard this operation.



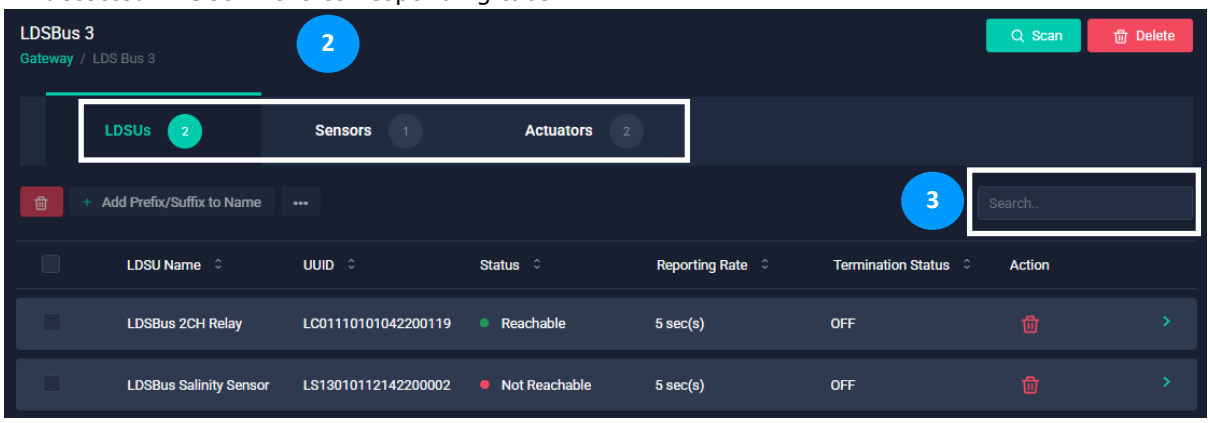
7.3.1 LDSU List and Categories

To access LDSU List and Categories interface,

1. Click on a specific LDSBus Management Widget, for example LDSBus 3.



2. The LDSU List interface displays the number of *Sensors* and *Actuators* reported under the detected LDSUs in the corresponding tabs.



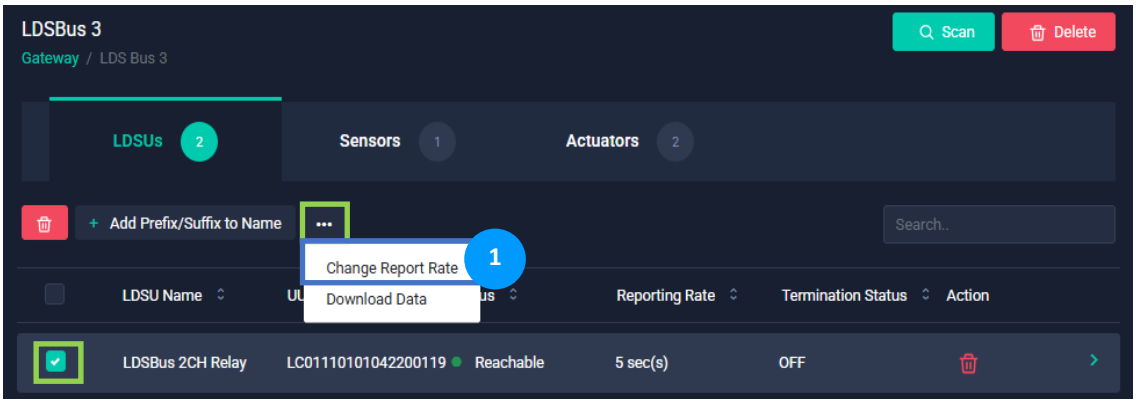
3. The table provides the *LDSU Name, UUID, Status (reachable / not reachable), Reporting Rate* and *Termination Status*. Users may search for a specific LDSU using the **Search** field.

7.3.1.1 Change Report Rate

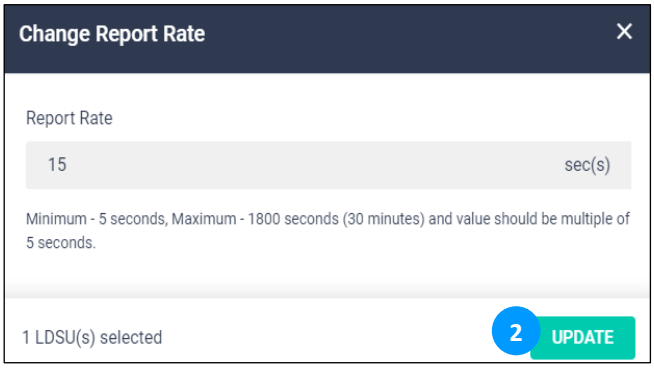
The sensor report rate is also known as the data reporting rate or sampling rate, refers to the frequency at which a sensor collects and repots data.

To change report rate –

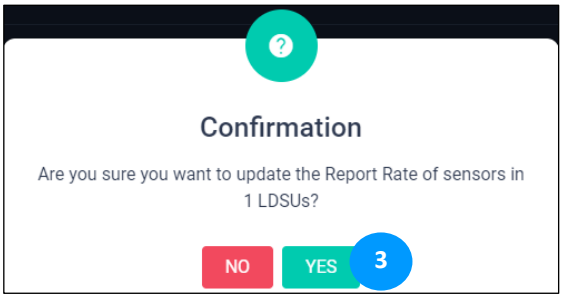
1. Select a LDSU device (by clicking on the checkbox) and click •••. From the resulting menu, click **[Change Report Rate]**.



2. Modify the *report rate* and click **[UPDATE]**.



3. A confirmation message is displayed. Click **[YES]** to proceed with the changes.

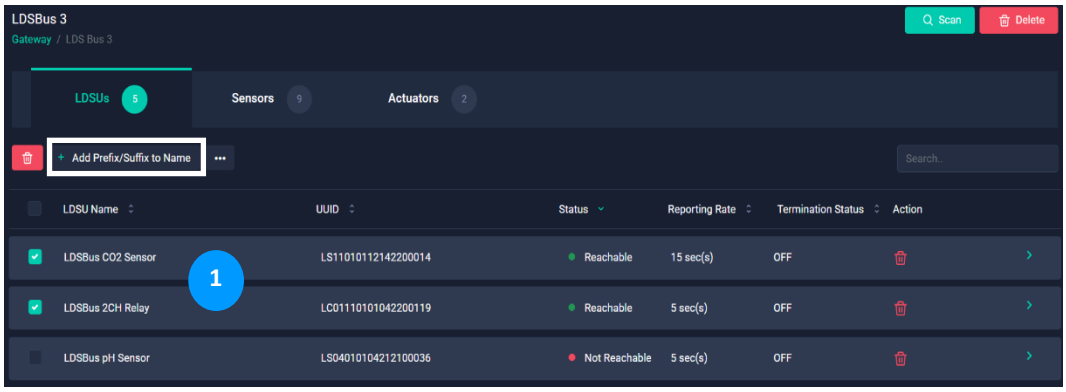


Upon successfully changing the Report Rate, an appropriate message is displayed.

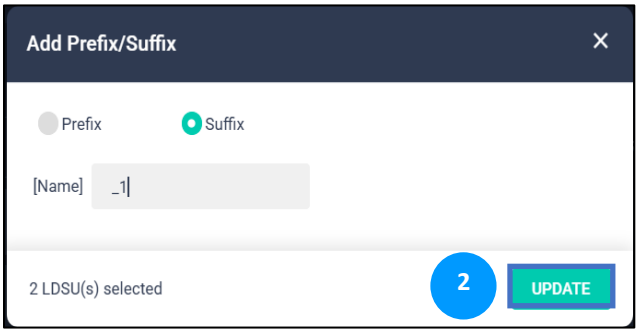
7.3.1.2 Add *Prefix/Suffix to Name*

Users can perform a bulk edit of LDSU device names by appending a prefix or suffix. This can be done by –

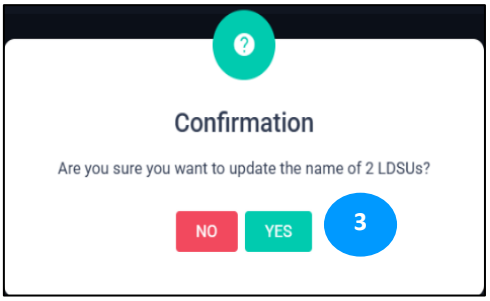
1. Select the device names to be updated and click on **[+Add Prefix/Suffix to Name]**.



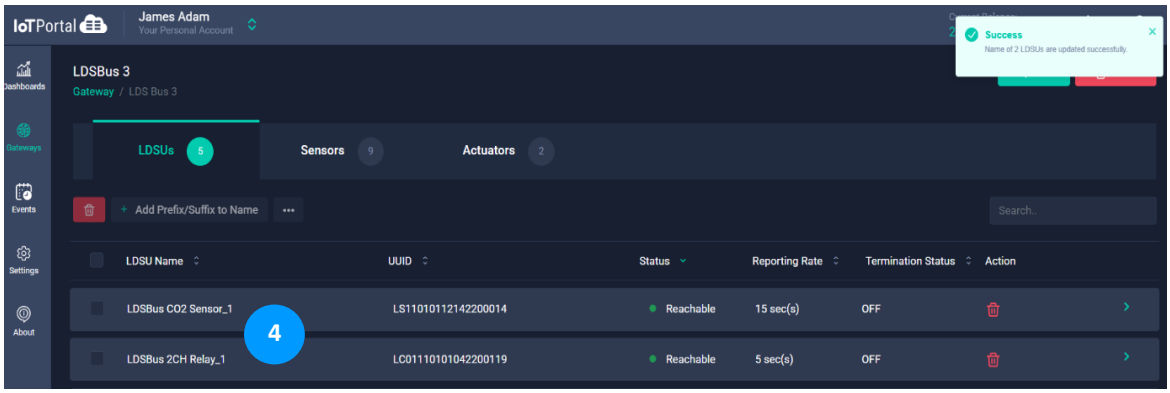
2. Specify the prefix or suffix to be applied to the device names and tap on **[UPDATE]**.



3. Confirm update by clicking on **[YES]**.



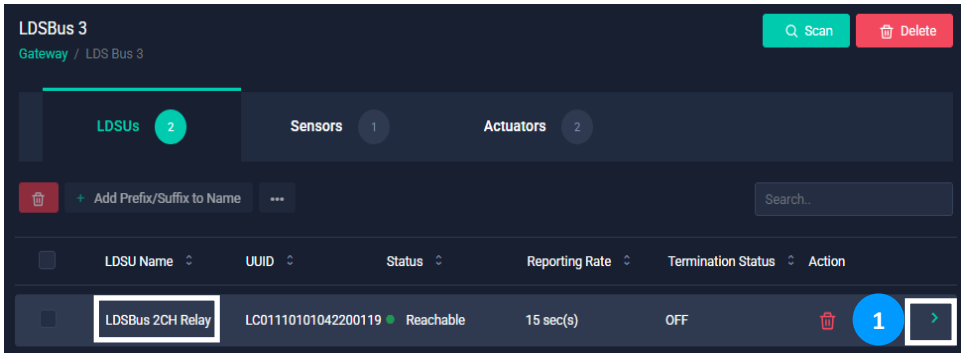
4. Device names updated successfully.



7.3.1.3 *LDSU Details*

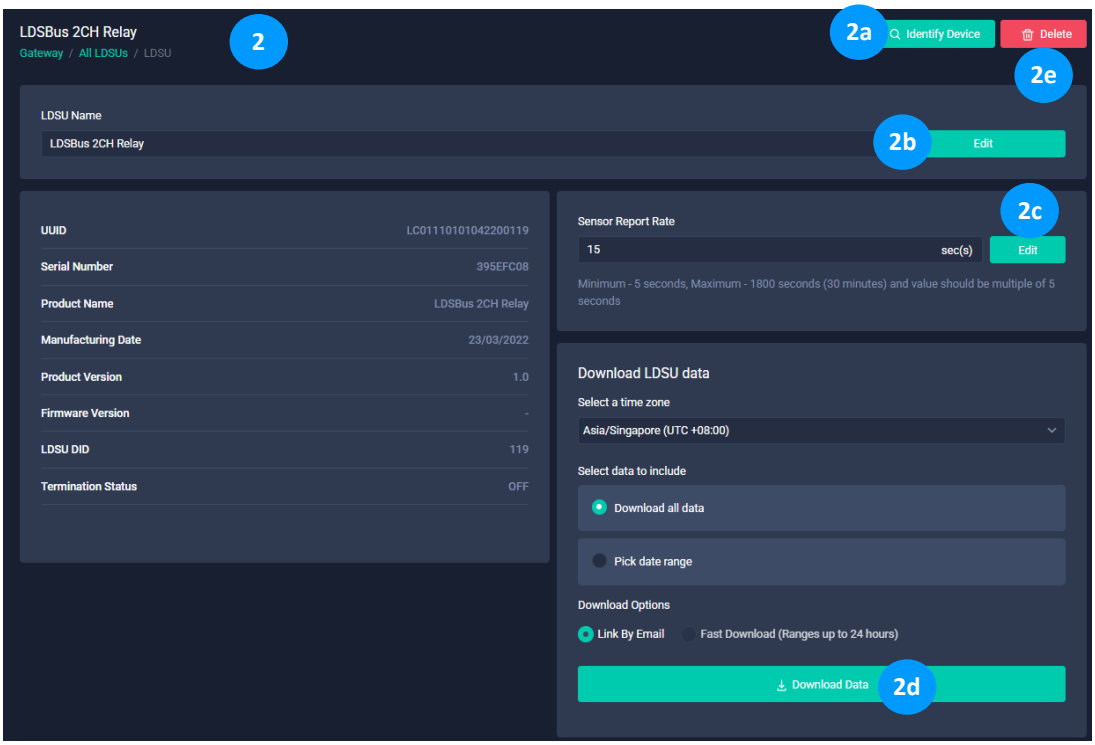
To access LDSU details,

1. Click on the **LDSU Name** or **>**.



2. The LDSU details interface displays the LDSU Name and other attributes such as:

- UUID
- Serial Number
- Product Name
- Manufacturing Date
- Product Version
- Firmware Version
- LDSU DID
- Termination Status



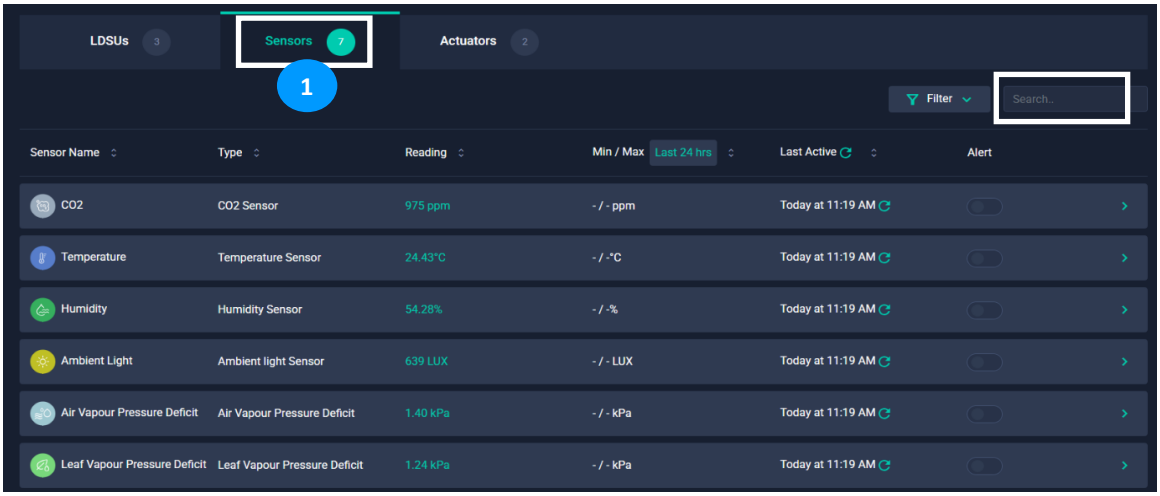
a. Click **[Identify Device]** to identify the LDSU that is connected to the LDSBus Port.
b. Click **[Edit]** to edit the *LDSU Name.* Upon editing (if any), click **[Update]** to save the changes.
c. Click **[Edit]** to edit the *Sensor Report Rate*. Upon editing (if any), click **[Update]** to save the changes.

d. To download LDSU data, *select a time zone*, *select the data to include (all data or based on specific date range)* and click **[⬇ Download Data]**.
e. Click **[Delete]** to delete LDSU device. Upon deleting, ensure that the LDSU is physically removed from the Bus, otherwise it will be reported as newly found LDSU device when the bus port is scanned.

NOTE: At any situation Hot plug In/Out is not recommended. In case, if there is a need to add or remove the devices in the network, then shut down the system and do the needful.

7.3.2 Sensor List

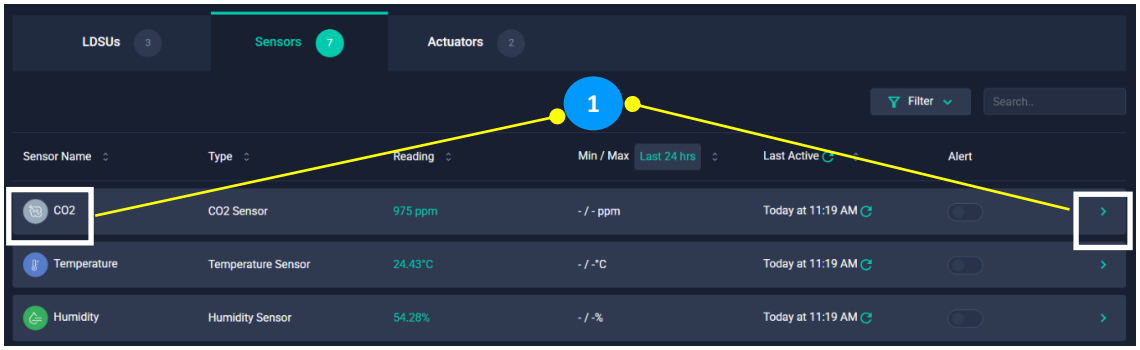
1. To view the list of Sensors, click **[Sensors]** tab. A list of sensors, if any, are displayed as part of the table. The table provides the Sensor *Name,* Sensor *Type, Reading, Min / Max* values, when the Sensor was *Last Active* and *Alert* (if any). Users may search for a specific Sensor using the **Search** box.



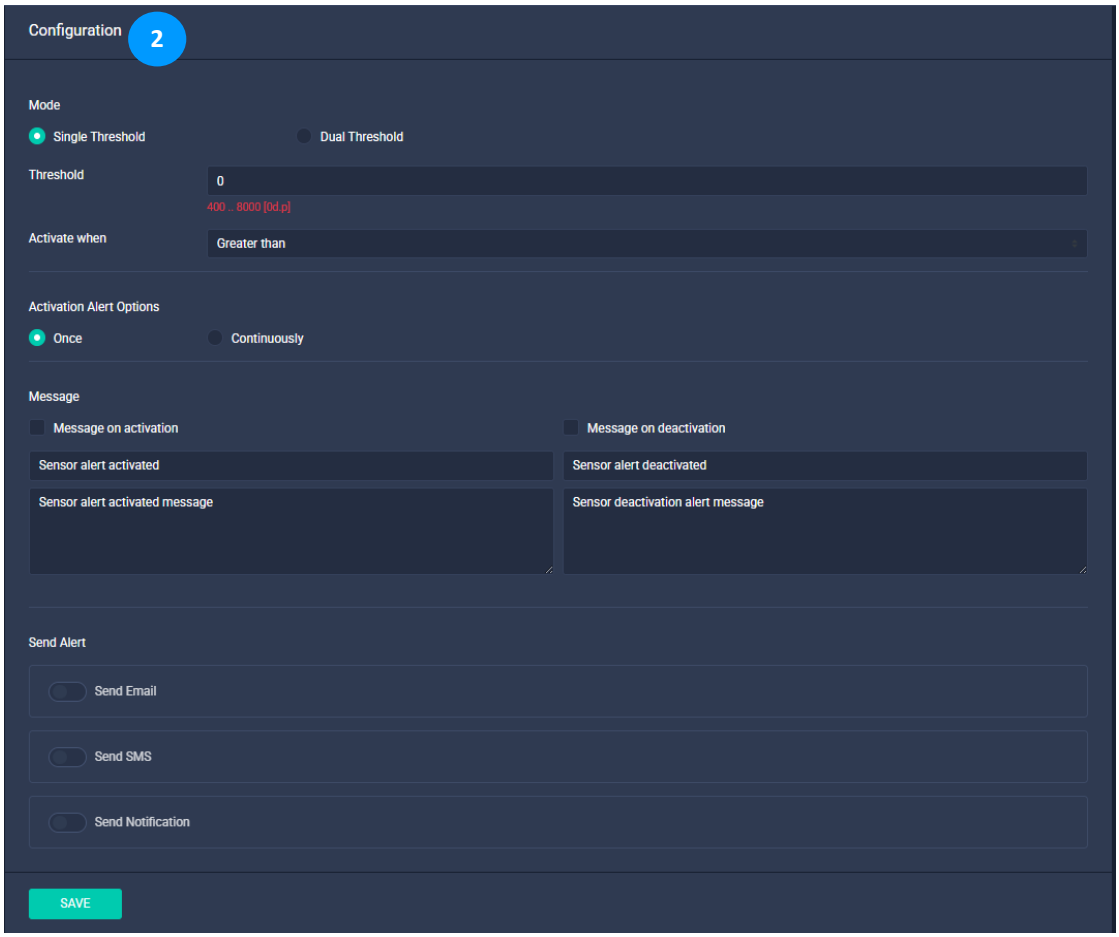
7.3.2.1 Configure Sensor / Alert

To configure sensor / alert -

1. Click on the **Sensor** or **>** to access the configuration interface. **For illustration purpose, a CO2 Sensor is used.**



2. The CO2 Sensor configuration interface is displayed.



3. Configure the sensor as per the steps given below –

   a. There are two types of *mode*, namely *Single Threshold* or *Dual Threshold*.

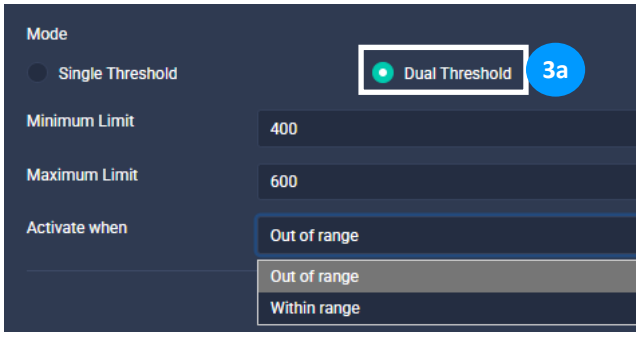
   Single Threshold: A single threshold is used when an action should be triggered if the current pH value is greater than or lesser than the specified threshold value.

   Dual Threshold: A dual threshold is used when an action should be triggered if the current pH value is within specified threshold range or out of specified threshold range.

   Select the *Mode*. If the selected *Mode* is "*Single Threshold*", then fill in the following fields – *Threshold* and *Activate when*.

   (Or)

   If the selected *Mode* is "*Dual Threshold*", then fill in the following fields – *Minimum Limit, Maximum Limit* and *Activate when (Within range or Out of range)*.

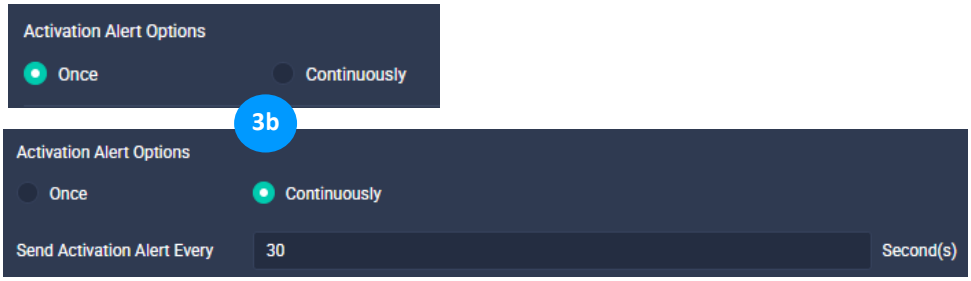


b. An activation alert refers to a notification that is triggered to indicate the user defined alert. There are two types of Activation Alert options, namely Once or Continuously.

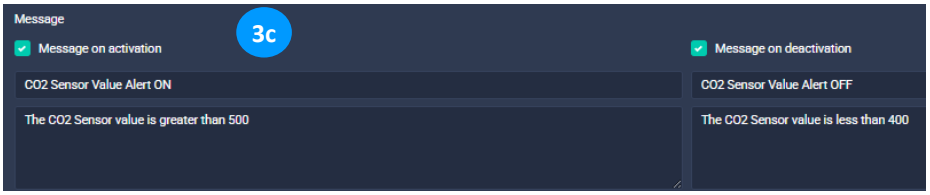
Once: If this option is selected, when activated, the activation alert is sent only once

Continuously: If this option is selected, when activated, the activation alert is sent continuously until deactivated.

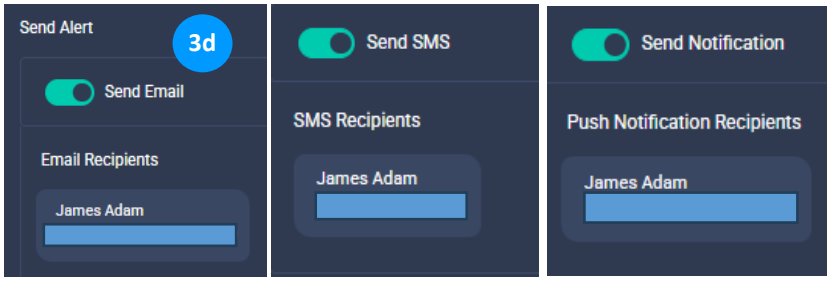
Select the *Activation Alert* option. If the selected *Mode* is *"Continuously"*, then fill in the following fields **–** *Send Activation Alert Every X Second(s)*.



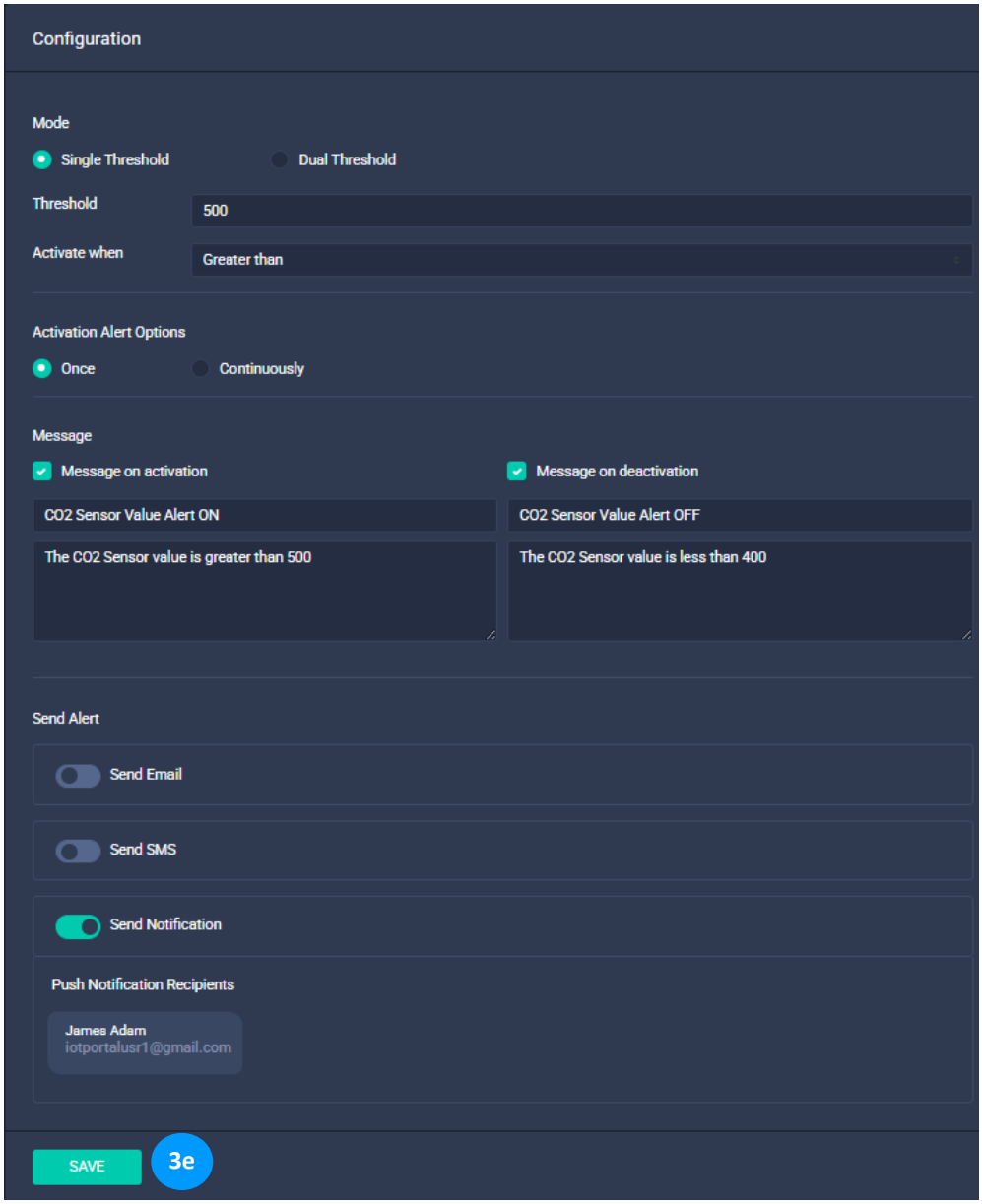
c. Click on the *Message on activation* and *Message on deactivation* checkbox and enter an appropriate message header and a message.



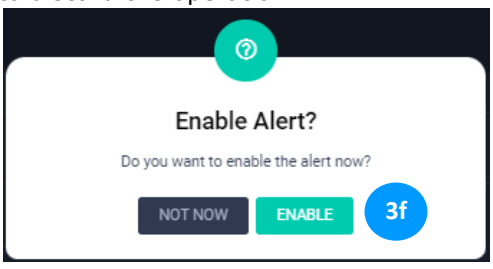
d. Select one or more *Send Alert mode(s) – Email, SMS, Push Notification*. These modes are enabled only upon selecting either *Message on activation* or *Message on deactivation* or *both*. Upon selecting the appropriate mode(s), the recipient details are displayed automatically.



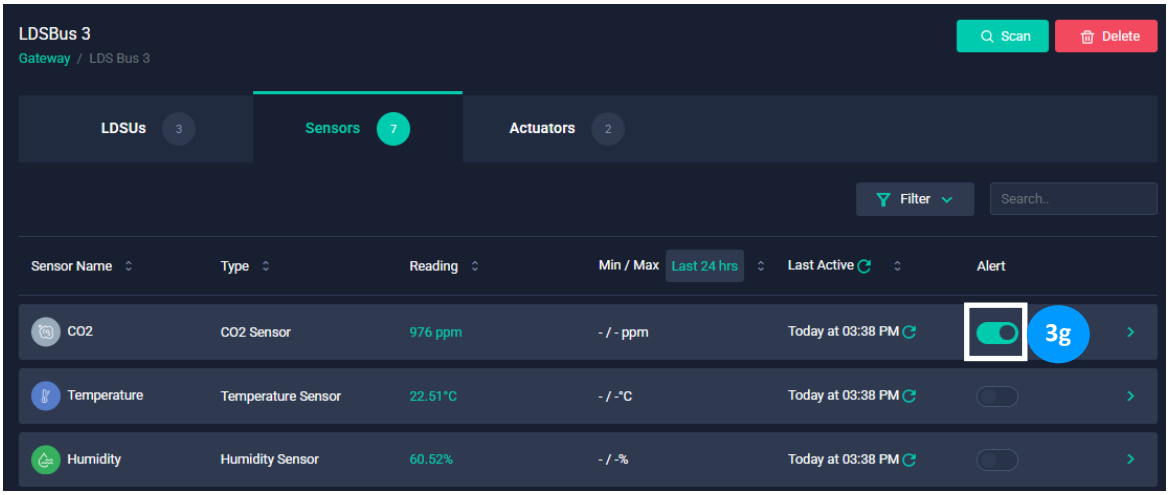
e. Upon providing all the configuration details, click **[SAVE]**.



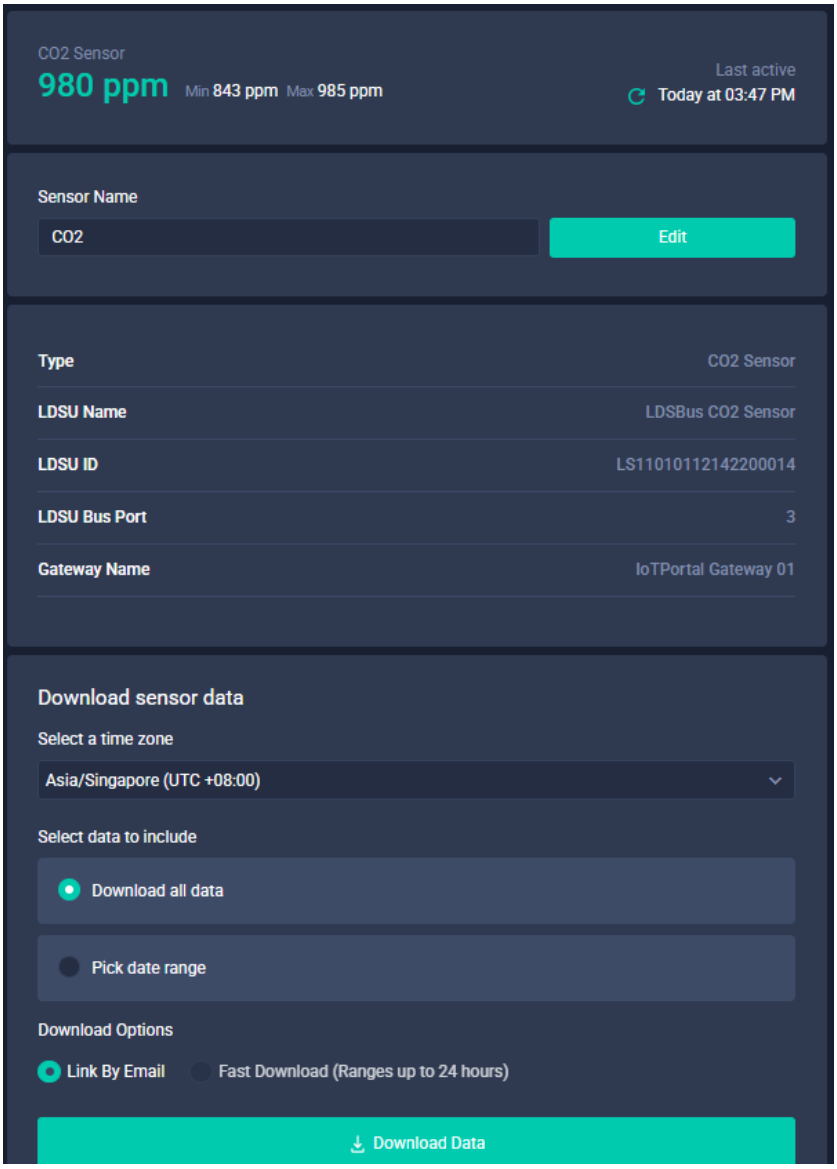
f. A confirmation window to enable or disable the alert is displayed. Click **[ENABLE]** to enable alert or **[NOT NOW]** to discard the operation.



g. Once the alert is enabled, an appropriate message indicating the same is displayed. The **Alert** toggle button in the Sensor list table is enabled.

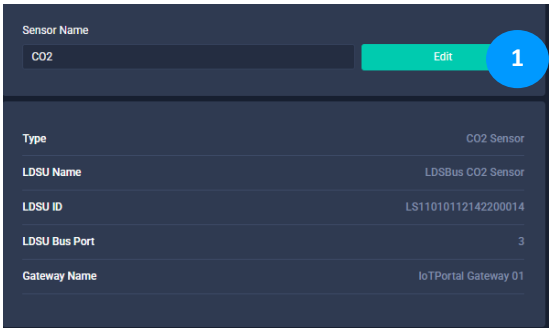


7.3.2.2 Edit Sensor / Associate Sensor / Download Sensor Data



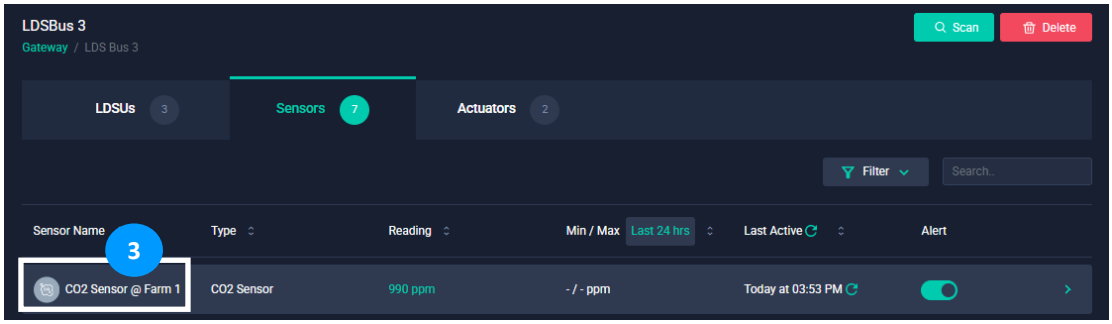
Edit Sensor Name

1. To edit sensor name, click **[Edit]** and modify the sensor name as required. The sensor information (like Type, LDSU Name etc.) cannot be edited.



2. Upon editing the sensor name, click **[SAVE]**. An appropriate message indicating the change is displayed.

3. The updated sensor name is displayed as part of the sensor list table and dashboard chart (if available).

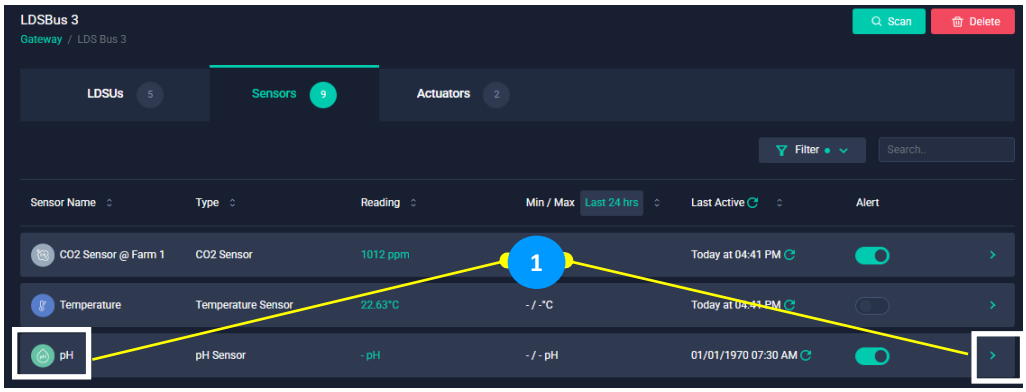


Sensor Association

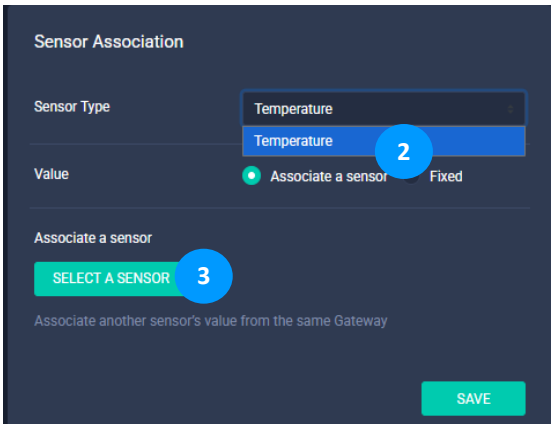
NOTE: This function can be used only for EC, Salinity, and pH sensors

This function is used to associate additional parameter (like temperature) for compensation to improve sensor data accuracy. For example, in order to associate temperature with **pH sensor**,

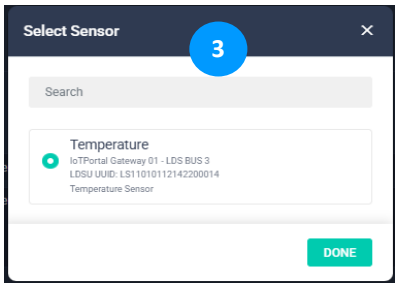
1. Click on the **pH Sensor** or **>**.



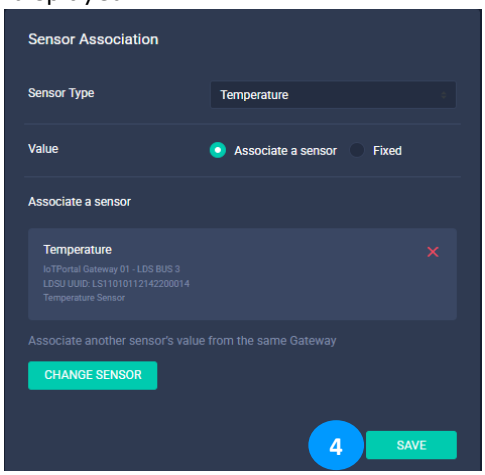
2. Select the **Sensor Type** – *Temperature*; Select **Value** - *Associate a sensor*.



3. Click **[SELECT A SENSOR**] and choose a sensor from a list of available temperature sensor. Click **[DONE]**.

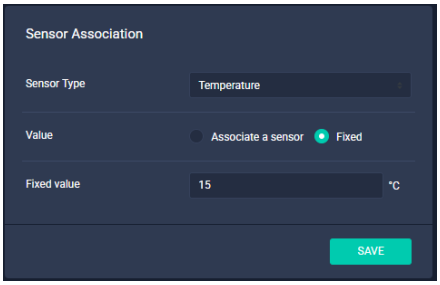


4. Click **[SAVE]** to save the associated sensor information. An appropriate message indicating the sensor association is displayed.



(or)

Associate sensor with Fixed value – This option is used when a temperature sensor is not available. For example, in order to associate a fixed temperature value with pH sensor. Select the **Sensor Type** – Temperature; Select **Value** – Fixed.

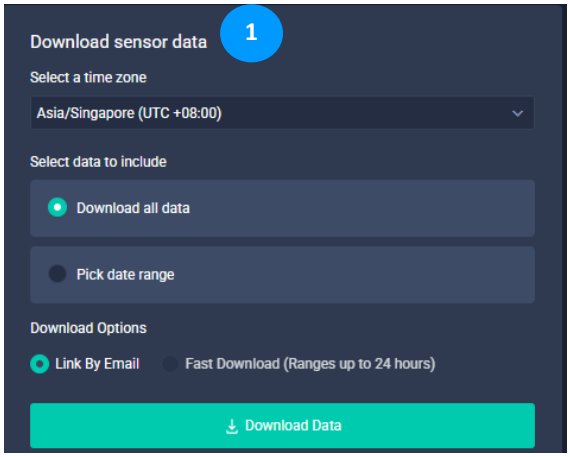


Enter a **Fixed value**; Click **[SAVE]**. An appropriate message indicating the sensor association is successful will be displayed.

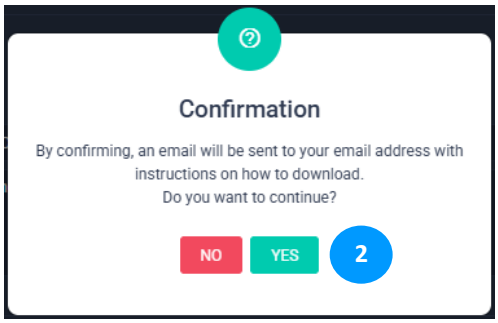
Download Sensor Data

This function allows users to download sensor data to perform any further research / analysis using third party tools and for archiving purpose. To download sensor data,

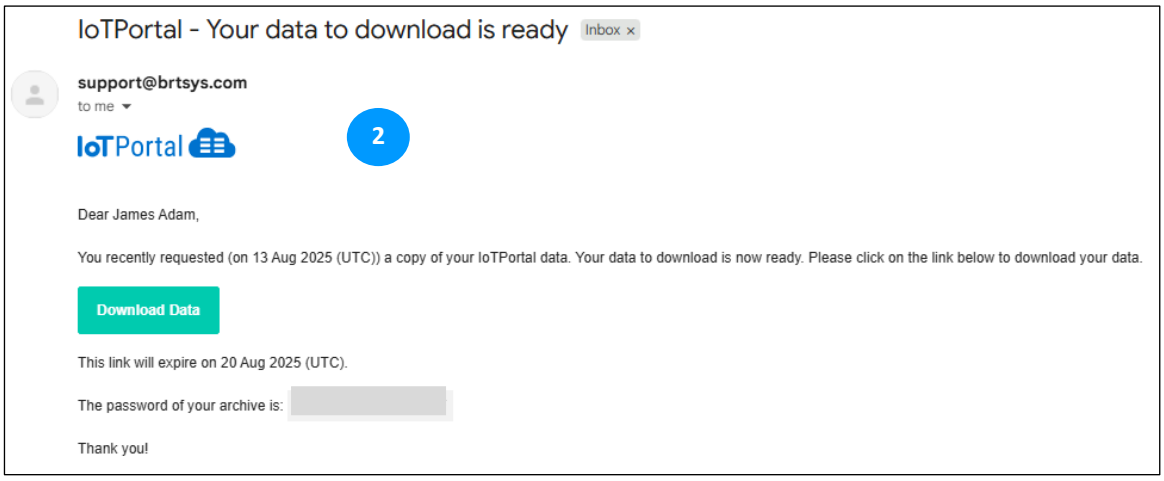
1. Select a time zone, select the data to include (all data or based on specific date range). Upon providing the required input, click **[↓ Download Data]**.



2. A confirmation message will be displayed. Click **[YES]**.

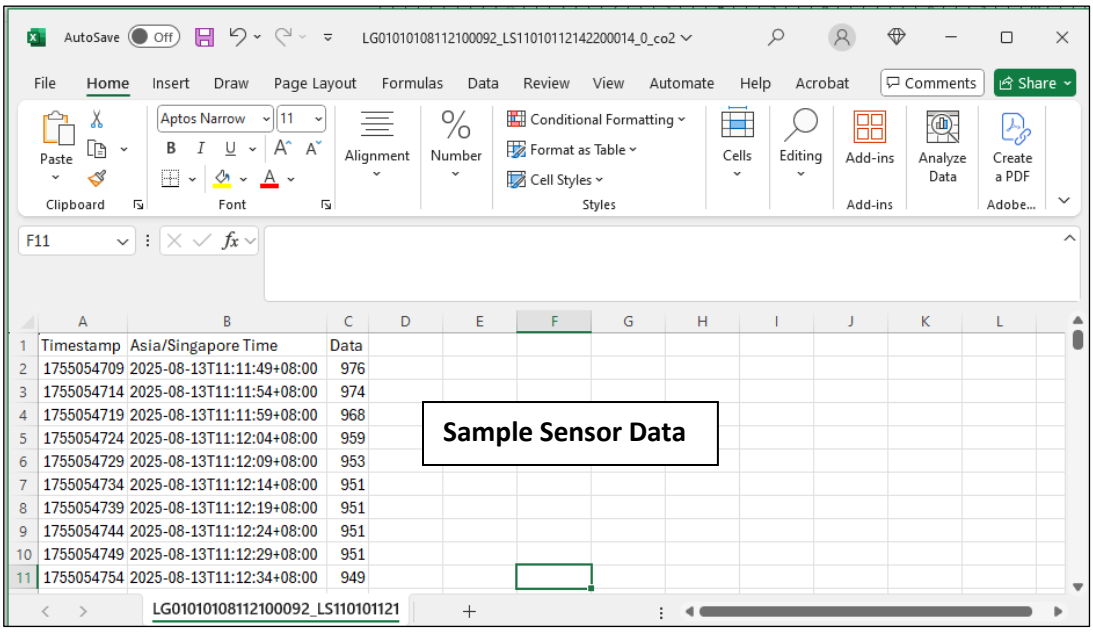


3. Upon confirmation, an email will be sent to the user's registered email address with instructions on how to download the sensor data.



Instructions on how to download the sensor data

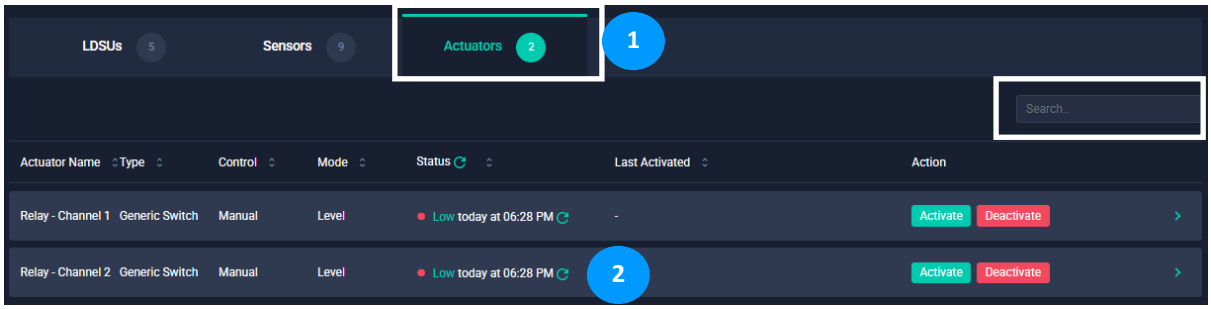
- Click **[Download Data]**.
- The data is downloaded to your local folder (for example – Downloads)
- Extract the zip file and its content by providing the password sent to your registered email address.
- Open the spreadsheet file that contains the downloaded sensor data.



	A	B	C
1	Timestamp	Asia/Singapore Time	Data
2	1755054709	2025-08-13T11:11:49+08:00	976
3	1755054714	2025-08-13T11:11:54+08:00	974
4	1755054719	2025-08-13T11:11:59+08:00	968
5	1755054724	2025-08-13T11:12:04+08:00	959
6	1755054729	2025-08-13T11:12:09+08:00	953
7	1755054734	2025-08-13T11:12:14+08:00	951
8	1755054739	2025-08-13T11:12:19+08:00	951
9	1755054744	2025-08-13T11:12:24+08:00	951
10	1755054749	2025-08-13T11:12:29+08:00	951
11	1755054754	2025-08-13T11:12:34+08:00	949

7.3.3 Actuators *List*

1. To view the list of Actuators, click **[Actuators]** tab.

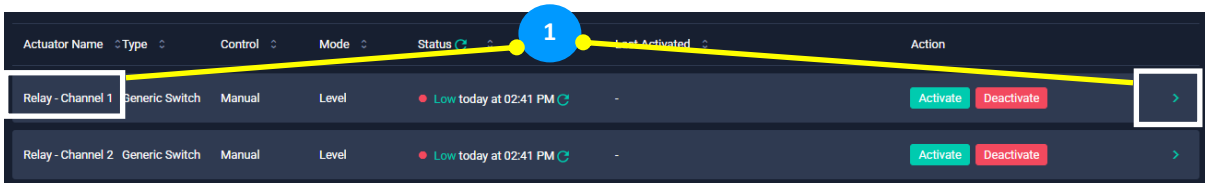


2. The table provides the Actuator *Name, Actuator Type, Control, Mode, Actuator Status,* when the Actuator was *Last Active* and *Actions (Activate / Deactivate)* that can be performed on the actuator. Users may search for a specific Actuator using the **Search** box.

7.3.3.1 Configure Actuator / Alert

For illustration purposes, Relay – Channel 1 is used.

1. Click on **Actuator Name** or **>** to access the Relay- Channel 1 configuration interface.



2. The Relay – Channel 1 Actuator detail interface is displayed.

3. Configure the actuator parameters as per the steps given below.

   a. There are two types of **Control**, namely *Manual, Auto*. Select the *Control* as required.

   Manual: This mode allows user to activate and deactivate relay channels manually.
   Auto: This mode operates autonomously, with the system managing the activation and deactivation of the relay channel automatically. In this mode, predefined events or conditions determine when the relay channel is activated or deactivated. These events could include specific times of the day, environmental triggers, or inputs from other systems. The system executes these actions based on programmed instructions without requiring manual intervention, enabling automated operation, and reducing the need for constant oversight.

   b. There are two types of mode, namely *Level* Mode, *Pulse* Mode. Select the *Mode* as required.

   Level: In Level mode, the functionality operates similarly to a standard switch mode commonly found in various electronic devices. Once a channel is activated, meaning the relay is turned on, it remains in that state until the user manually intervenes to deactivate it. This mode provides a straightforward and intuitive way of controlling the relay, offering stability and consistency in maintaining the relay's state until a deliberate action is taken by the user to change it.

   Pulse: In pulse mode, the functionality mirrors that of automatic doors.

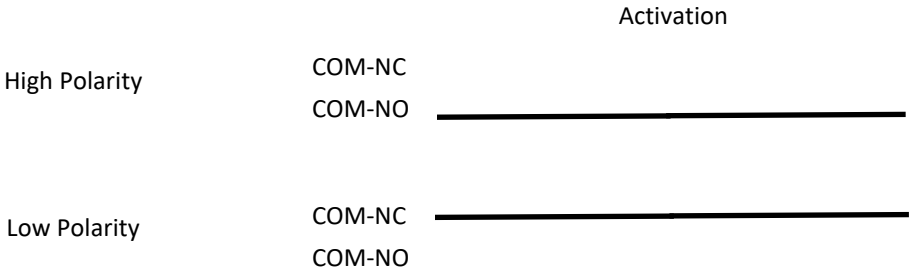
   Upon activation, the channel remains active for a predefined period, denoted as T1. During this time, the relay maintains its active state, allowing the load to be powered or controlled as required. This duration typically corresponds to the time required to perform a specific task or operation associated with the load. Following the completion of the T1 period, the channel automatically deactivates. The duration of this inactive period is denoted as T2 and is adjustable based on the application requirements.

   c. Select the *Polarity – Positive* or *Negative*.

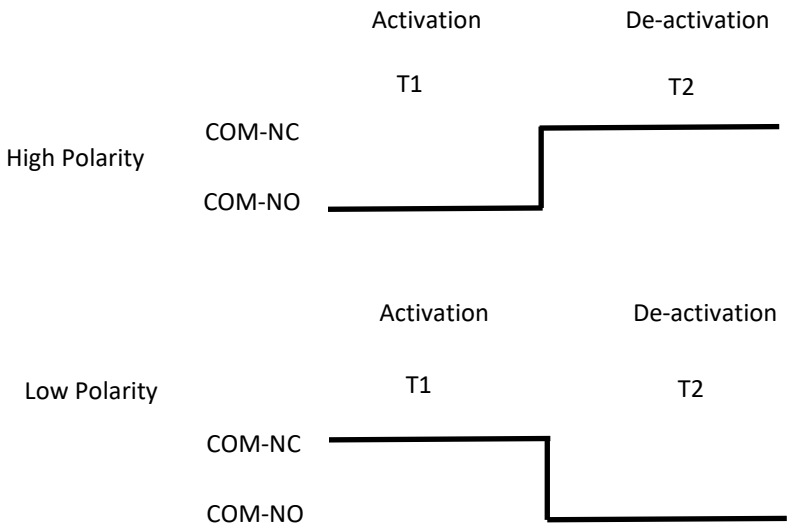
NOTE: Polarity feature is available for both Level mode and Pulse mode.

The LDSBus 2CH relay utilizes Single Pole Double Throw (SPDT) relay type, offering two distinct ways of load connection. Load connection can be achieved by connecting the load to Normally Open (NO) or Normally Closed (NC) terminals. To accommodate these connection options, the controller features two configurations: High and Low.

Level Mode



Pulse Mode

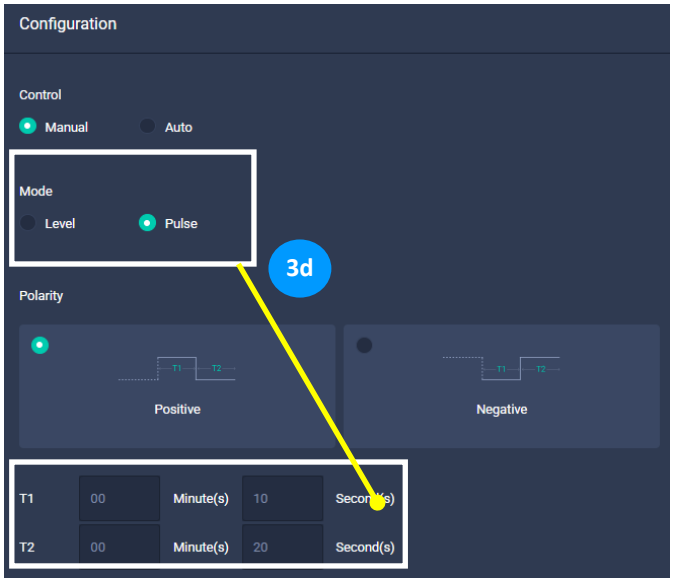


High: In the default High configuration, the relay operates with the channel contact closed between the Common (COM) and Normally Open (NO) terminals for activation. Upon de-activation, the channel contact switches to close between the Common (COM) and Normally Closed (NC) terminals.

Low: In the Low configuration, the relay operates in the opposite manner compared to the High configuration. Upon activation, the channel contact closes between the Common (COM) and Normally Closed (NC) terminals. Then, upon deactivation, the channel contact switches to close between the Common (COM) and Normally Open (NO) terminals.

These two configurations provide flexibility in adapting the relay to different load connection requirements, ensuring compatibility with a wide range of applications and allowing users to select the configuration that best suits their specific needs.

d. If the selected mode is *Pulse* mode, then fill in the Pulse Phase in the *T1, T2* fields.

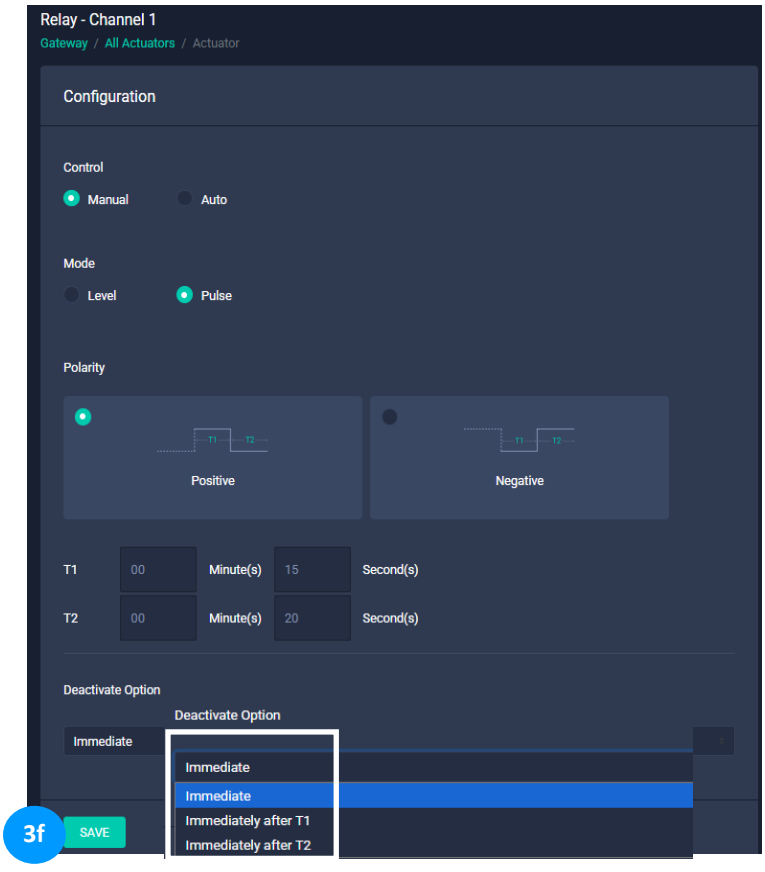


T1 and T2 indicate the first and second phase of the pulse, respectively. Input the duration of T1 and T2. Ensure that T1 and T2 duration are greater than 0 seconds and (T1 + T2) duration does not exceed 1 hour.

e. If the selected mode is *Pulse* mode, then select one of the *Deactivate Option* from the drop-down list box.

NOTE: Deactivation mode feature is only available for Pulse mode.

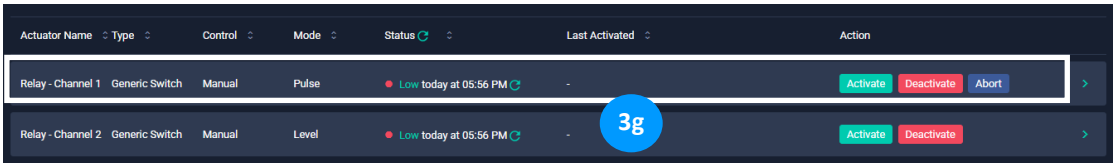
The following three distinct options are available for deactivation mode.



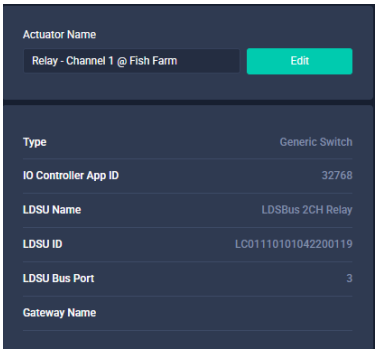
Immediate: With this option, the channel instantly returns to its deactivated state without any delay.
Immediate after T1: With this option, the channel returns to deactivated state after completing the T1 cycle.
Immediate after T2: With this option, the channel returns to deactivate state after completing the T1 and T2 cycle.

f. Upon providing all the configuration details, click **[SAVE]**.

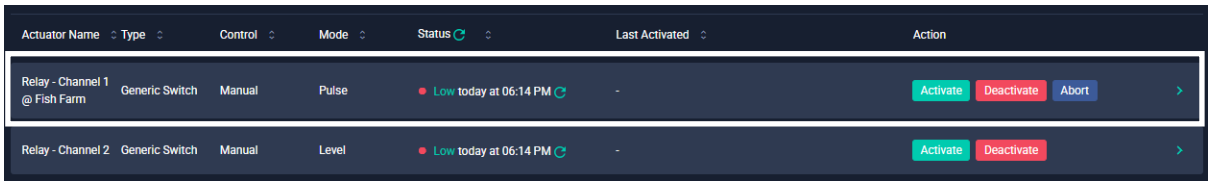
g. An appropriate message indicating that the configuration details are saved is displayed. The actuators list table updated accordingly.



Edit Actuator Name
To edit actuator name, click **[Edit]** and modify the actuator name as required. The actuator information (like Type, LDSU Name etc.) cannot be edited.

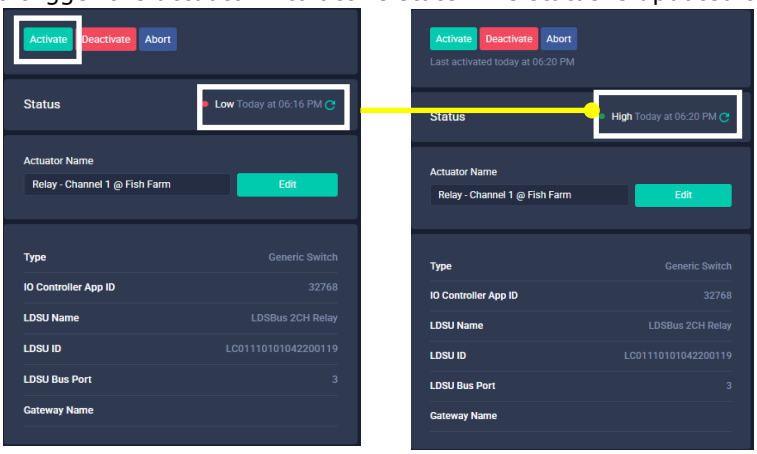


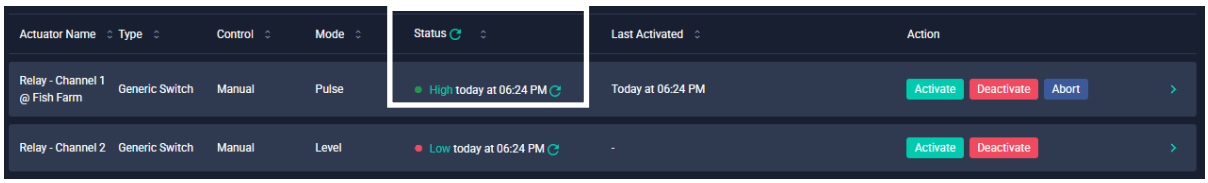
Upon editing the actuator name, click **[SAVE]**. An appropriate message indicating the change is displayed. The updated actuator name is displayed as part of the actuator list.



Activate/Deactivate/Abort Actuator

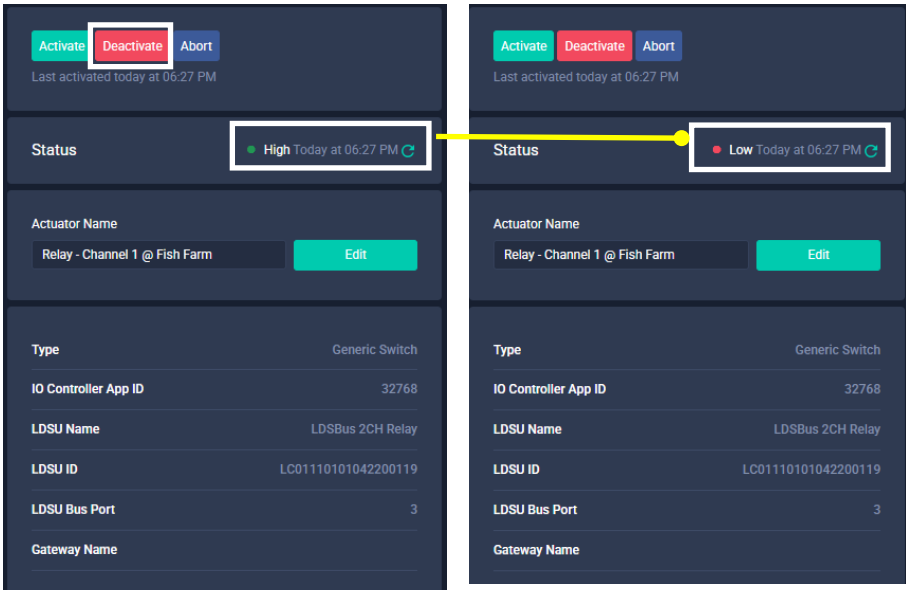
Click **[Activate]** to trigger the actuator into active state. The status is updated to "High".

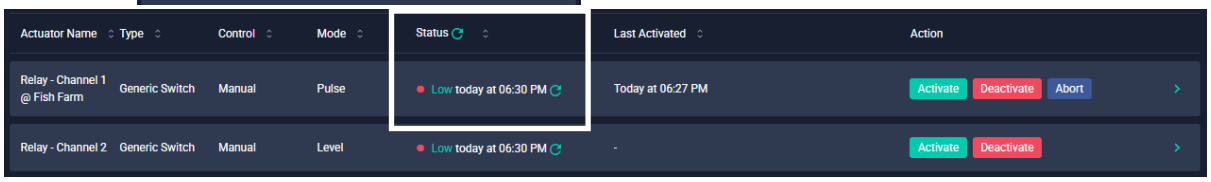




Click **[Deactivate]** to trigger the actuator into inactive state; The status is updated to "Low".

Click **[Abort]** to cancel the current operation and return the actuator into inactive state immediately. The status is updated to "Low".

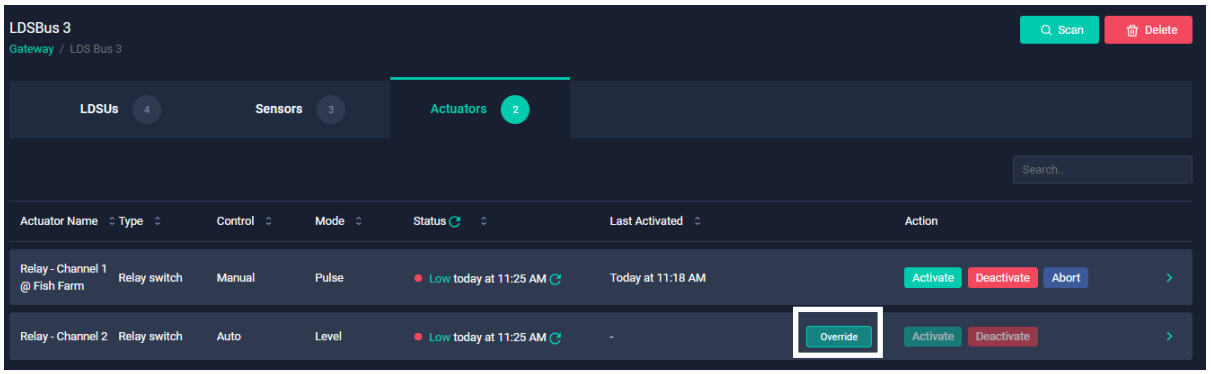




NOTE: The Abort feature is only available for Pulse mode.

Override Actuator

When actuator is in "Auto" mode, the Activate and Deactivate functions are disabled and the override function is displayed. Click **[Override]** to exit the "Auto" mode. Only those actuators that are linked to this event are disabled.

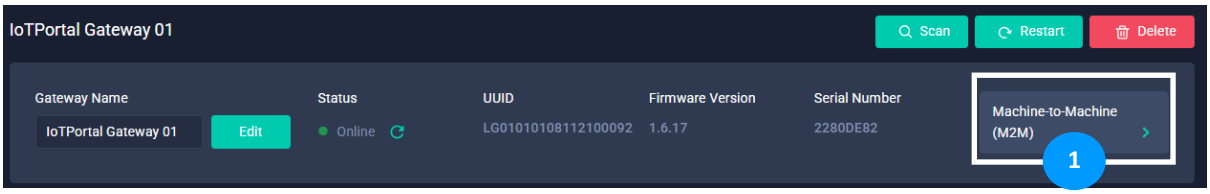


7.4 Configure Machine-to-Machine (M2M)

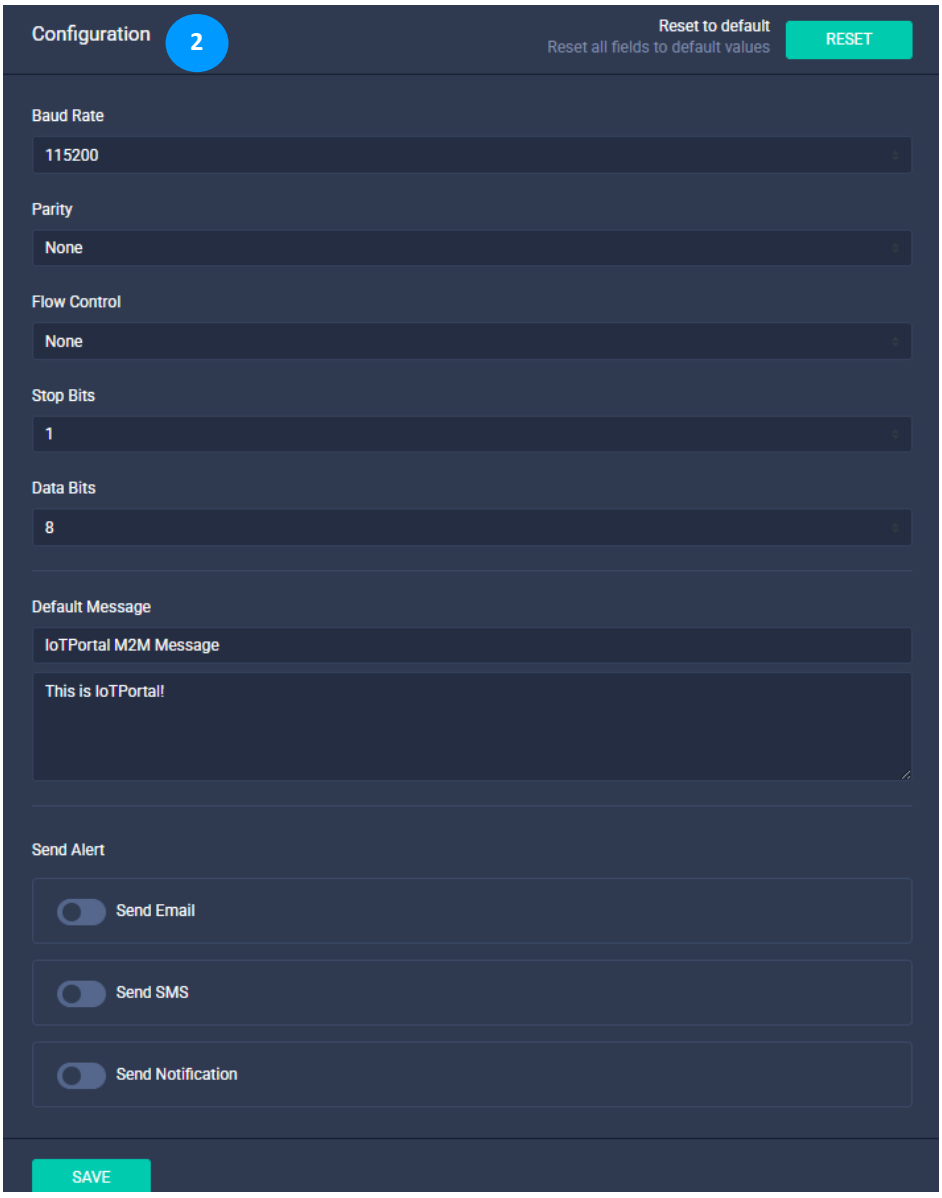
The M2M connection is a RS232 serial cable connection between the gateway and user PC. It enables the user to download system level diagnostic messages about the gateway. These messages can be useful for further troubleshooting in case of issues.

By default, the M2M of the gateway is enabled with the default communication parameters. Using the Web Management Console or Mobile app, users can modify the communication parameters, if necessary. Ensure the token balance is sufficient to perform this operation.

1. Click **[Machine-to-Machine(M2M)]**.



2. The M2M configuration interface is displayed.



Baud Rate - Refers to the communications speed measured in "bits transferred per second." Select the Baud Rate from the drop-down control.

Parity - Parity is used for error-checking. Parity can be either Even, Odd, or None.

For example, for Even parity, if the data is 10010010, the serial port sets the parity bit as 1 to keep the number of logic-high bits Even. For Odd parity, the parity bit is 0 so that the number of logic-high bits is Odd. Select the Parity from the drop-down control.

Flow Control - Flow control used to manage the rate of data transmission between sender and receiver to prevent a fast sender from overwhelming a slow receiver.

Stop Bits - Stop bits are used to signal the end of a communication packet. Stop bits can be either 1 or 2 bits.

Data Bits - Data bits are a measurement of the actual data bits transferred within a word. Data Bits can be either 7 or 8 bits.

Send Alert – Refers to the notification mechanism *(Email, SMS, Push Notification)*.

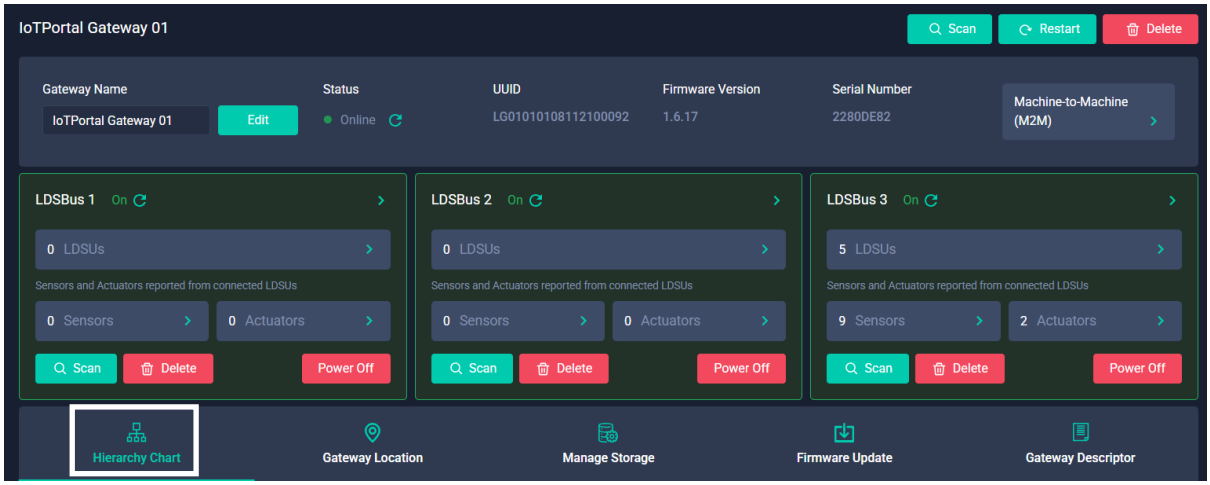
Select one or more **Send Alert** mode(s) – *Email, SMS, Push Notification.*

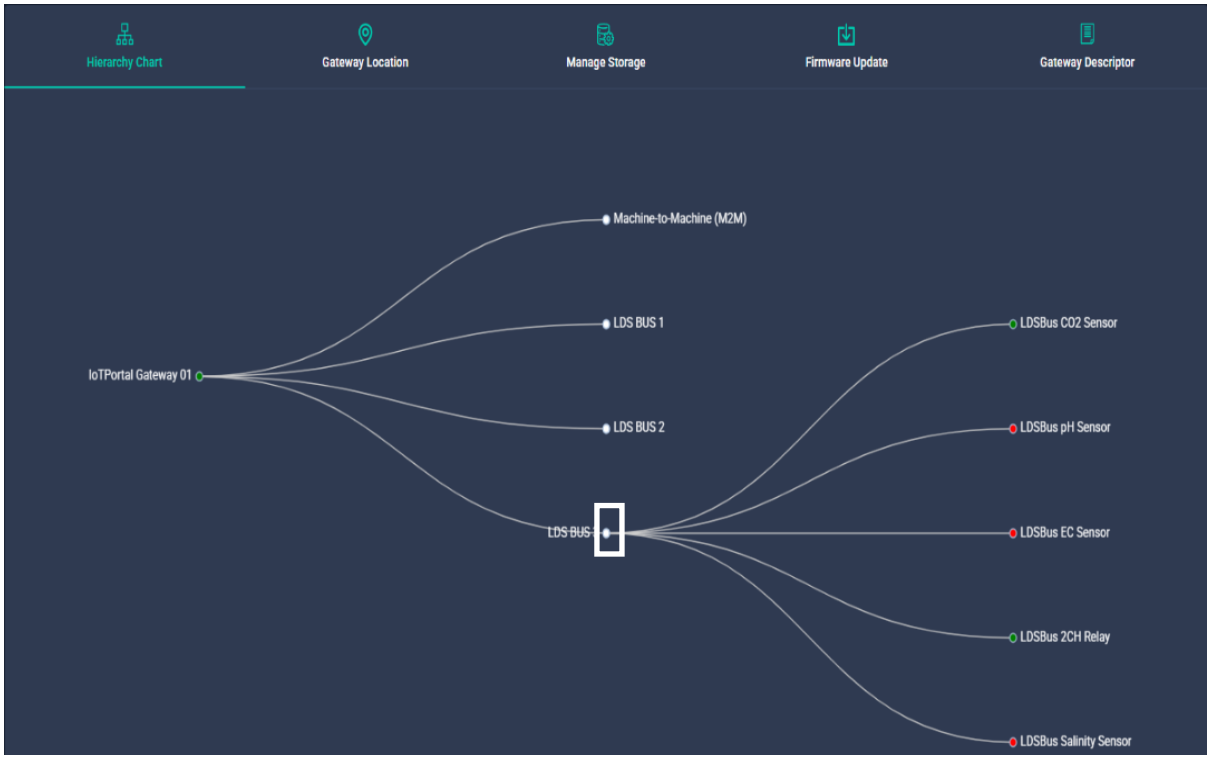
Click **[RESET]** to reset all fields to default values or configure the parameters manually and click **[SAVE]** to save the changes. An appropriate message indicating that the M2M properties are set is displayed.

7.5 Hierarchy Chart

The **Hierarchy Chart** depicts the visual representation of the relationship between Gateway and its LDSBus devices.

To view the Hierarchy Chart, click **[Hierarchy Chart]**.





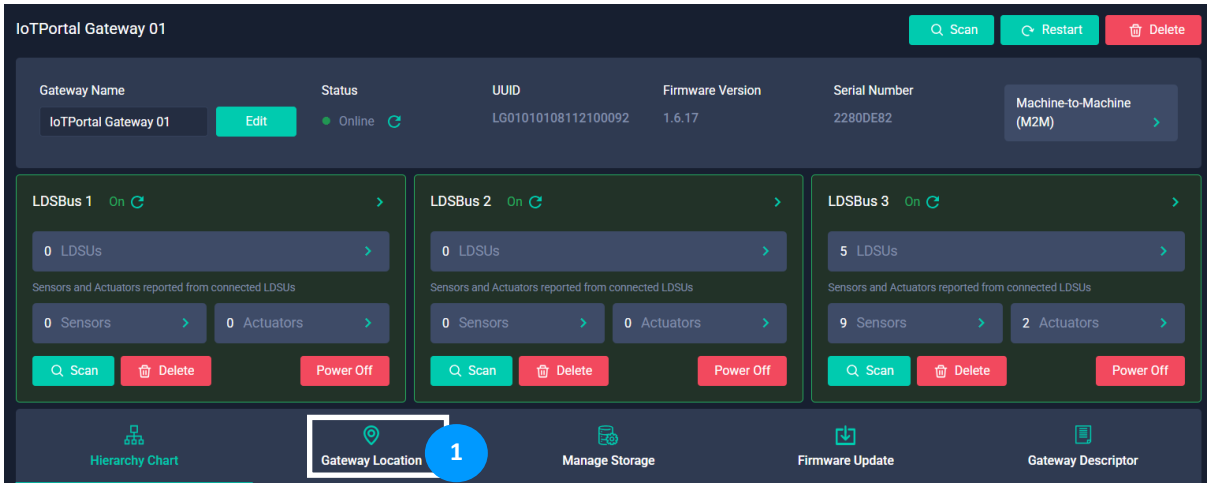
Click on each *"node"* to expand on the sub-groups.

7.6 Gateway Location

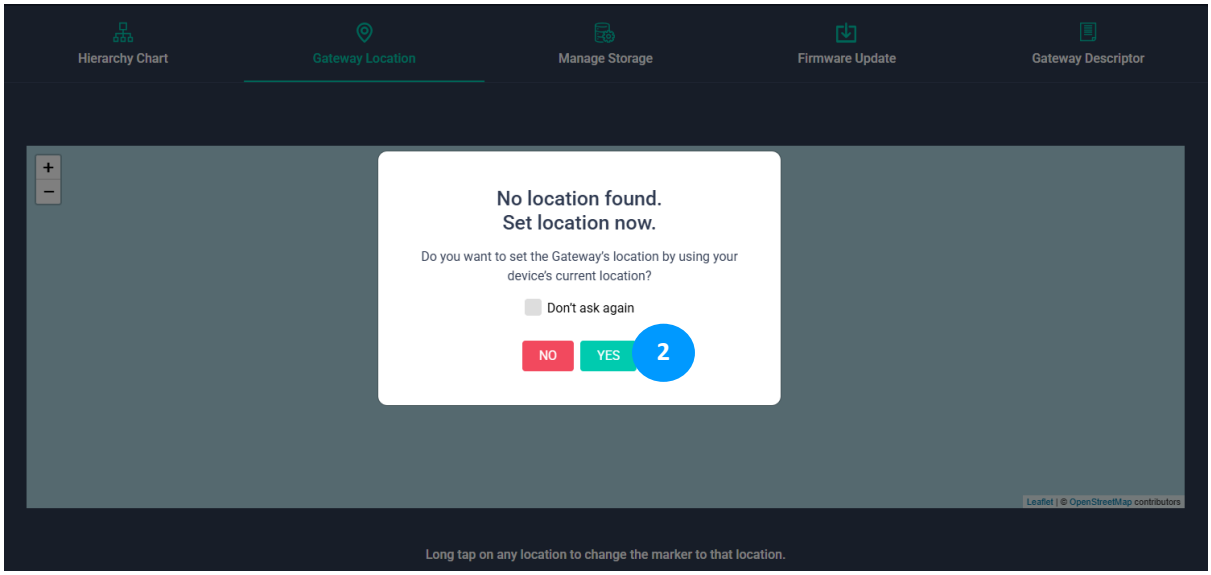
This function is used to view/update the selected Gateway Location.

To set the Gateway Location –

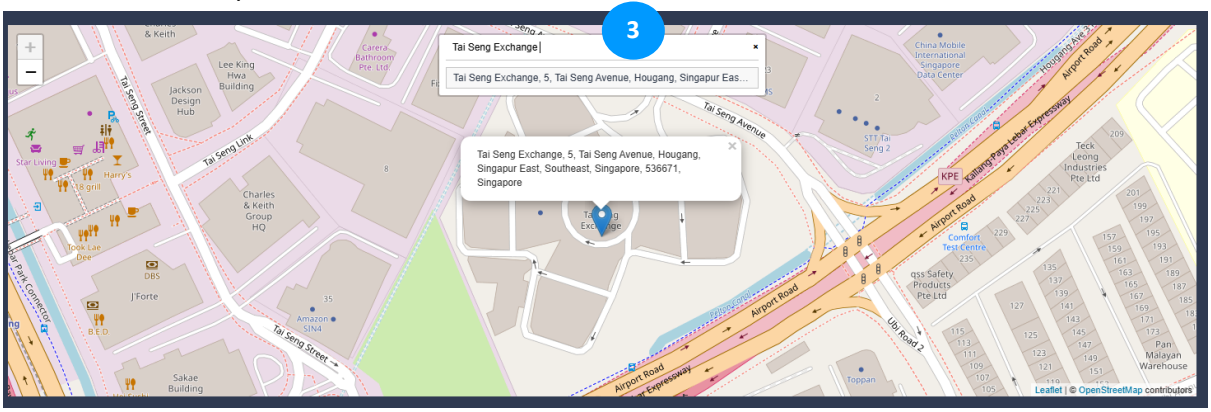
1. Click **[Gateway Location]**.



2. If no location is set, then an appropriate message will be displayed. Click **[YES]** to set the Gateway's location.

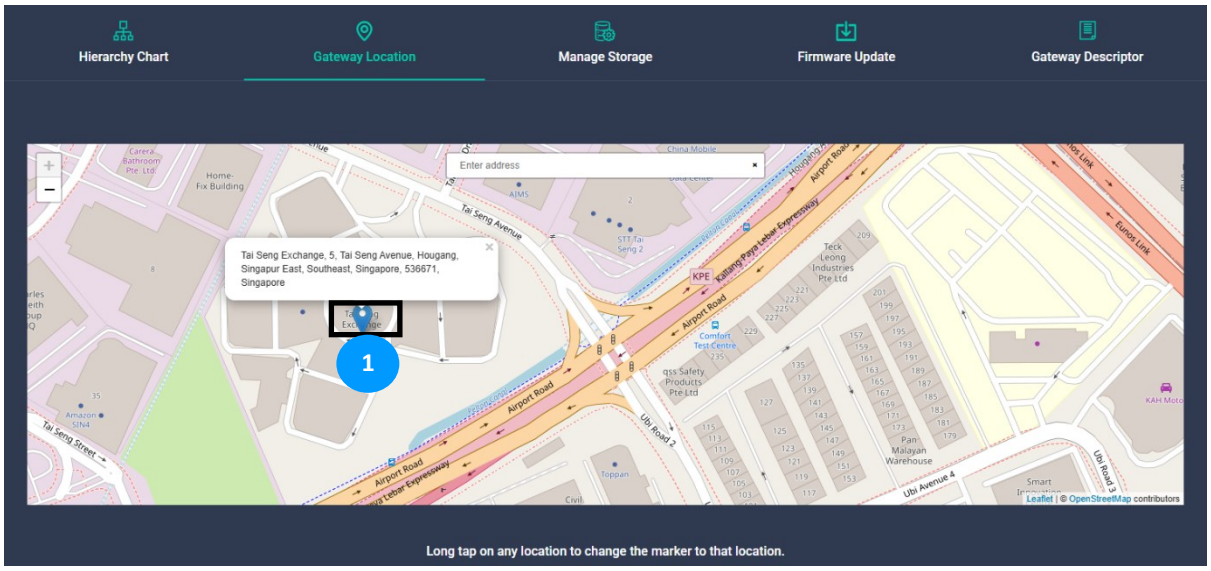


3. Set the Gateway Location.

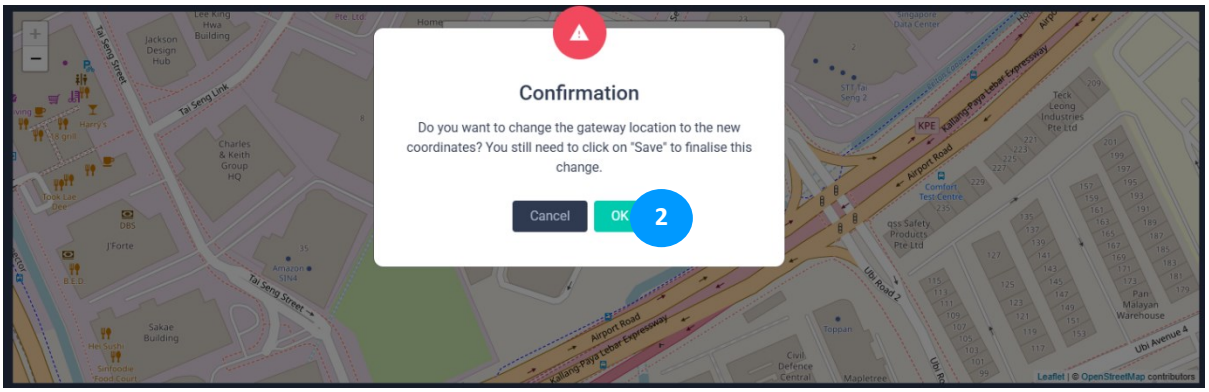


To change the gateway location to the new coordinates –

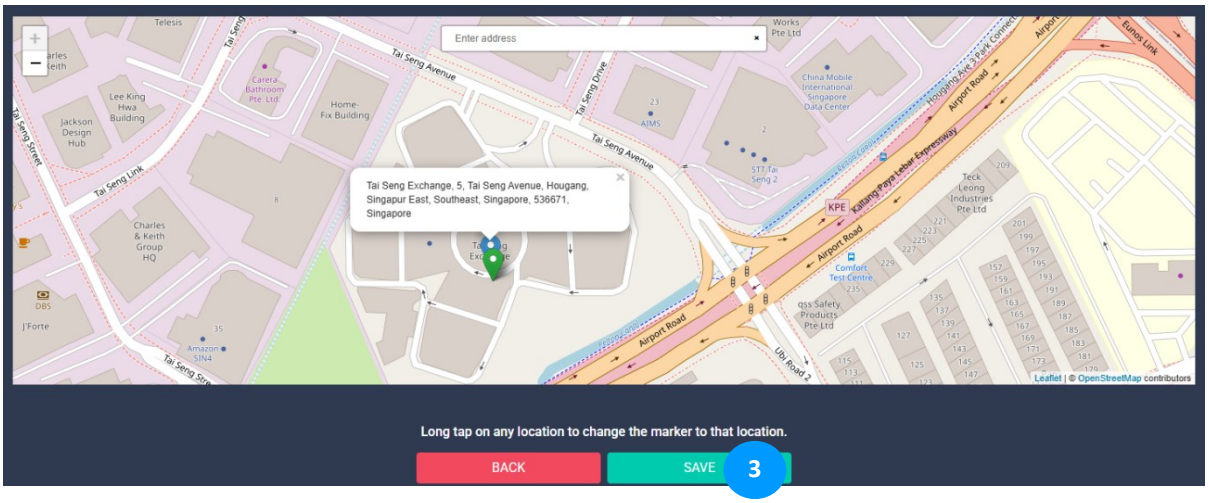
1. Long tap on the marker to change the gateway location to the new coordinates.



2. A confirmation window will be displayed. Click **[OK]** and change the location.



3. Upon changing the gateway location (if any), click **[SAVE]** to save the changes.



7.7 Manage Storage

In every subscription, owners receive 5GB of storage data for all their gateways. 5GB of data can buffer reports from 4,750 sensors reporting one report per minute for 365 days. Charges for data offload requests are applied after the data download is complete. The request is not charged if the download is not successful.

There is a storage system for all sensor data. Sensor data is no longer stored when storage is full. Upon exceeding the user-preset storage threshold, the user will receive a first notification. In this notification (email or push notification), the user or owner is notified of the following:

- The sensor storage capacity has exceeded the user-set usage threshold (%)
- Sensor storage will cease when capacity reaches 100%
- Delete or offload sensor data

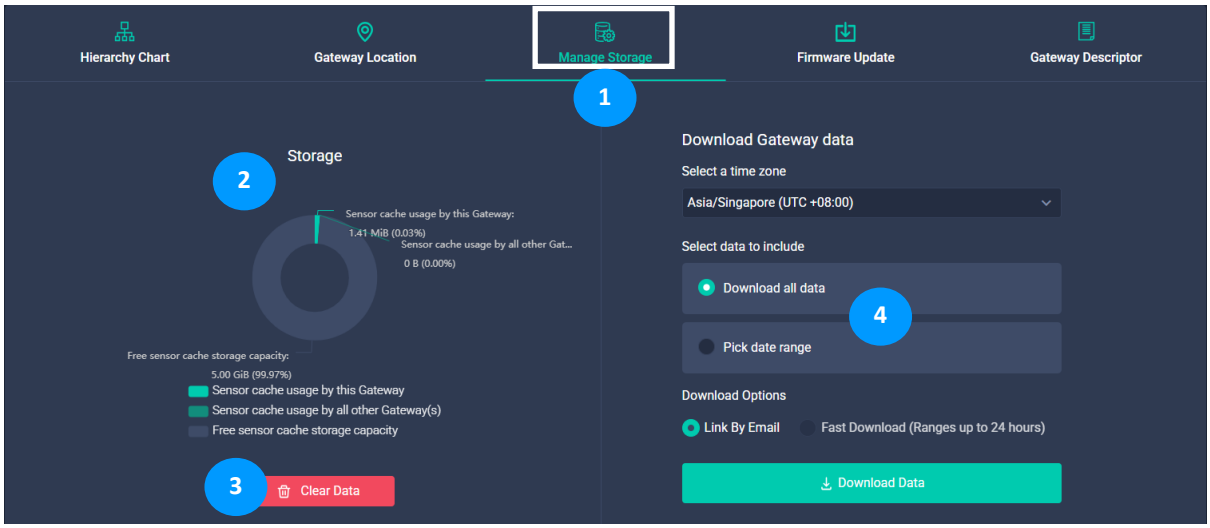
When storage reaches 100%, a second notification is sent. Upon reaching 100%, sensor data storage is stopped.

Email notifications will be sent to verified email addresses, and push notifications will be sent to verified mobile numbers. The default notification method shall be email if both are verified.

Ensure the token balance is sufficient to perform this operation.

To view / manage storage,

1. Click **[Manage Storage]**.



2. The information related to *Used Storage* (storage used by the current gateway and other gateways) and *Free Storage* are displayed.

3. Click **[Clear Data]** to clear all the data related to the selected gateway. A confirmation message is displayed. Click **[YES]** to clear the data or **[NO]** to discard the operation.

4. To download gateway data, select a time zone; Select data to include – *Download all data* or *Pick date range*. Upon providing the required input, click **[Download Data]**. A confirmation message is displayed. Click **[OK]**. Upon confirmation, an email will be sent to the user's registered email address with instructions on how to download the gateway data.

7.8 Firmware Update

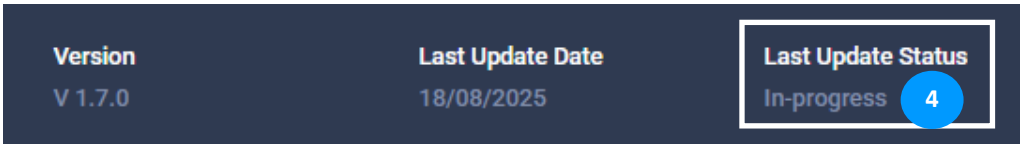
This function is used to update gateway firmware. To update firmware,

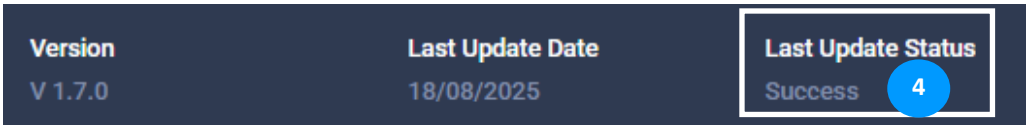
1. Click **[Firmware Update]**.

2. Currently installed firmware version details and a list of available versions if any are displayed. Click **[Learn More]** to view the *version log*.

3. Select the required version and click **[UPDATE]**. A confirmation will be displayed. Click **[UPDATE]** to proceed. A request for firmware update will be submitted.

4. Upon updating the firmware, the last updated status is updated from "*In_progress*" to "*Success*". Firmware is updated if the gateway is online. If the gateway is offline, the firmware update will start later.

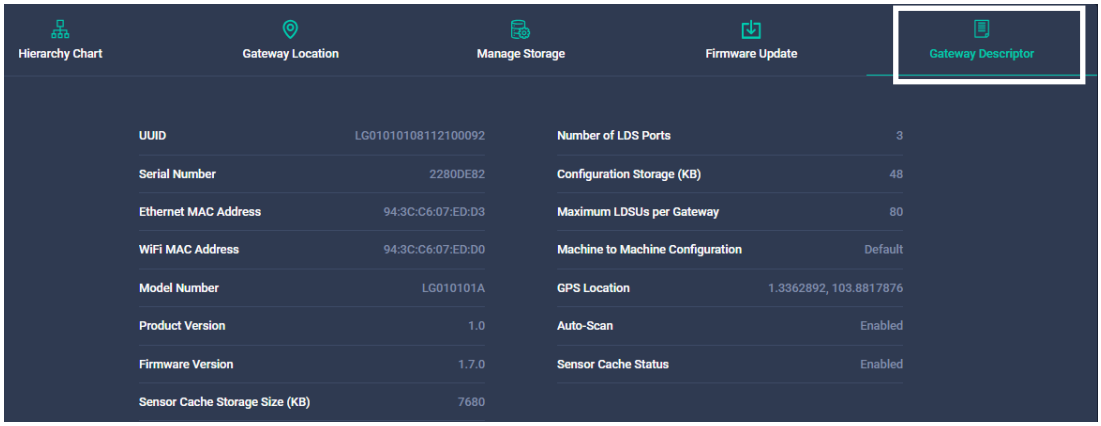




7.9 Gateway Descriptor

Upon successfully connecting to the IoTPortal, the gateway registers its Gateway Object Descriptor. To view the gateway descriptors -

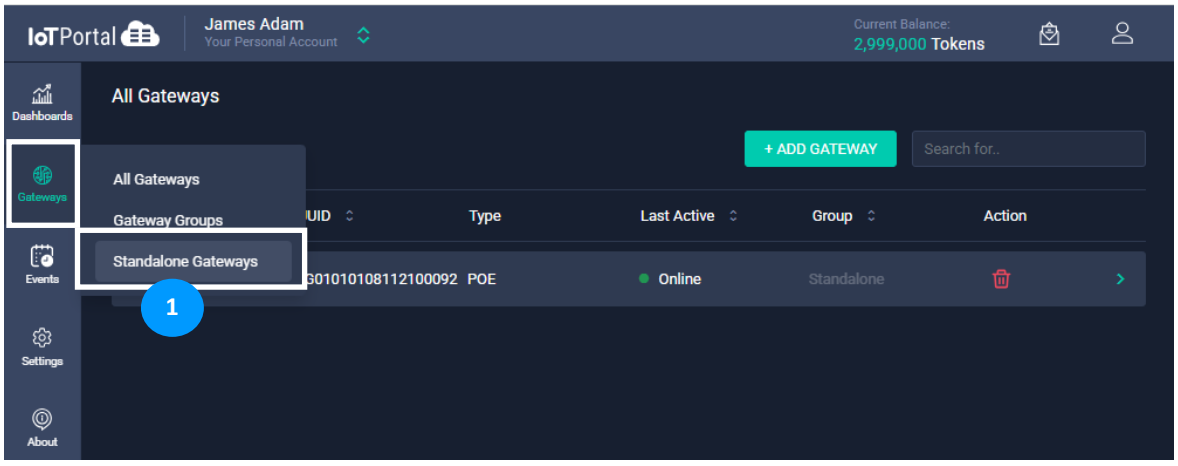
Click **[Gateway Descriptor]**. The Gateway Descriptors are displayed**.**



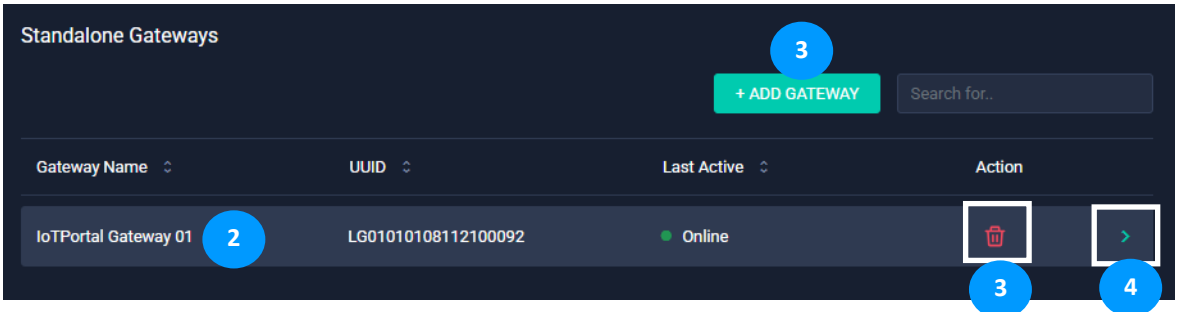
7.10 Standalone Gateway

To access Standalone Gateway interface -

1. Click **Gateways > Standalone Gateways** from the menu.



2. A list of Standalone Gateways (if any) is displayed.



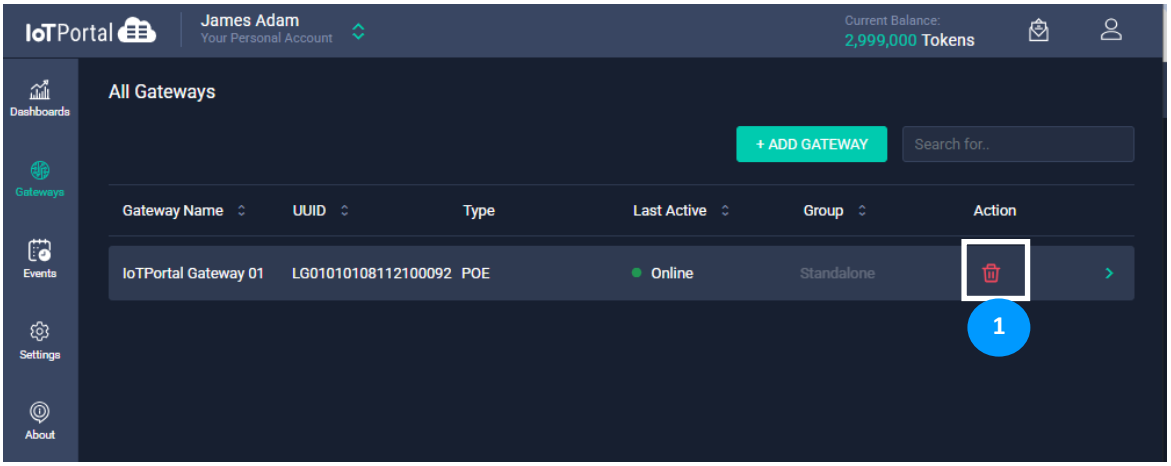
3. Perform the following functions as required –
   - Add Gateway
   - Remove Gateway

4. To access the Gateway details, click on the Gateway or **>**. Refer to View Gateway Details for more information.

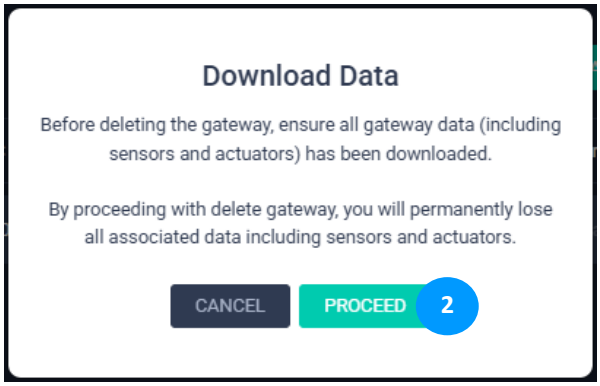
7.11 Delete Gateway

To delete gateway –

1. Click .



2. A confirmation window will be displayed. **Please go through the message carefully**. Click **[PROCEED]** to delete the gateway.



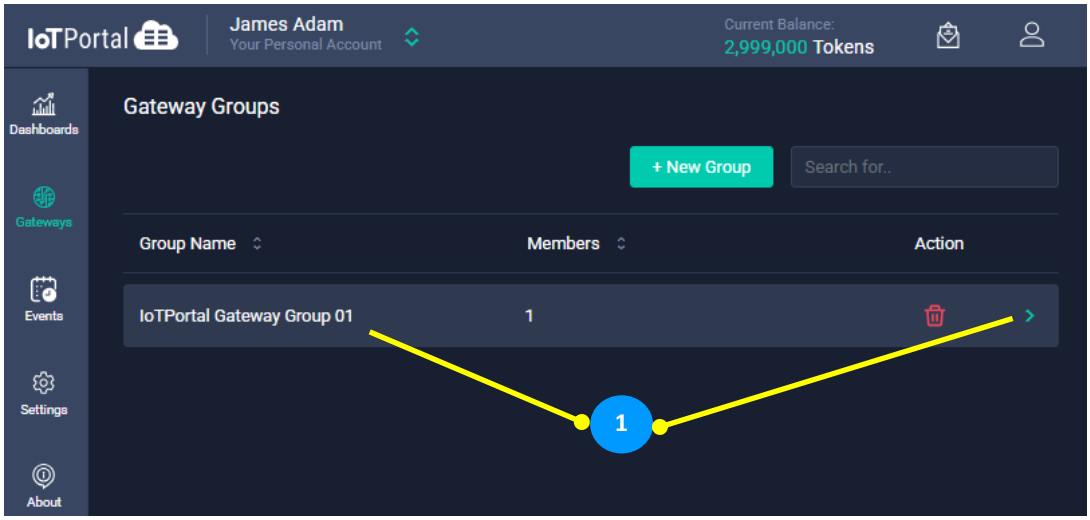
NOTE: Once a IoTPortal gateway is deleted, it can be re-onboarded only after 2 hours.

7.12 Manage Gateway Group

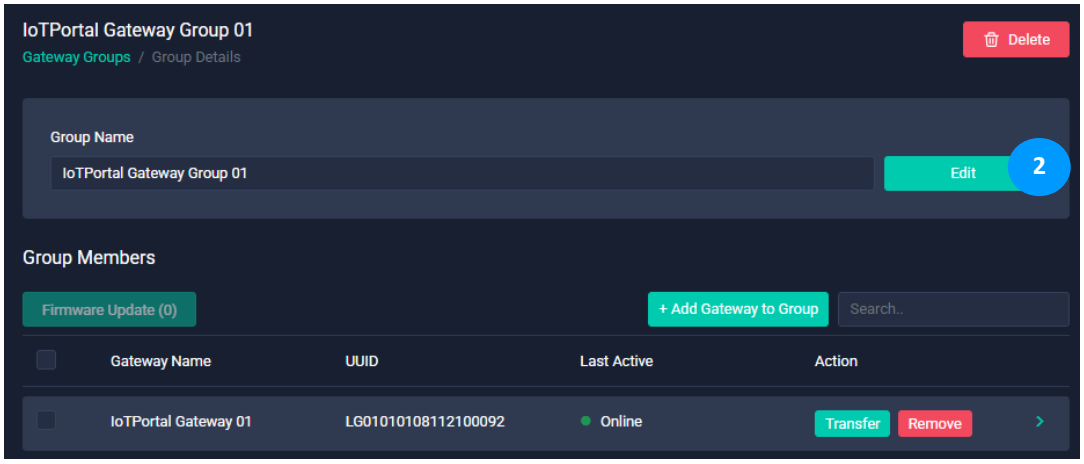
7.12.1 Edit Gateway Group Name

To edit gateway group name,

1. Click **Gateway Group Name** or **>.**

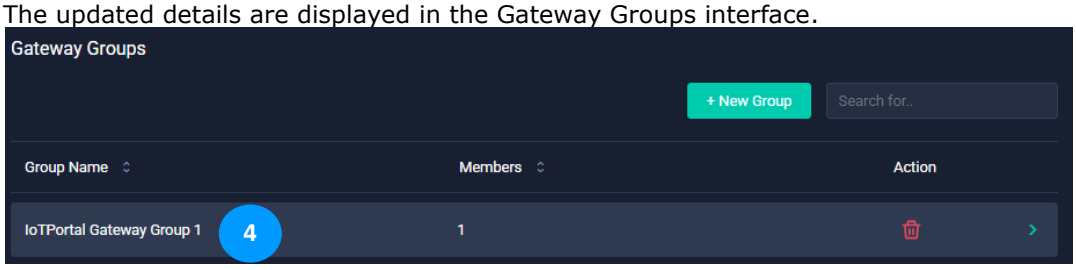


2. The Gateway Group Name and the Group Members are displayed. Click **[Edit].**



3. Edit the *Gateway Group Name* as required and click **[Update]**. An appropriate message indicating the update is displayed.

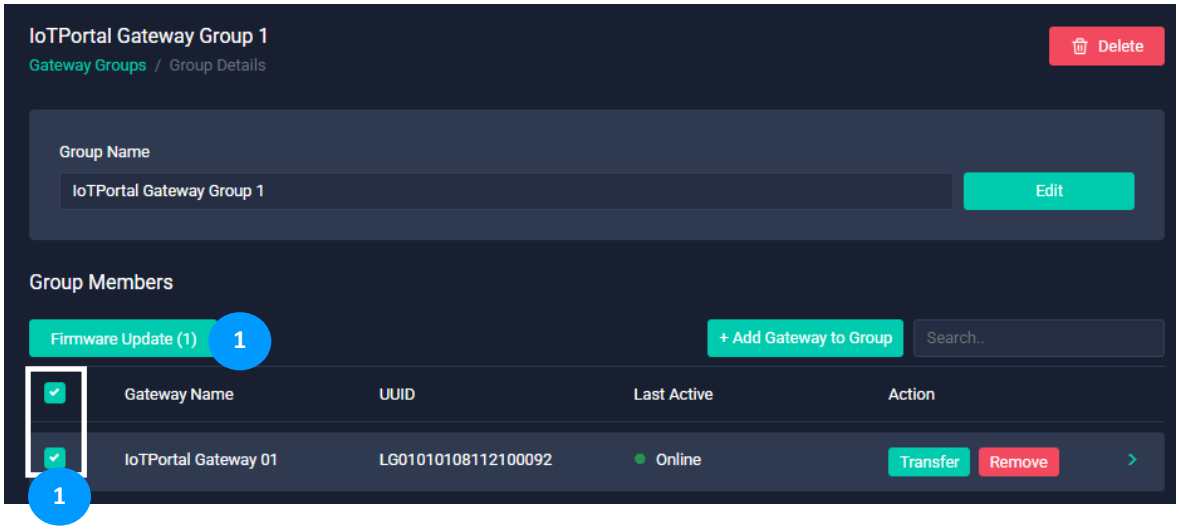
4. The updated details are displayed in the Gateway Groups interface.



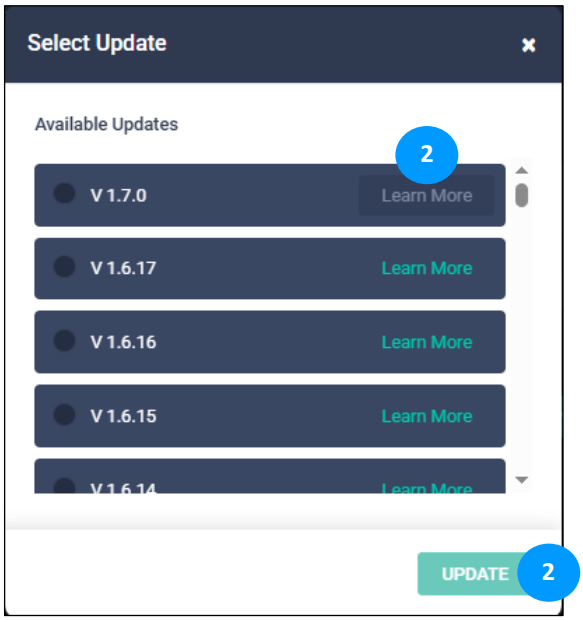
7.12.2 Firmware update for Gateway Group Member

To perform firmware update for gateway group member –

1. Select one or more gateways from the Group Member table by selecting the **checkbox**. Alternately, to select all the group members, select the checkbox on the table header. Click **[Firmware Update]**.



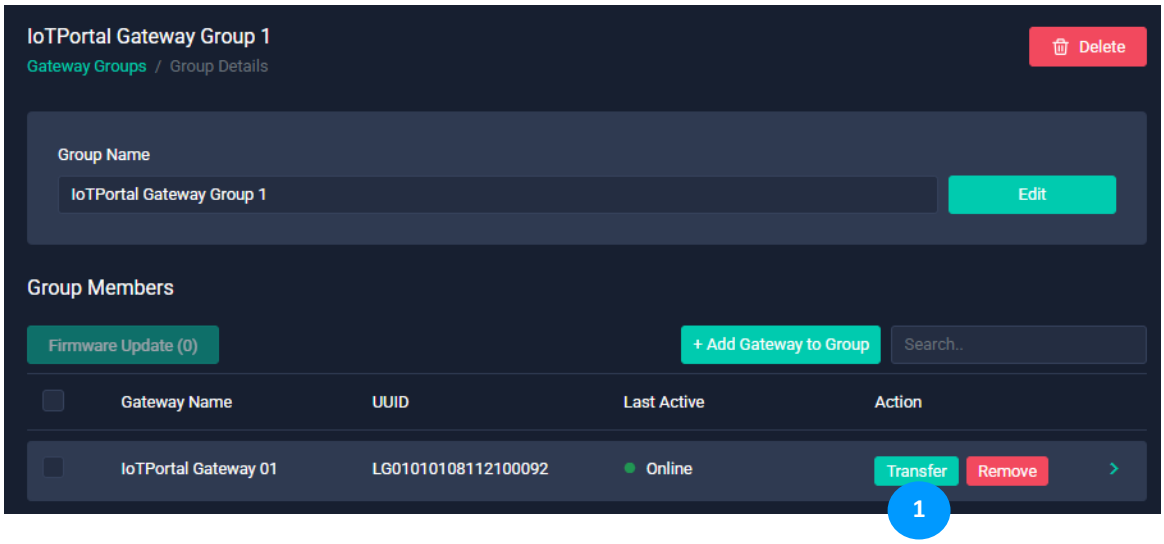
2. Select the required version; Click **[Learn More]** to view the *version log.* Click **[UPDATE]**. A confirmation window will be displayed. Click **[UPDATE]** to proceed. A request for firmware update will be submitted.



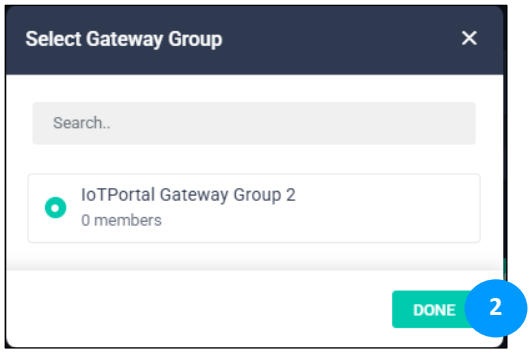
7.12.3 Transfer Gateway from one group to another group

This function allows users to transfer gateway from one group to another. To transfer gateway –

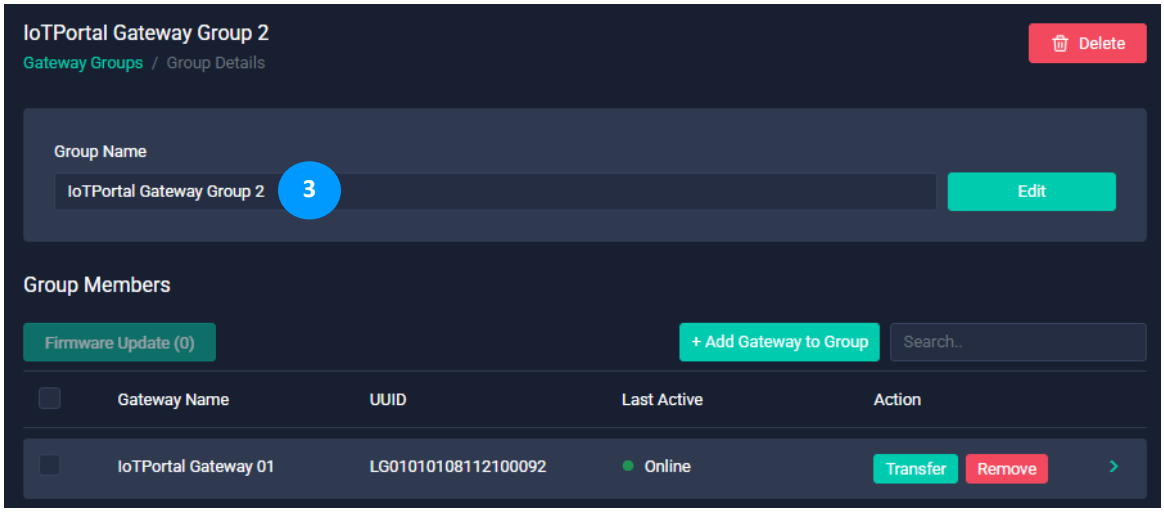
1. Click **[Transfer]** against the Gateway to be transferred. A confirmation window will be displayed. Click **[Yes]** to proceed. A request for transfer will be submitted.



2. Select the destination group. Click **[DONE]**. Upon successful transfer an appropriate message indicating the same is displayed.



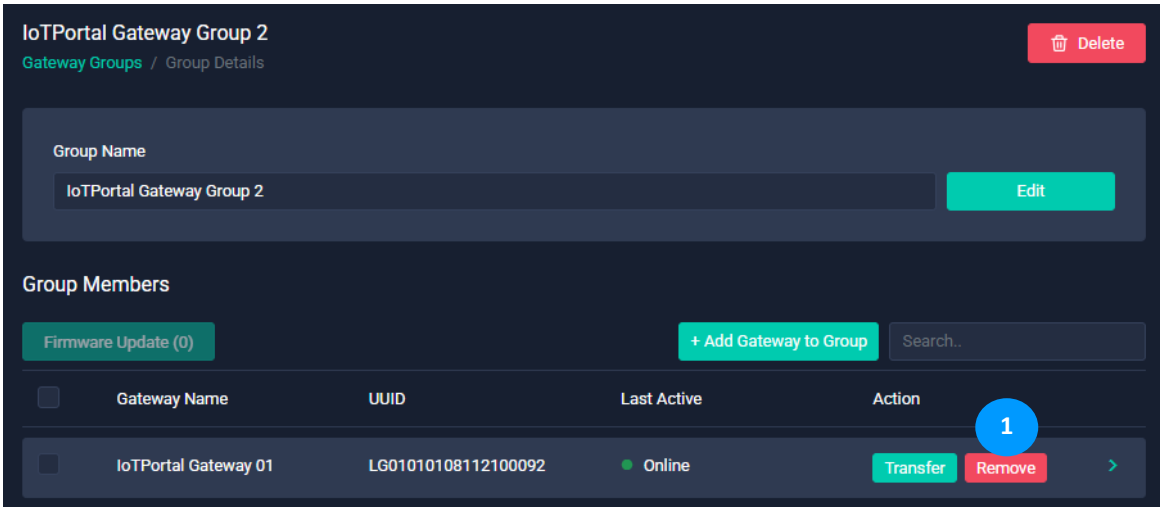
3. The gateway is transferred from one group to another group.



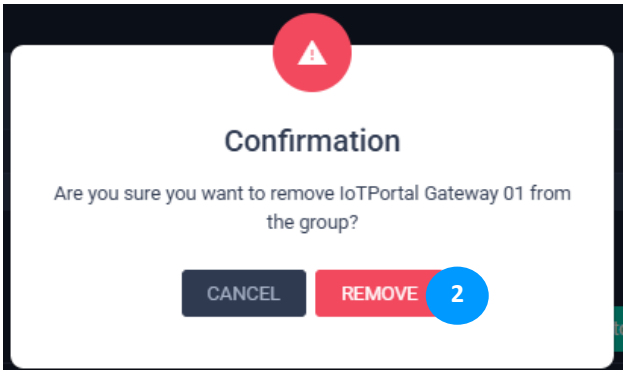
7.12.4 Remove Gateway from Gateway Group

This function allows users to remove member gateway from gateway group. To remove gateway from gateway group –

1. Click **[Remove]** against the Gateway to be removed.



2. A confirmation window will be displayed. Click **[REMOVE]** to proceed. Upon successful removal, an appropriate message indicating the same is displayed.

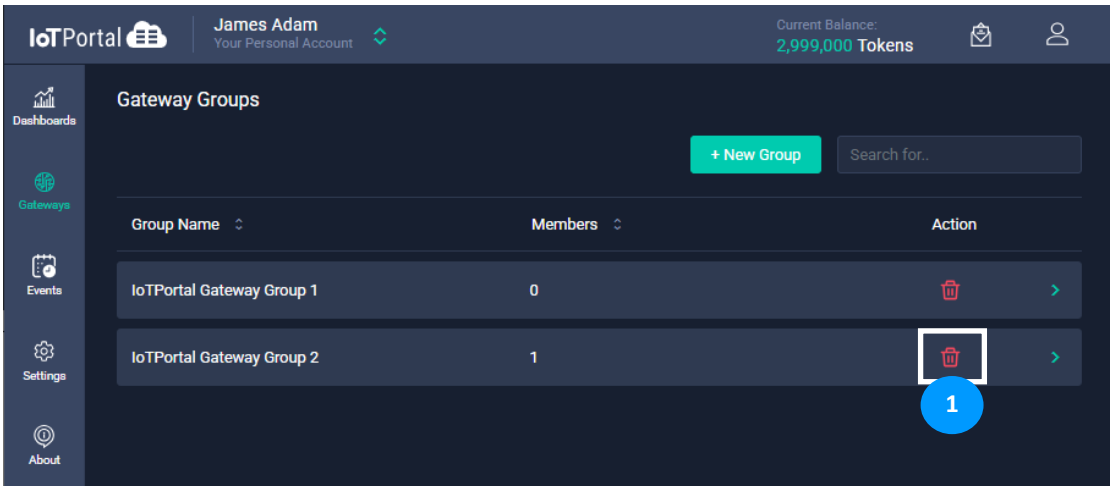


Upon successful removal, the gateway will become a standalone / single gateway.

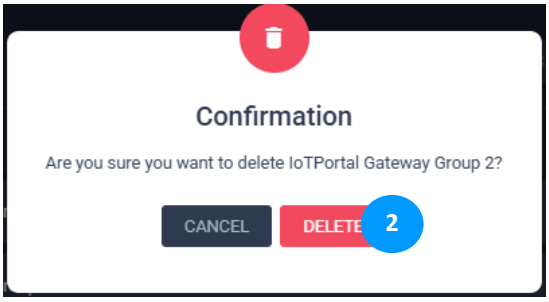
7.12.5 Remove Gateway Group

To remove gateway group –

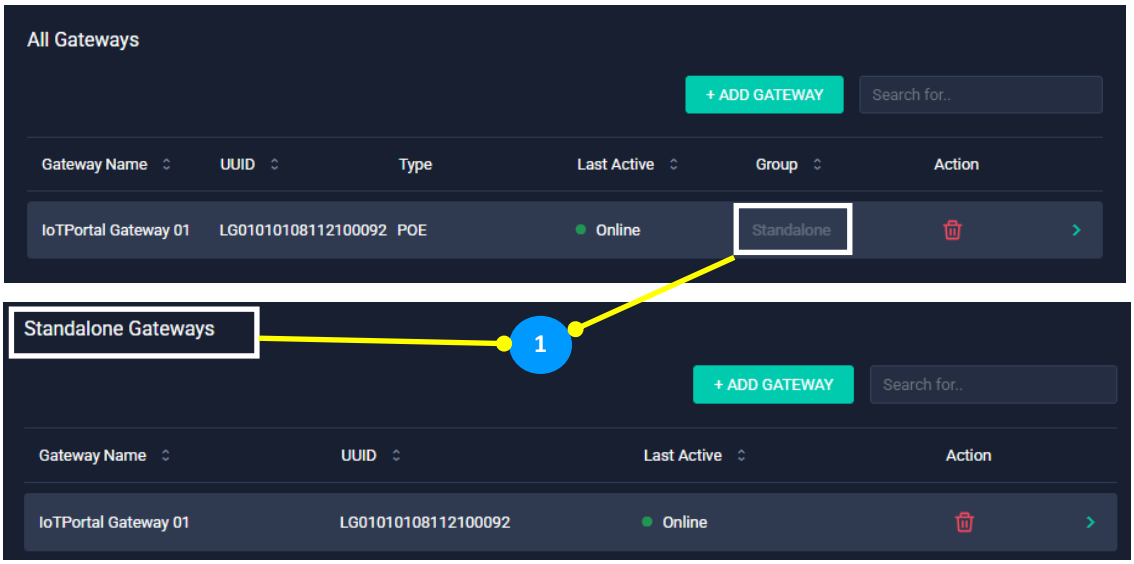
1. From the Gateway Groups interface, click .



2. A confirmation message is displayed. Click **[DELETE]** to proceed with the deletion.



3. Upon successful deletion of gateway group, the gateway will become standalone.



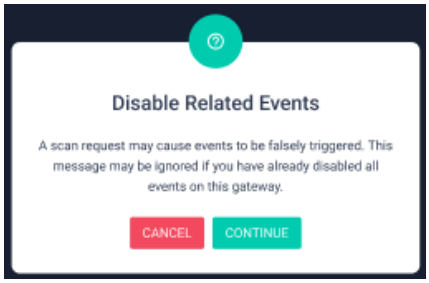
8. LoRaWAN Node Features

8.1 Edit LoRaWAN Gateway Name

Editing a LoRaWAN gateway name follows the same process as in IoTPortal gateway. Refer to section 7.1 for more details.

8.2 LoRaWAN Gateway Scan

A gateway scan updates the current LDSU, sensor, and actuator list, and also adds any newly discovered devices. Confirm scan by selecting **[CONTINUE]**.



8.3 Manage Modbus Ports

LoRaWAN Node (LoRaWAN Modbus bridge) can be connected to multiple modbus devices via the modbus connector.

The Modbus ports have the same features as the IoTPortal LDSBus ports. Refer to the section 7.3 for more details.

8.4 Hierarchy Chart

Viewing a hierarchy chart follows the same process as in IoTPortal gateway. Refer to section 7.5 or more details.

8.5 Gateway Location

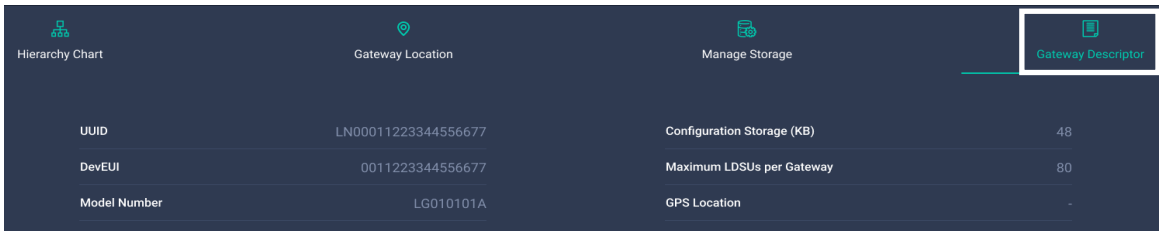
Viewing/Updating LoRaWAN gateway location follows the same process as in IoTPortal gateway. Refer to section 7.6 for more details.

8.6 Manage Storage

Viewing/Manage LoRaWAN gateway storage follows the same process as in IoTPortal gateway. Refer to section 7.7 for more details.

8.7 Gateway Descriptor

Click **[Gateway Descriptor]** to view the following descriptors:



8.8 Delete Gateway

Deleting the LoRaWAN gateway follows the same process as in IoTPortal gateway. Refer to section 7.11 for more details.

9. Subscription Management

A subscription is tied to a user account and not to a gateway. Currently users can subscribe on a *Monthly* basis. Subscriptions may come with prevailing discounts regardless of the type. *For example, 0% for monthly*.

The subscription plan is created at the time of subscription, sign-up and payments are collected monthly. For example, if a subscription is initiated on July 4th, a monthly deduction will occur every 4th of the month thereafter. Depending on the active discount rate setting for that plan, the discount may be applied once or multiple times.

Subscriptions can only be signed up through the web client (WMC). Owners of subscription can choose the payment schedule *(Monthly)* during subscription sign up.

Add-ons and Entitlements for Tokens

- Tokens are categorized into 3 types – *Allocated Tokens, Bonus Tokens* and *Purchased Tokens.* Priority is given to Allocated Tokens (Highest Priority), followed by Bonus Tokens and Purchased Tokens (lowest priority). Consumption order is determined by priority. Each token has the same value.
- Tokens are allocated at the beginning of every monthly billing cycle, and any unused tokens from the previous month are reset to zero.
- Bonus tokens are received through promo codes and have an expiration date. With any addition of bonus tokens, the expiration date of the old and new bonus tokens will be adjusted to the earlier expiration date.
- Purchased tokens are added to the subscription when the owner or authorized user purchases them. Tokens purchased do not expire and may be accumulated through additional purchases.
- User actions consume tokens within the system. Thus, such actions must be accounted for under each organization and user's account.
- To avoid service disruptions due to the full usage of tokens (zero token balance), the IoTPortal shall keep a tally of tokens. An alert shall be sent to the owner or owner's group when the remaining token balance reaches less than 72 hours of service. Once triggered, this alert will be sent every day until the token balance is restored to more than 72 hours.

	Resource	Tokens Consumed
1	Email	1000 / Email
2	SMS	3000 to 33000* *Depends on destination and the SMS rate
3	Notification	0 per notification (100% discounted)
4	Ingress Report	0 per MiB (100% discounted)
5	Egress Commands	0 per MiB (100% discounted)
6	Dashboard Data Request	2000 per MiB
7	Data Download Request	1000 per 10MiB
8	Active Event	0 per Event per Day per enable (100% discounted)

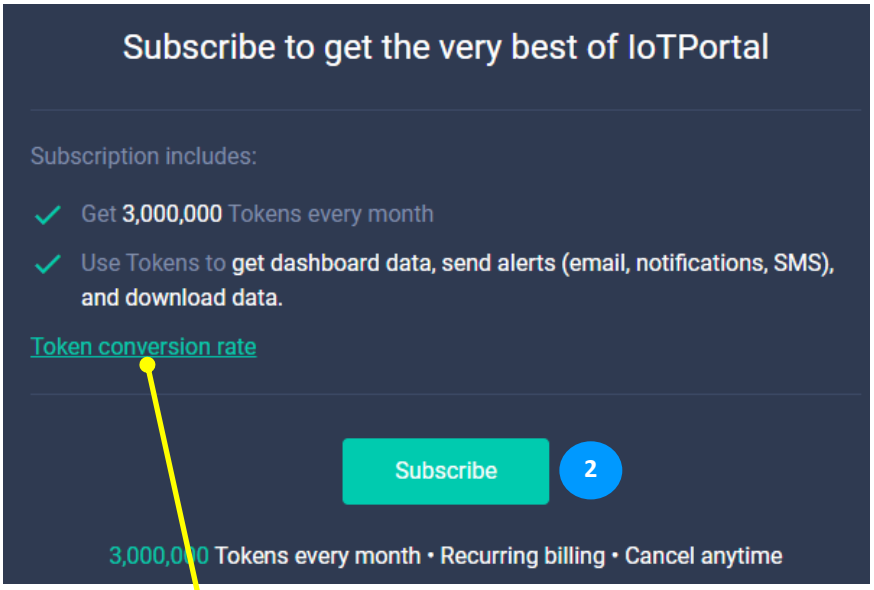
Table 2 - Token Conversion Rate

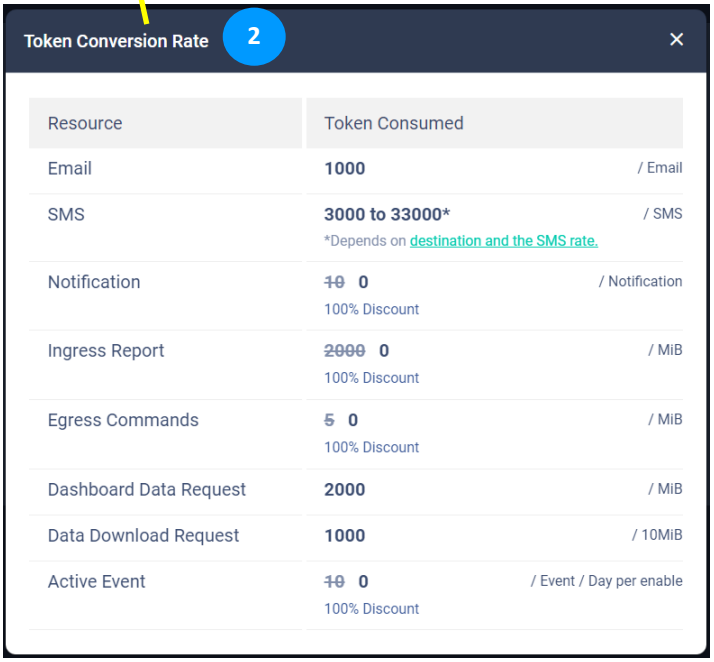
9.1 Subscription Sign Up

The subscription menu is enabled / displayed only for the Owner. To sign up for Subscription –

1. Click **[Subscribe Now]**.

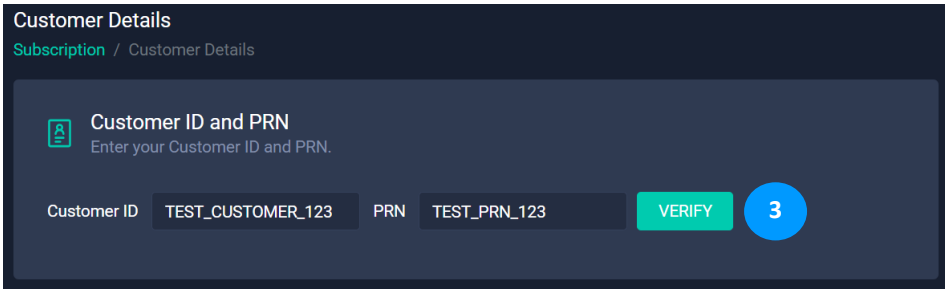
2. Click **[Subscribe]**. To view the *Token conversion rate*, click the link.



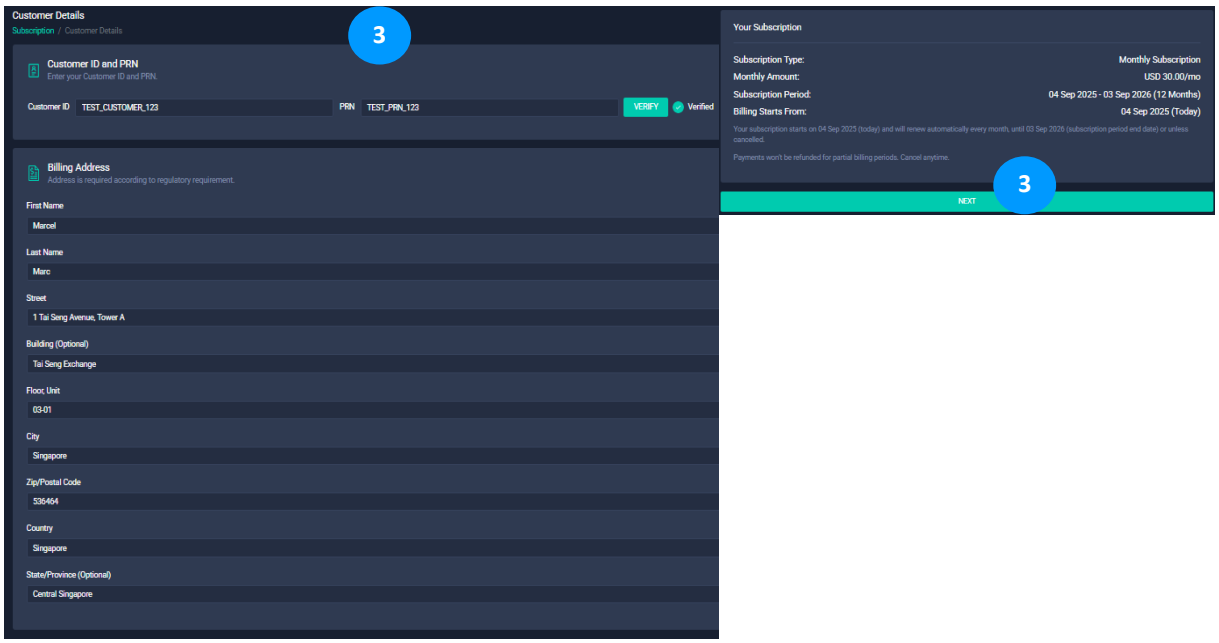


3. Subscriptions / Billing address interface is displayed.

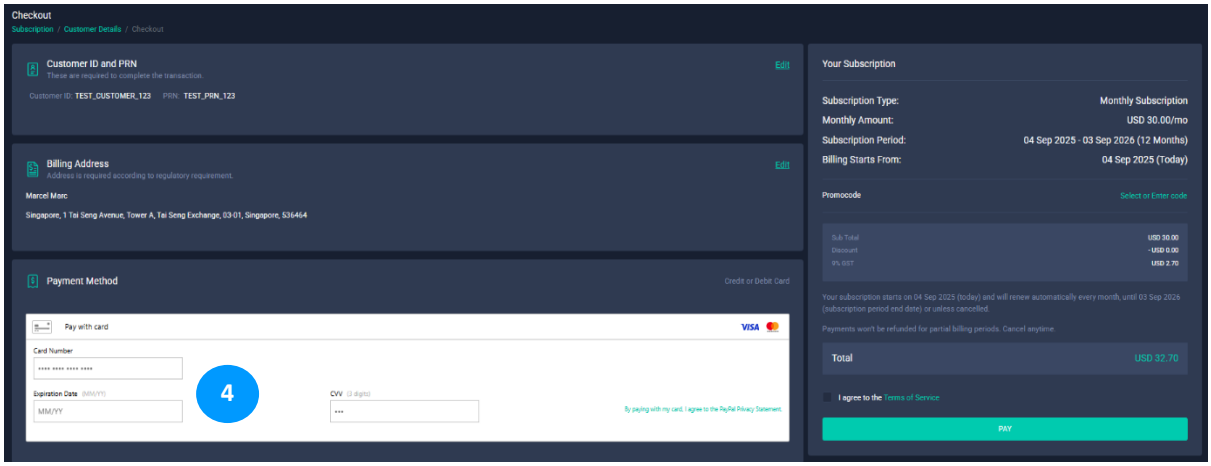
   Enter the following Customer information – *Customer ID* and *PRN* and click to **[VERIFY]** the same.



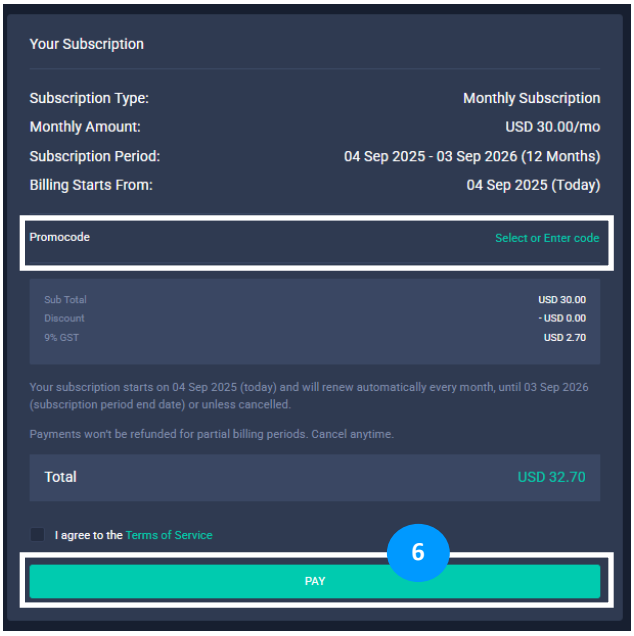
   Upon verifying successfully, enter the following Billing Address information – *First Name, Last Name, Street, Building (optional), Floor, Unit, City, Zip/Postal Code, Country, State/Province* (optional). Click **[NEXT]** to proceed.

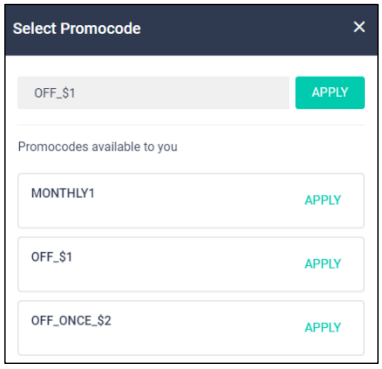


4. Add the Payment Method *(Card Number, Expiration Date and CVV number)*.



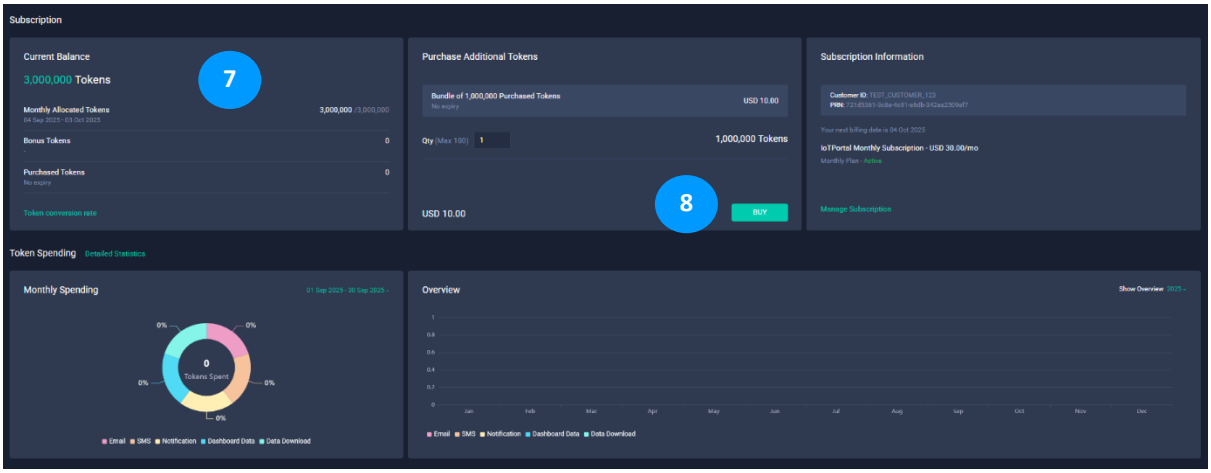
5. Select or enter the promo code, if any and click **[Apply]**.





6. Go through the *Terms of Service* (by clicking on the link) and accept it by clicking on the check box. Upon adding the required information, click **[PAY]**.

7. Once the payment is successful an appropriate message indicating the same is displayed and the subscription details are displayed.



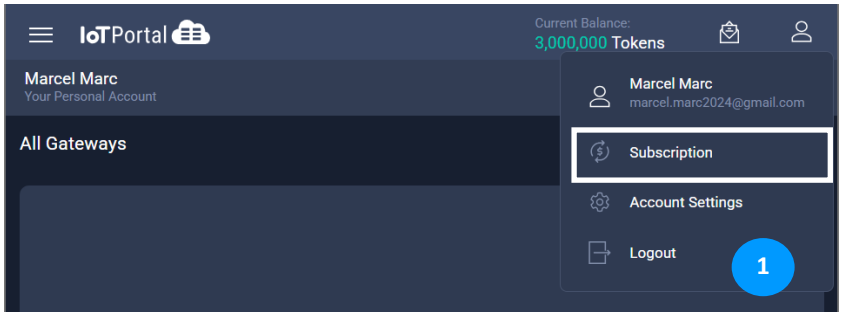
8. To purchase additional tokens, enter the required token quantity, click **[BUY]** and **repeat the steps from 6-8**.

9.2 Billing History

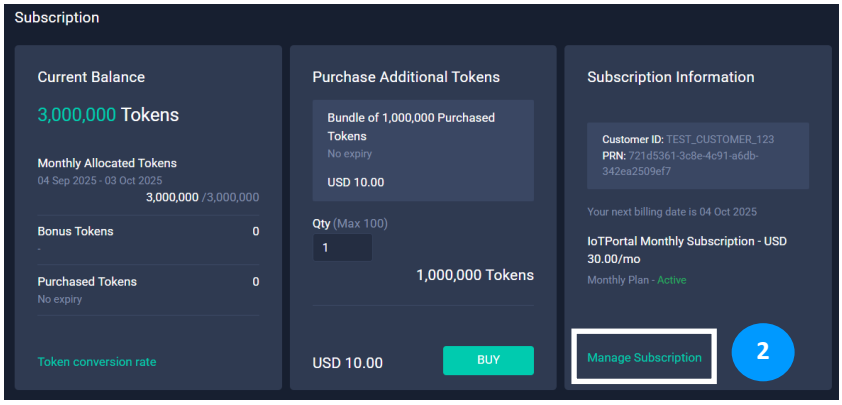
Token purchases can be viewed in the billing history interface, which shows a history of all transactions. Additionally, invoice receipts can be downloaded through this interface.

To view billing history,

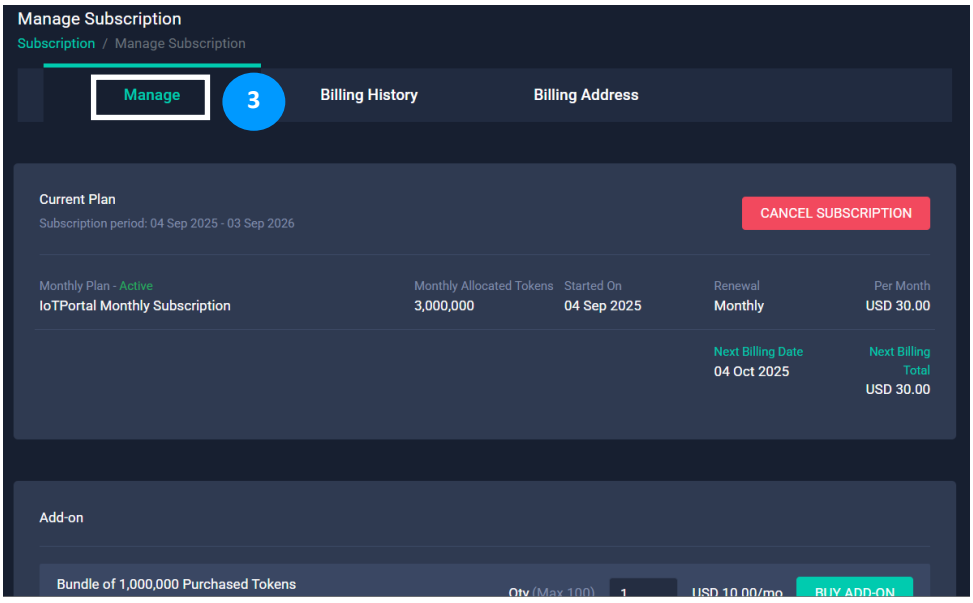
1. Click on the **avatar** icon at the top right corner and selection **Subscription** from the resulting menu.



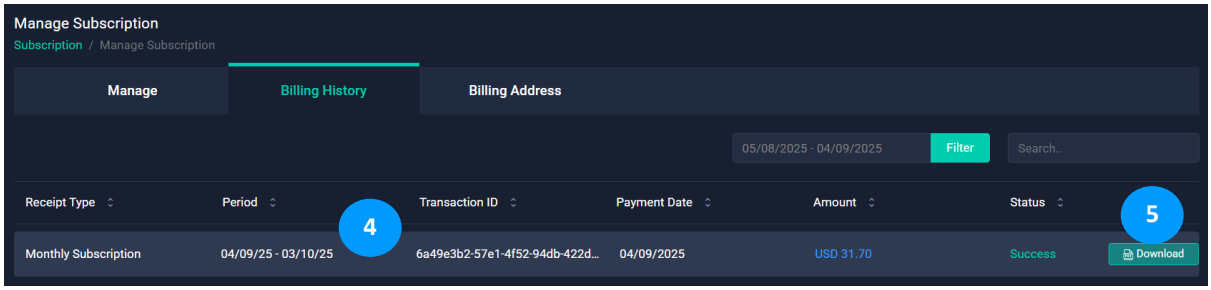
2. Subscription interface is displayed. Click **[Manage Subscription]**.



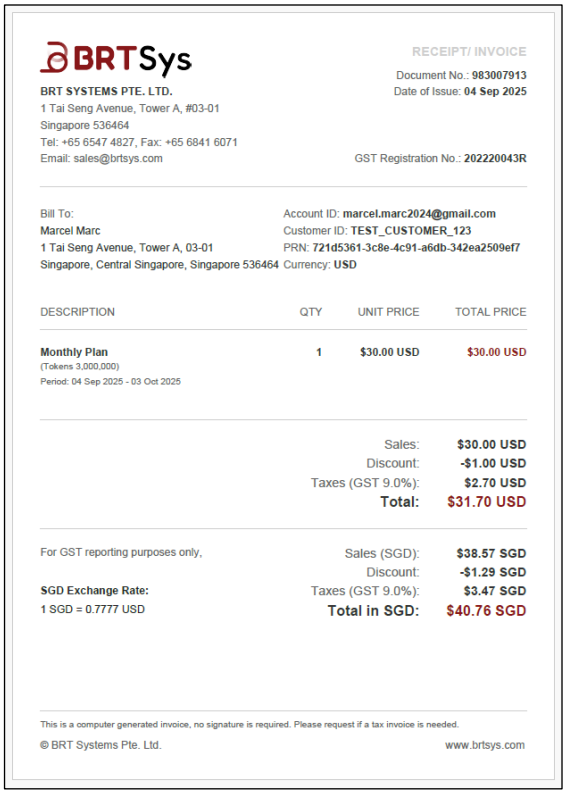
3. Manage Subscription interface is displayed. Click **Billing History**.



4. A list of transactions (if any) will be displayed.



5. Click **[Download]** to download the invoice receipt in pdf format. Please note that the invoice receipt can be downloaded only after the payment *status* shows *success*.



BRTSys

RECEIPT/ INVOICE

BRT SYSTEMS PTE. LTD.
1 Tai Seng Avenue, Tower A, #03-01
Singapore 536464
Tel: +65 6547 4827, Fax: +65 6841 6071
Email: sales@brtsys.com

Document No.: **983007913**
Date of Issue: **04 Sep 2025**
GST Registration No.: **202220043R**

Bill To:
Marcel Marc
1 Tai Seng Avenue, Tower A, 03-01
Singapore, Central Singapore, Singapore 536464

Account ID: **marcel.marc2024@gmail.com**
Customer ID: **TEST_CUSTOMER_123**
PRN: **721d5361-3c8e-4c91-a6db-342ea2509ef7**
Currency: **USD**

DESCRIPTION	QTY	UNIT PRICE	TOTAL PRICE
Monthly Plan (Tokens 3,000,000) Period: 04 Sep 2025 - 03 Oct 2025	1	$30.00 USD	$30.00 USD

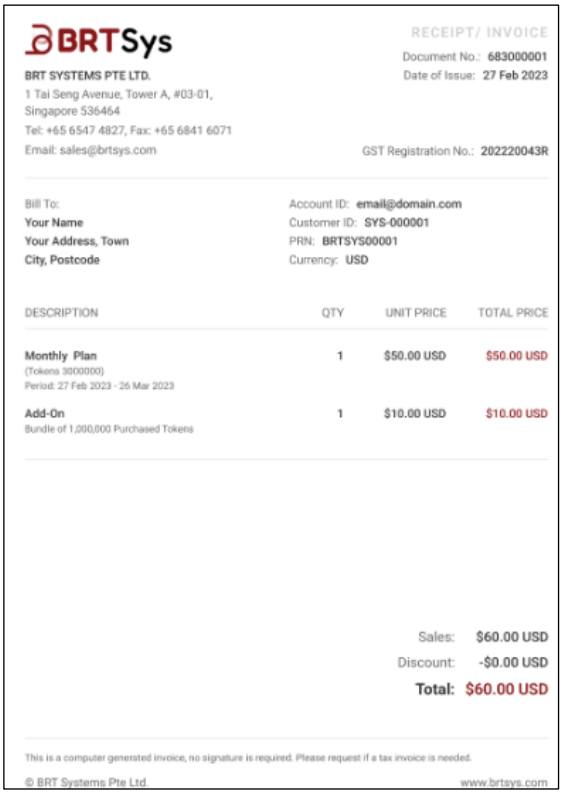
Sales: $30.00 USD
Discount: -$1.00 USD
Taxes (GST 9.0%): $2.70 USD
Total: $31.70 USD

For GST reporting purposes only,
SGD Exchange Rate:
1 SGD = 0.7777 USD

Sales (SGD): $38.57 SGD
Discount: -$1.29 SGD
Taxes (GST 9.0%): $3.47 SGD
Total in SGD: $40.76 SGD

This is a computer generated invoice, no signature is required. Please request if a tax invoice is needed.
© BRT Systems Pte. Ltd. www.brtsys.com

Sample Receipt / Invoice for Singapore Users



BRTSys

RECEIPT/ INVOICE

BRT SYSTEMS PTE LTD.
1 Tai Seng Avenue, Tower A, #03-01,
Singapore 536464
Tel: +65 6547 4827, Fax: +65 6841 6071
Email: sales@brtsys.com

Document No.: **683000001**
Date of Issue: **27 Feb 2023**
GST Registration No.: **202220043R**

Bill To:
Your Name
Your Address, Town
City, Postcode

Account ID: **email@domain.com**
Customer ID: **SYS-000001**
PRN: **BRTSYS00001**
Currency: **USD**

DESCRIPTION	QTY	UNIT PRICE	TOTAL PRICE
Monthly Plan (Tokens 3000000) Period: 27 Feb 2023 - 26 Mar 2023	1	$50.00 USD	$50.00 USD
Add-On Bundle of 1,000,000 Purchased Tokens	1	$10.00 USD	$10.00 USD

Sales: $60.00 USD
Discount: -$0.00 USD
Total: $60.00 USD

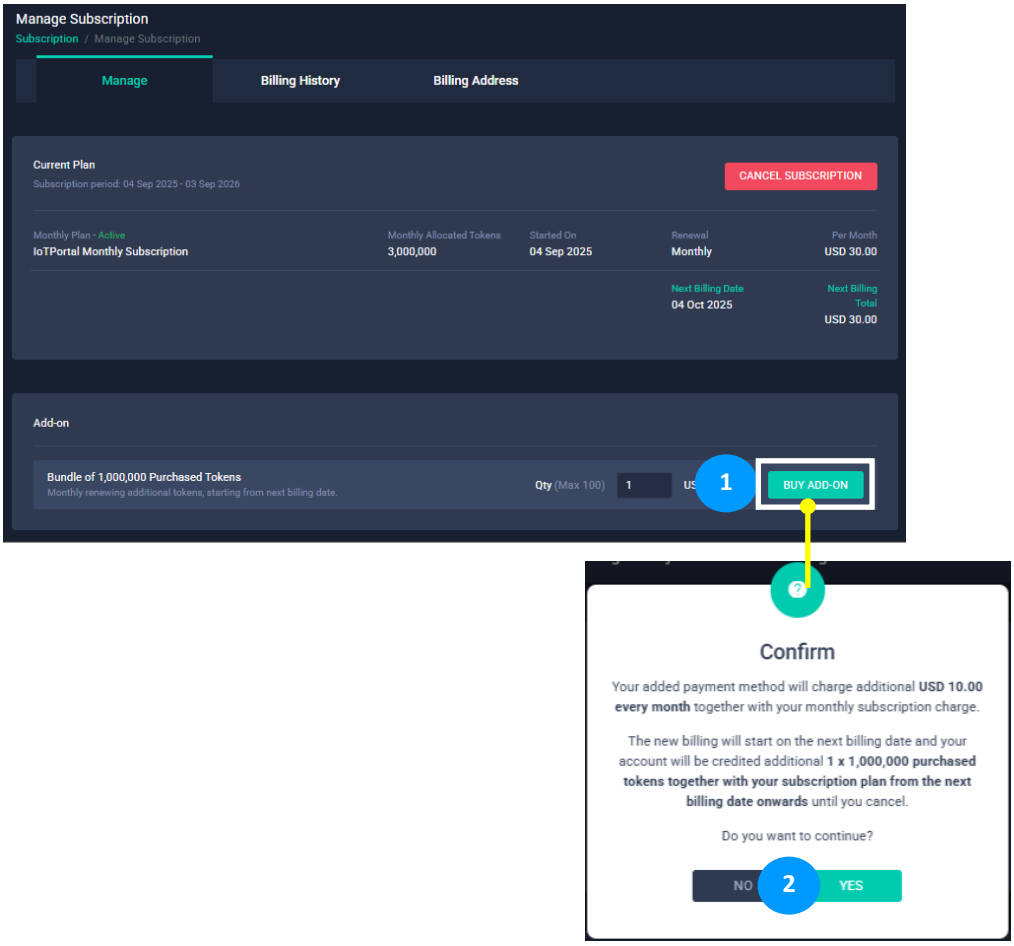
This is a computer generated invoice, no signature is required. Please request if a tax invoice is needed.
© BRT Systems Pte Ltd. www.brtsys.com

Sample Receipt / Invoice for Non- Singapore Users

9.2.1 Buy Add-On tokens

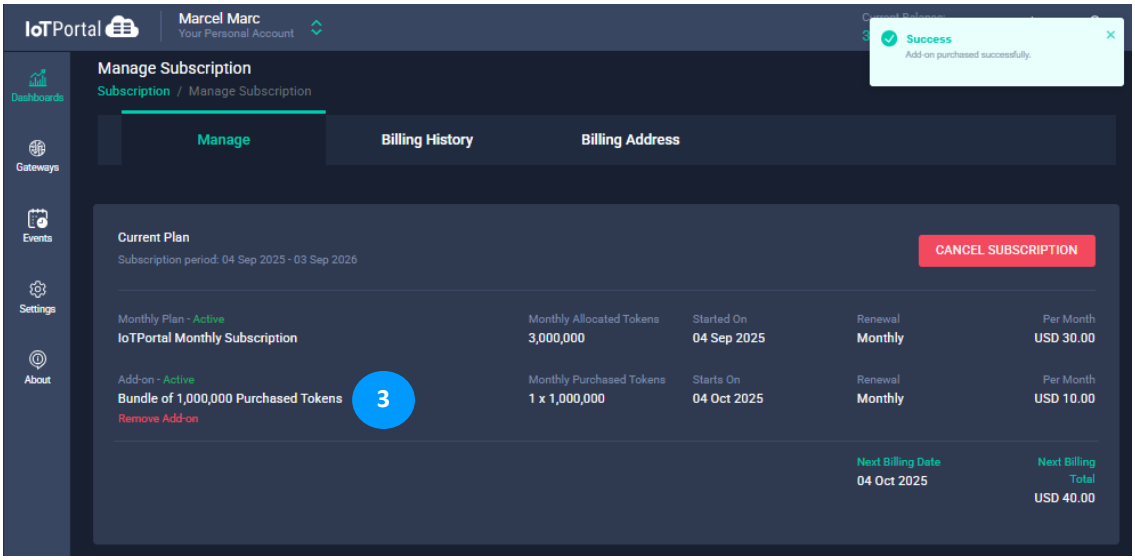
To buy add-on tokens,

1. In the Manage Subscription interface, under Add-on section, click **[BUY ADD-ON]**.



2. A confirmation message will be displayed. Go through the message and click **[YES]** to proceed.

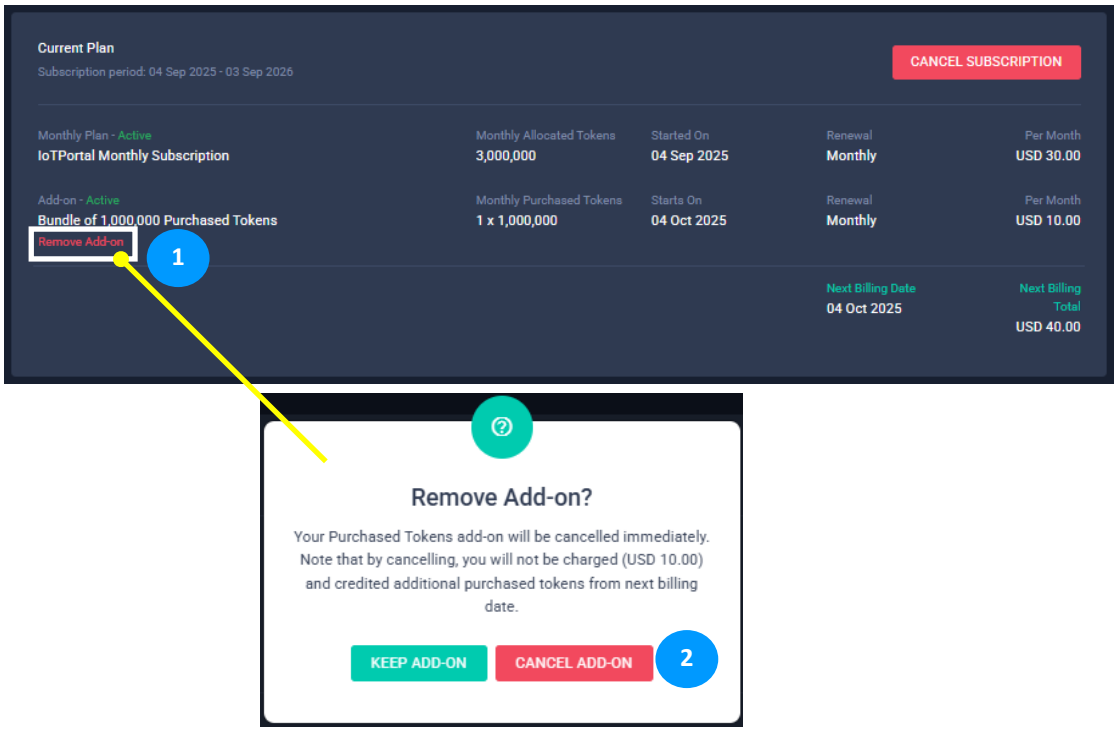
3. Upon successful purchase, the details are displayed as part of the current plan.



9.2.2 Remove Add-On tokens

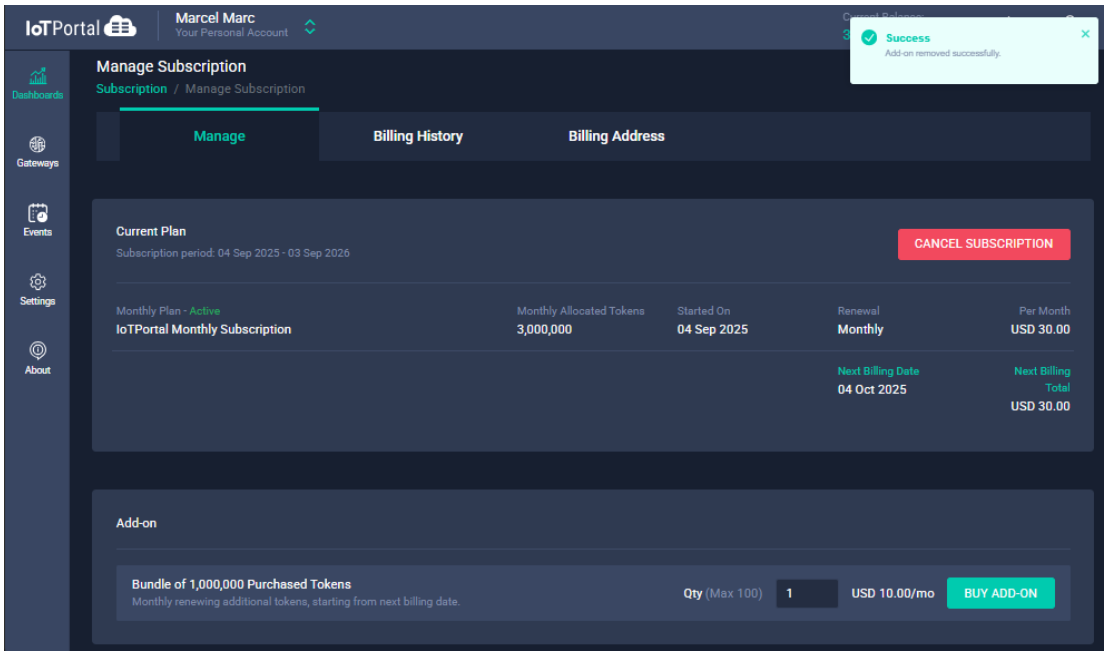
To remove add-on tokens,

1. Click **Remove Add-On**.



2. A confirmation message will be displayed. Go through the message and click **[CANCEL ADD-ON]** to proceed.

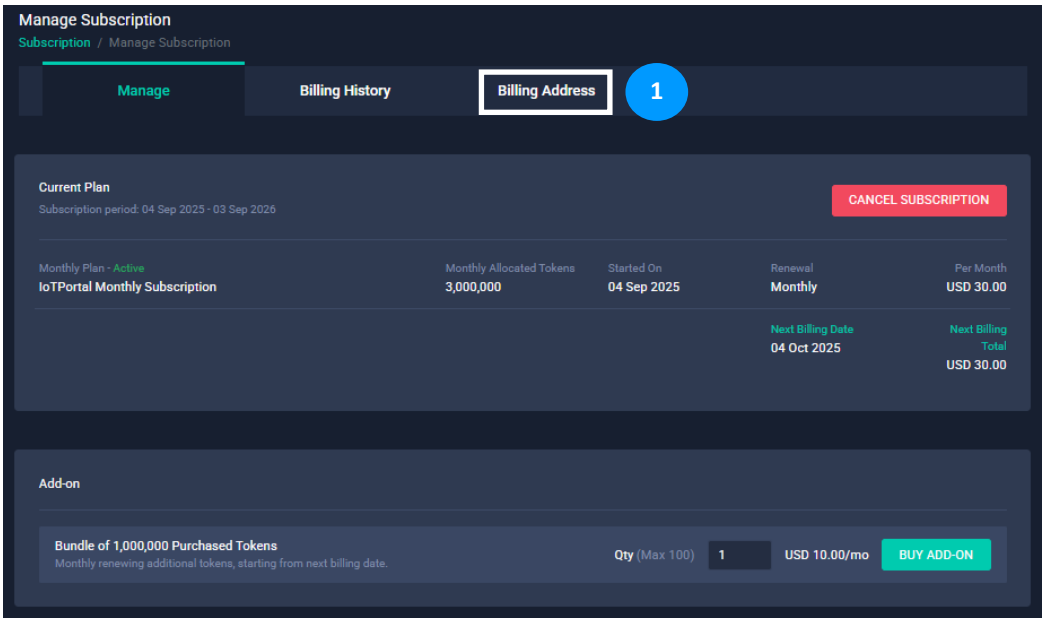
3. The Add-on tokens are removed successfully.



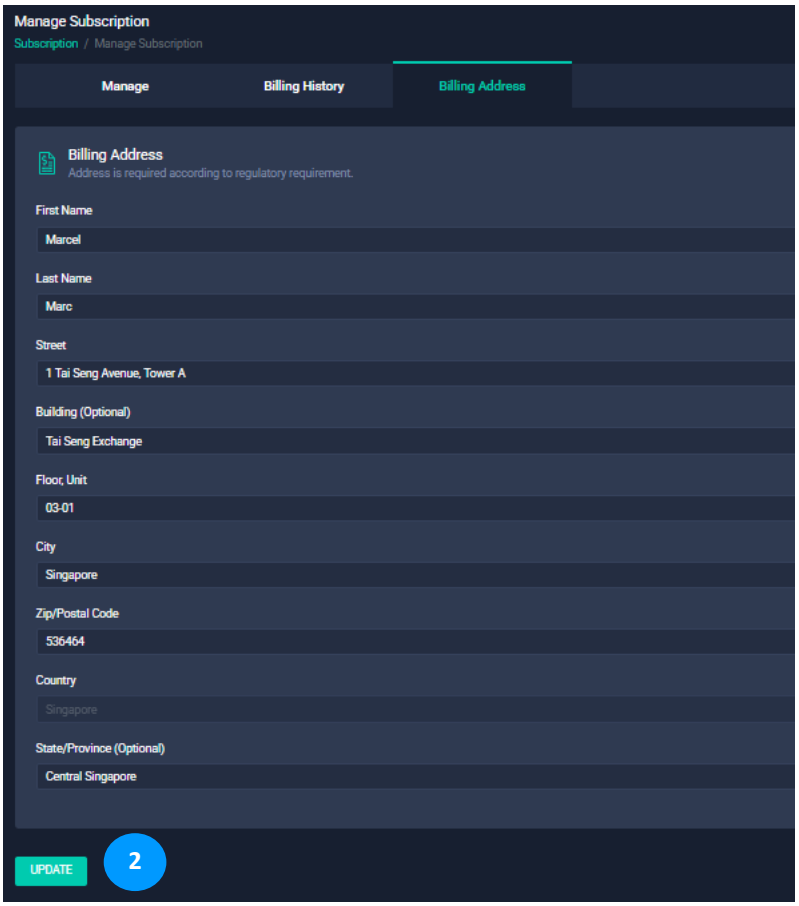
9.3 Updating Billing Address

To update billing address,

1. From the Manage Subscription interface, click **Billing Address**.



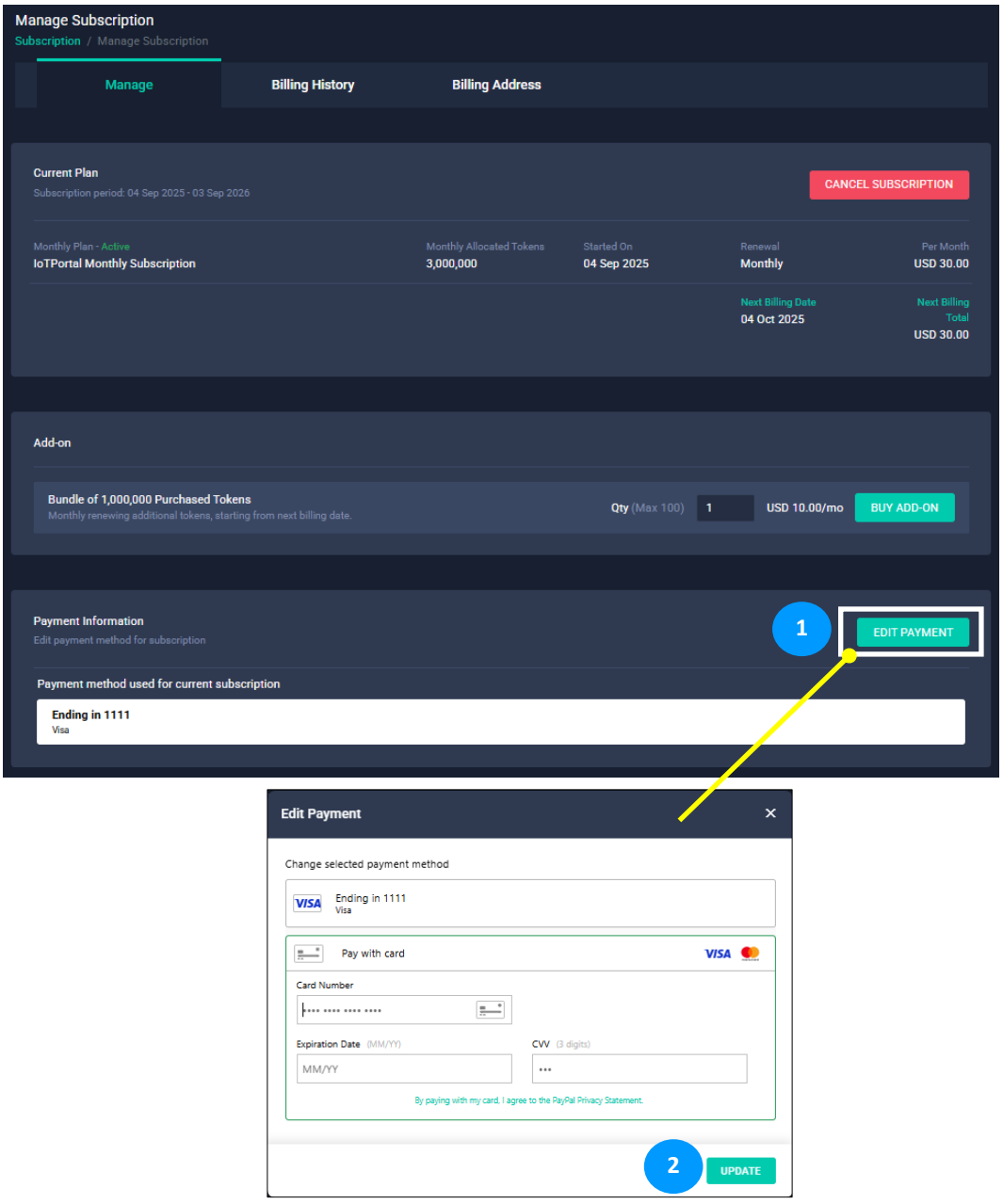
2. Billing Address interface is displayed. Update the billing address (as required) and click **[UPDATE]** to save the changes (if any).



9.3.1 Edit Payment Information

To edit payment information,

1. In the Manage Subscription interface, under Payment Information section, click **[EDIT PAYMENT]**.

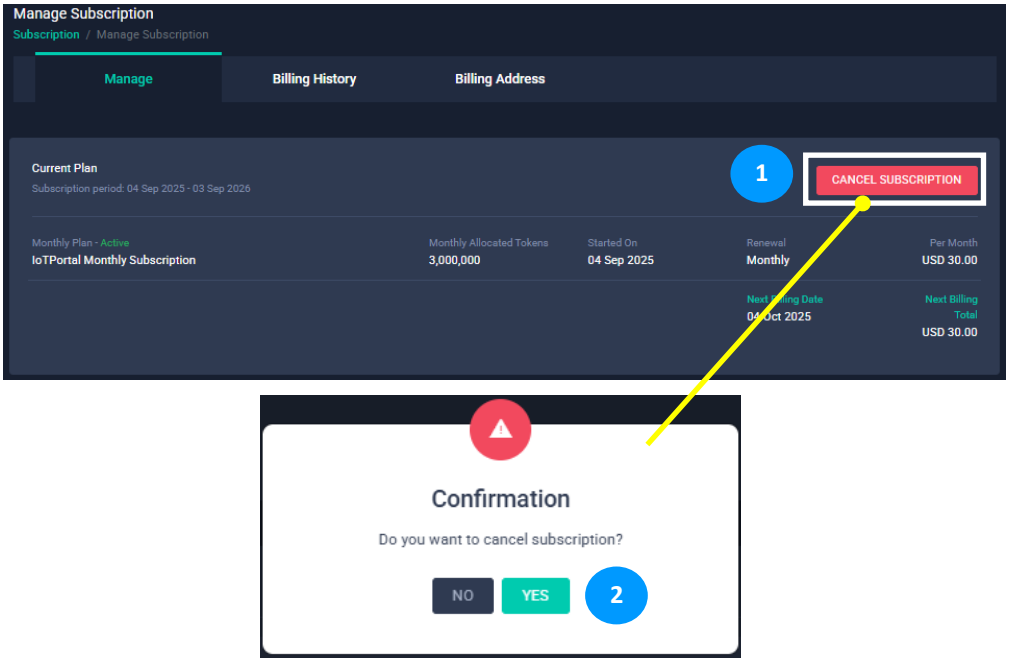


2. Edit the payment information as required and click **[UPDATE]** to save the changes, if any.

9.4 Cancel Subscription

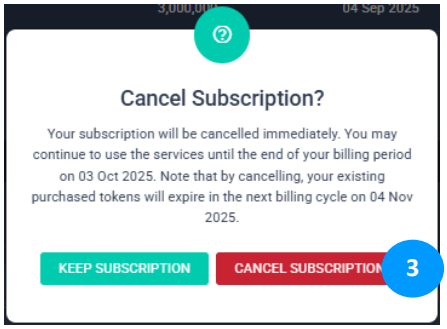
To cancel subscription–

1. From the Manage Subscription interface, click **[CANCEL SUBSCRIPTION]**.

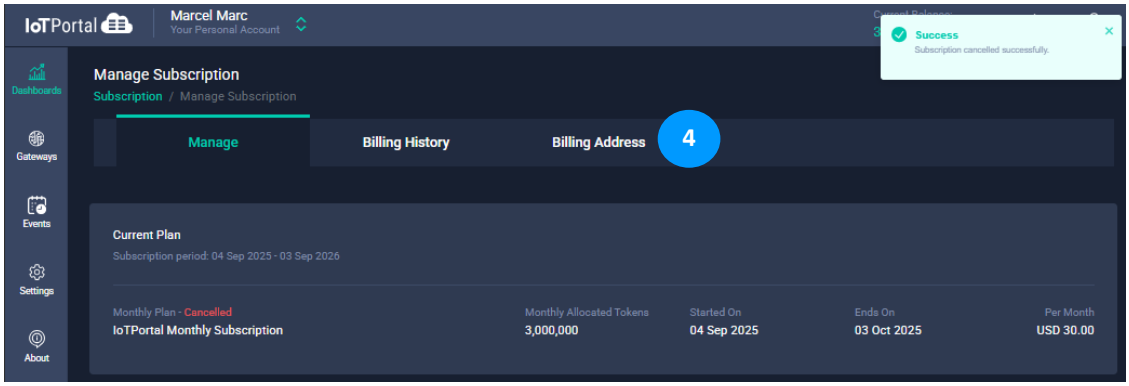


2. A confirmation message is displayed. Click **[YES]** to cancel the subscription or **[NO]** to cancel the subscription cancellation operation.

3. Confirm subscription cancellation by selecting **[CANCEL SUBSCRIPTION]**.



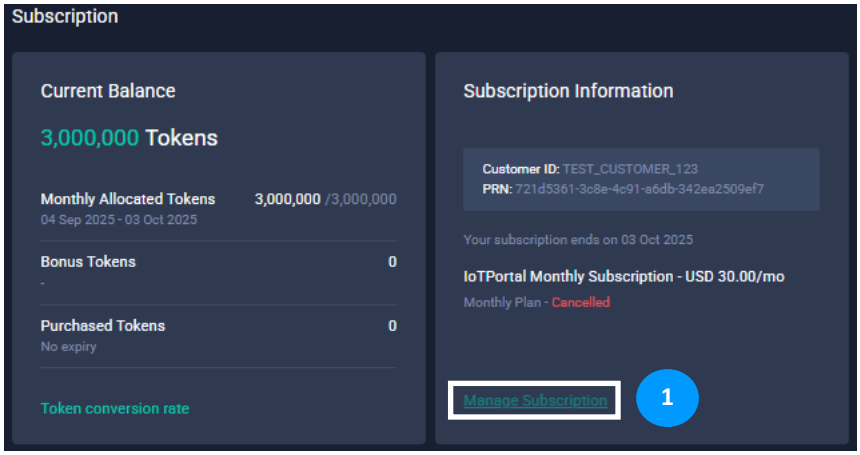
4. Subscription cancelled successfully.



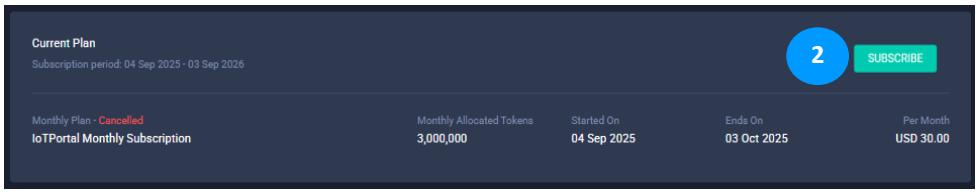
9.5 Re-Subscription

To re-subscribe–

1. From the Subscription interface, click **Manage Subscription**.



2. Click **[SUBSCRIBE]** to re-subscribe.



10. Event Management

An event is a set of triggers evaluated against a set of conditions that cause an action or sequence of actions to happen. There are 5 types of events. The following table provides the list of events and action triggered.

	Event Type	Action Triggered
1	Sensor based events	The trigger signal is generated by one or more sensors
2	Time based events	The trigger signal is generated by a clock
3	Duration based events	The trigger signal is generated by a timer
4	Attribute based events	The trigger signal is generated by an attribute of an object that is not a sensor (for example, an attribute of a gateway)
5	Complex events	Combination of one or more above triggers

Table 3 – Event Types

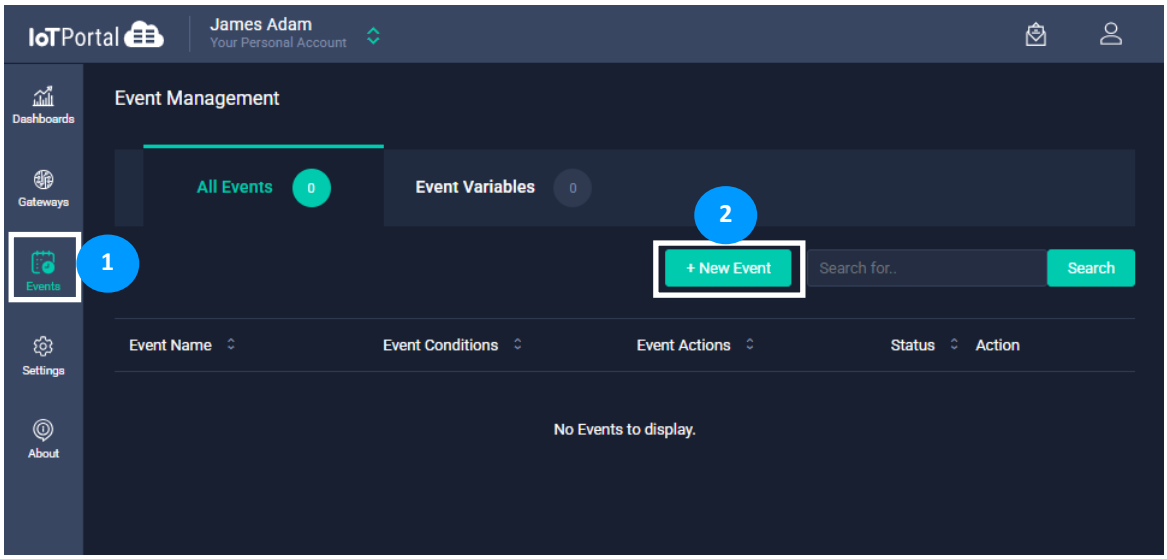
In every event, conditions are evaluated, and when the conditions are met, an action or sequence of actions is taken. Alerts and actuation sequences may be included in such actions. A triggered event cannot be re-armed until all its action components have been completed.

The events are created by the event owner, or any member of the organization authorised to perform the action, such as CREATE, READ, UPDATE and DELETE (CRUD). Events are given a name, and a log of event activations is kept and counts towards storage. Events can be enabled or disabled. The default state is disabled. A disabled (disarmed) event ignores its trigger signals and does not evaluate its conditions.

10.1 Create Event

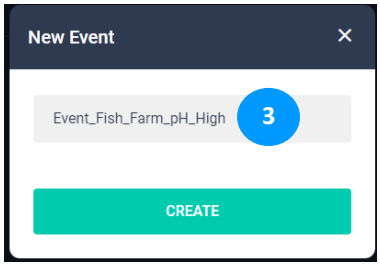
To create a new event–

1. Click **Events** from the menu. If no events are available, then the interface will be empty. Else, a list of events is displayed.



2. Click **[+ New Event]**.

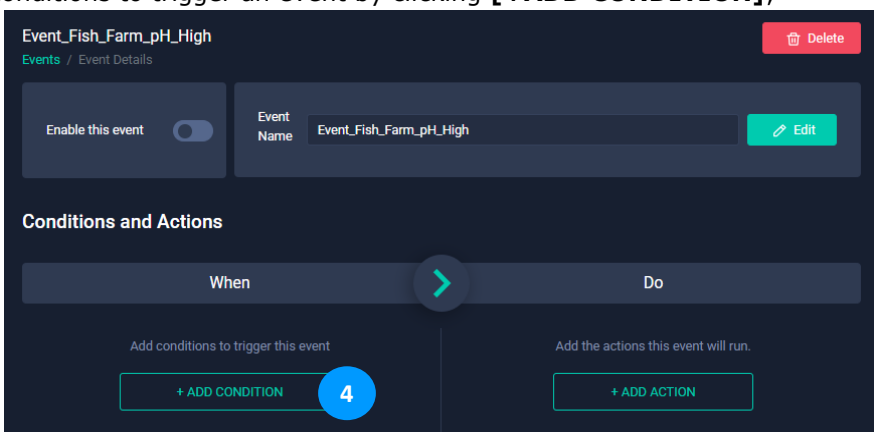
3. Enter a name for the Event. For example, *Event_Fish_Farm_pH_High*. Click **[CREATE]**.



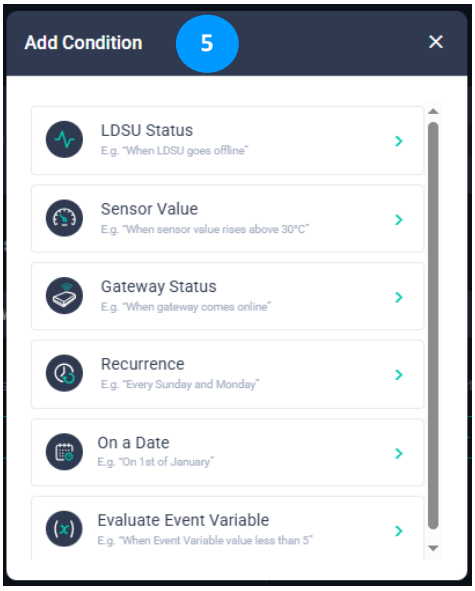
10.1.1 Add Condition(s) / Action(s)

10.1.1.1 When

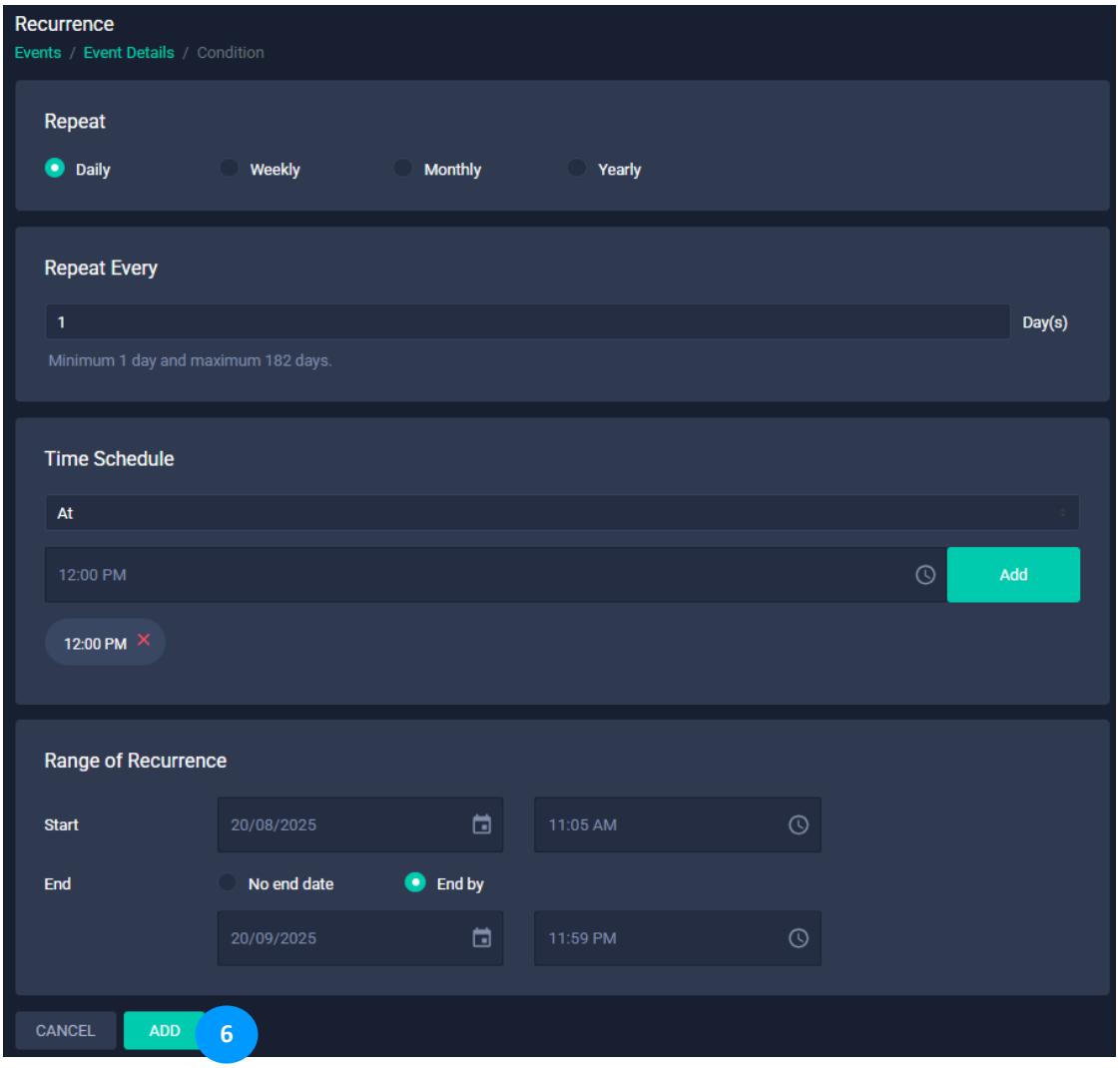
4. Add conditions to trigger an event by clicking **[+ADD CONDITION]**;



5. Select the condition, for example, *Recurrence*;

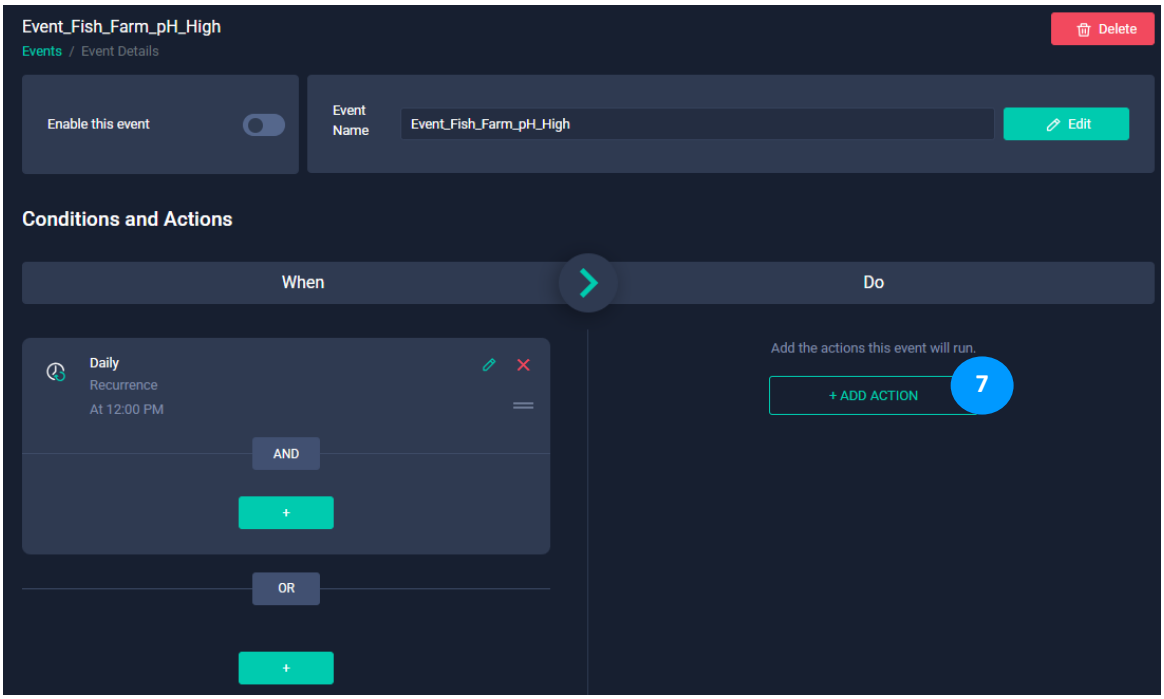


6. Configure the condition details as required and click **[ADD]**. **For illustration purpose, *"Recurrence Type – Daily"* is explained here**. The below picture shows a recurrence condition that repeats *"Daily" "Every Day" "at" "12:00 PM"* and *"End by 20/09/2025"*.

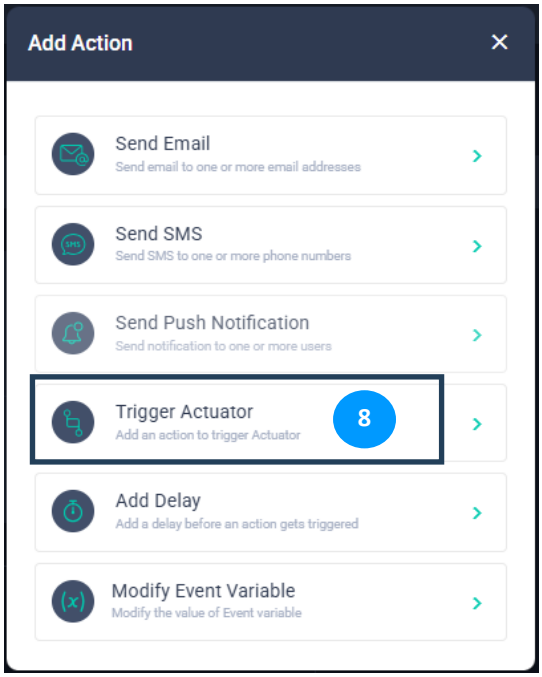


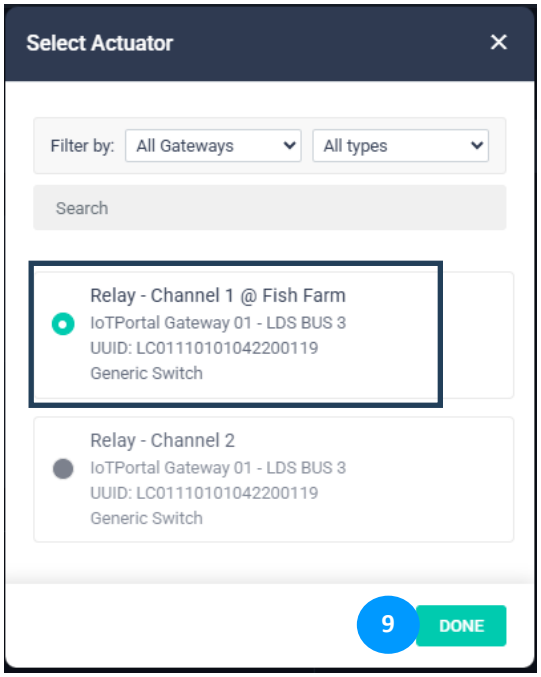
10.1.1.2 Do

7. Now, add the actions the event will run when the conditions are met, by clicking **[+ADD ACTION]**. For illustration purpose, *"Action – Trigger Recurrence Type – Daily"* is explained here.



8. Select the action to be taken from the Add Action window. For illustration purpose, ***"Add Action – Trigger Actuator"*** is explained here.

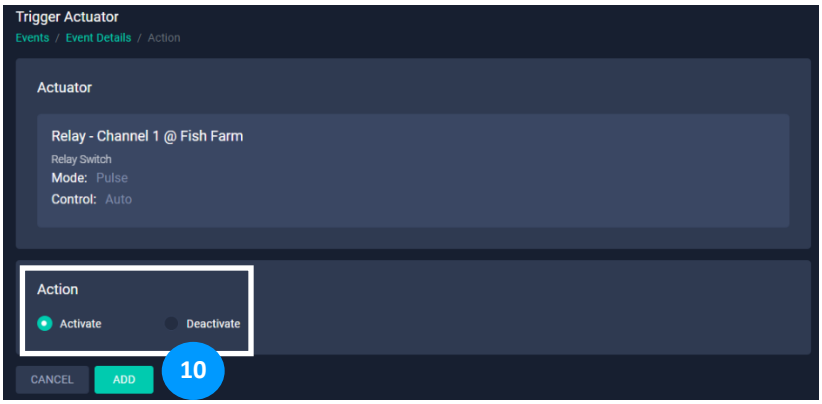




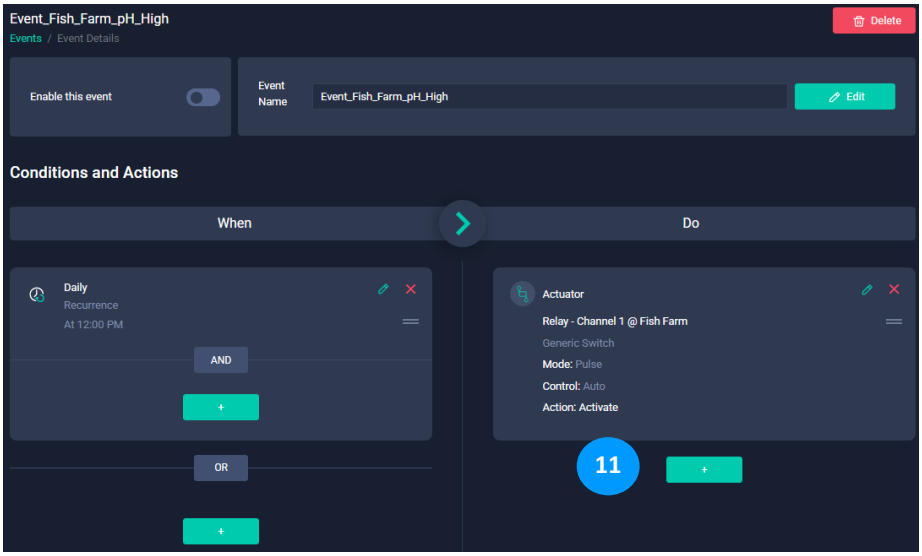
9. Select Actuator and click **[DONE]**.

NOTE: If the actuator is in "Manual" mode, it will not be enabled to select actuator. In order to use the actuator in an event, it should be "Auto" mode.

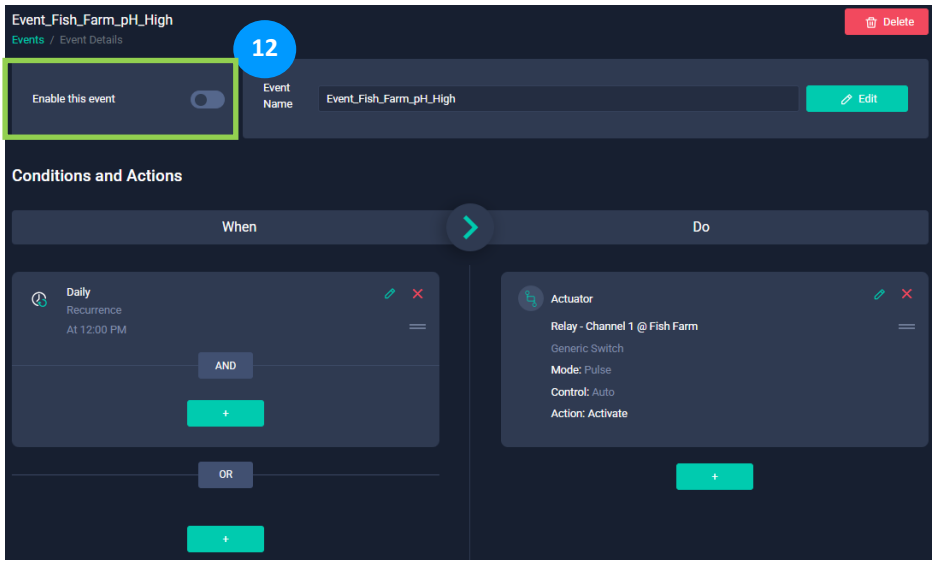
10. The Actuator details (like *Actuator Name, Mode* etc.) are displayed. Select the appropriate **Action** – *Activate* or *Deactivate*. Click **[ADD]**.



11. Upon successfully adding the action, an appropriate message indicating the same is displayed. The event details are displayed. The below picture shows an event with a recurrence condition (left side) that repeats *"Daily" "Every Day" "at" "12:00 PM"* and *"End by 20/09/2025"*. Upon triggering this event, the *Actuator Relay – Channel 1 @ Fish Farm* will be activated.



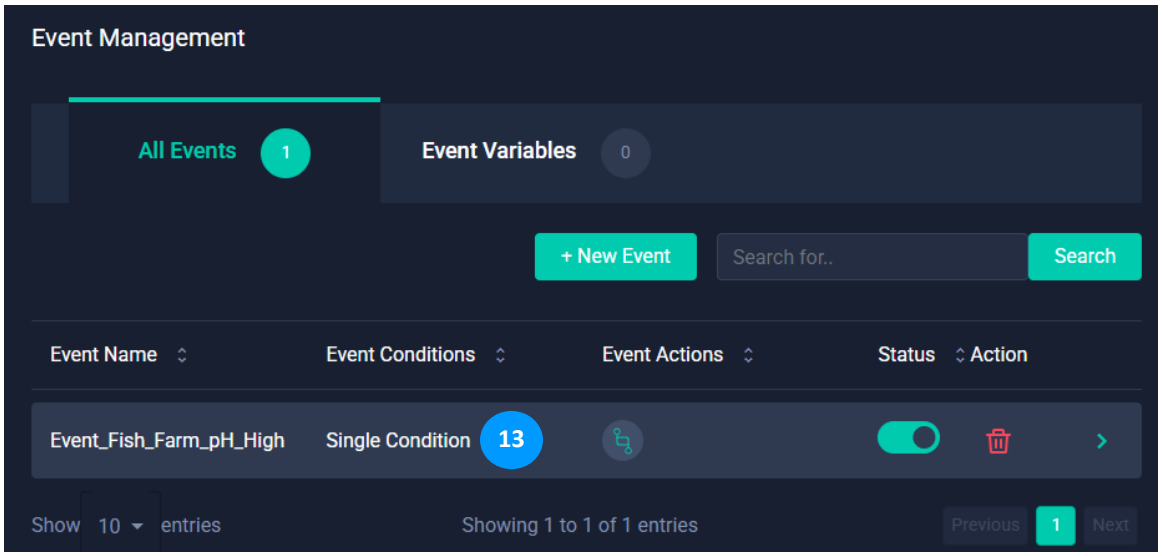
12. Enable or Disable event using the  toggle button[2]. By default, the events are disabled.



[2] A toggle button refers to a control used for switching (or toggling) between two or more states or options.

Event Status	Toggle Button State
Enabled	
Disabled	

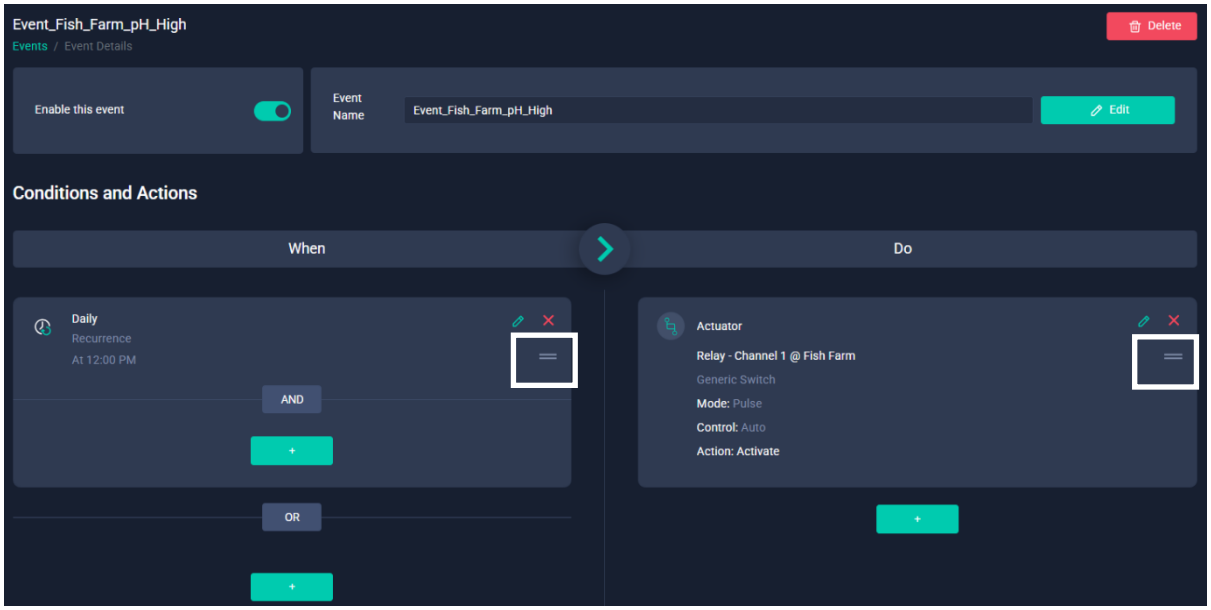
13. Upon creating the Event Conditions and Actions, the list of events is updated.



10.1.2 Change the order of the Condition(s) / Action(s)

To change the order of condition(s) / action(s) –

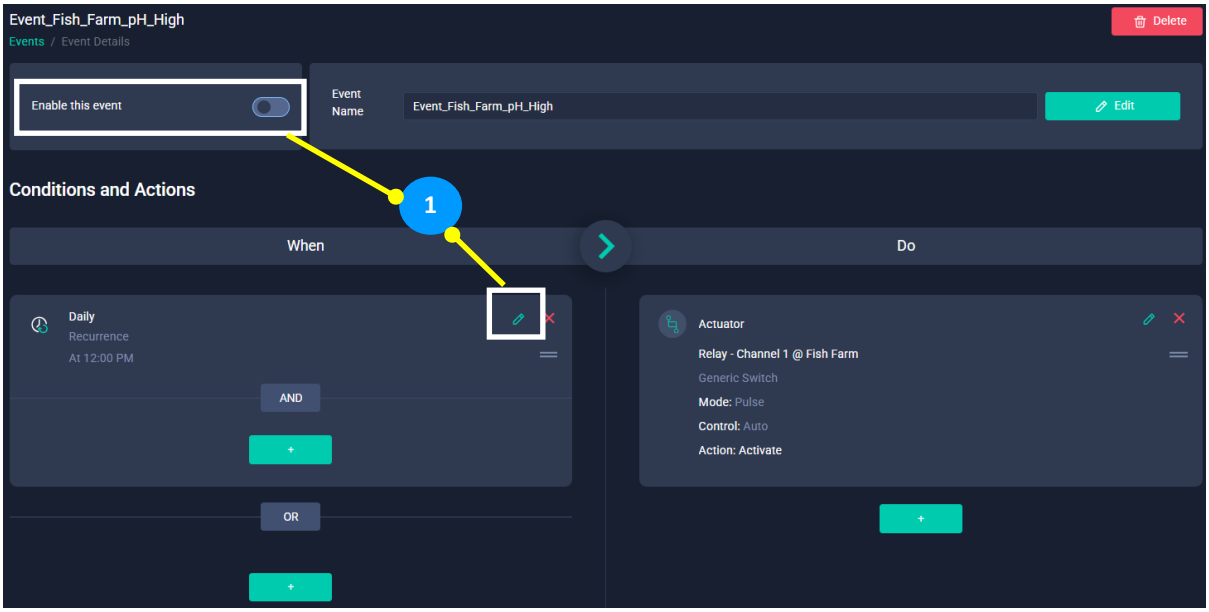
Click on the "=" icon to change the order of the condition / action by moving up or down.



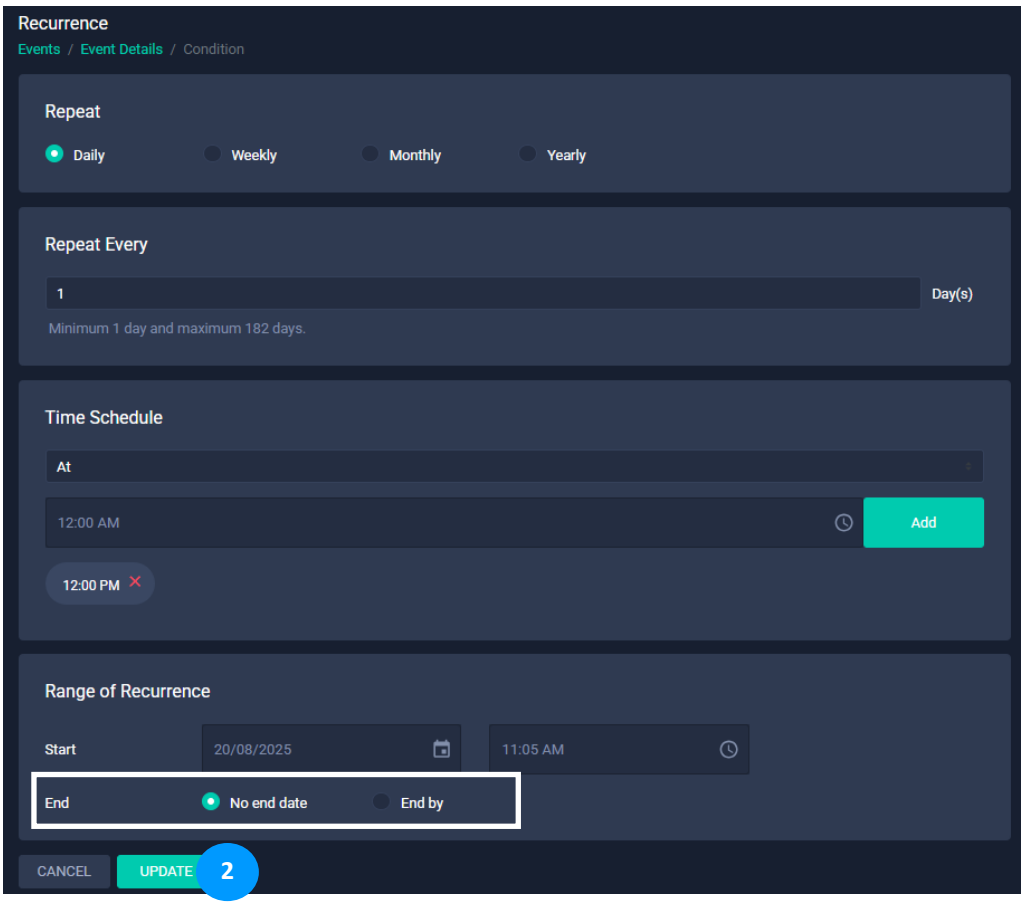
10.1.3 Edit Condition(s)

To edit condition(s)

1. Ensure that *"Event is disabled"* before modifying the condition. Click **Edit** icon.



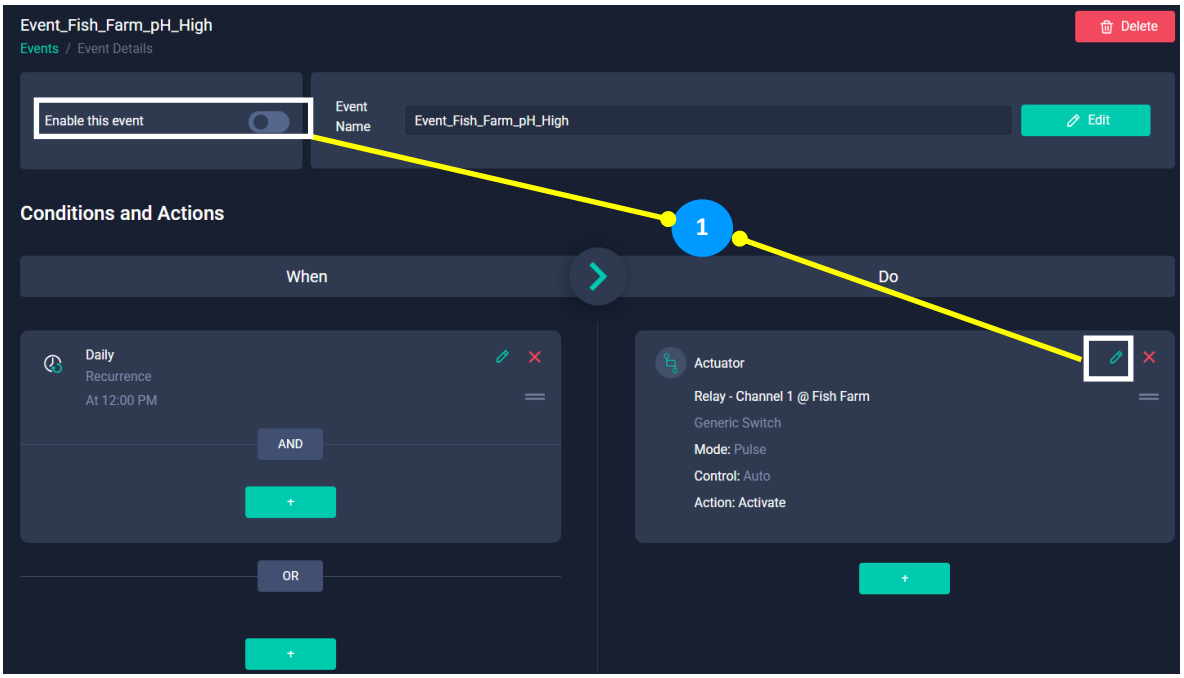
2. Modify the condition as required. *For illustration purpose, modified the* ***Range of Recurrence*** *from* ***End by*** *to* ***No end date***. Click **[UPDATE]** to save the changes, if any.



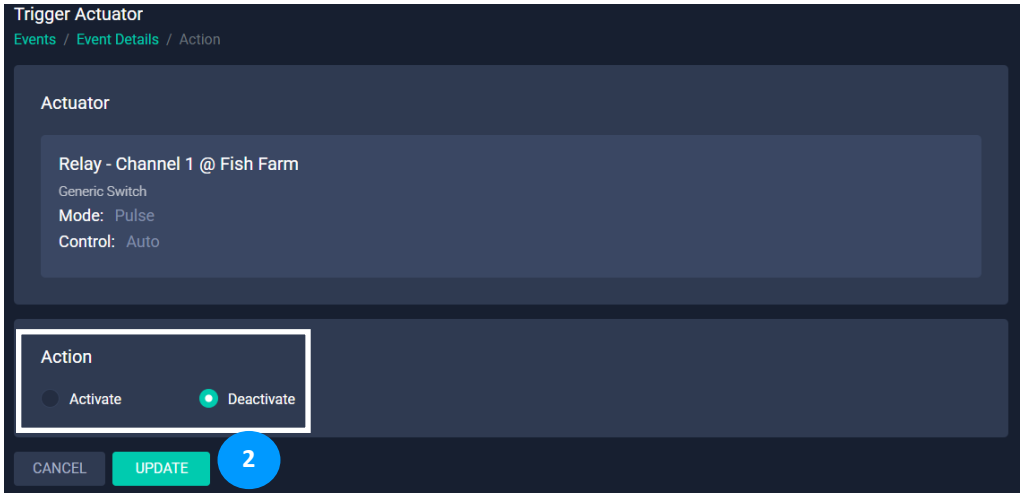
10.1.4 Edit Action(s)

To edit action(s) –

1. Ensure that *"Event is disabled"* before modifying the action. Click **Edit** icon.



2. Modify the actions as required. *For illustration purpose, modified the action from* ***Activate to Deactivate*** *mode*. Click **[UPDATE]** to save the changes, if any.

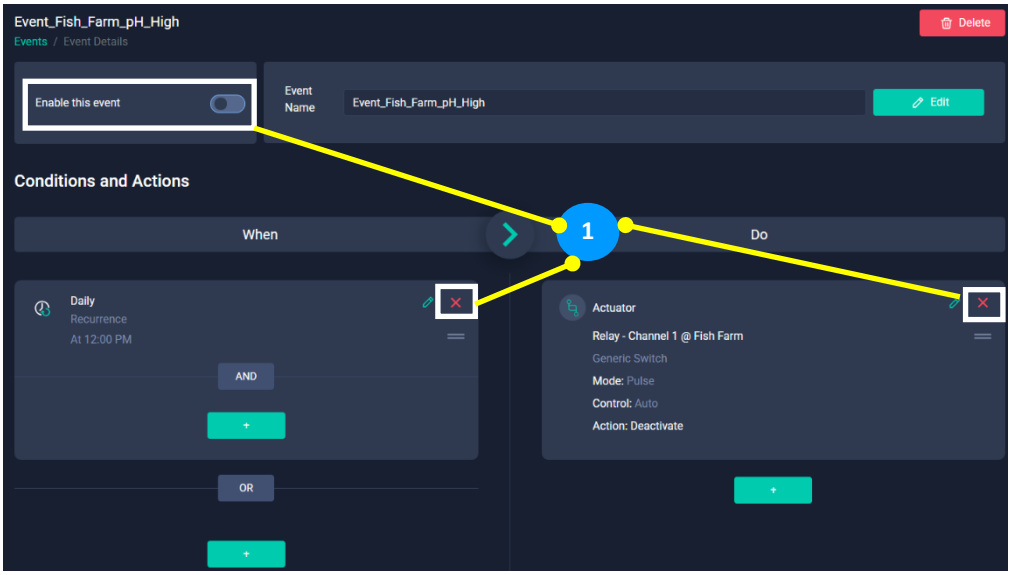


Note that only the "Action" can be edited. To edit actuator details, the existing action must be deleted and a new action must be added, since the edit action feature does not allow for editing actuator details.

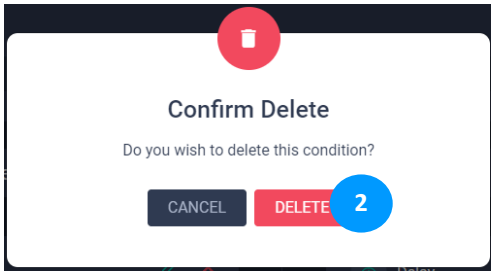
10.1.5 Delete Condition(s) / Action(s)

To delete condition(s) / action(s) –

1. Ensure that *"Event is disabled"* before deleting an action or condition. Click **Delete** ✕ icon.



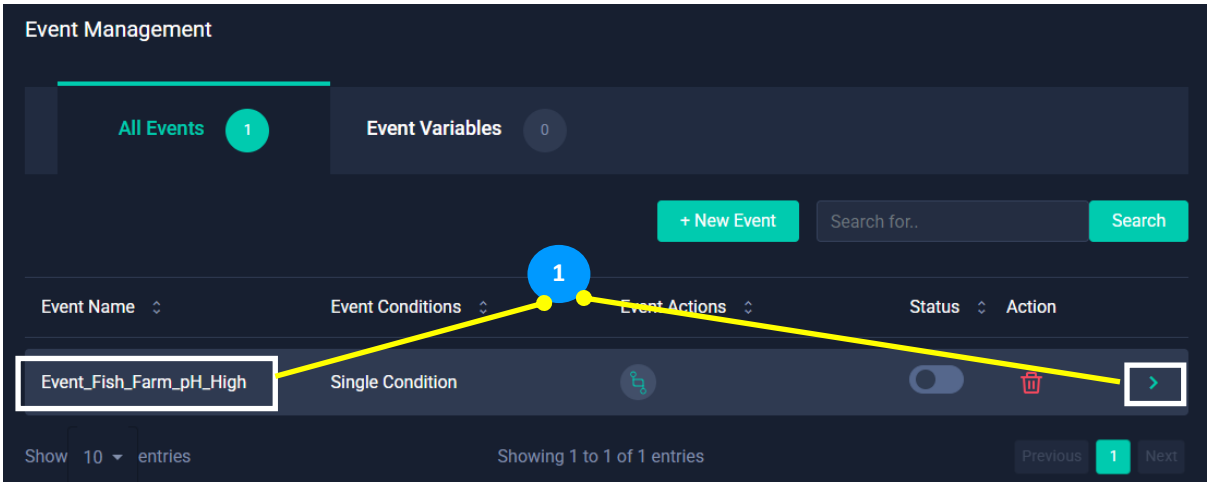
2. A confirmation window is displayed. Click **[DELETE]** to remove the condition/action.



10.2 Edit Event Name

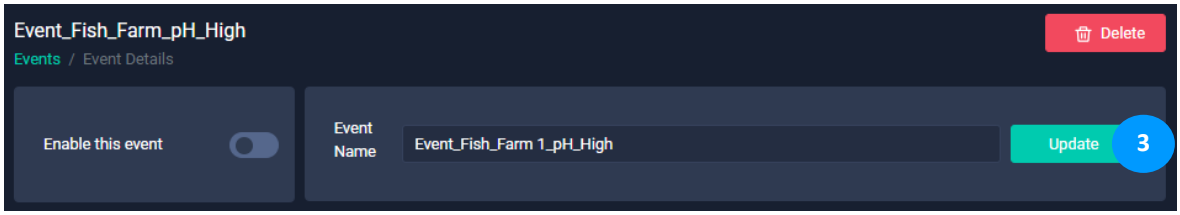
To edit event name –

1. Click on the event or **>**.

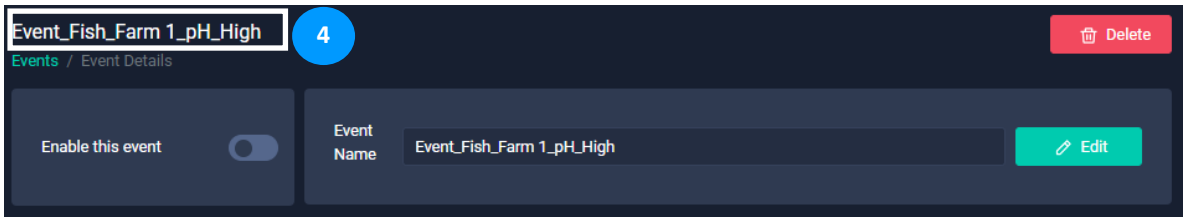


2. Ensure that *"Event is disabled"* before modifying the event name. Click **[Edit]**.

3. Modify the name as required. *For illustration purpose Event Name changed from* ***"Event_Fish_Farm_pH_High to "Event_Fish_Farm 1_pH_High".*** Click **[Update]** to save the changes, if any.



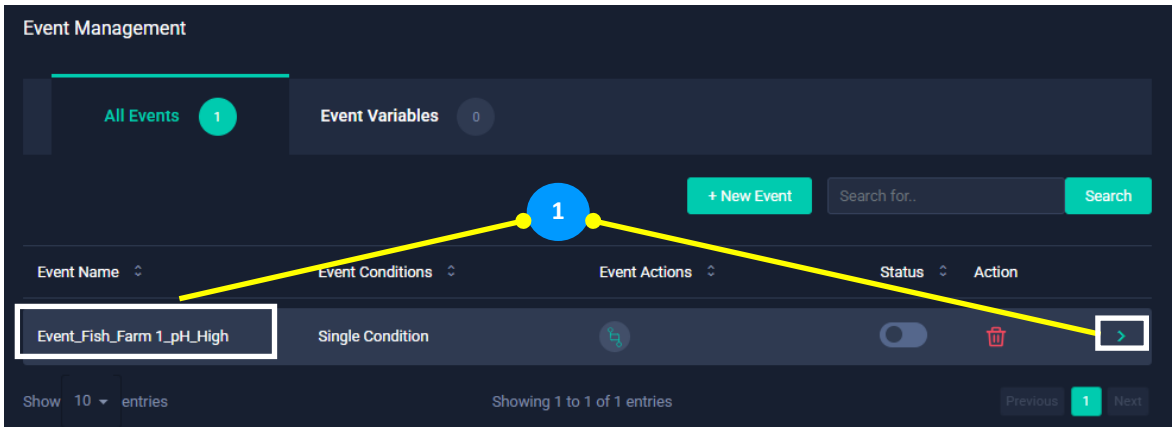
4. The updated event name is displayed.



10.3 Delete Event

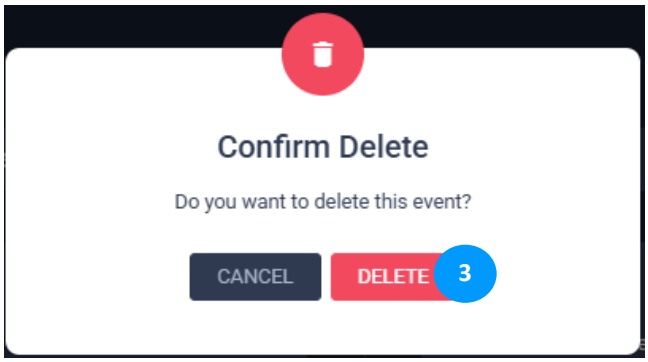
To delete event –

1. Click on the event.



2. Ensure that *"Event is disabled"* before deleting. Click **[Delete]**.

3. A confirmation message is displayed. Click **[DELETE]** to proceed with deletion.



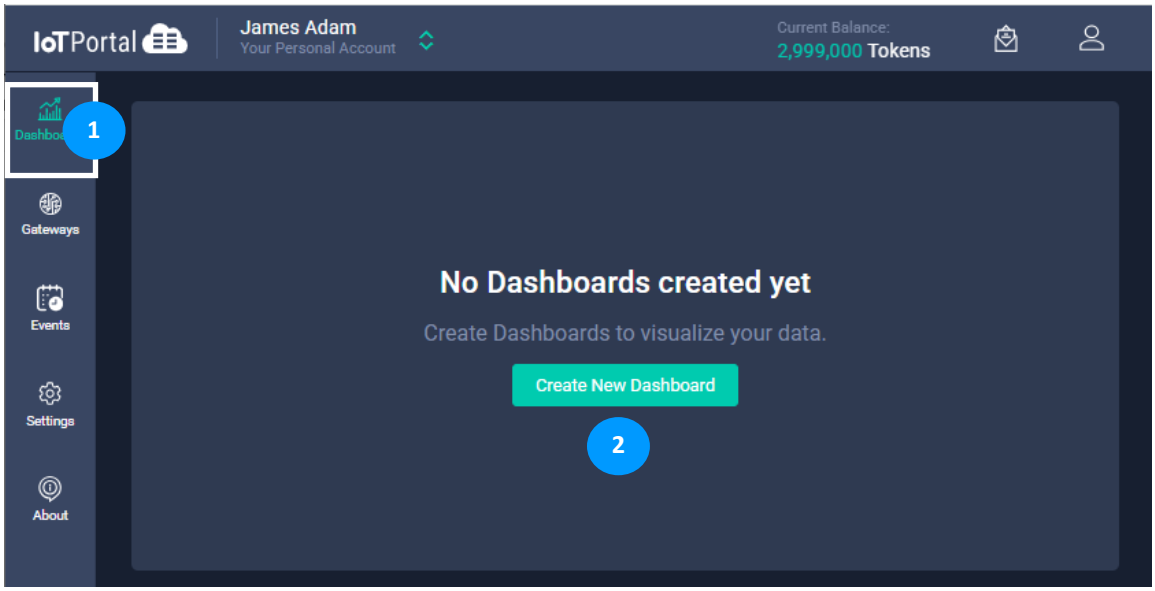
11. Dashboard Management

The dashboard function allows users to create dashboards for data visualization in real time. Users can create dashboards and charts to display gateway attributes, sensor data, actuator data, event usages, etc.

11.1 Create Dashboard

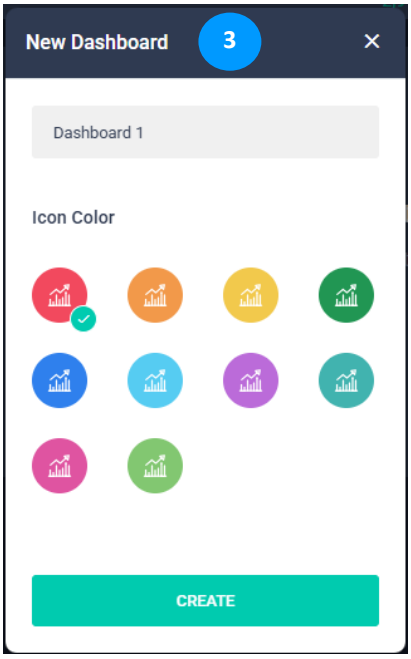
To create a dashboard –

1. Click **Dashboards** from the menu. If no dashboards are available, then the interface will be empty.

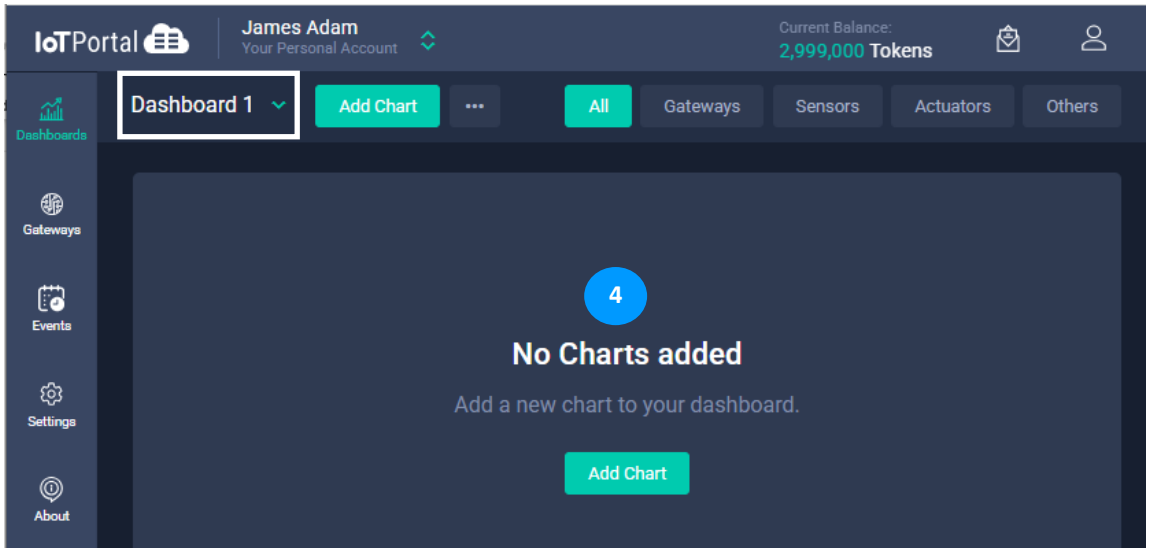


2. Click **[Create New Dashboard]**.

3. Enter the **Dashboard Name**; Select an ***icon color*** for the dashboard. Click **[CREATE]**.

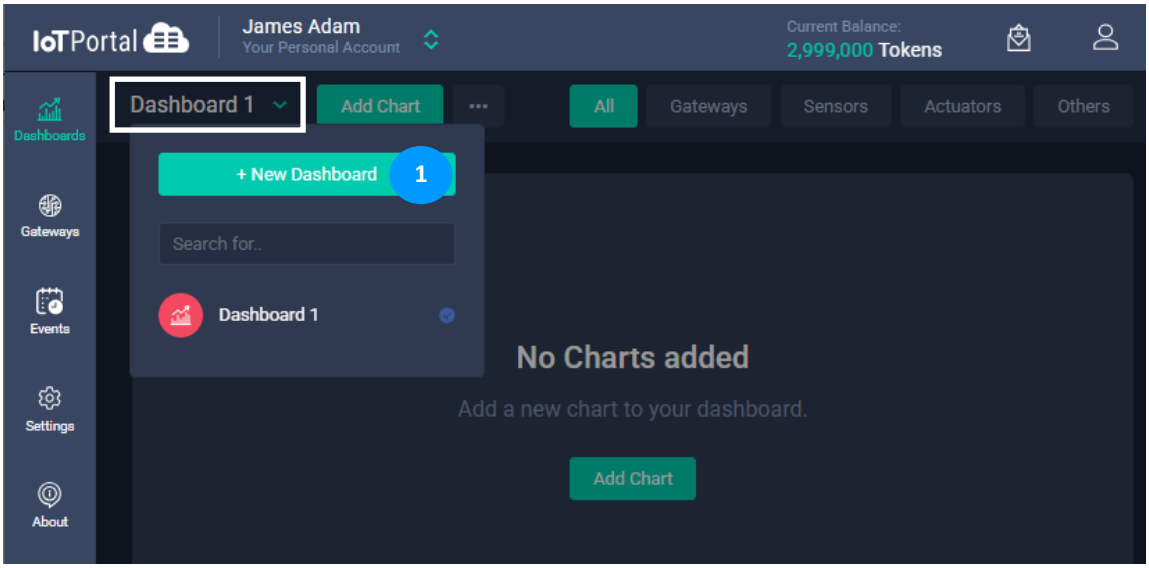


4. A new dashboard is created successfully.

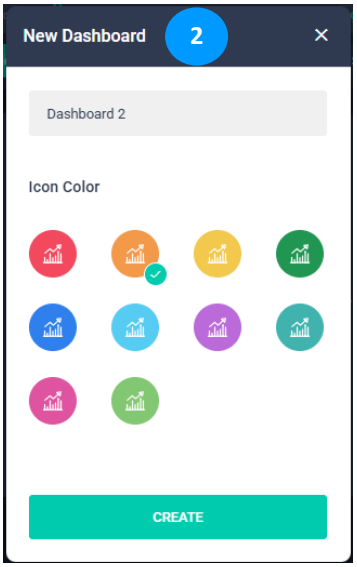


To create additional dashboards,

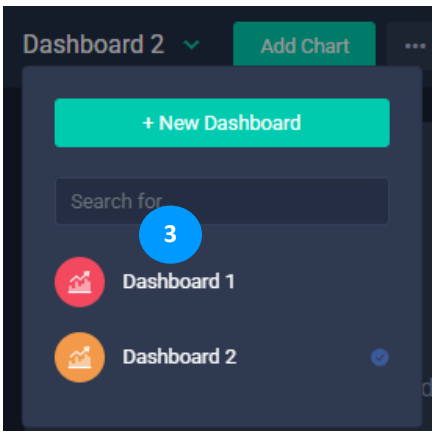
1. Click on the Dashboard *drop-down control* and click **[+ New Dashboard].**



2. Enter the ***Dashboard Name***; Select an ***icon color*** for the dashboard. Click **[CREATE]**.



3. The newly added dashboard is displayed.



11.2 Dashboard Charts

This section describes how to create charts for the following –

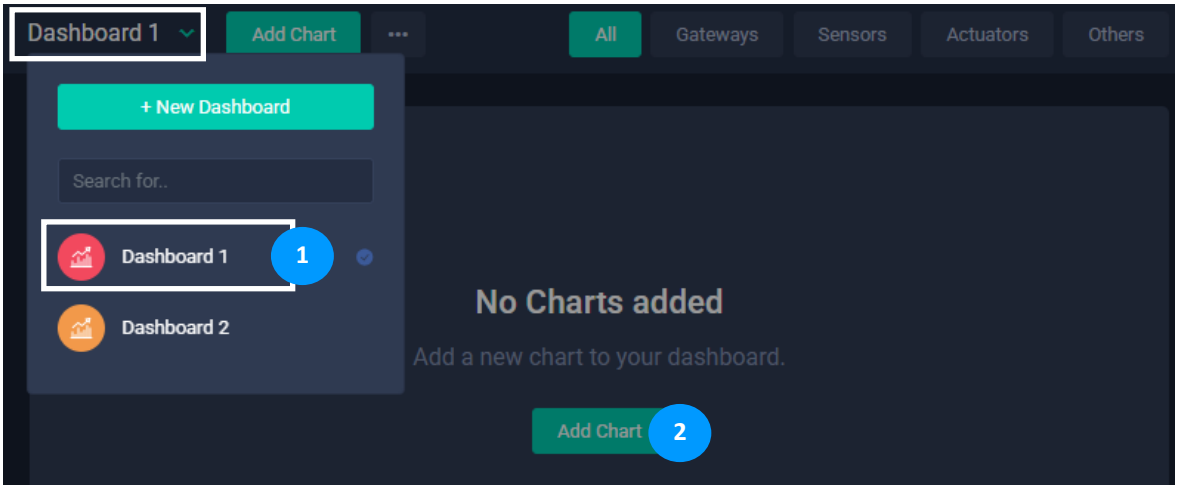
- **Sensor Readings**
- **Actuator Trigger Data**
- **Gateway Statistics**
- **Email, SMS, Notification and Event Count**
- **Energy Consumption**
- **Water Consumption**

11.2.1 Sensor Readings

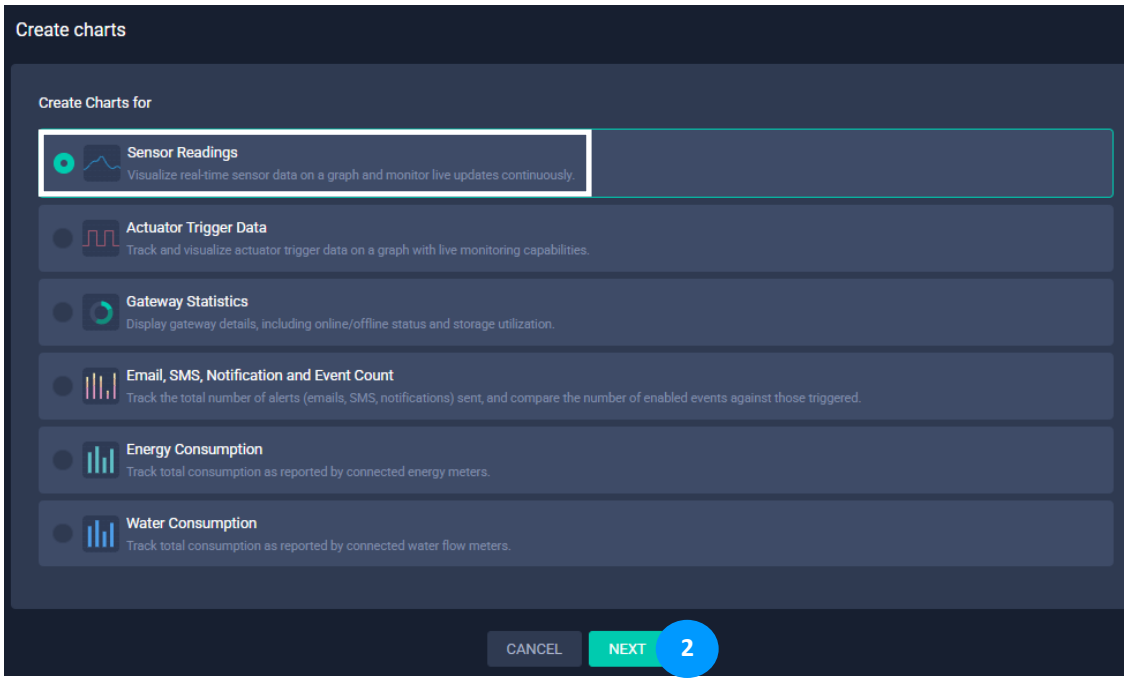
This chart allows users to continuously monitor live sensor updates on a graph.

11.2.1.1 Create Chart for Sensor Readings

1. Select the **Dashboard** (from the drop-down control) for which the chart should be added. There must be at least one available dashboard for adding charts.

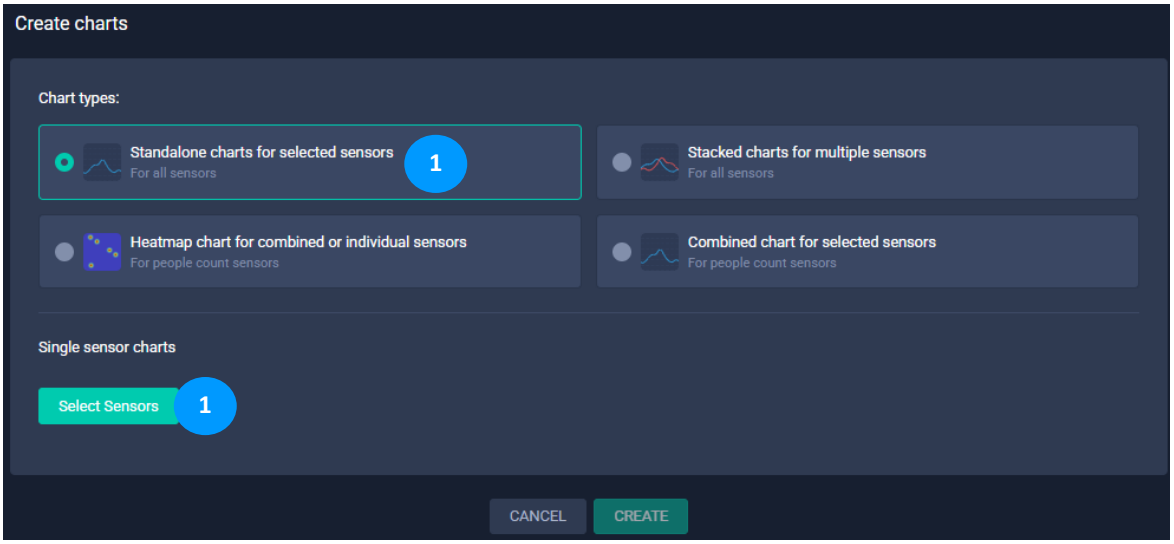


2. Click **[Add Chart]**. The Create charts interface is displayed. Select **Sensor Readings**. Click **[NEXT]**.

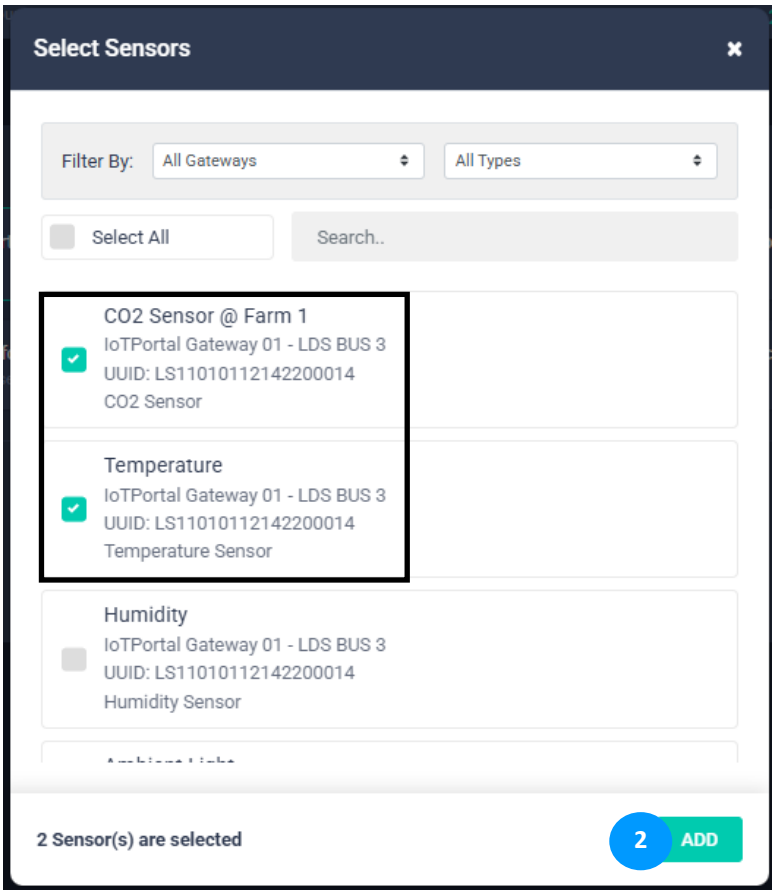


Create Standalone Charts for Selected Sensor(s)

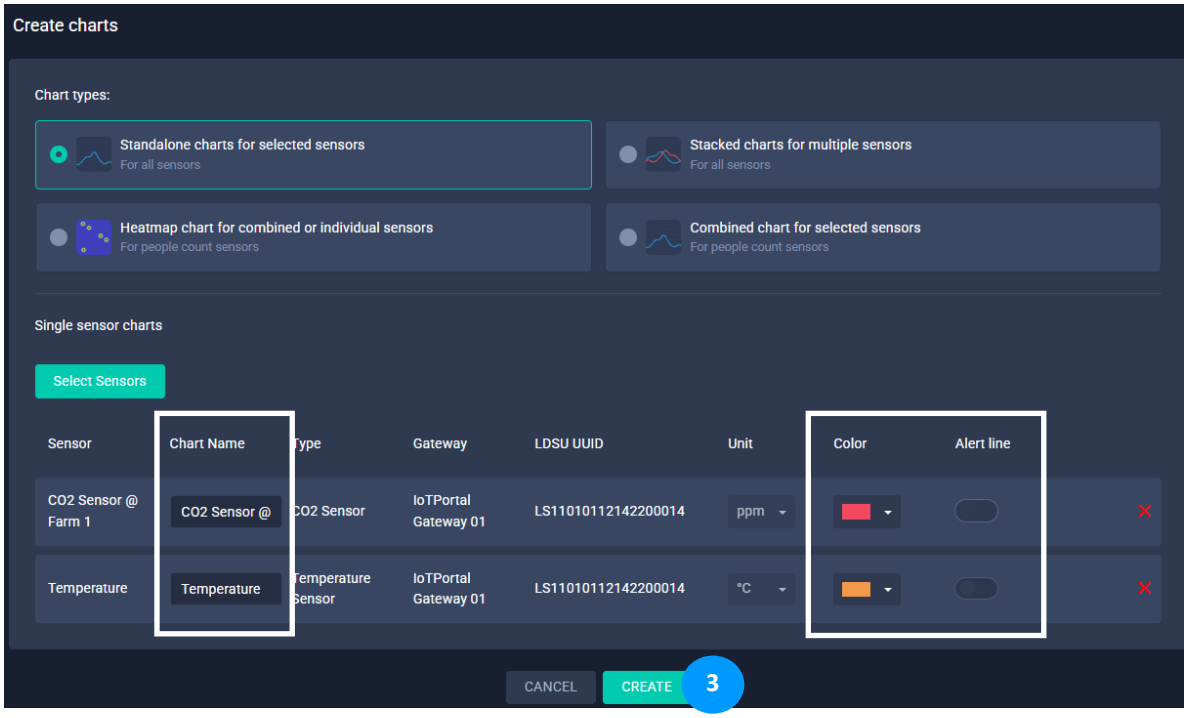
1. Select the chart option – ***Create standalone charts for selected sensors***. Selecting this option creates one chart for one sensor parameter.



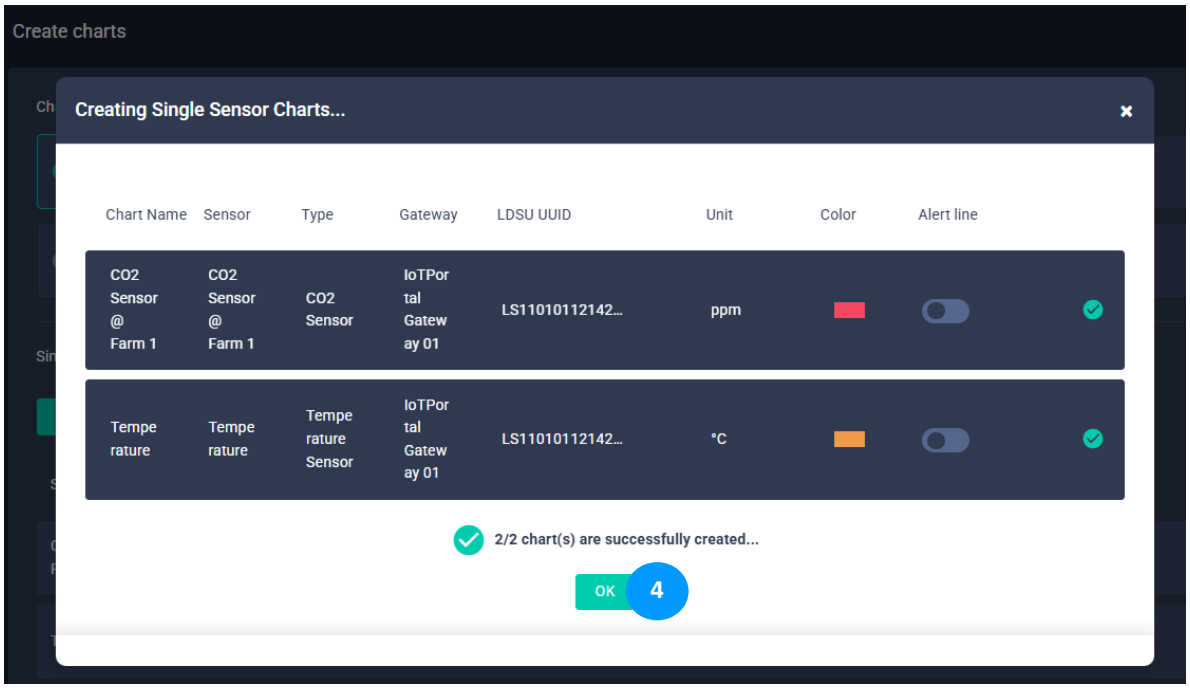
2. Click **[Select Sensors]**; From the resulting window, select the sensors and click **[ADD]**. ***For illustration purpose, CO2 and Temperature sensors are used***.



3. Update the chart attributes *(Chart Name / Chart Color, Alert line[3])*, as required. Click **[CREATE]**.

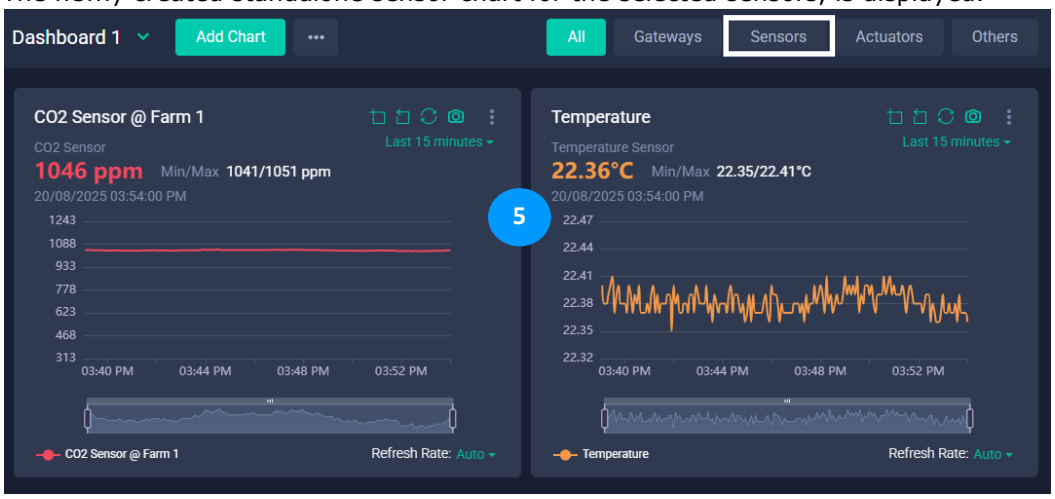


4. Upon successfully creating the sensor chart, an appropriate message indicating the same is displayed; Click **[OK].**



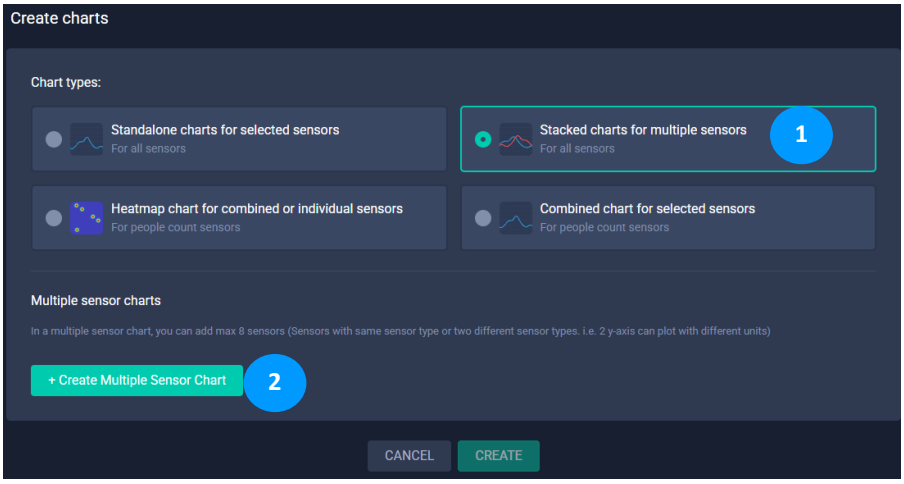
[3] Alert line toggle is used to show the Threshold range on the chart if user enables the Sensor alert. For example, if user sets "activate less than 26.5°C" and enables the sensor alert, then user adds the sensor chart that the Alert line option is enabled, user can see the threshold on the chart.

5. The newly created standalone sensor chart for the selected sensors, is displayed.



Create Stacked Charts for Multiple Sensors

1. Upon accessing the Sensor Readings Chart interface, select the chart option ***– Stacked charts for multiple sensors***. Selecting this option creates one chart for multiple sensor parameters.

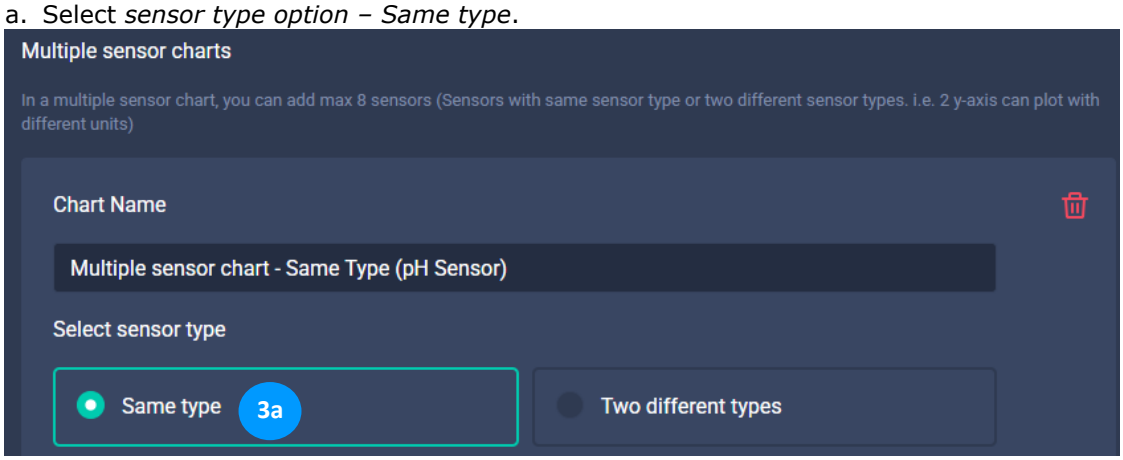


2. Click **[+ Create Multiple Sensor Chart]**.

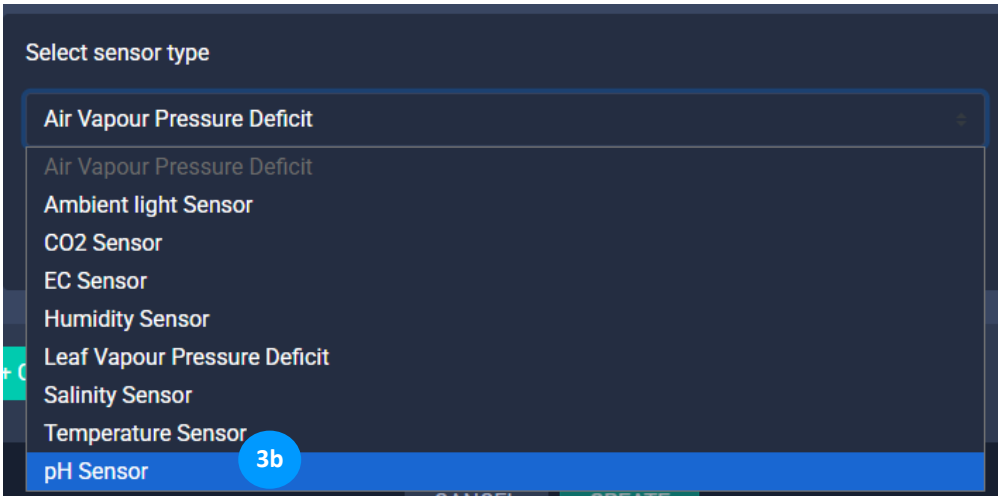
3. Enter a **Chart Name**; Select the **sensor type** – *Same type* or *Two different types*.

   Sensor Type – Same Type

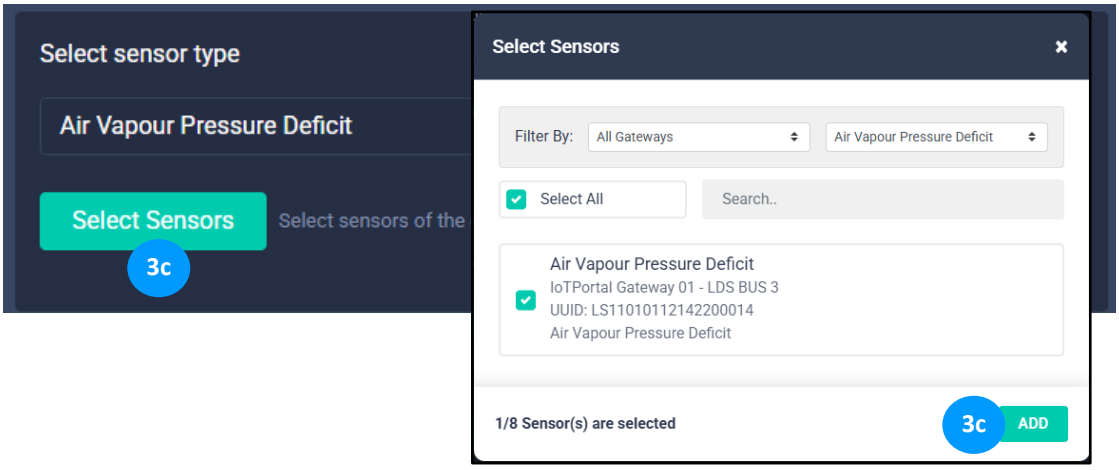
   a. Select *sensor type option – Same type*.



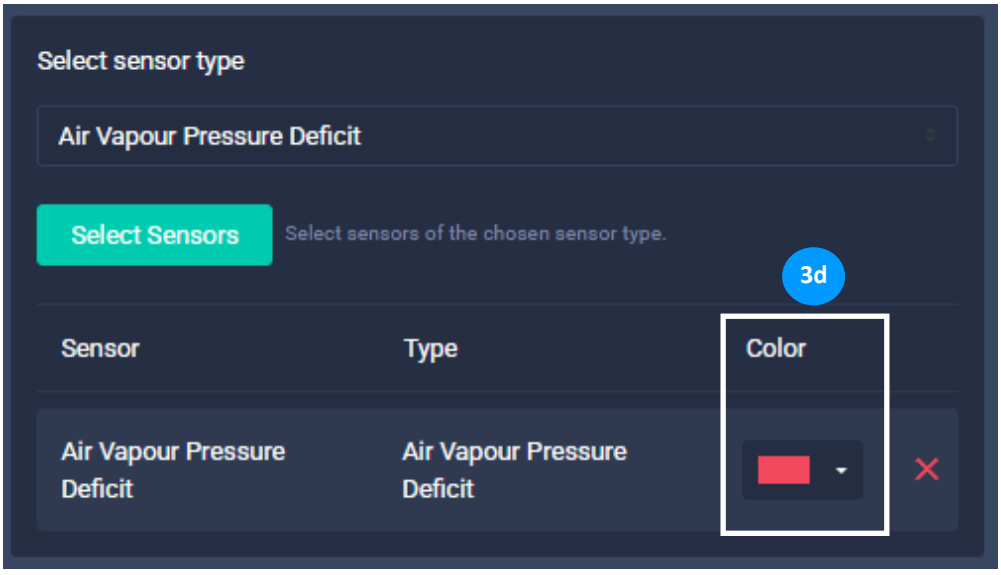
b. Select sensor type – *pH sensor* from the drop down list box.



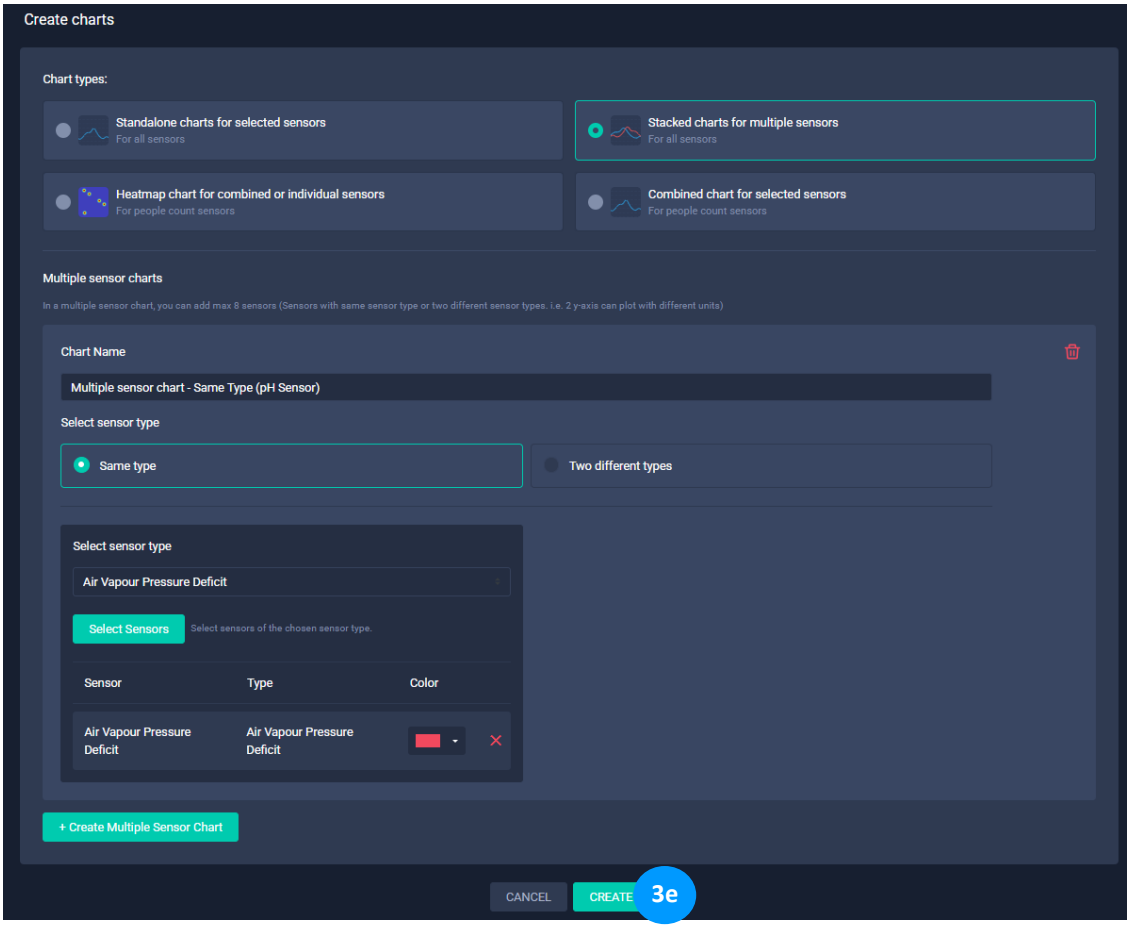
c. Click **[Select Sensors]**. From the resulting window, select the sensor(s). ***For illustration purpose, Air Vapour Pressure Deficit is selected***. Click **[ADD]**.



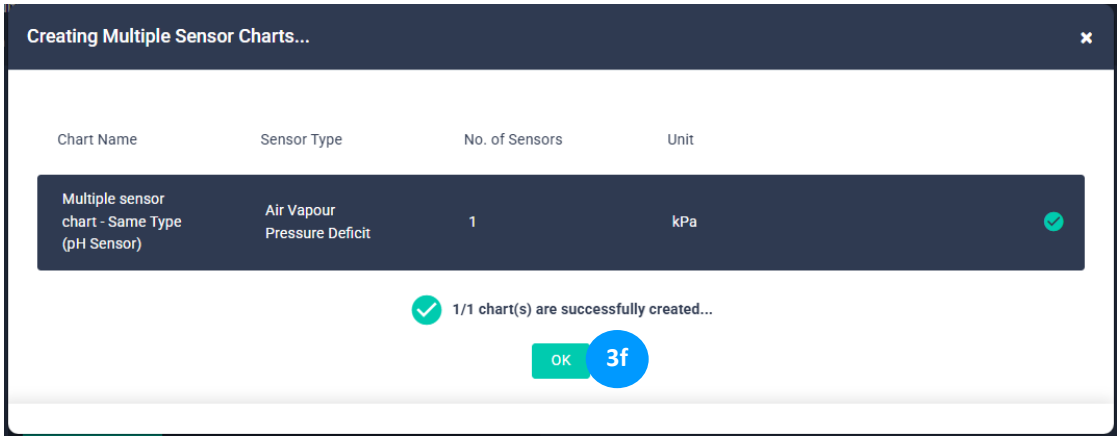
d. Update the Chart *"Color"* attribute, as required.

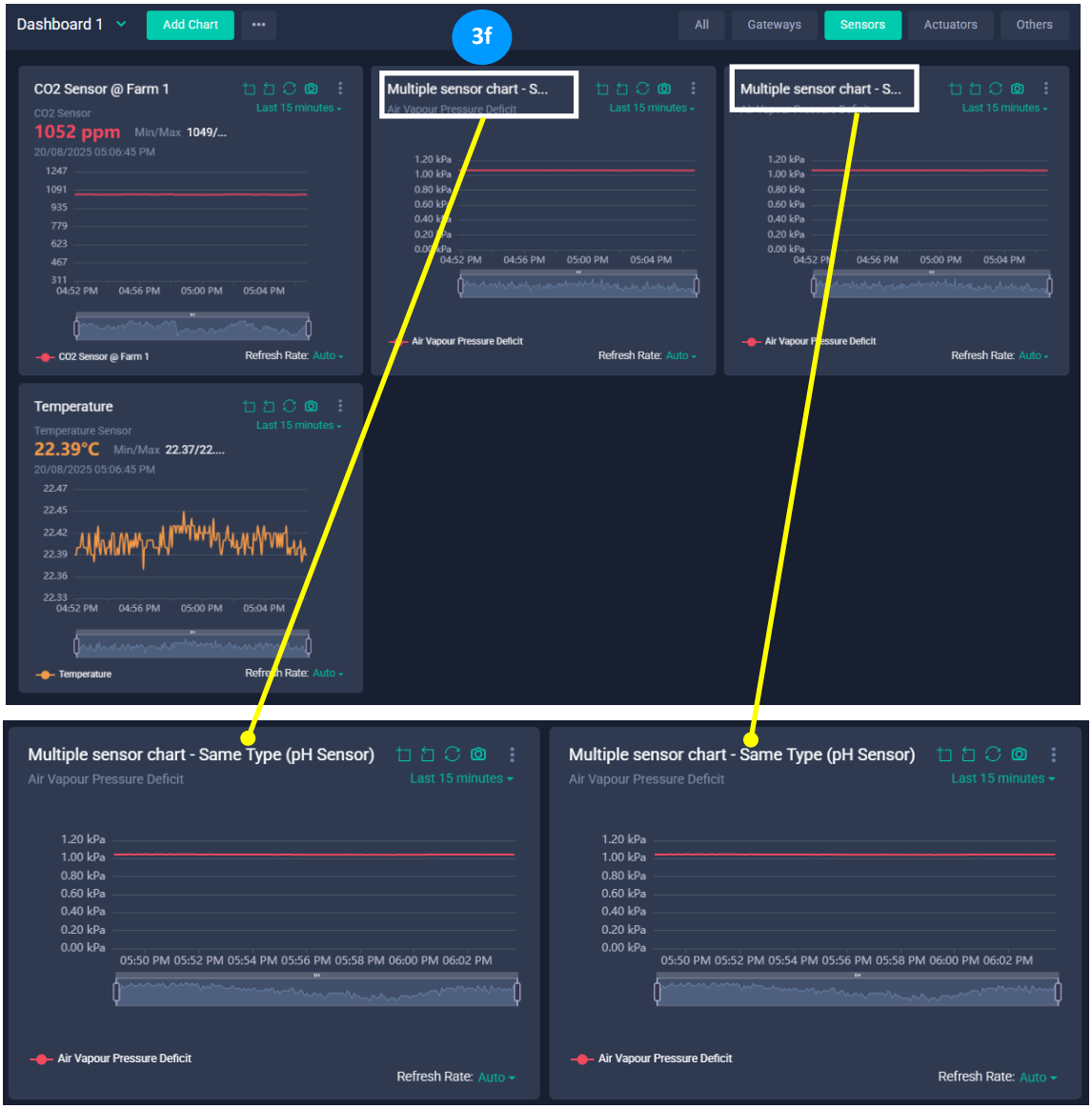


e. Upon selecting all the chart attributes, click **[Create]**.



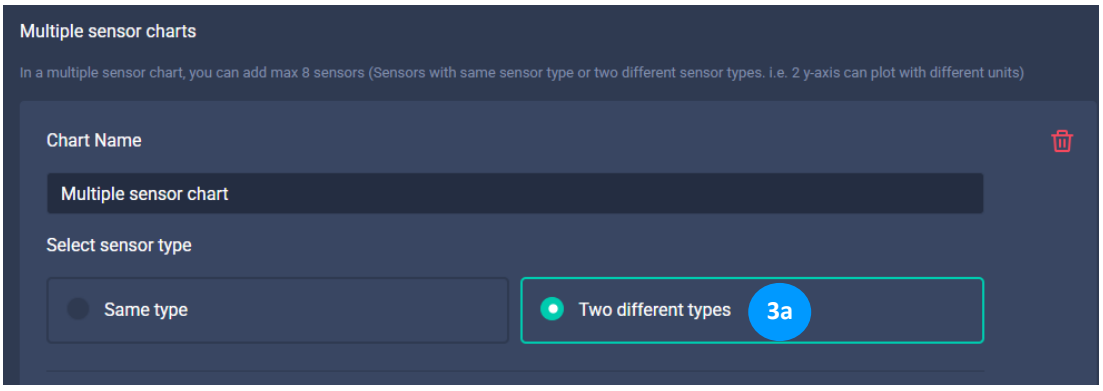
f. An appropriate message indicating that the chart has been successfully created is displayed, Click **[OK]**. The chart is displayed.



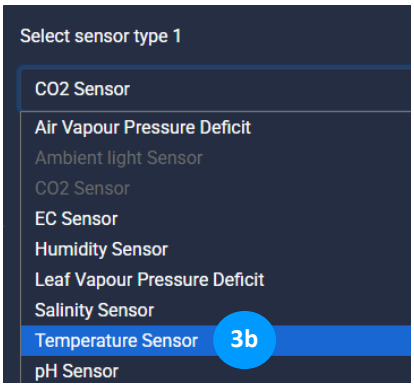


Sensor Type – Two different types

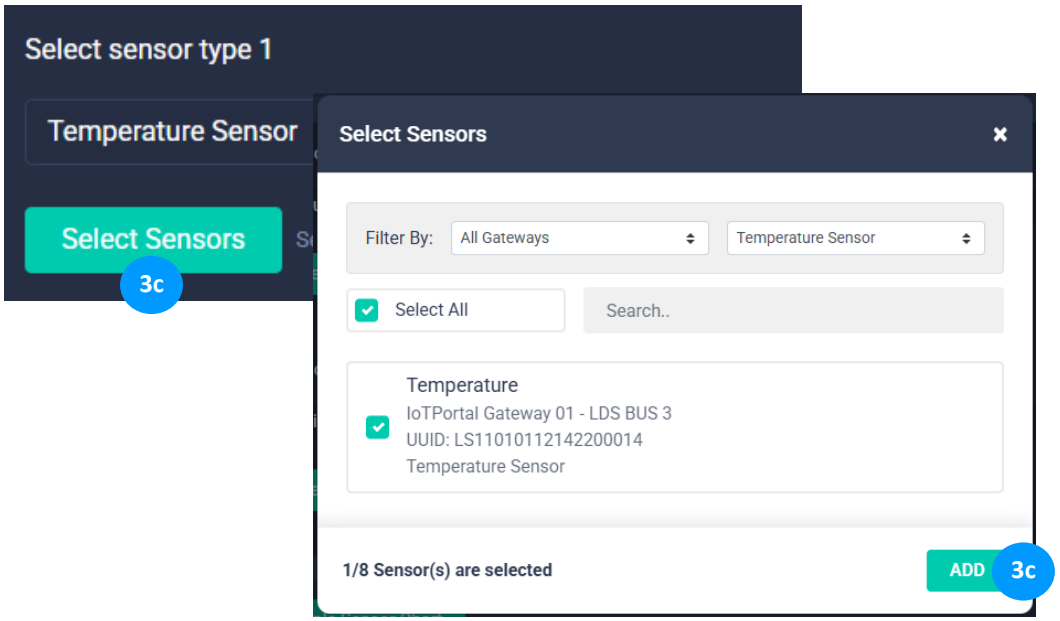
a. Select *sensor type option – Two different types*.



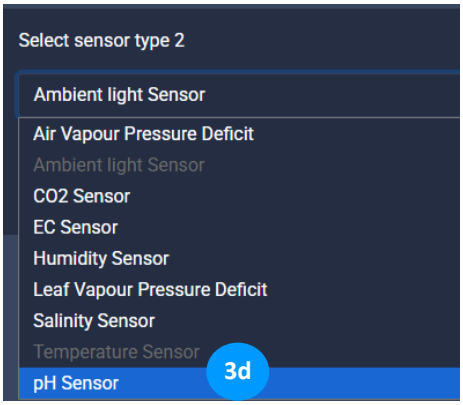
b. Select **sensor type 1** from the drop-down list box. ***For illustration purpose, Temperature Sensor is selected.***



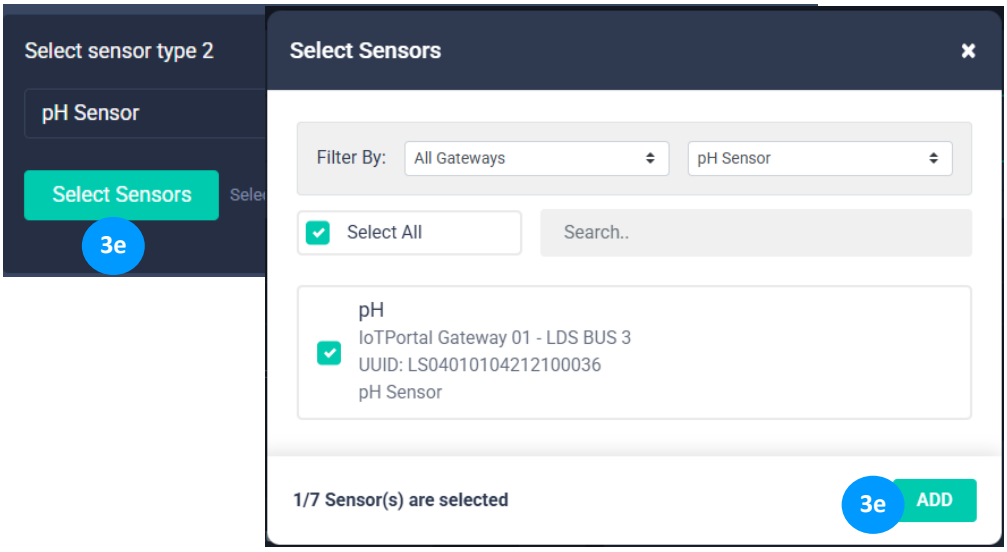
c. For the selected sensor type 1, click **[Select Sensors]**; From the resulting window, select the sensor(s). ***For illustration purpose, Temperature sensor is selected***. Click **[ADD].**



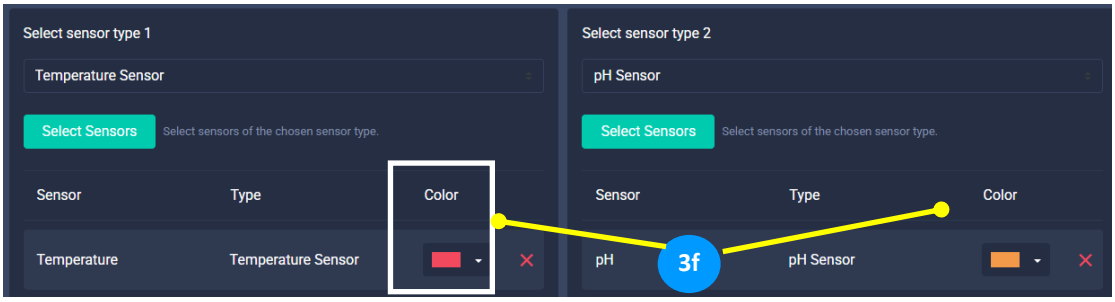
d. Select **sensor type 2** from the drop-down list box. ***For illustration purpose, pH Sensor is selected.***



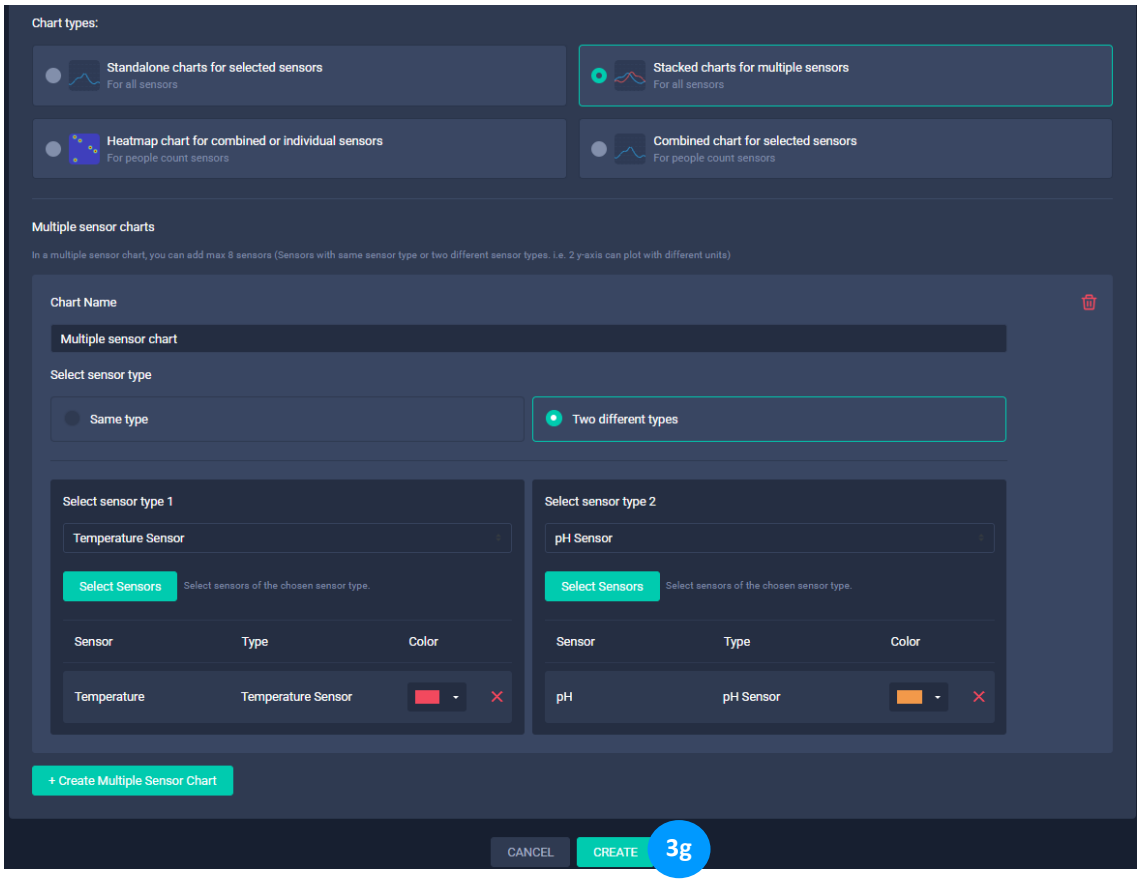
e. For the selected sensor type 2, click **[Select Sensors]**; From the resulting window, select the sensor(s). ***For illustration purpose, Temperature sensor is selected***. Click **[ADD]**.



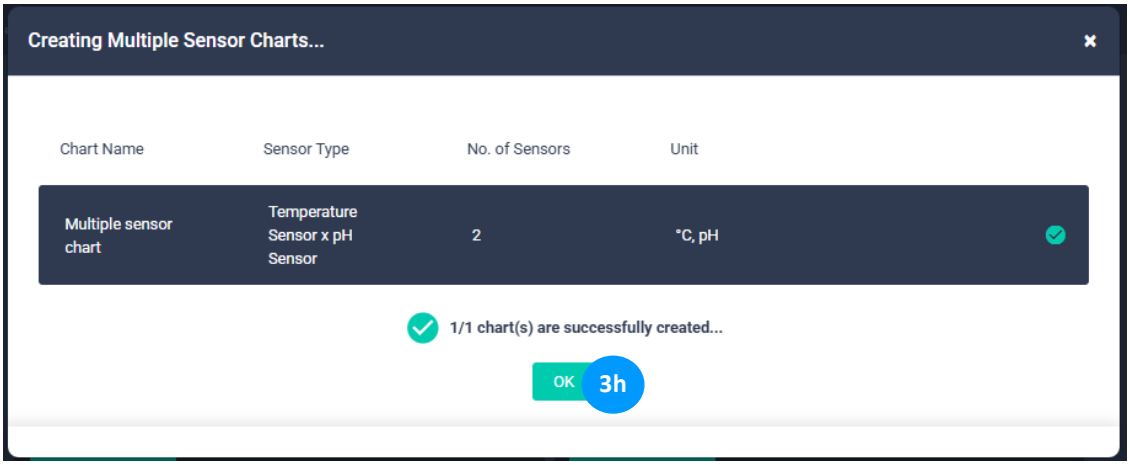
f. Update the chart attribute *(Color)*, as required.

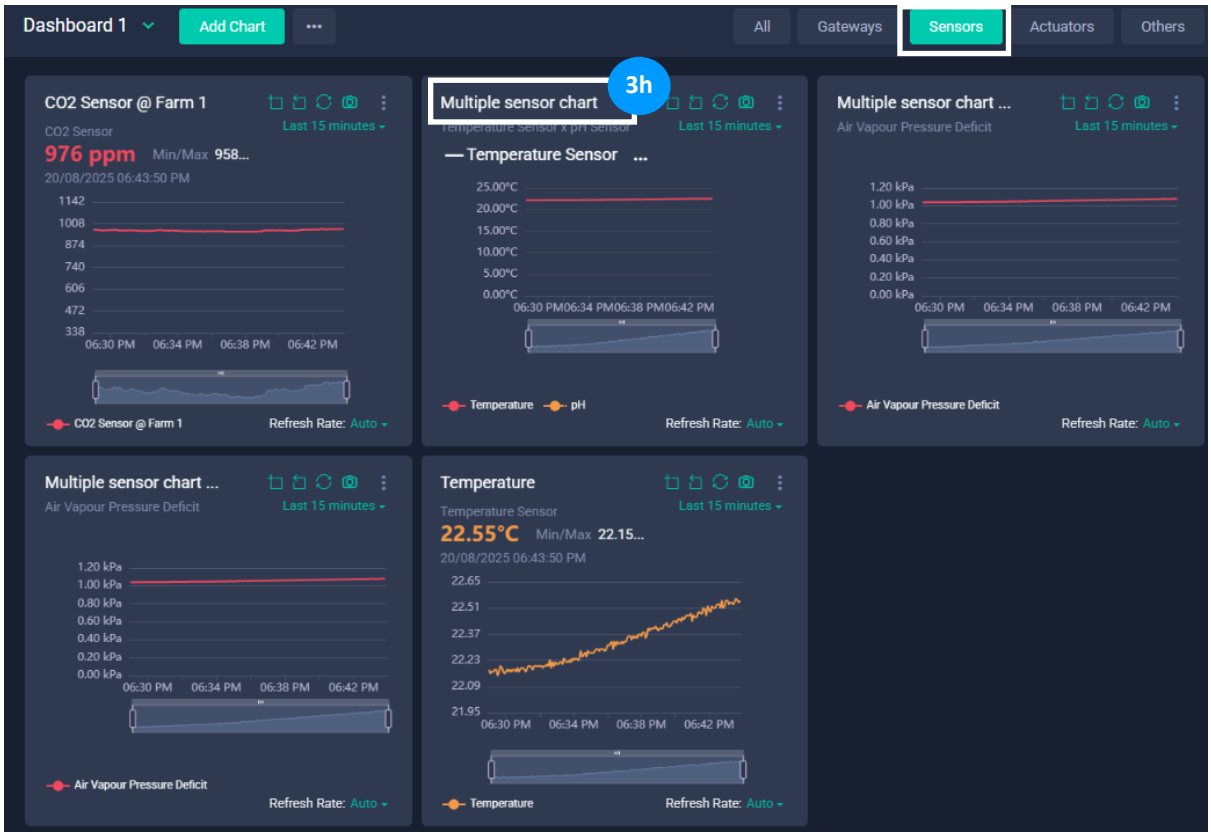


g. Upon selecting all the chart attributes, click **[Create]**.



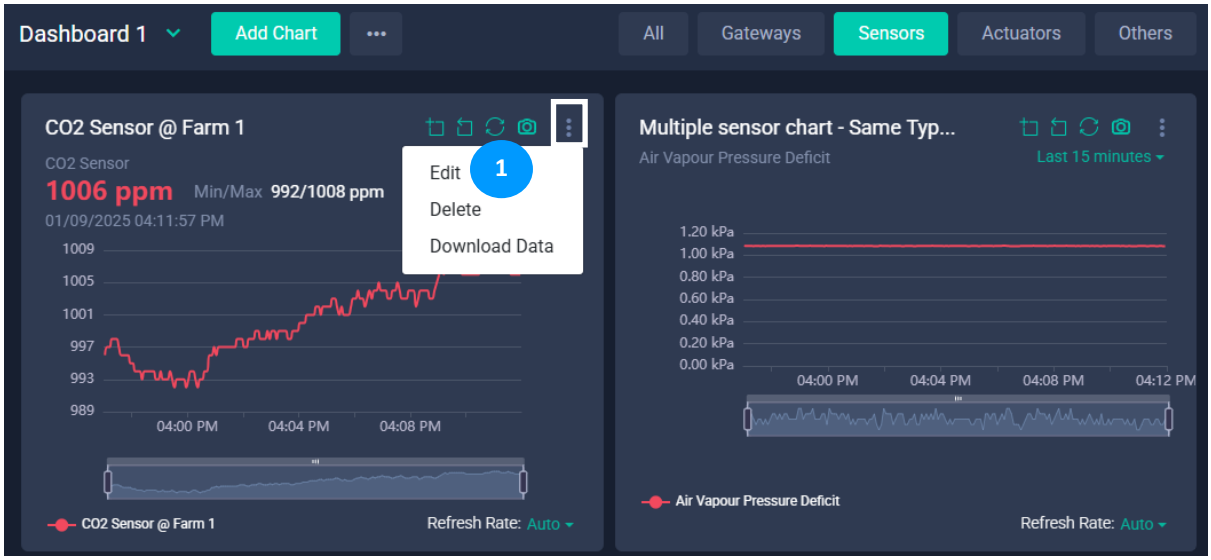
h. An appropriate message indicating that the chart has been successfully created is displayed, Click **[OK]**. The chart is displayed under the **Sensors** tab.



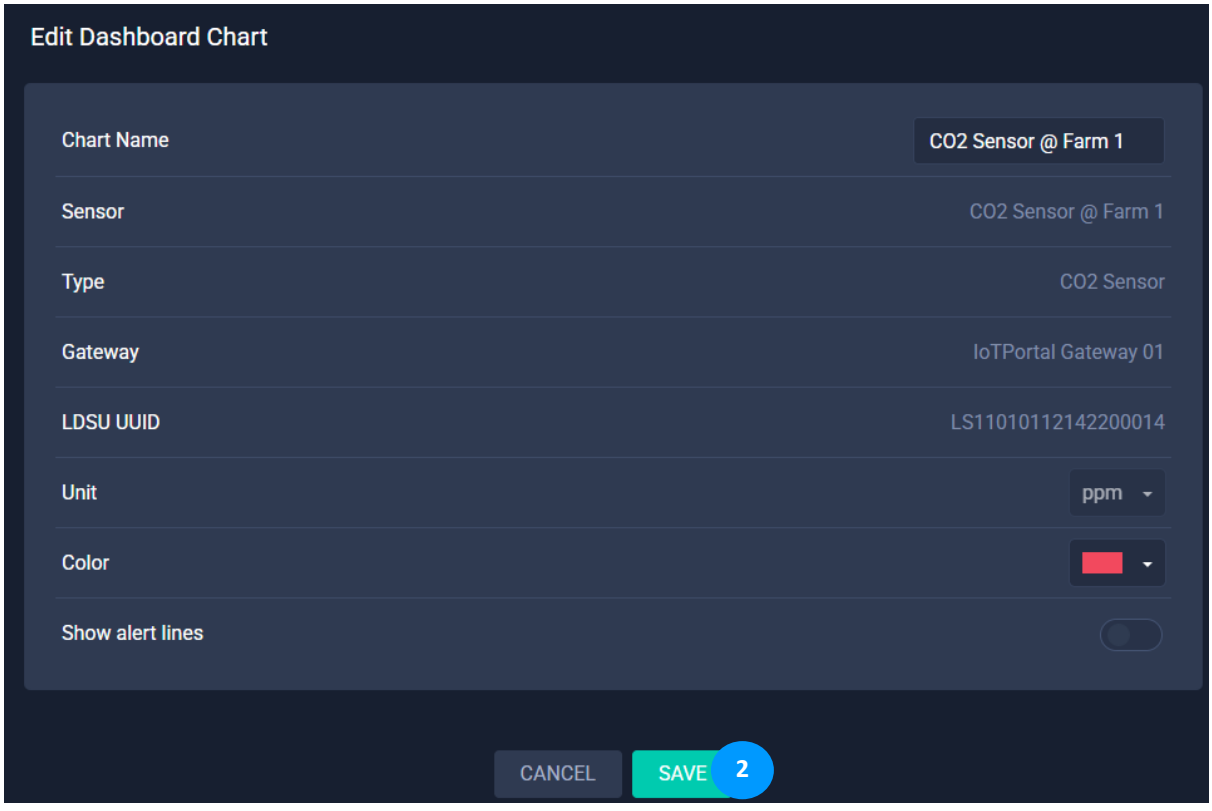


11.2.1.2 Edit Sensor Chart

1. From the Sensor chart interface, click ⋮ and select **Edit**.

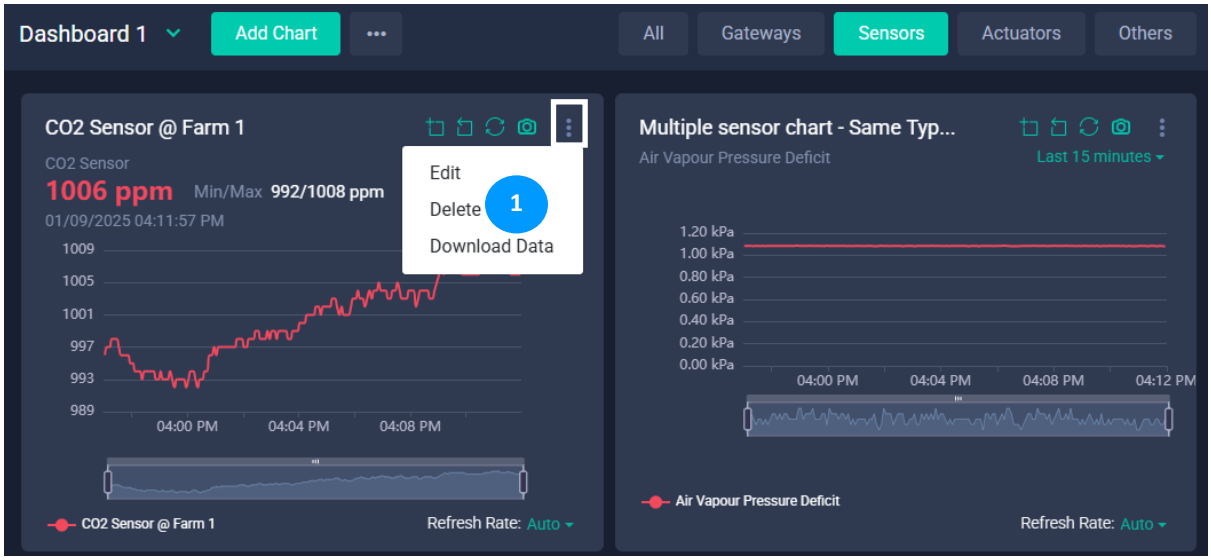


2. The Edit Dashboard Chart interface is displayed. The *Chart Name* and *Chart Color* can be edited. Click **[SAVE]** to save the changes made, if any.

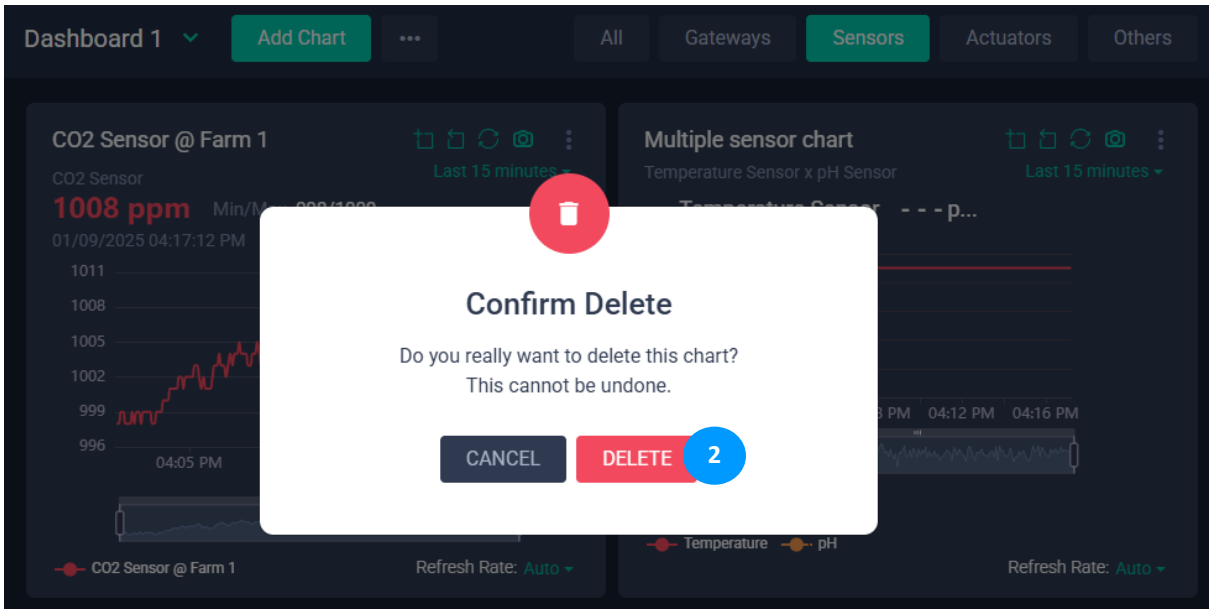


11.2.1.3 Delete Sensor Chart

1. From the Gateways chart interface, click ⋮ and select **Delete**.



2. A confirmation window is displayed. Click **[DELETE]** to delete the chart or **[CANCEL]** to discard the delete operation.



11.2.1.4 Download Sensor Chart Data

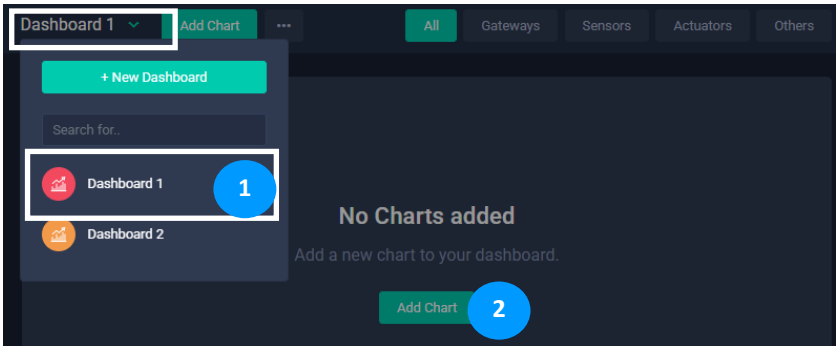
The procedure for downloading sensor chart data is similar to downloading sensor data. Refer to Download Sensor Data for more details.

11.2.2 Actuator Trigger Data

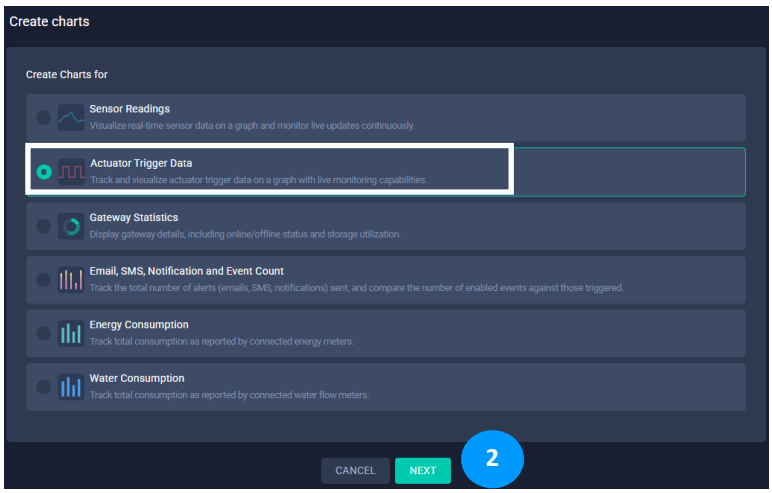
This chart allows users to monitor actuator trigger data on a graph with live monitoring capabilities.

11.2.2.1 Create Chart for Actuator Trigger Data

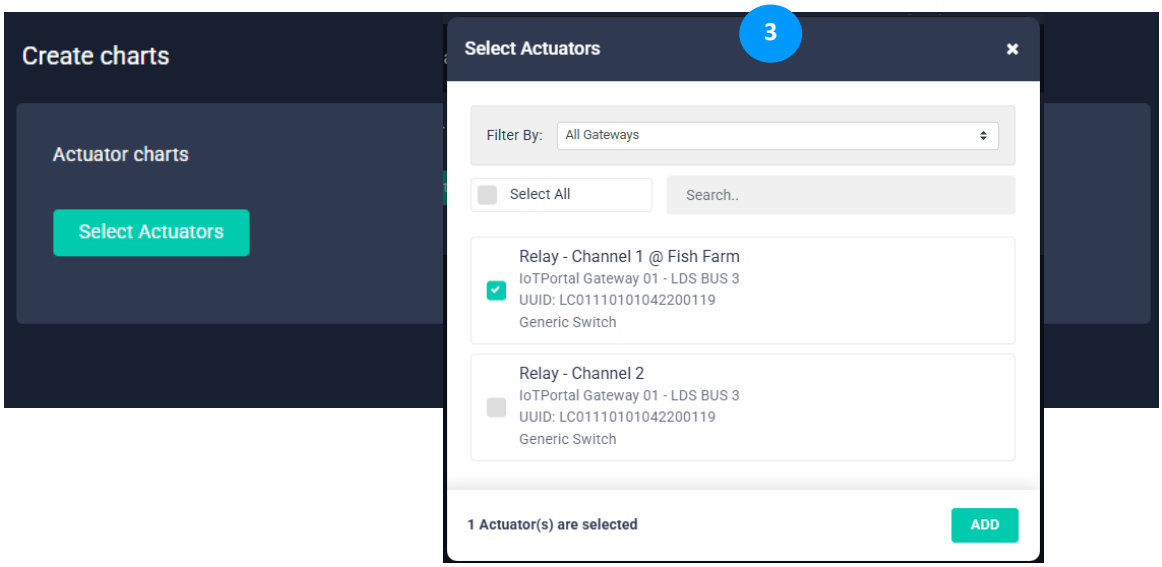
1. Select the **Dashboard** (from the drop-down control) for which the chart should be added. There must be at least one available dashboard for adding charts.



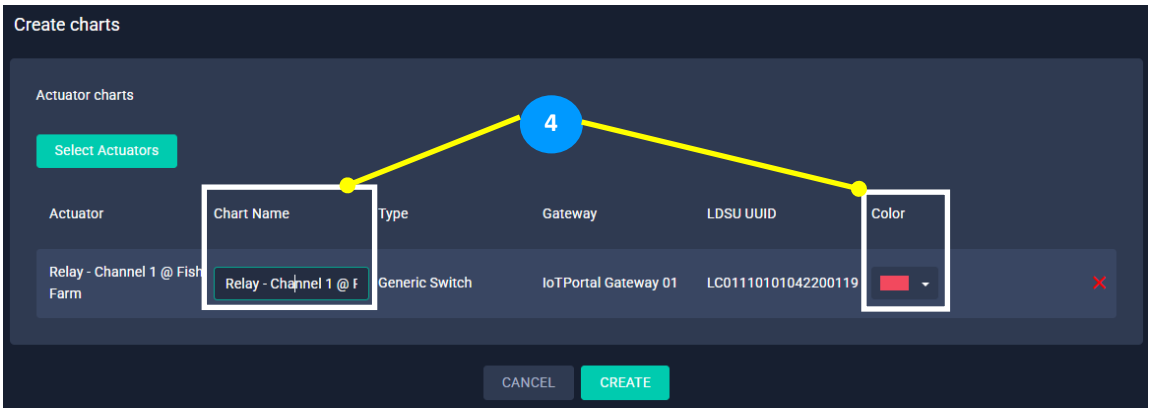
2. Click **[Add Chart]**. The Create charts interface is displayed. Select **Actuator Trigger Data**. Click **[NEXT]**.



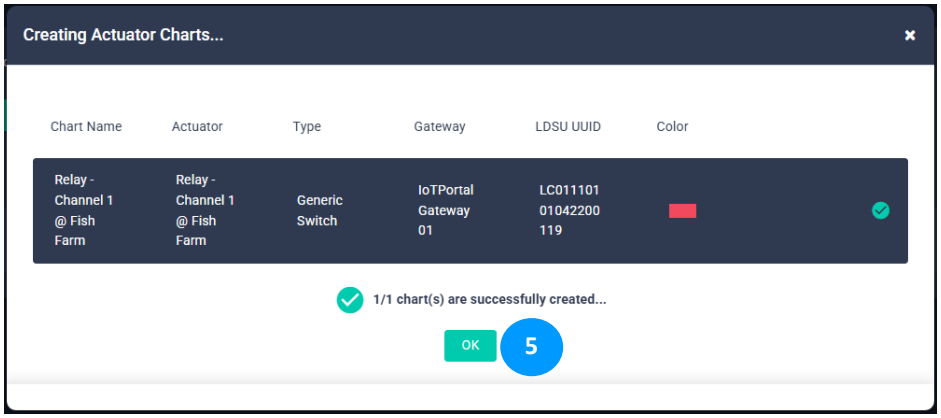
3. Click **[Select Actuators]**. From the resulting window, select the actuators. ***For illustration purpose, Relay-Channel 1@Fish Farm is selected***. Click **[ADD]**.

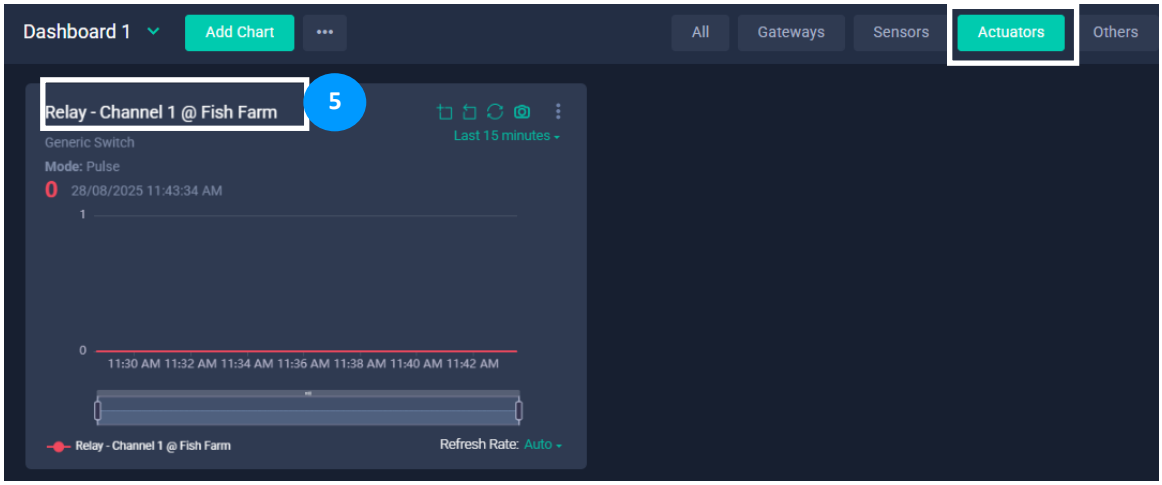


4. The **Chart Name** and **Chart Color** are editable. Update these attributes, if required. Click **[Create]**.



5. An appropriate message indicating that the chart has been successfully created is displayed, Click **[OK]**. The chart is displayed under the **Actuators** tab.





11.2.2.2 Edit / Delete Actuator Chart

The procedure for editing / deleting actuator chart is similar to Edit Sensor Readings Chart / Delete Sensor Readings Chart.

11.2.2.3 Download Actuator Chart Data

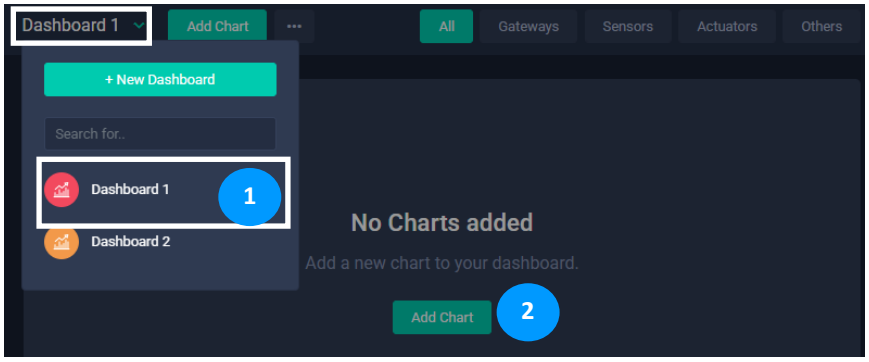
The procedure for downloading actuator chart data is similar to downloading sensor data. Refer to Download Sensor Data for more details.

11.2.3 Gateway Statistics

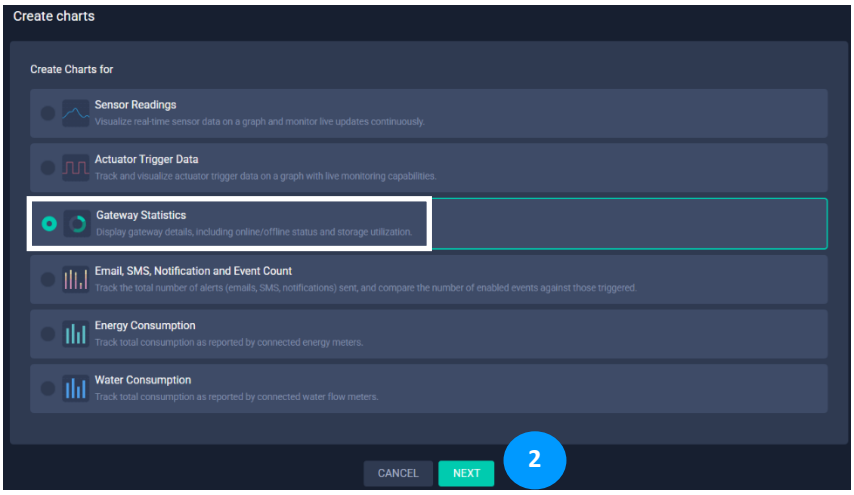
This chart displays an overview of gateway status, including the online/offline status and storage used.

11.2.3.1 Create Chart for Gateway Statistics

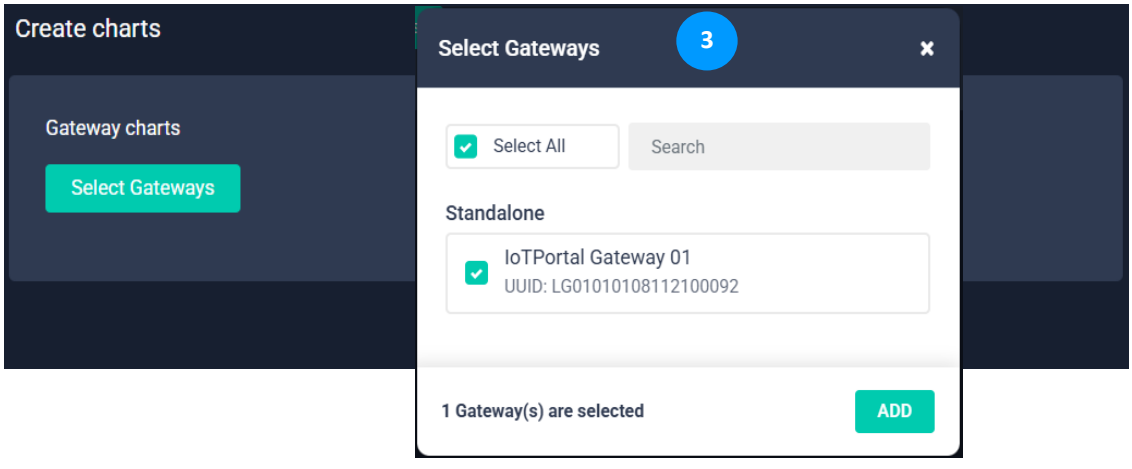
1. Select the **Dashboard** (from the drop-down control) for which the chart should be added. There must be at least one available dashboard for adding charts.



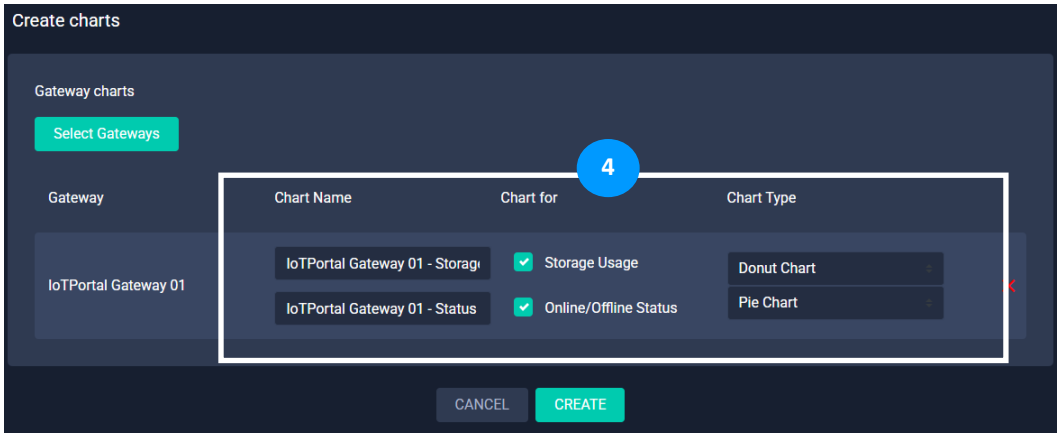
2. Click **[Add Chart]**. The Create charts interface is displayed. Select **Gateway Statistics**. Click **[NEXT]**.



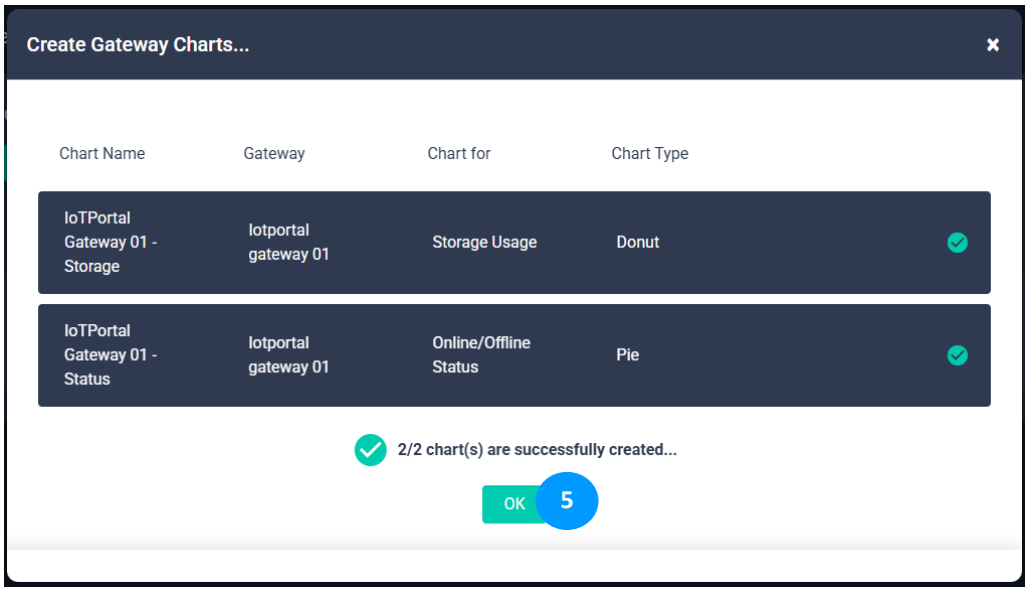
3. Click **[Select Gateways]**. From the resulting window, select the Gateway(s). ***For illustration purpose, IoTPortal Gateway 01 is selected***. Click **[ADD]**.

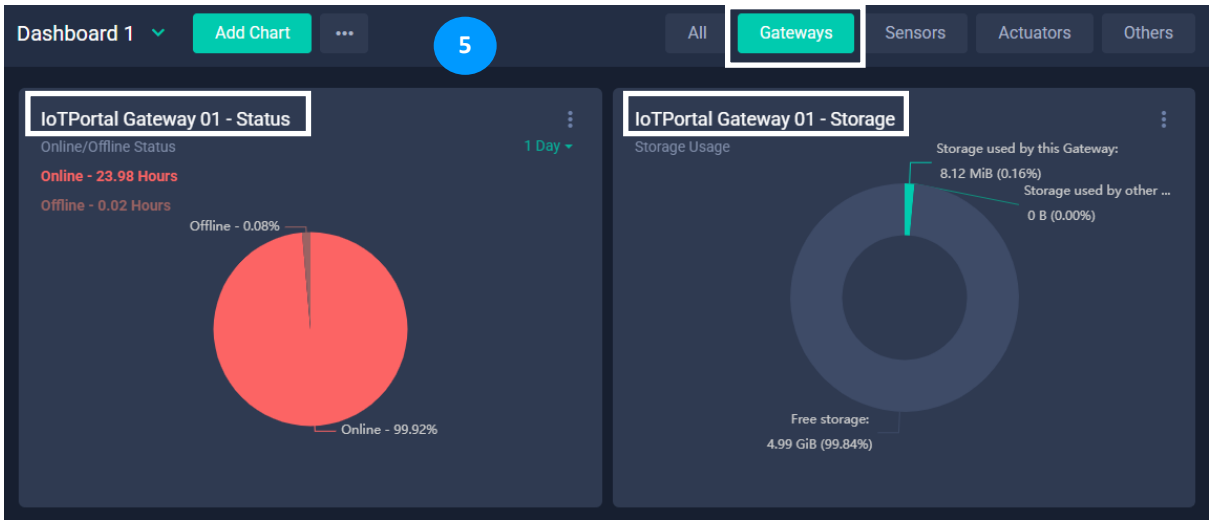


4. The **Chart Name, Chart for (check boxes)** and **Chart Type** are editable. Update these attributes, if required. Click **[Create]**.



5. An appropriate message indicating that the chart has been successfully created is displayed, Click **[OK]**. The chart is displayed under the **Gateways** tab.





11.2.3.2 Edit / Delete Gateway Chart

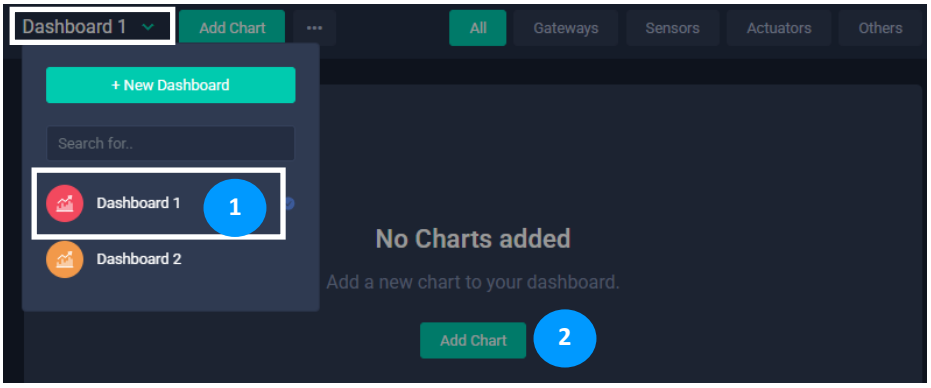
The procedure for editing / deleting gateway chart is similar to Edit Sensor Readings Chart / Delete Sensor Readings Chart.

11.2.4 Email, SMS, Notification and Event Count (Others)

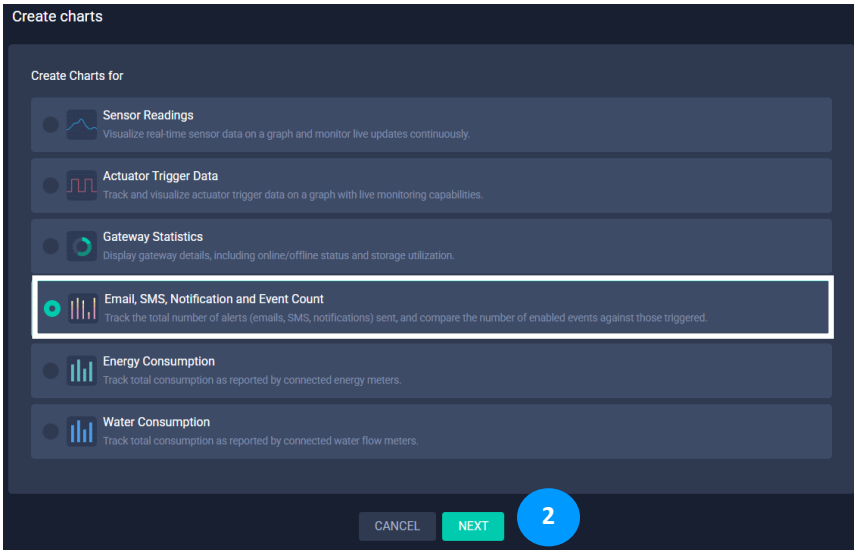
This chart compiles a list of all alerts (emails, SMS, notifications) sent, and compare them with the enabled events.

11.2.4.1 Create Chart for Email, SMS, Notification and Event Count

1. Select the **Dashboard** (from the drop-down control) for which the chart should be added. There must be at least one available dashboard for adding charts.

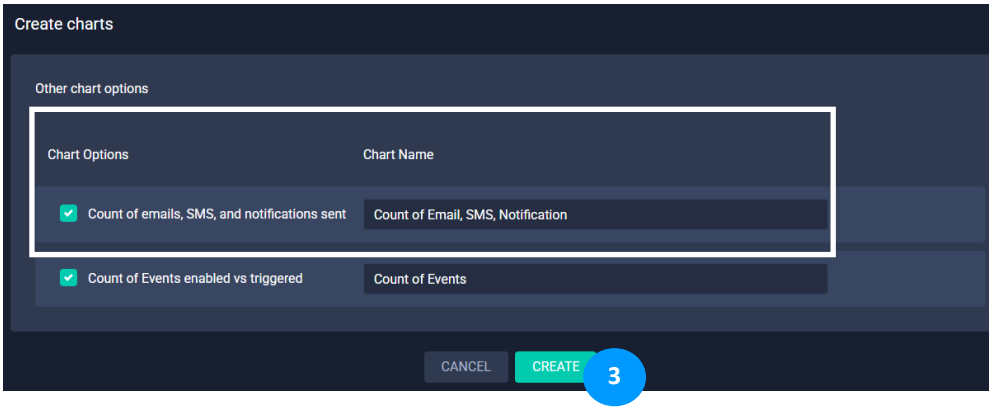


2. Click **[Add Chart]**. The Create charts interface is displayed. Select **Email, SMS, Notification and Event Count**. Click **[NEXT]**.

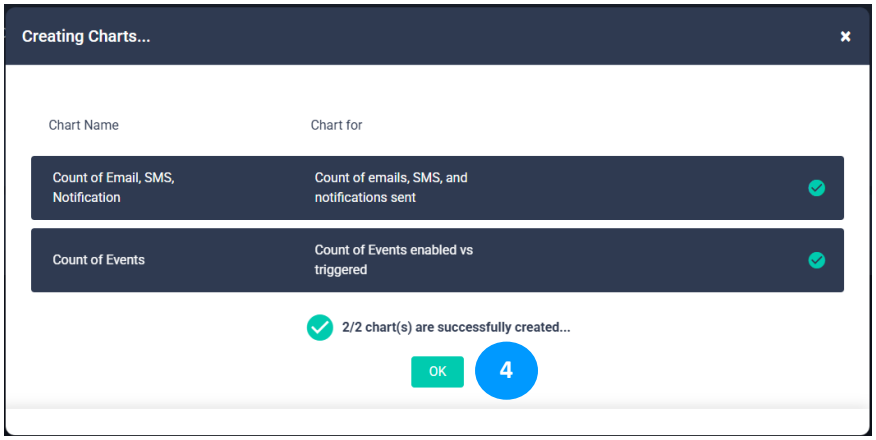


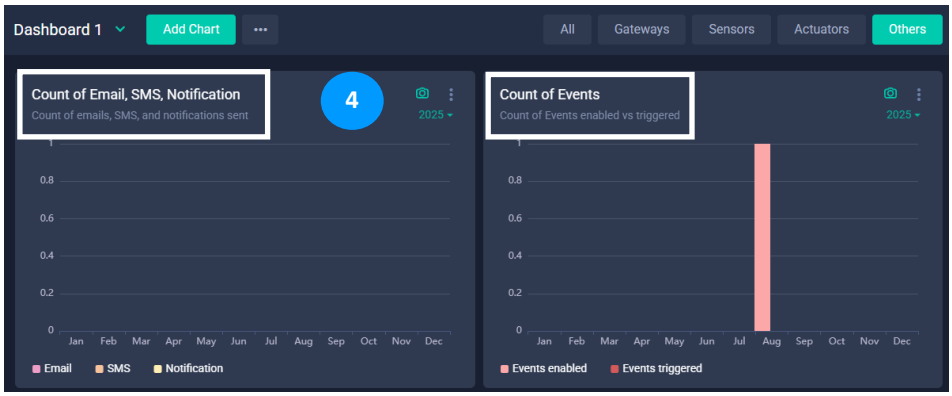
3. Select one or more of the following chart options and click **[CREATE]**.

   ☑ Count of emails, SMS, and notifications sent
   ☑ Count of Events enabled vs triggered



4. An appropriate message indicating that the chart has been successfully created is displayed, Click **[OK]**. The chart is displayed under the **Others** tab.





11.2.4.2 Edit / Delete Other Chart

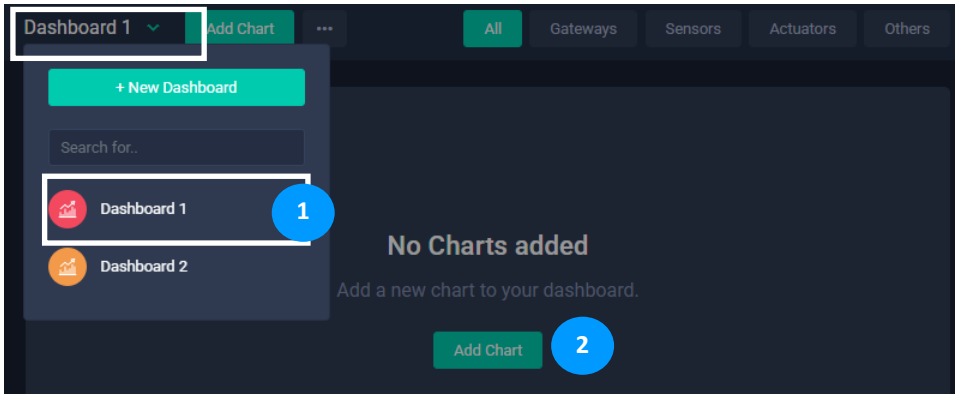
The procedure for editing / deleting other chart is similar to Edit Sensor Readings Chart / Delete Sensor Readings Chart.

11.2.5 Energy Consumption

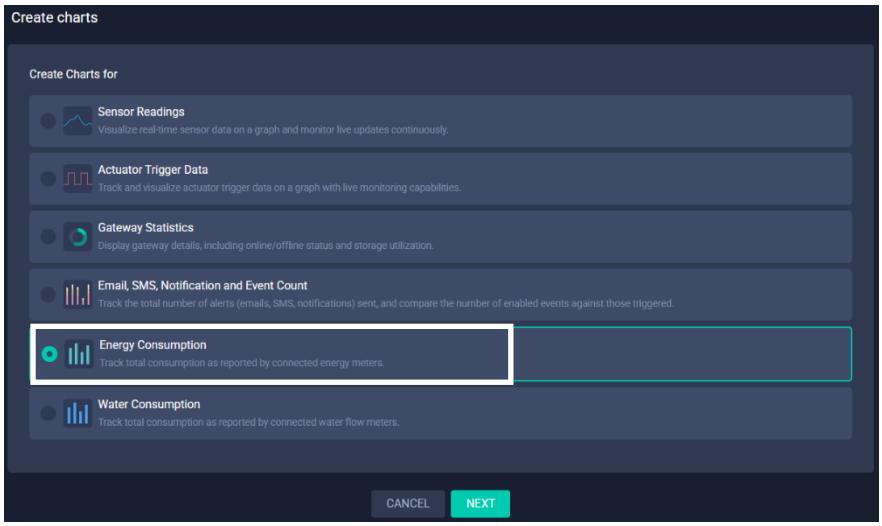
This chart allows users to monitor the total consumption reported by connected energy meters.

11.2.5.1 Create Chart for Energy Consumption

1. Select the **Dashboard** (from the drop-down control) for which the chart should be added. There must be at least one available dashboard for adding charts.

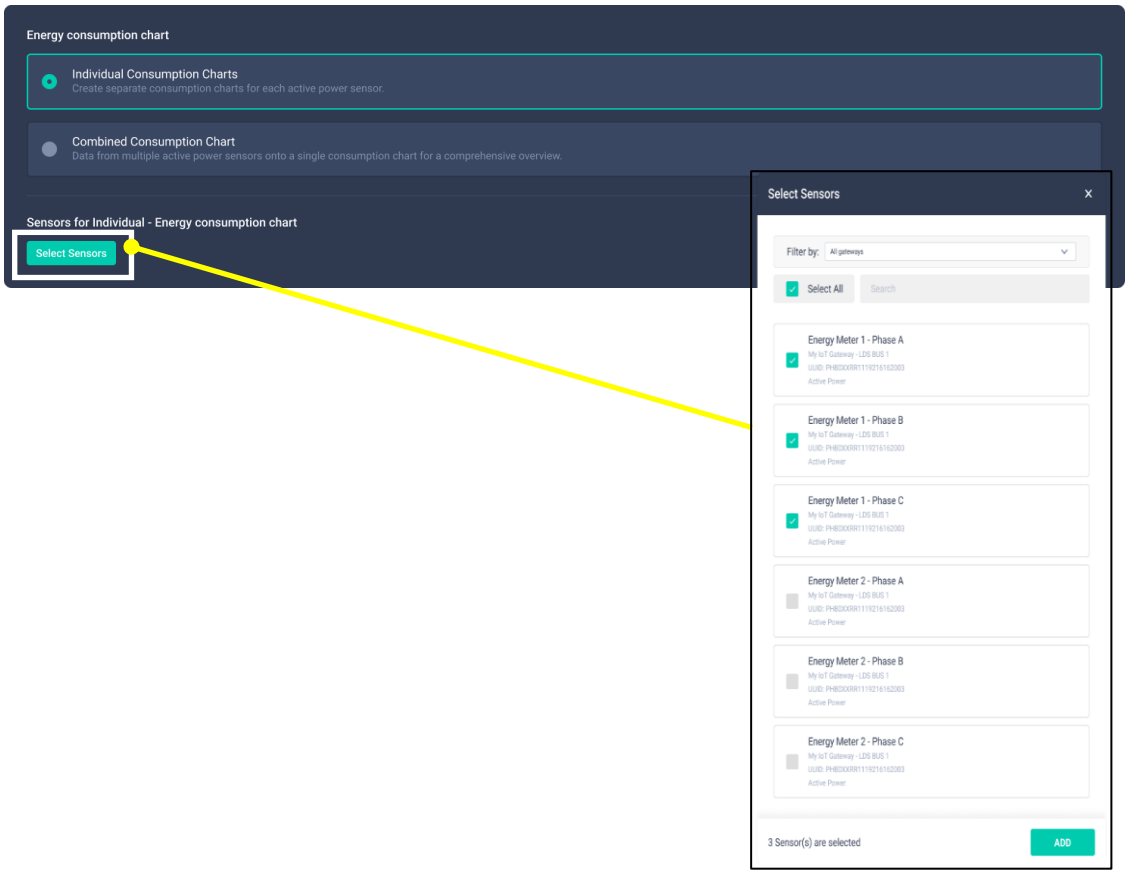


2. Click **[Add Chart]**. The Create charts interface is displayed. Select **Energy Consumption**. Click **[NEXT]**.

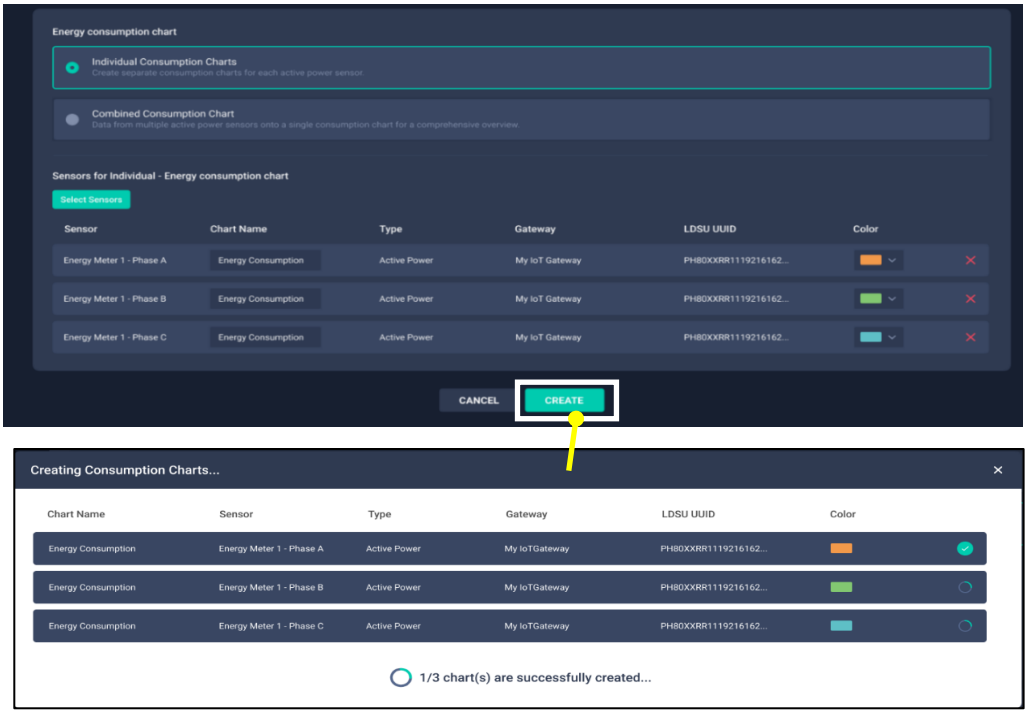


To generate Individual Consumption Charts

3. Select *Individual Consumption Charts* option and click **[Select Sensors]**. From the resulting window select the sensors and tap **[ADD]**.



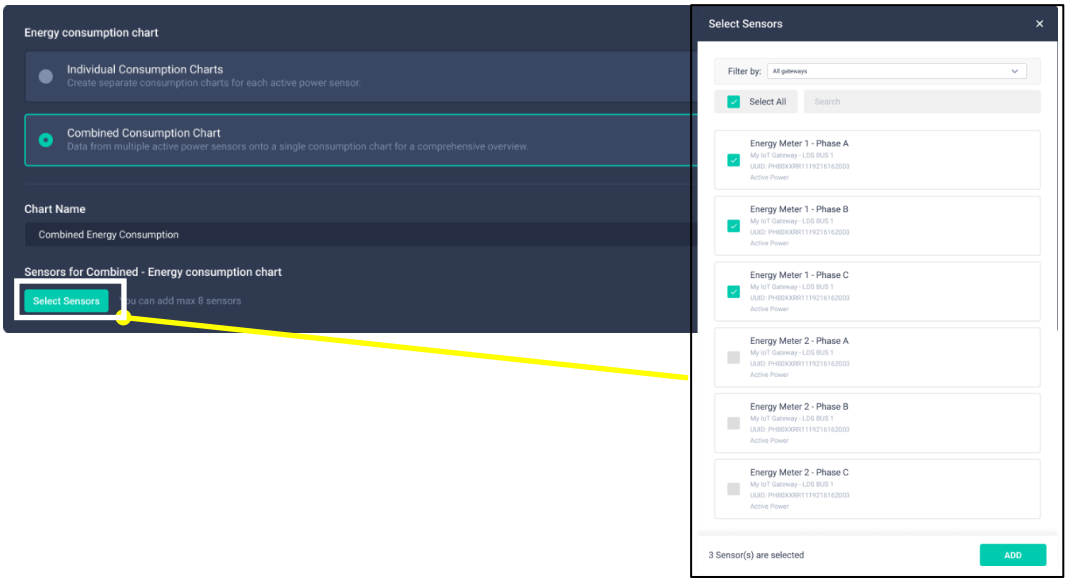
4. Click on **[CREATE]** to generate the individual energy consumption charts.



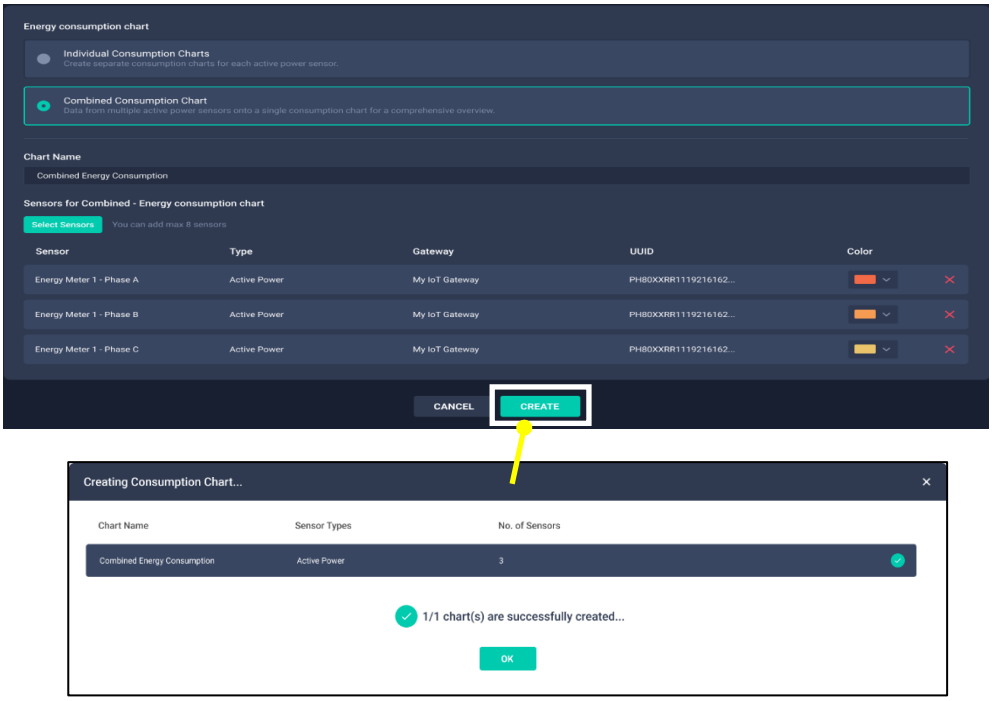
5. Charts are generated and displayed as shown below:

To generate Combined Consumption Charts

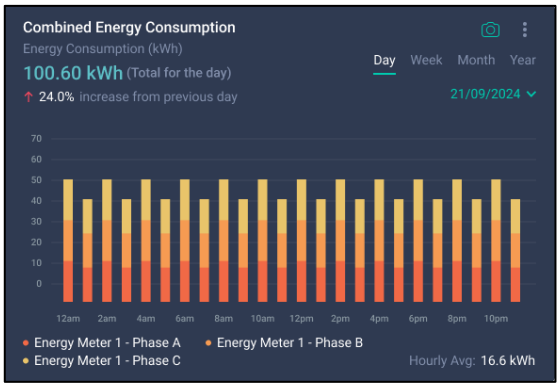
6. Select *Combined Consumption Chart* option and click **[Select Sensors]**. From the resulting window select the sensors and tap **[ADD]**.



7. Click on **[CREATE]** to generate the combined energy consumption charts.



8. Combined Chart is generated and displayed as shown below:

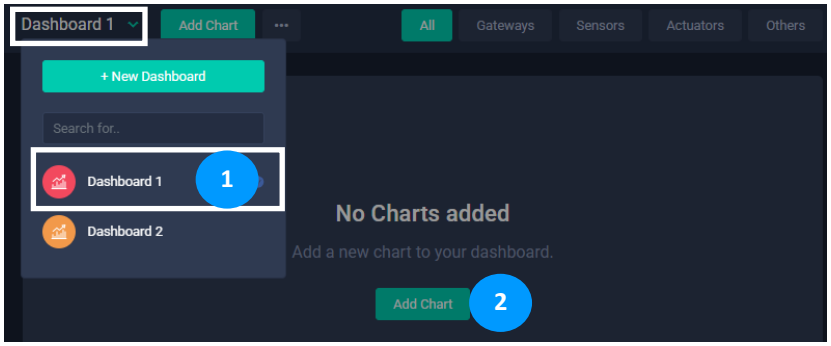


11.2.6 Water Consumption

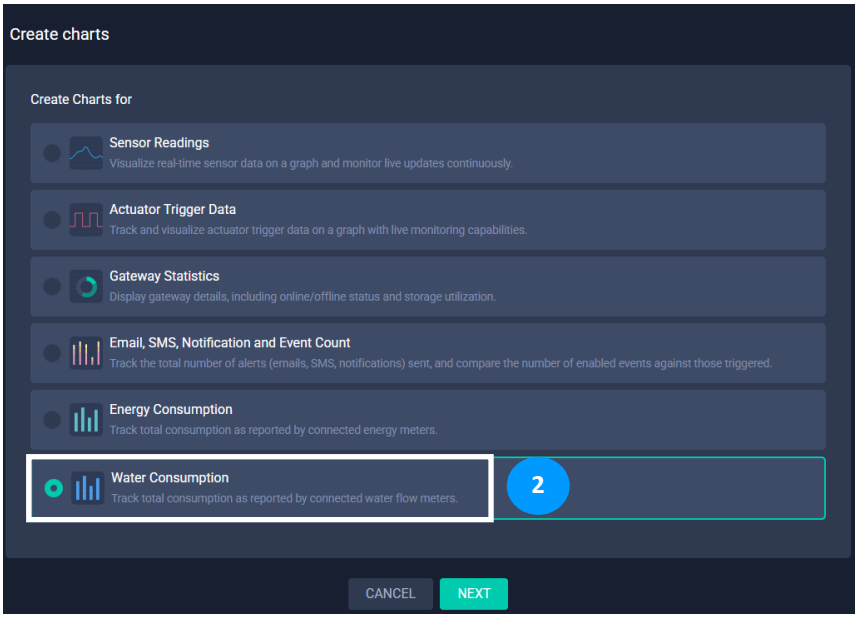
This chart allows users to monitor total water consumption as reported by connected flow meters.

11.2.6.1 Create Chart for Water Consumption

1. Select the **Dashboard** (from the drop-down control) for which the chart should be added. There must be at least one available dashboard for adding charts.

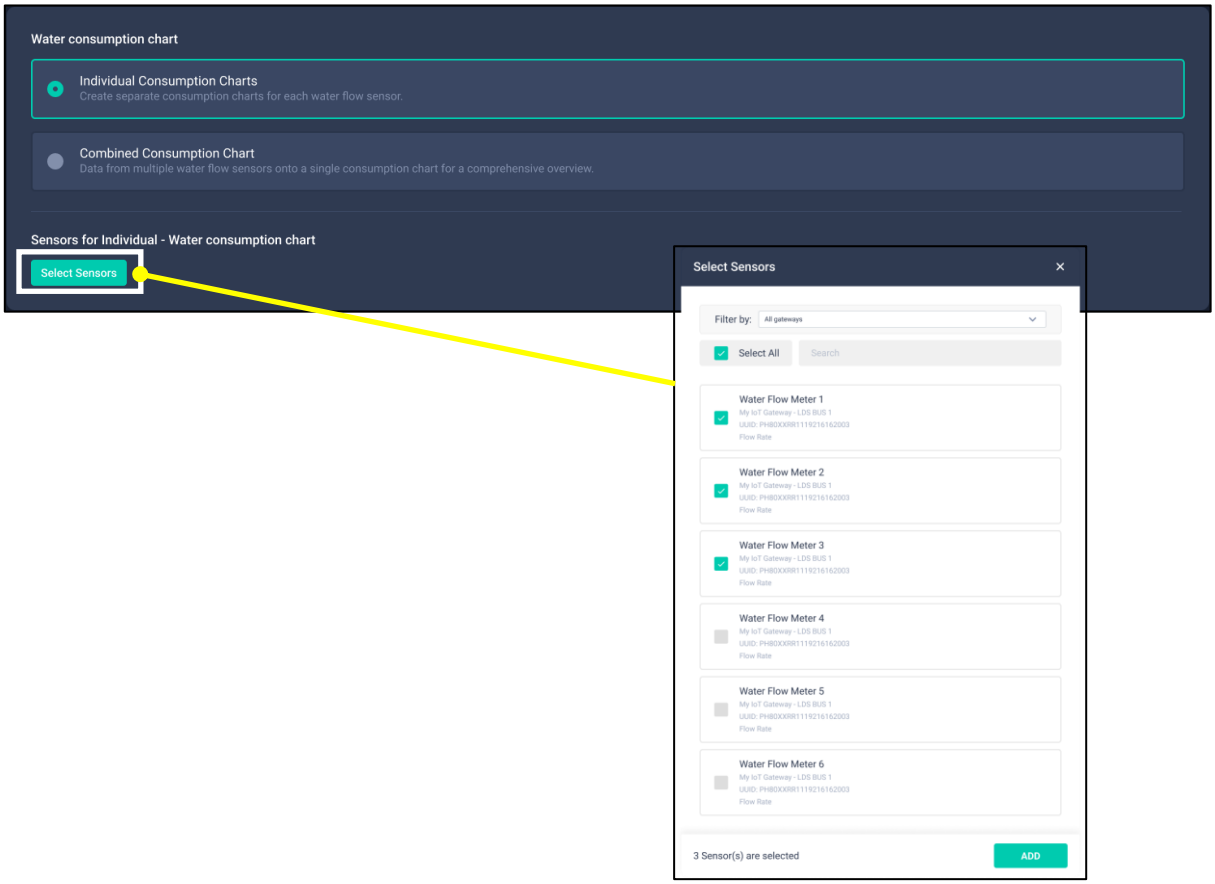


2. Click **[Add Chart]**. The Create charts interface is displayed. Select **Water Consumption**. Click **[NEXT]**.

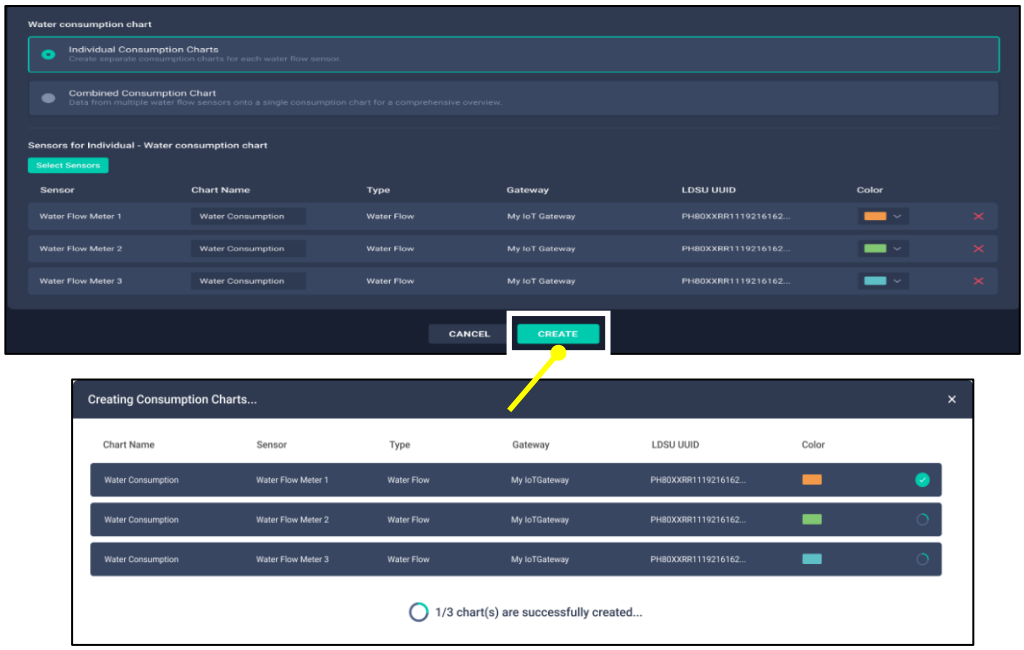


To generate Individual Consumption Charts

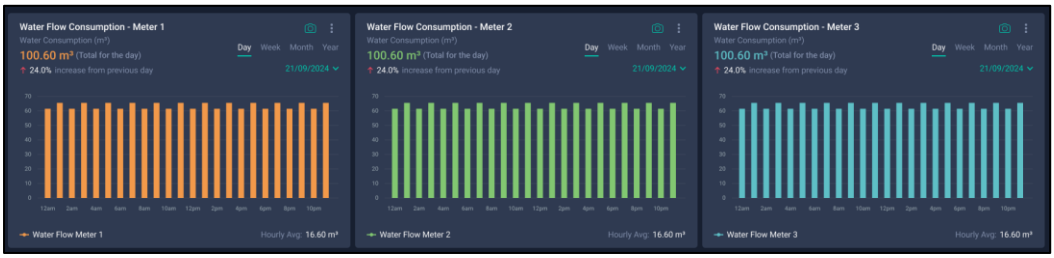
3. Select *Individual Consumption Charts* option and click **[Select Sensors]**. From the resulting window select the flow meter sensors and tap **[ADD]**.



4. Click on **[CREATE]** to generate the individual water consumption charts.

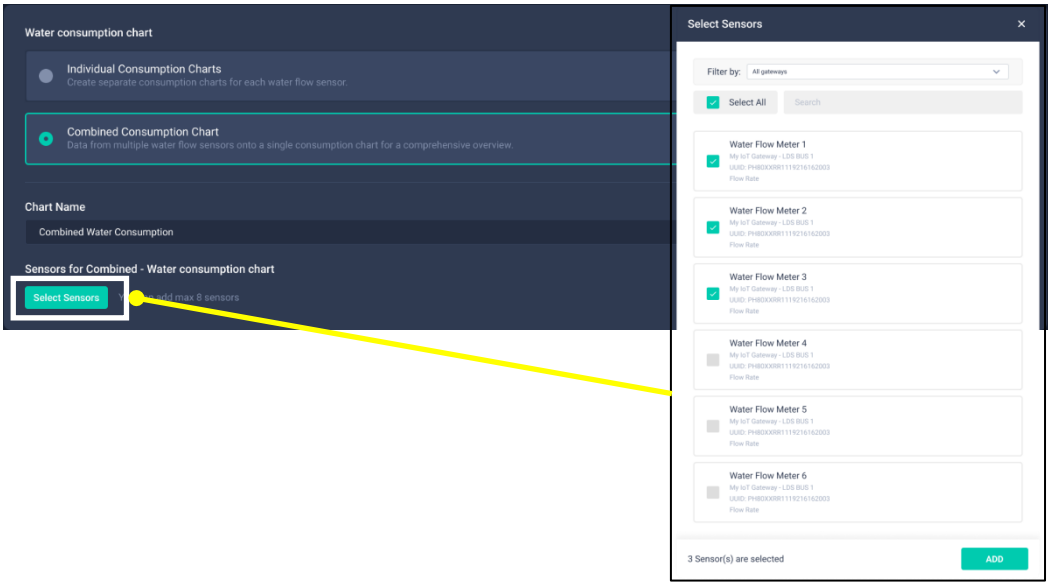


5. Charts are generated and displayed as shown below:

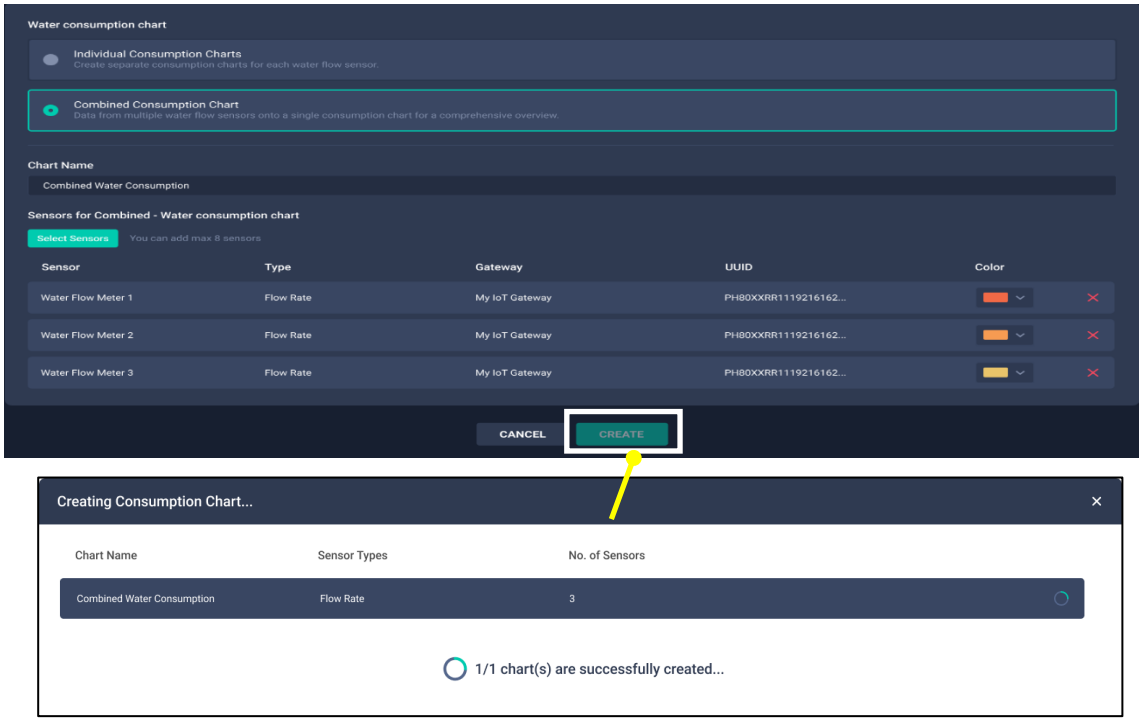


To generate Combined Consumption Charts

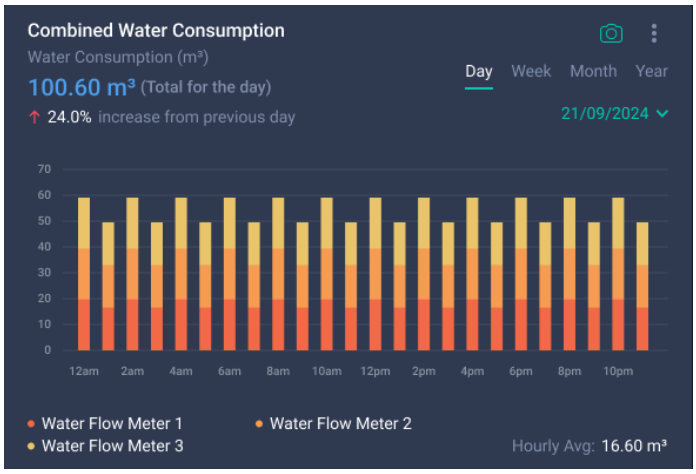
6. Select *Combined Consumption Chart* option and click **[Select Sensors]**. From the resulting window select the sensors and tap **[ADD]**.



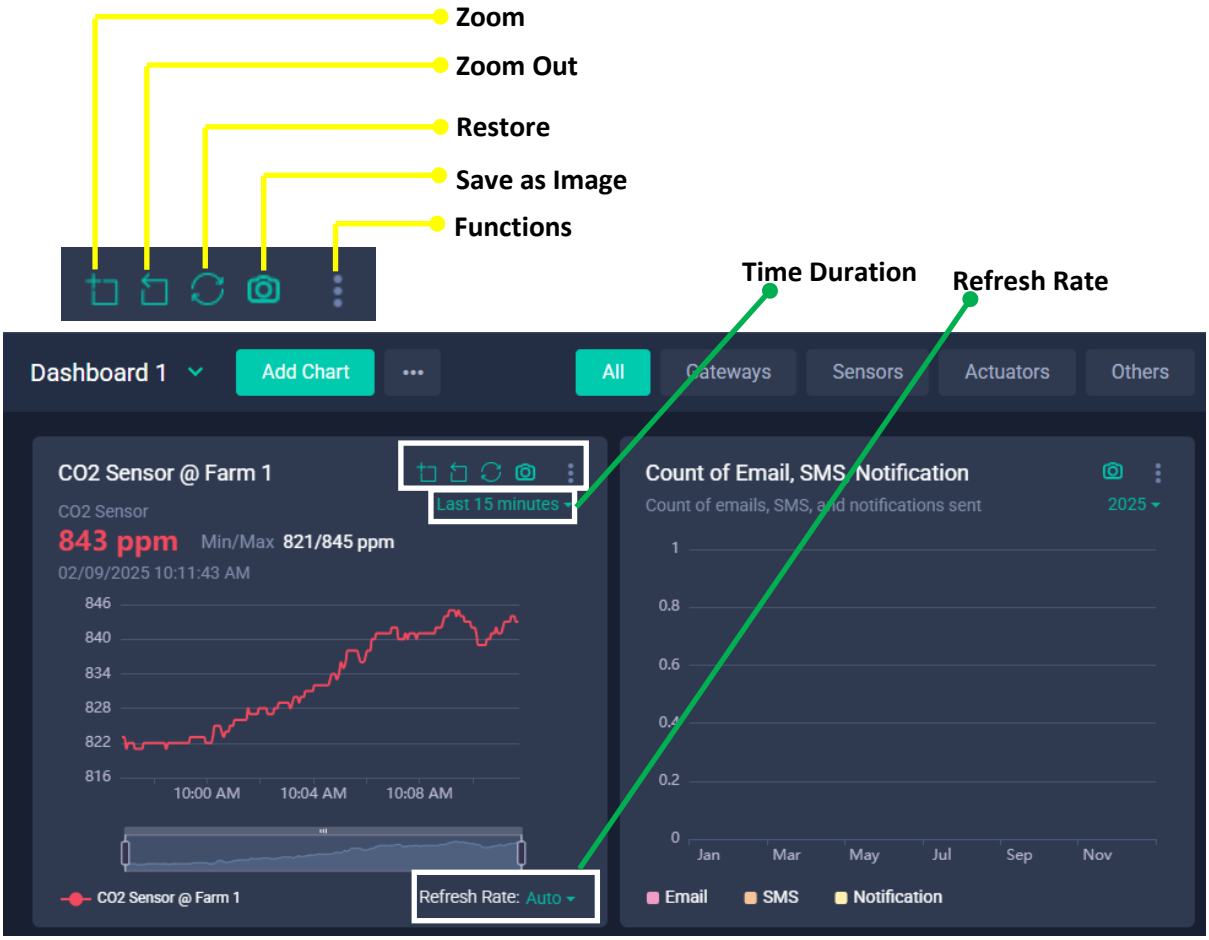
7. Click on **[CREATE]** to generate the combined water consumption charts.



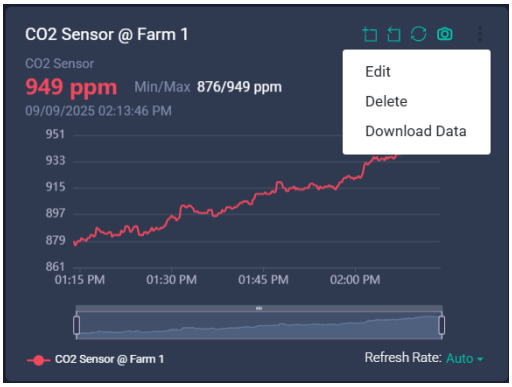
8. Charts are generated and displayed as shown below:



11.2.7 Dashboard Features



1. Zoom – Use the cursor on the chart area to zoom in.
2. Zoom Out – Zoom out to previous zoom level.
3. Restore – Restore to default chart size
4. Save as image – Save chart as an image.
5. Functions – Access the following functions



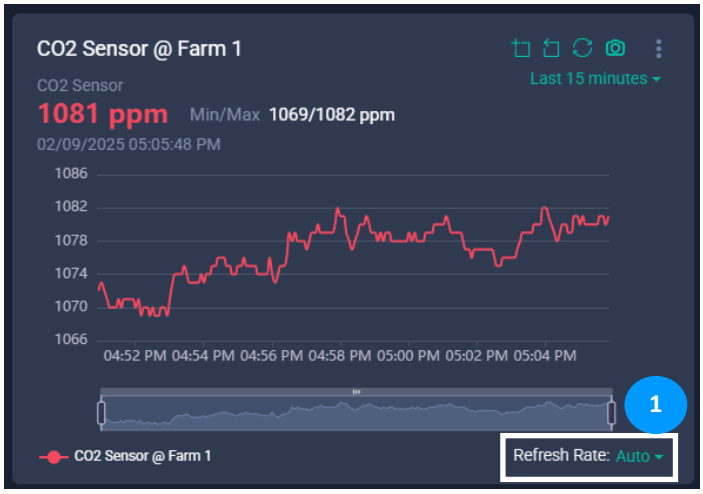
Refer to Edit, Delete and Download Data for more information.

11.2.7.1 Refresh Rate

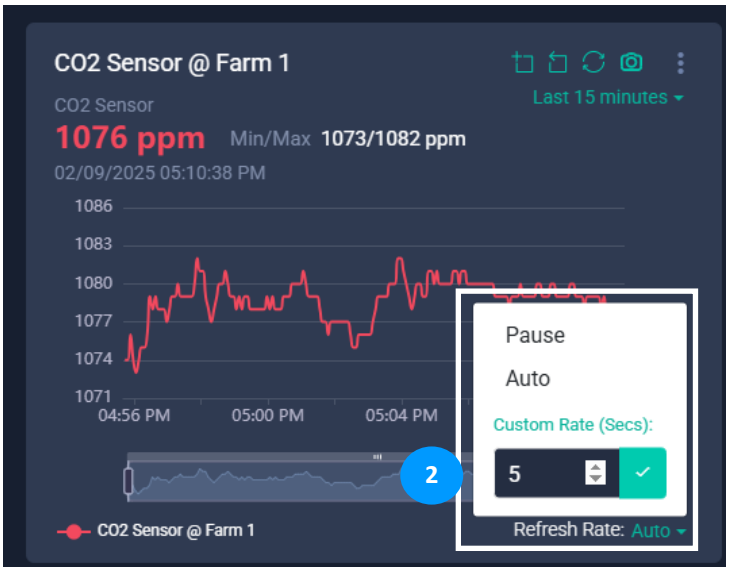
Refresh rate refers to the frequency at which dashboard charts should be refreshed.

To set the refresh rate –

1. Click on the **Refresh Rate** drop down control.



2. From the list box, select the **Refresh Rate frequency** *(5 Secs/10 Secs/15 Secs etc.)* as required.



Setting the refresh rate to *Pause*, will temporarily stop refreshing the chart; Setting the refresh to *Auto* will auto-refresh every 5 Seconds; To set a *Custom Refresh Rate*, enter the refresh rate (in seconds) in the box and click ✓. For example, if 60 Secs is selected, then the dashboard chart will refresh every 60 Seconds.

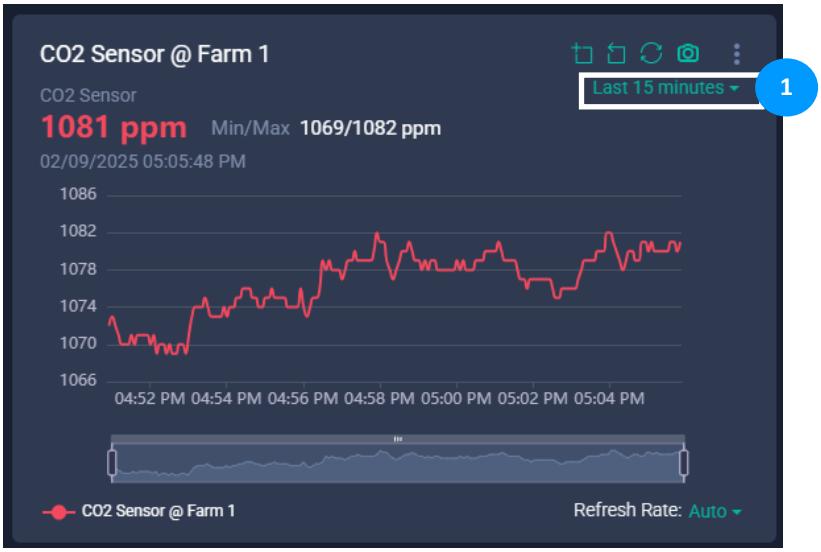
NOTE: Less tokens are consumed when the refresh rate is longer.

11.2.7.2 Time Interval Filter

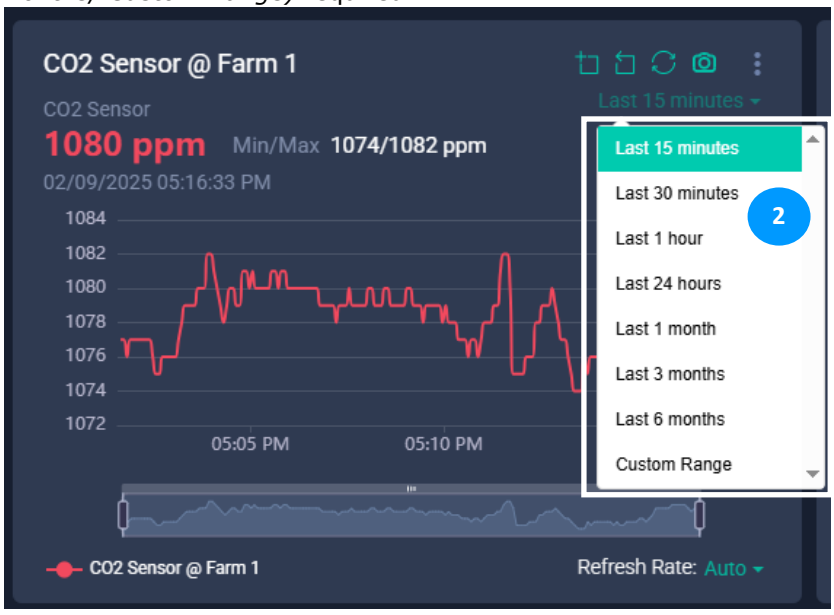
This filter allows users to select a specific period or duration of time to analyse data within a dashboard.

To set time interval –

1. Click on the **Time interval** filter.



2. From the filter, select the **Time interval** *(Last 15 minutes….Last 24 Hrs./Last 1 month….Last 6 months/ Custom Range)* required.

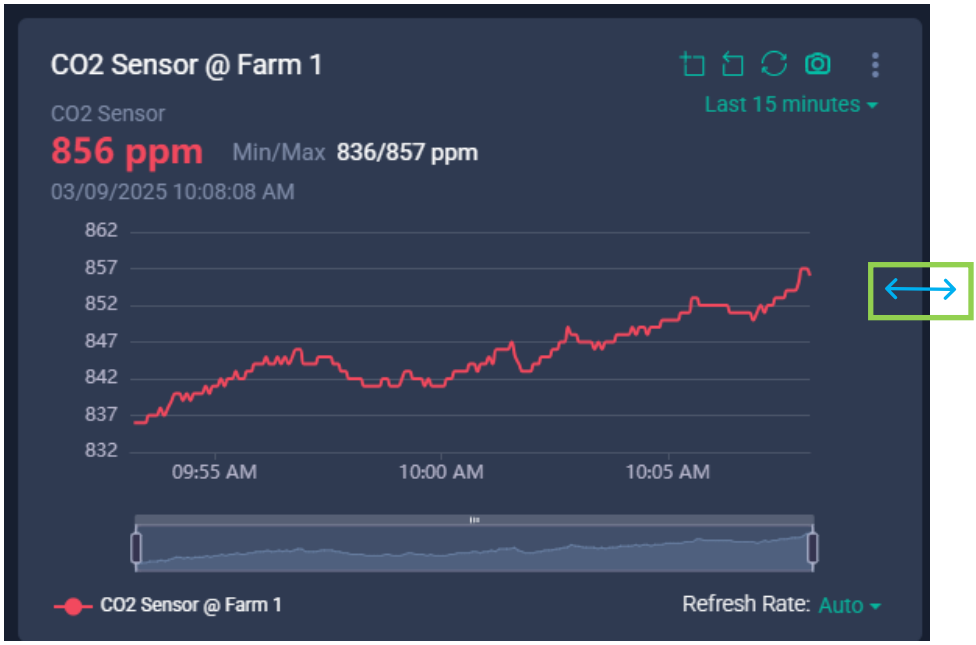


For example, if 24 hrs is selected, then the dashboard chart will display the last 24 hours data.

11.2.7.3 Expand Chart Size

To expand chart size,

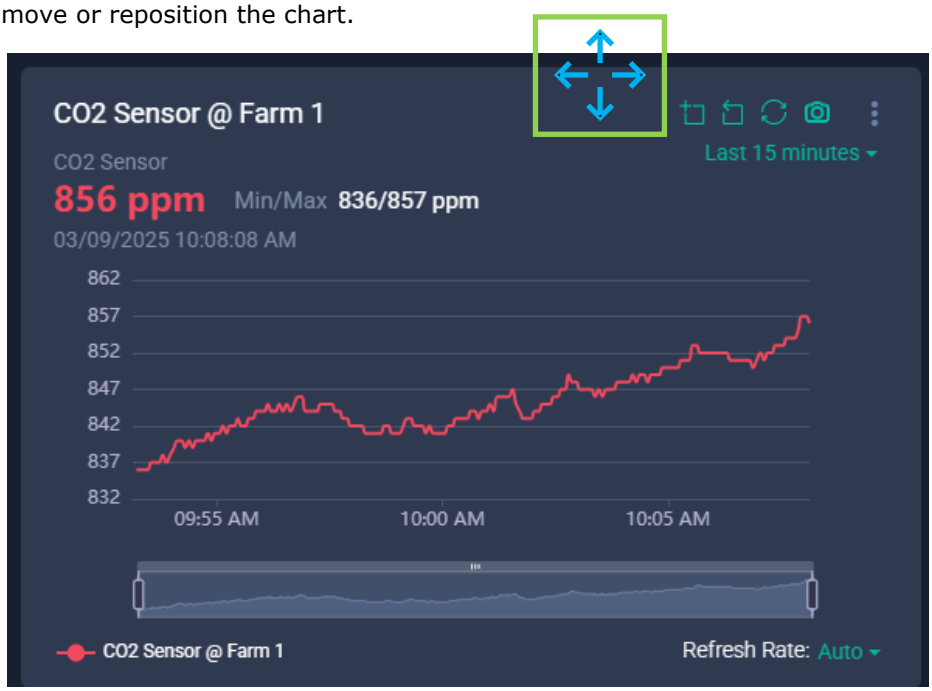
Point the cursor at the left or right edge of the chart, and it will change to a two-sided arrow. Then click and drag to increase or decrease the chart size.



11.2.7.4 Drag / Change Chart Order or Position

To drag or change the chart order or position,

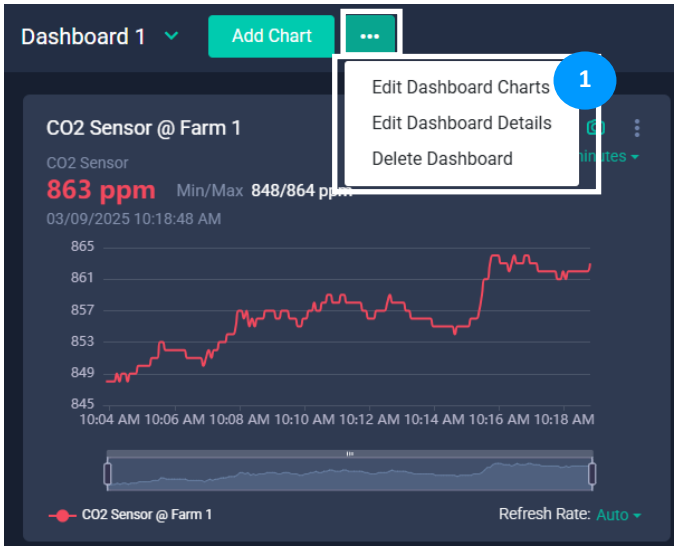
Point the cursor at the top of the chart, and it will change to a quad arrow. Then click and drag to move or reposition the chart.



11.3 Edit Dashboard Charts

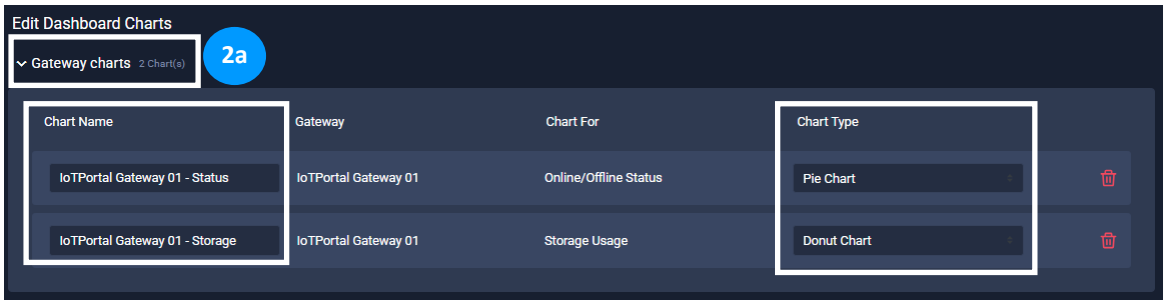
To edit dashboard charts,

1. Click on the **Ellipsis** ••• button and select **Edit Dashboard Charts.**



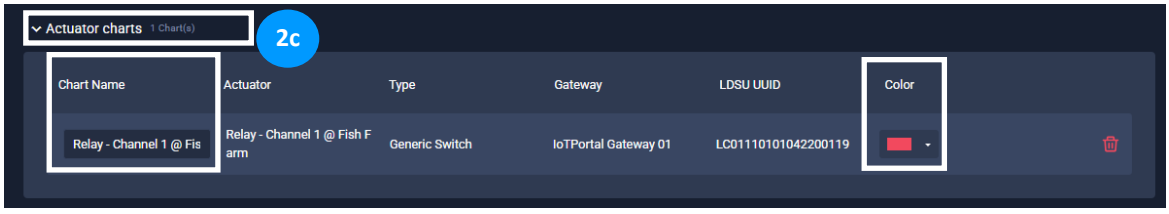
2. Edit the chart attributes as required –

a. Gateway charts *Chart Name and Chart Type*

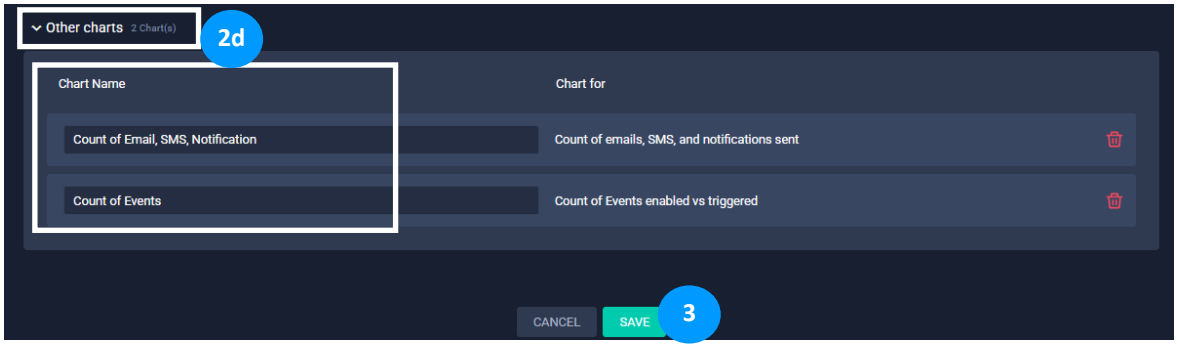


b. Sensor charts *Chart Name and Chart Color*

c. Actuator charts *Chart Name and Chart Color*



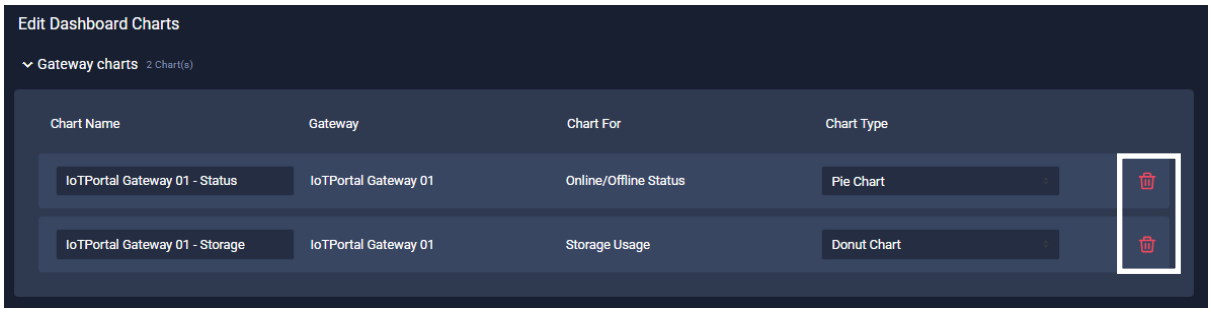
d. Other charts



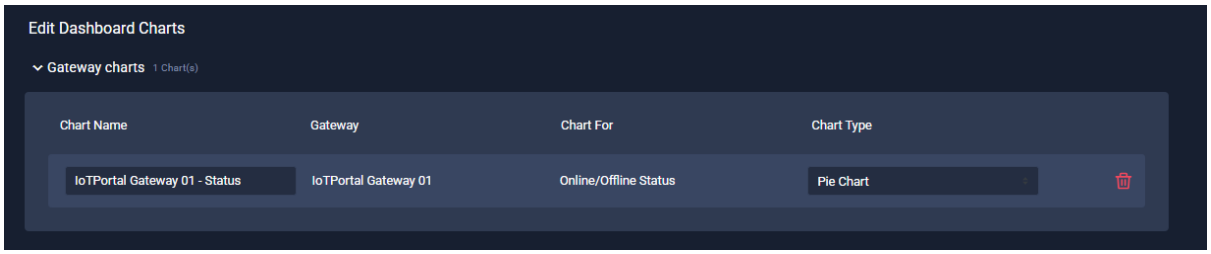
3. Upon making changes, if any, click **[SAVE]** to update the changes, if any.

Delete Dashboard Chart

From the Edit Dashboard Charts interface, click on **Delete** icon; Click **[SAVE]**.



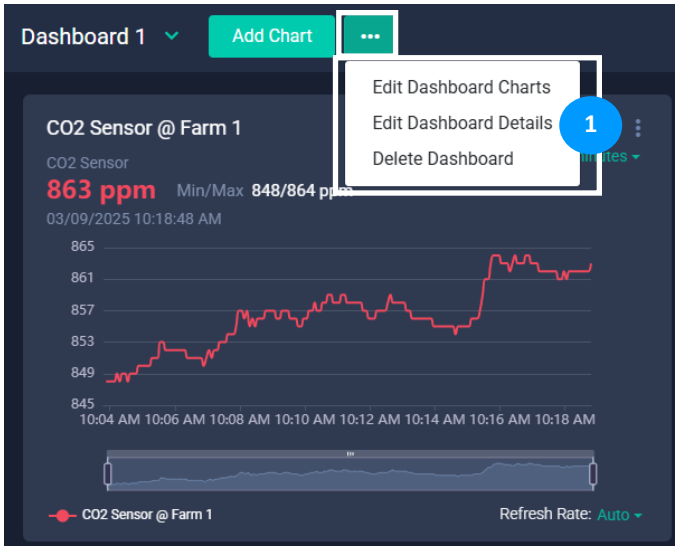
The chart is deleted. **For illustration purpose, the Donut Chart was deleted.**



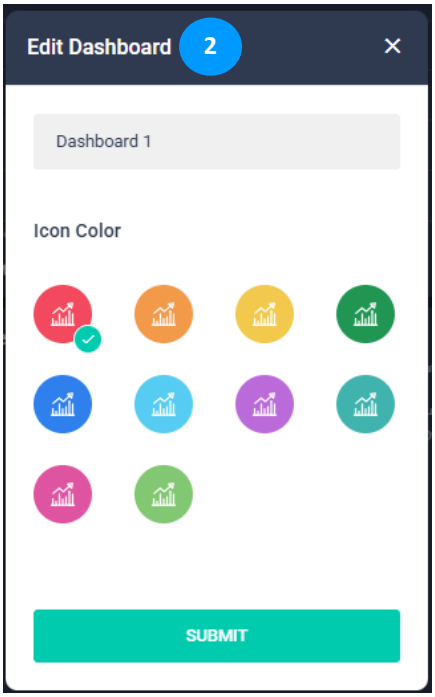
11.4 Edit Dashboard Details

To edit dashboard details,

1. Click on the **Ellipsis** ••• button and select **Edit Dashboard Details.**



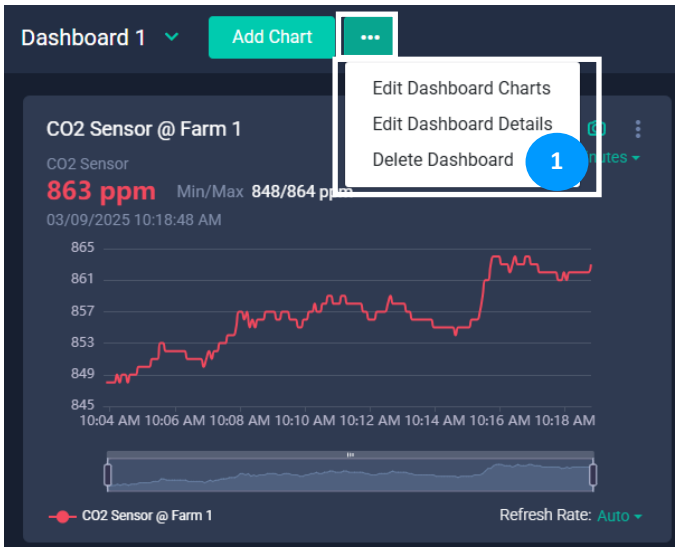
2. Edit *Dashboard Name* and *Icon Color* as required; Click **[SUBMIT]** to update the changes, if any. The updated dashboard details (if any) are displayed.



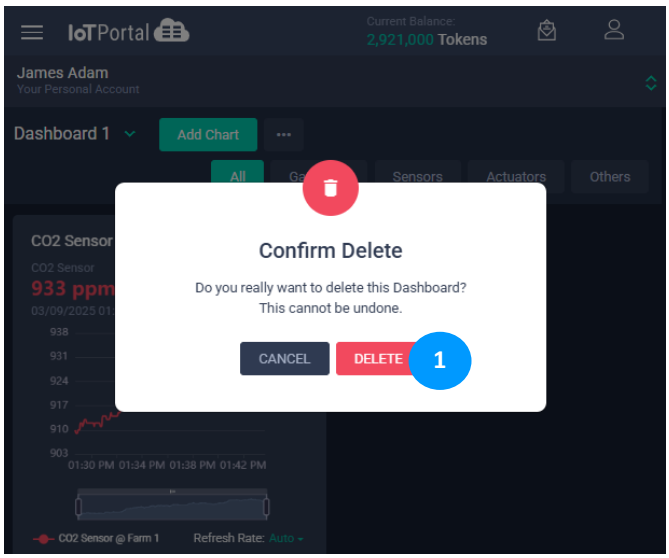
11.5 Delete Dashboard

To delete dashboard charts,

1. Click on the **Ellipsis** ••• button and select **Delete Dashboard.**

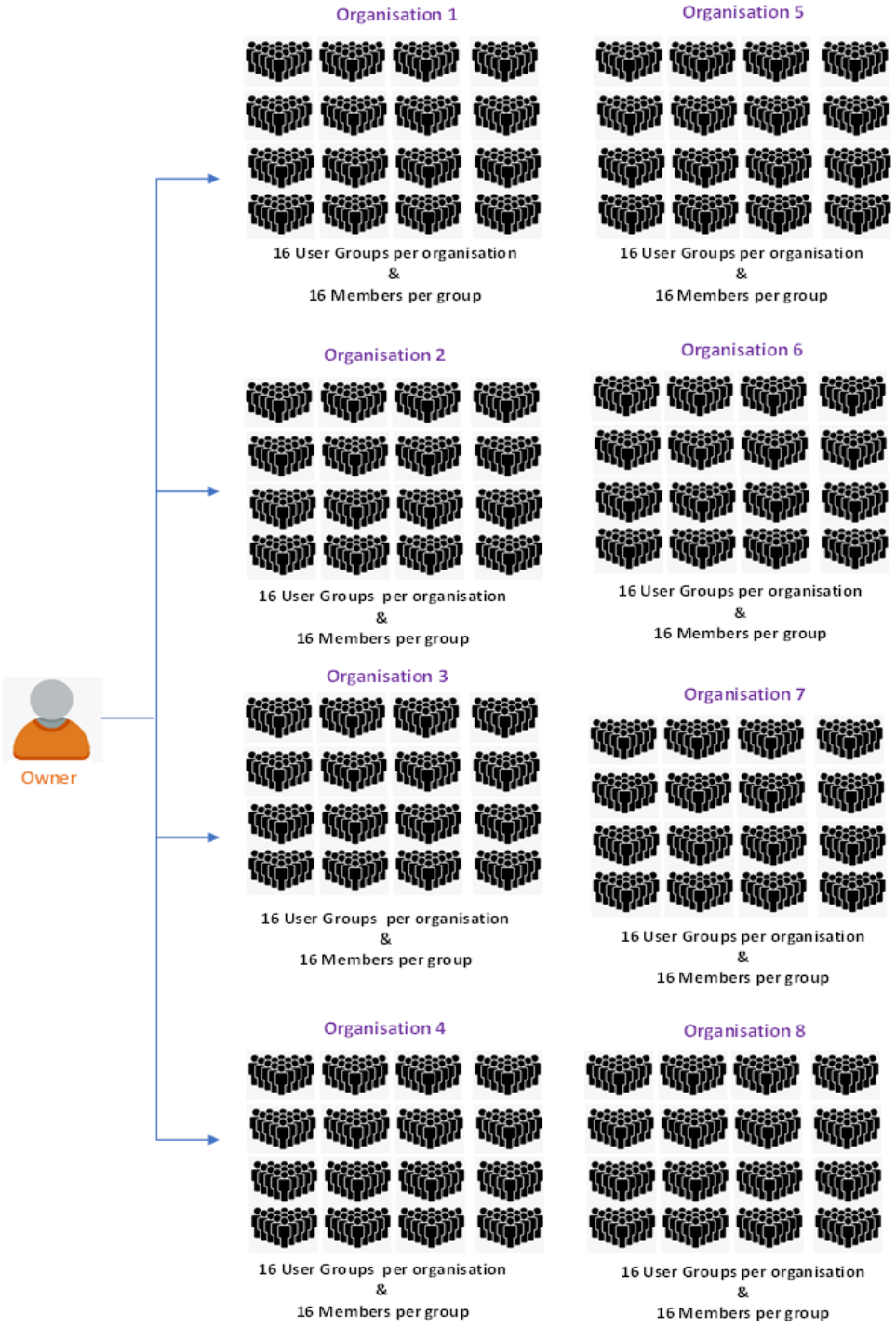


2. A confirmation message is displayed. Go through the message and click **[DELETE]** to proceed.



12. Organisation Management

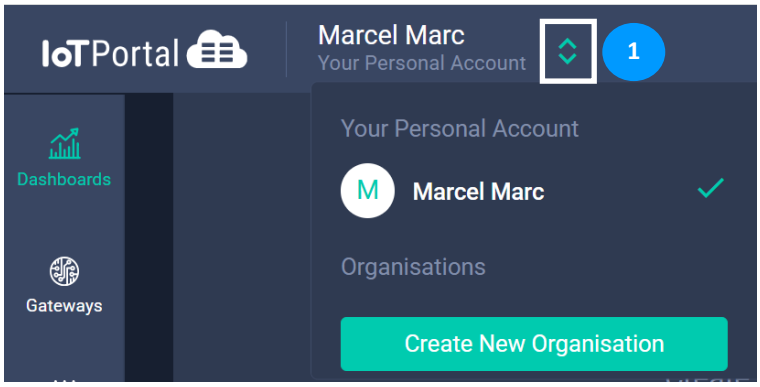
Organisations are collections of users groups assigned with predefined permissions to achieve usage and access policies. The user may create one or more organisations and be invited to join and become a member. A user who creates an organisation becomes its owner. Any user who is invited to join the organisation becomes a member. Owners can create up to 8 organisations. Organisations cannot be created on IoTPortal without a verified email address of the owner.



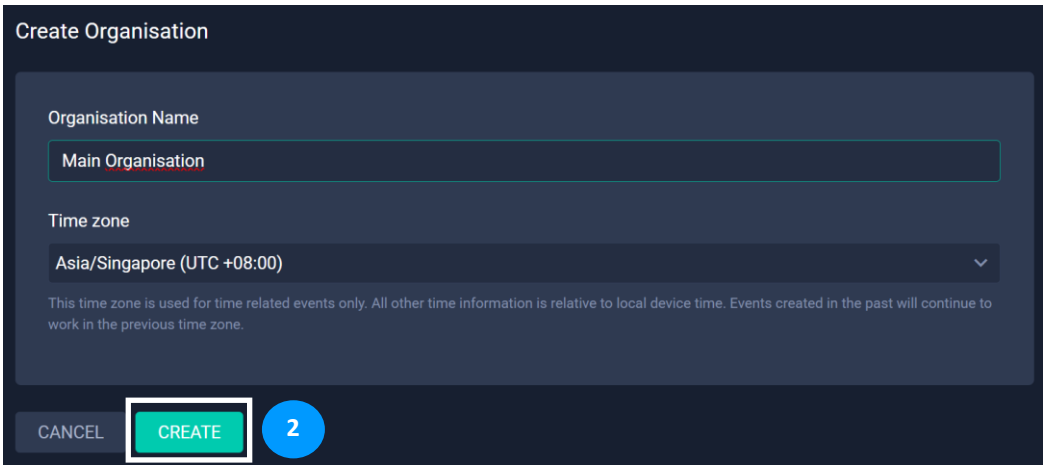
12.1 Create Organisation

To create organisation –

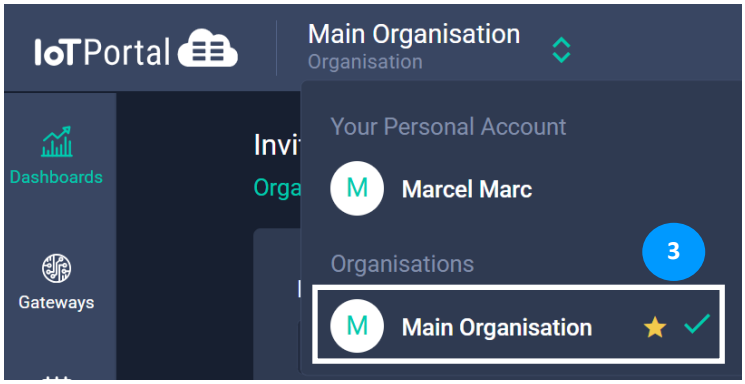
1. Click the *Drop-Down control* and **[Create New Organisation]**.



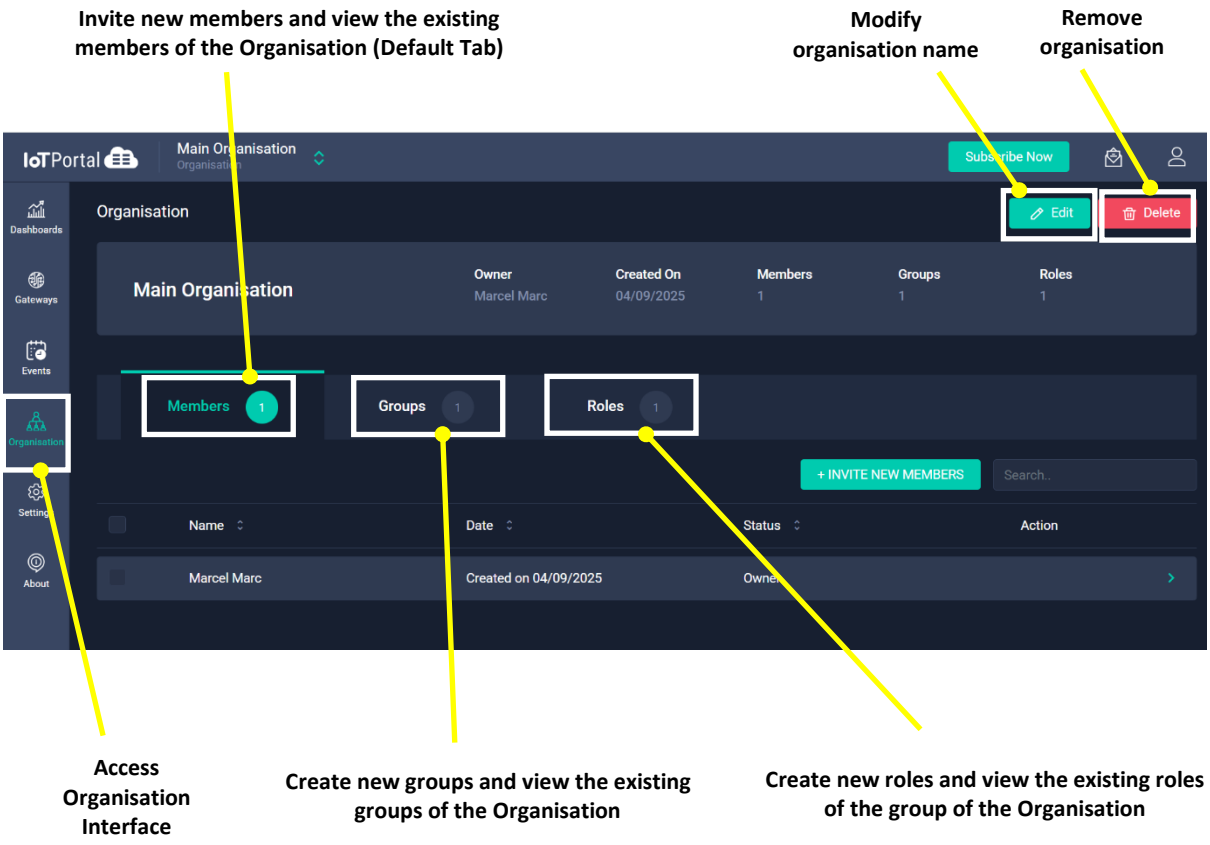
2. Enter the *Organisation Name,* select the *Time Zone* and click **[CREATE]**. Upon successful creation of organisation, an appropriate message indicating the same is displayed.



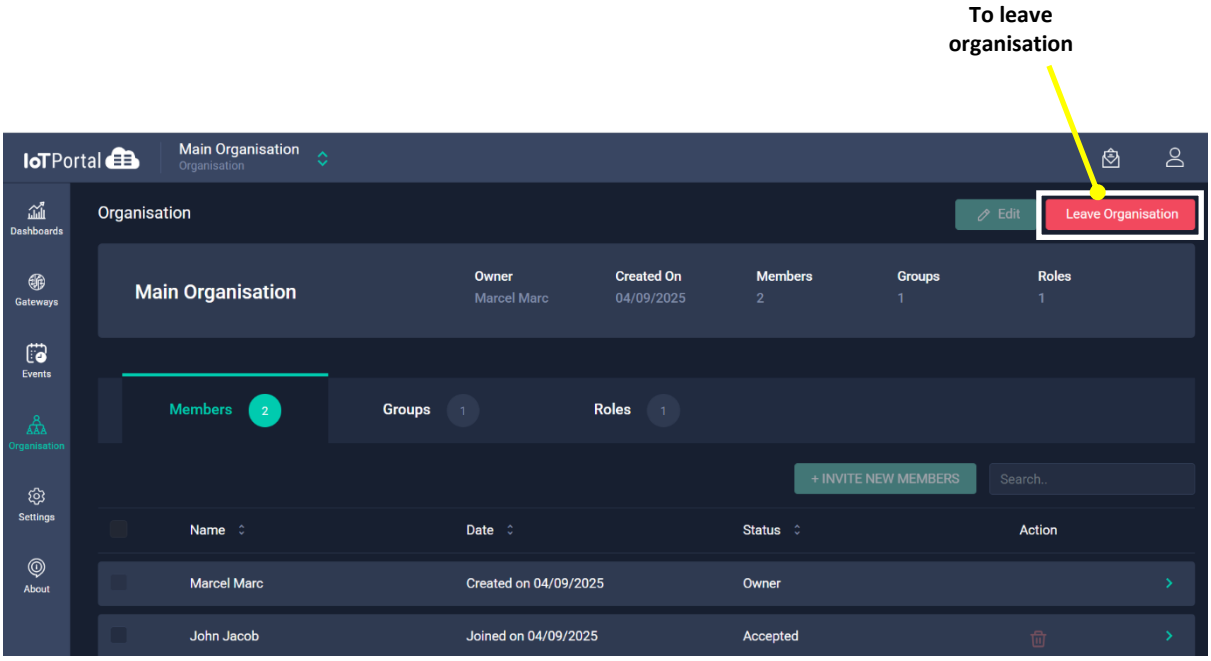
3. The newly created organisation will be added to the list of organisations. Owner may proceed to invite members.



Organisation GUI for Owner - Overview



Organisation GUI for Member - Overview



12.1.1 Members

The number of members in each group may be up to 16. Invitations are used to invite members into organisations. The invited user receives an email or push notification inviting them to download and register for an IoTPortal account and accept or decline the invitation. A member who is not assigned to a group does not inherit any default policies, except policy-leave-organisation.

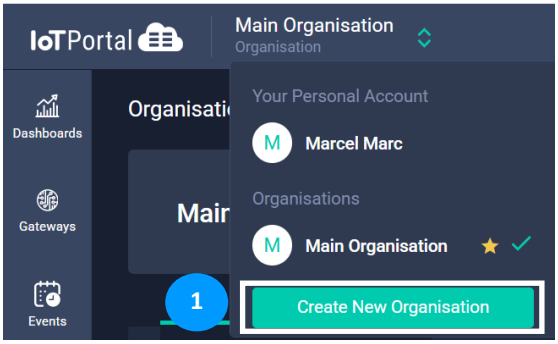
A group owner or member with a group-manager policy can add, remove, or transfer users into, out of, and between groups. Members are re-invited back to an organisation when they are removed from it. Pending invitation can be cancelled by the owner.

Members who have been moved to a different group or removed from an organisation may have active ongoing sessions in progress at the time of change. As a result, the member's next actions will fail (e.g., invalidate access and refresh tokens). To allow the new group policy and permissions to take effect, the member must log into the IoTPortal again and select the organisation. If a member is removed from the organisation, the organisation will not appear on the list of organisations. Members and owners who have been re-assigned or removed will be notified via email (verified email) or push notification (verified mobile).

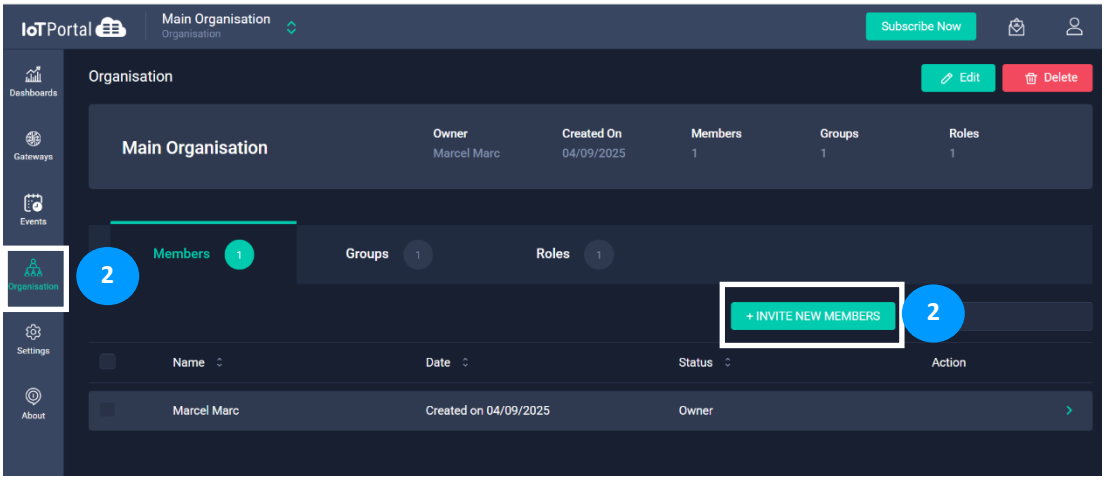
12.1.1.1 Invite Members

To invite new members –

1. Select the **organisation** (from the organisation list) under which you wish to invite users.



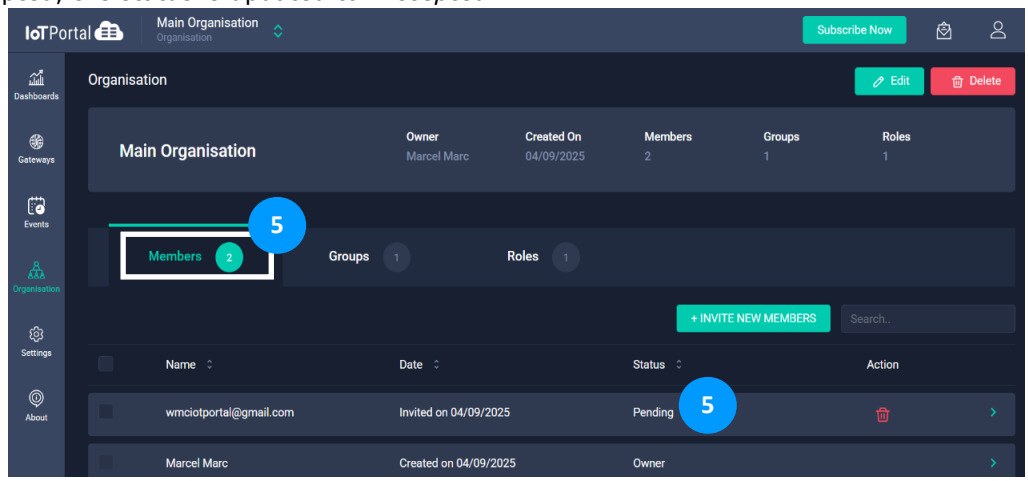
2. Click **[Organisation]** from the menu; From the Organisation interface, click **[+ INVITE NEW MEMBERS]**.



3. Enter the *Email address* of the user; To add more users, click **[Add More Emails]** and input the email address.

4. Upon providing the email address of the users, click **[INVITE]**. An appropriate message indicating that the invitation has been sent is displayed. An email will be sent to the invited user. The user can join the IoTPortal / organisation using the instruction provided in the email.

5. The *Members* tab displays the list of members (including the owner) who are part of the organisation. The status column shows *"Pending"* (when an invitation is yet to be accepted) / *"Declined"* (when an invitation is declined) / *"Accepted"* (when an invitation is accepted). Once accepted, the status is updated to *"Accepted."*

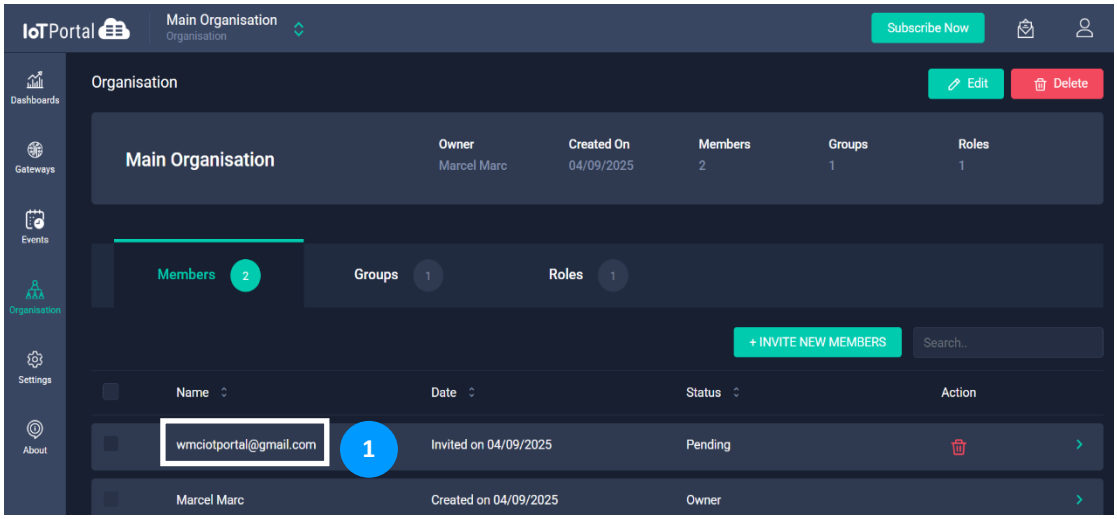


6. To create or view the user groups, click *Groups* tab.

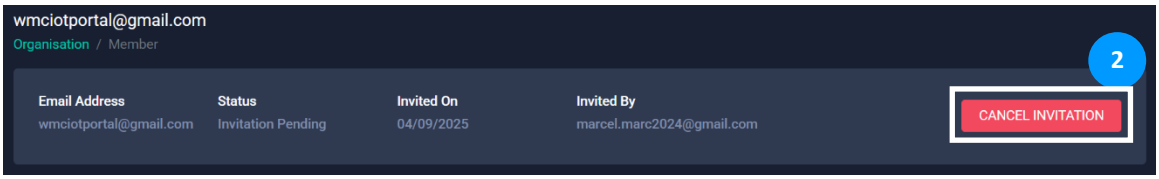
12.1.1.2 Cancel Invitation

To cancel user invitation –

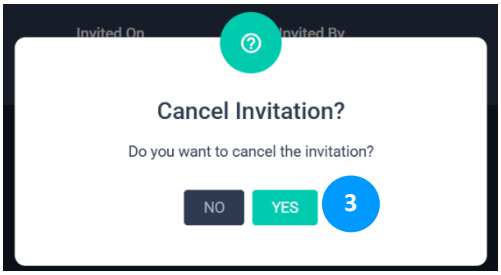
1. Select the user.



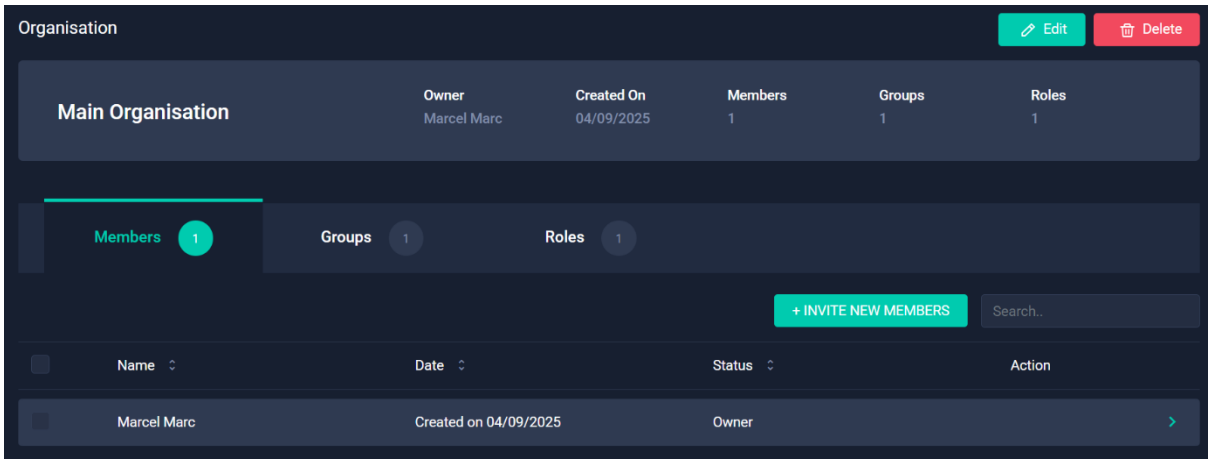
2. Click **[CANCEL INVITATION]**.



3. A confirmation message will be displayed. Click **[YES]** to proceed.



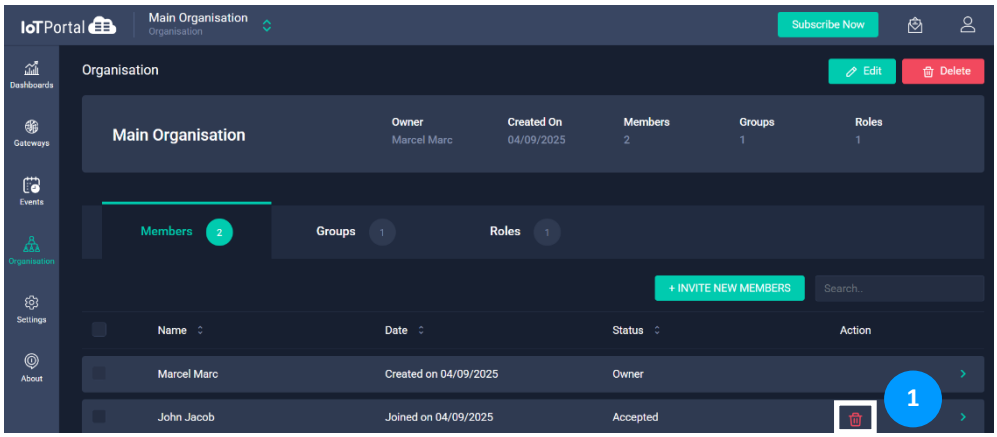
4. The invitation is successfully cancelled.



12.1.1.3 Remove Member / User from Organisation

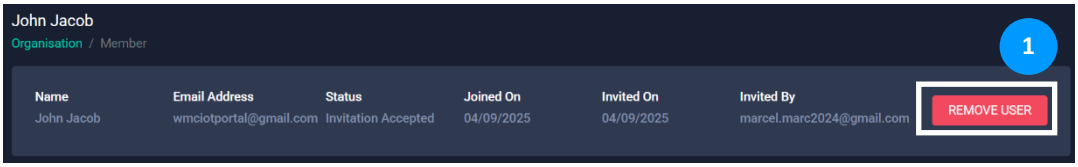
To remove member/user from organisation –

1. Select the member you wish to remove and click .

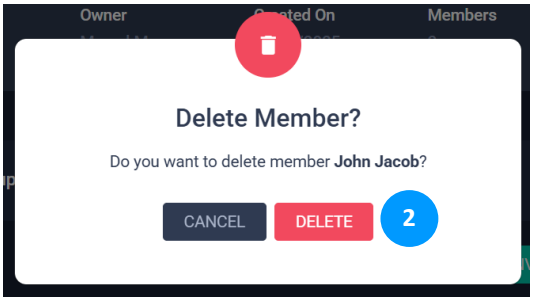


(Or)

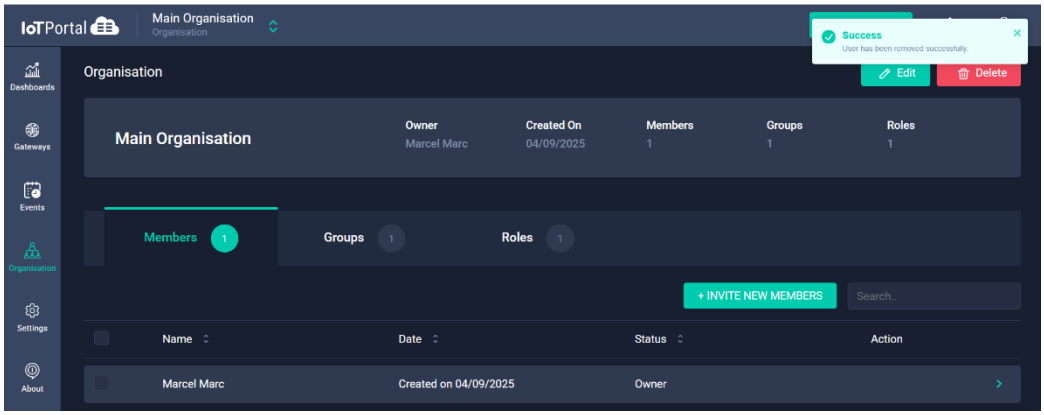
Click on the member / user's name and from the resulting member list interface, click **[REMOVE USER]**.



2. To confirm the deletion, click **[DELETE]**.



3. An appropriate message indicating the successful removal is displayed and the member is removed from the members list.



12.1.2 Groups

The owner of an organisation can create up to 16 groups. Groups can be divided into two types:

1. **Fixed Owner Group (Default Group):** This group is pre-created. Only one owner group can exist, and it cannot be deleted, but members can be added and removed except the organisation owner. The members of this fixed group have unrestricted access to the organisation's configuration.

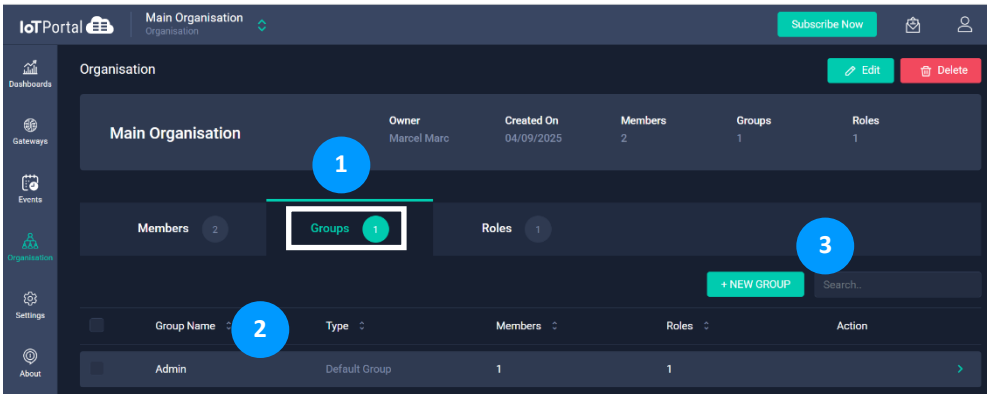
2. **Regular Group (Custom Group):** The second type of group is a regular group/custom group that can be assigned policies. The policies define a set of privileges for a particular action or set of actions withing the IoTPortal or for access to protected resources. Owners may perform *Create/Read/Update/Delete (CRUD)* operations on their groups. Organisations can have up to 15 regular groups besides the owner group.

Each member is added to a group, and group membership is not exclusive; each member can belong to more than one group.

12.1.2.1 Create Custom Groups

To view or create user groups –

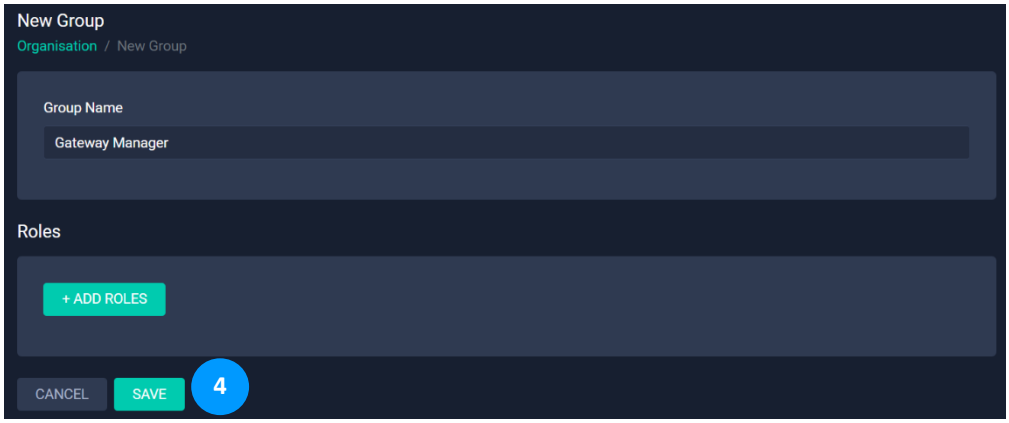
1. Click *Groups* tab.



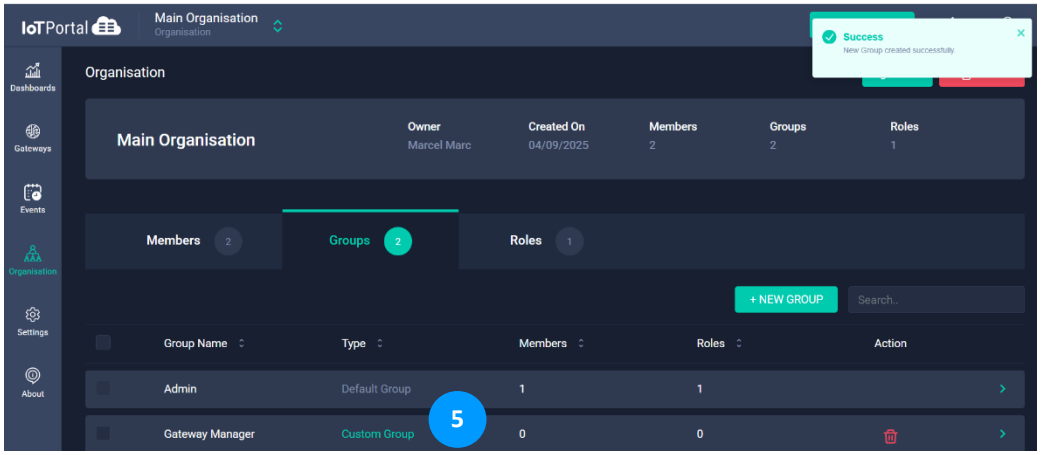
2. A list of *default groups* and its *member's count* (if any) are displayed.

3. To create a new user group, click **[+ New Group]**.

4. Enter the *Group Name; Add Roles* to the group and Click **[SAVE]**.



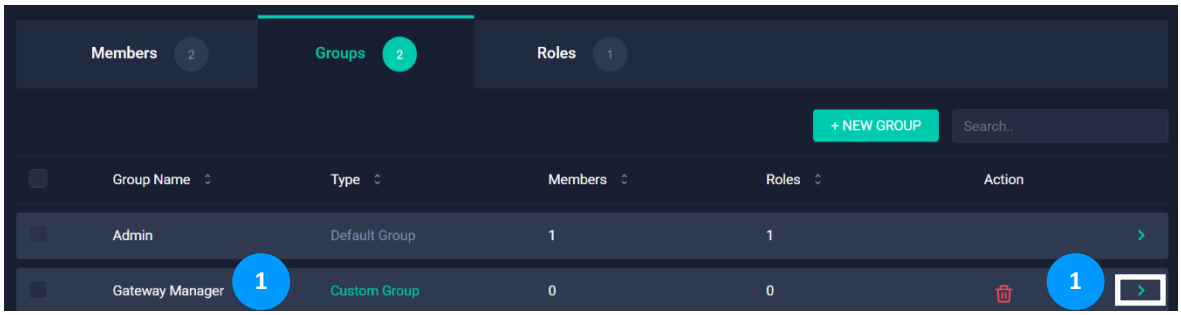
5. An appropriate message indicating the successful creation of group is displayed. The newly added group is displayed as part of the table.



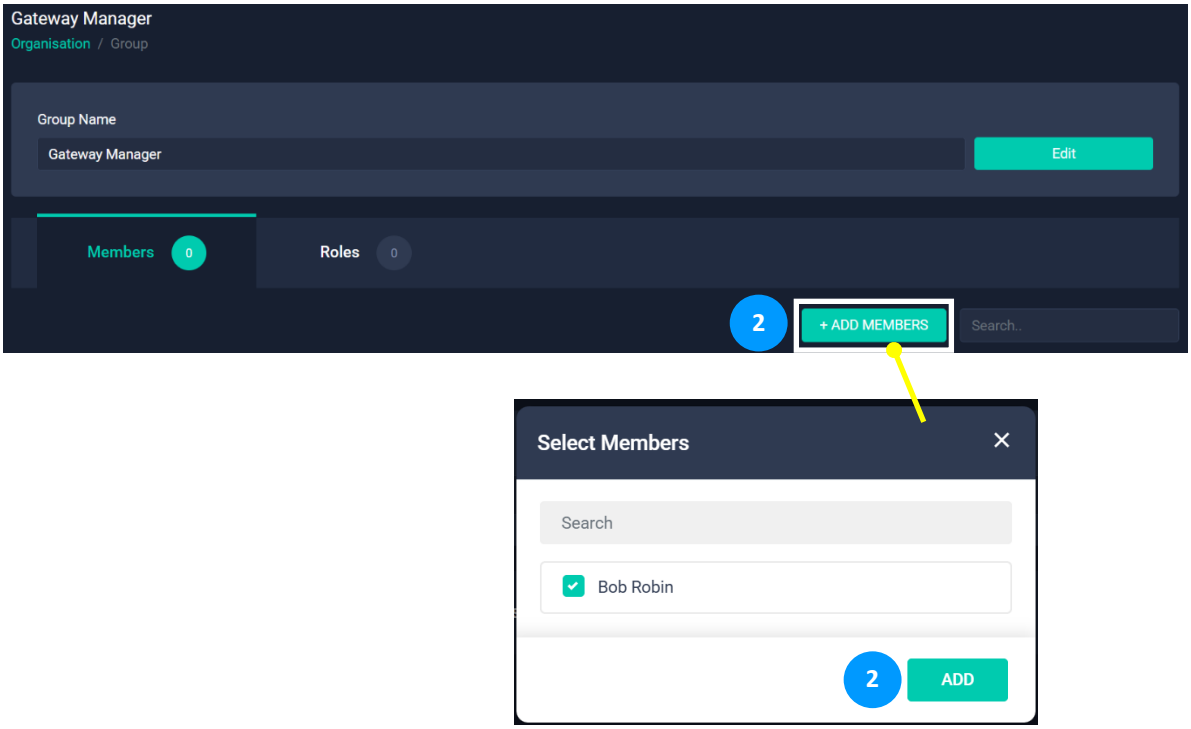
12.1.2.2 Add Members to Custom Group

To add members to the custom group –

1. Click on the **Group Name** *(for example – Gateway Manager)* or **>**.



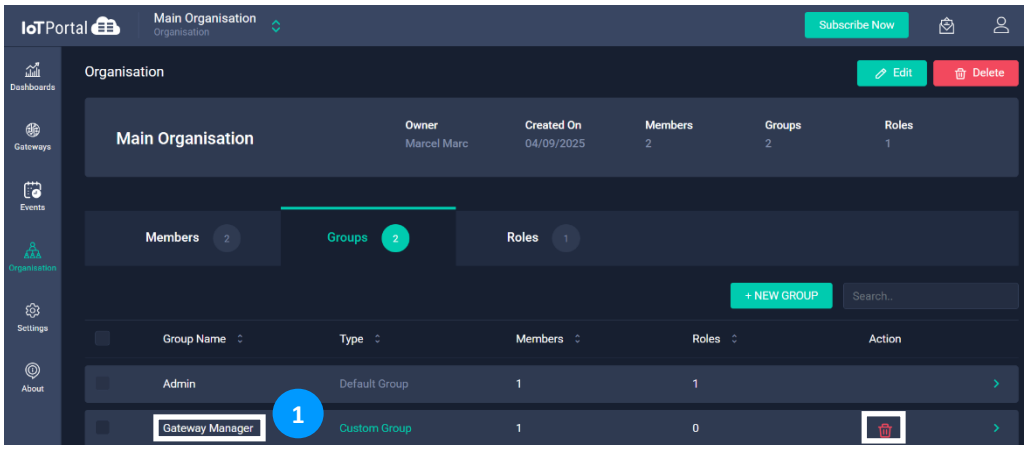
2. Click **[+Add MEMBERS]**. From the resulting window, select *member(s)* and click **[ADD]**.



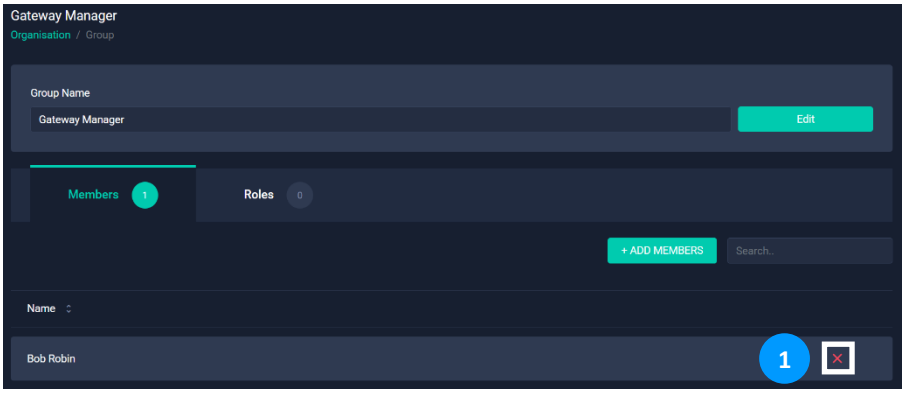
12.1.2.3 Remove Member from Custom Group

To remove member from custom group –

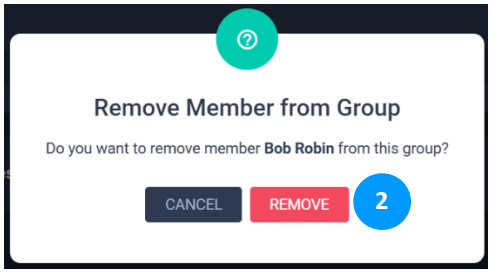
1. Select the member you wish to remove and click **(or)**



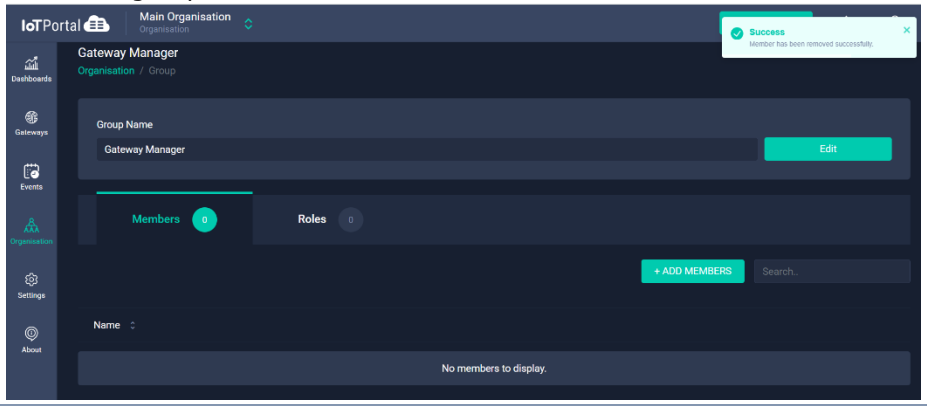
Click on the group name and from the resulting Group interface, click ✕.



2. To confirm the deletion, click **[DELETE]**.



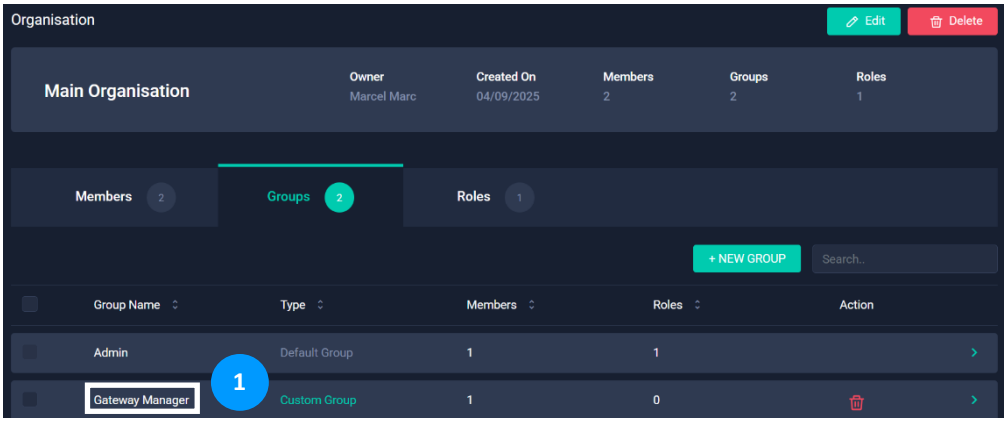
3. An appropriate message indicating the successful removal is displayed and the member is removed from the group.



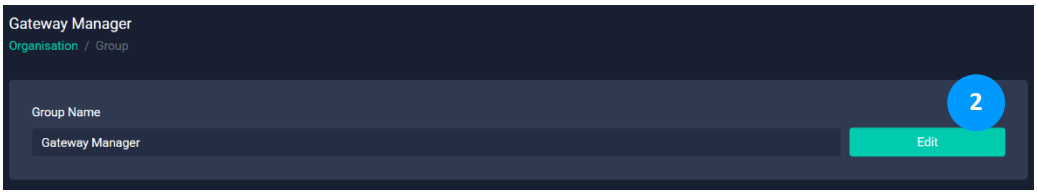
12.1.2.4 Edit Custom Group Name

To edit the custom group name –

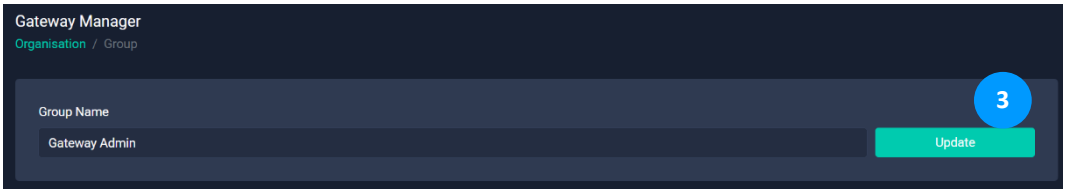
1. Click on the custom group from the Groups tab.



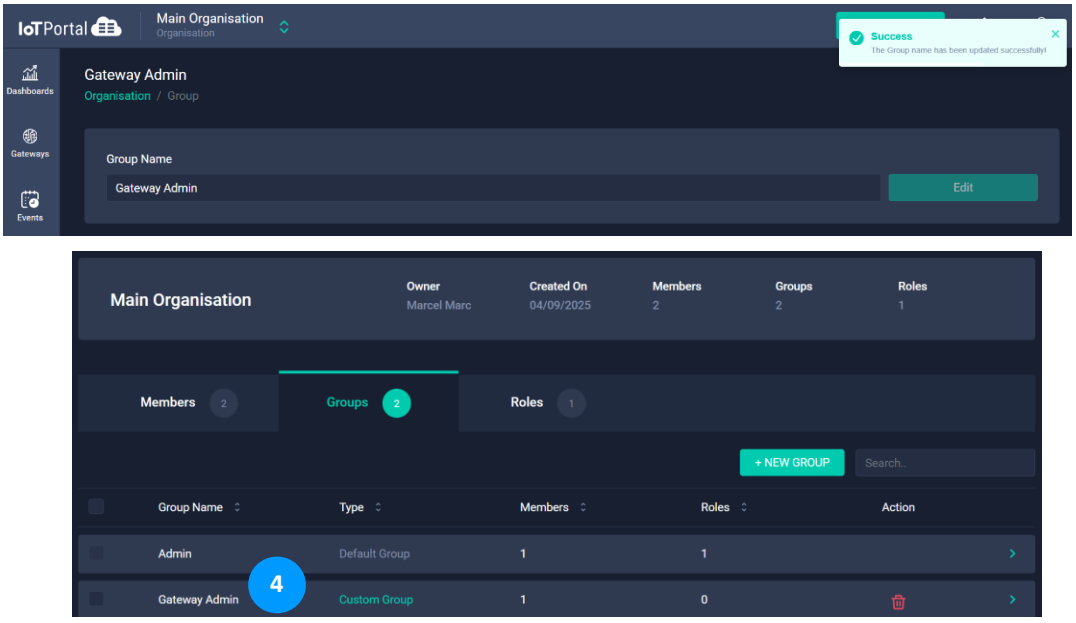
2. Click **[Edit]**.



3. Modify the Group Name as required and click **[Update]**.



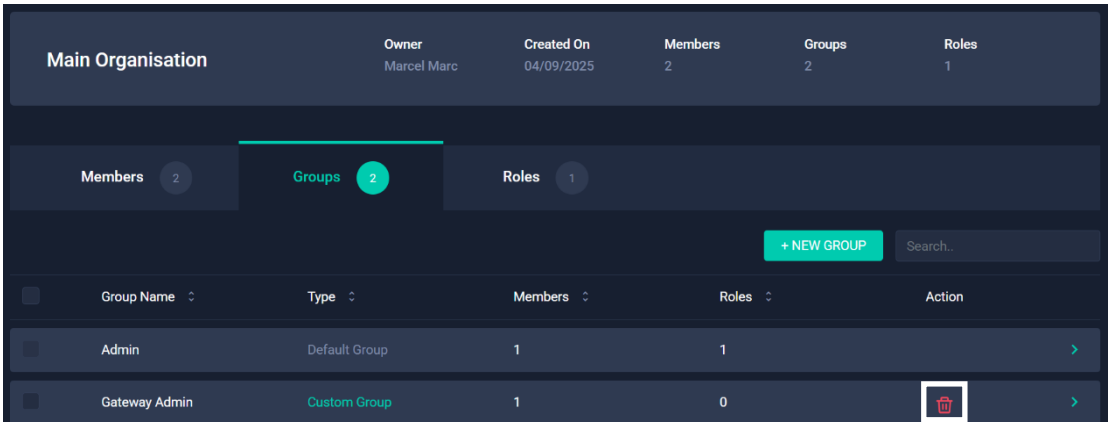
4. An appropriate message indicating the successful update of group name is displayed. The updated group name is displayed.



12.1.2.5 Delete Group

Only the custom group can be deleted. To delete group –

Select the group you wish to delete by clicking on the check box. Click icon located under the Action column.



A confirmation window is displayed. Click **[DELETE]** to proceed or **[CANCEL]** to discard the deleted operation.

12.1.3 User Roles

The IoTPortal users can have one or more roles. Roles have associated Access Rights CREATE, READ, UPDATE and DELETE (CRUD) and Resources (device/sensor page, dashboard page etc.). Roles can be defined in number of ways. Roles can be restrictive or loose, generic, or specific. Some examples of roles are *Finance role, Operator role, Customer role, Guest role* etc. Alternatively, it can be generic such as *Full Control, Restrictive, View Only* etc. Owners and members are given permission to perform actions in the system or access resources when they have permissions. Refer to the table given below for the list of Policies and Permissions.

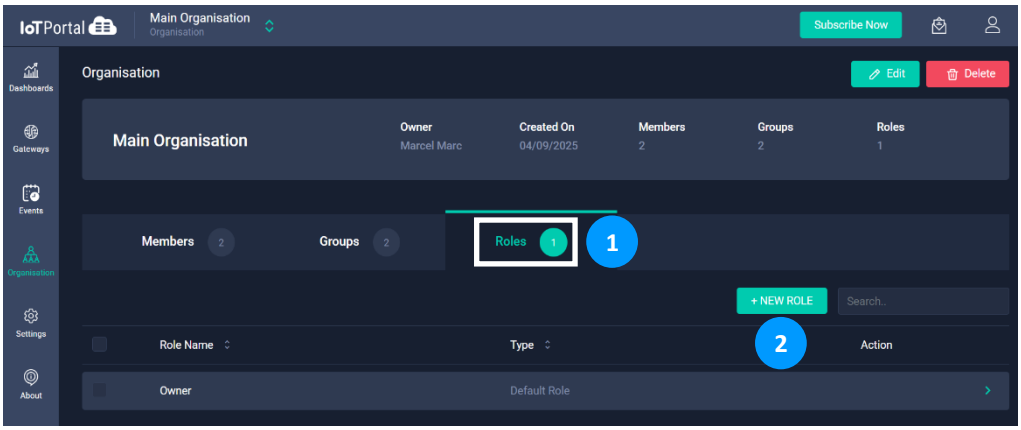
Policies	Permissions		
Gateway Management *(All Gateways and Gateway Groups)*			
Gateway Settings, Sensors, Actuators etc.	Can Manage	View Only	No Access
Dashboard Management *(All Dashboards)*			
Dashboards and Charts	Can Manage	View Only	No Access
Organisation Management (*Manage Organisations*)			
Groups, Roles, and Members	Can Manage	View Only	
Event Management *(All events)*			
Create, Edit, View and Delete Events	Can Manage	View Only	No Access

Table 4 - Permissions

12.1.3.1 Create Custom Roles

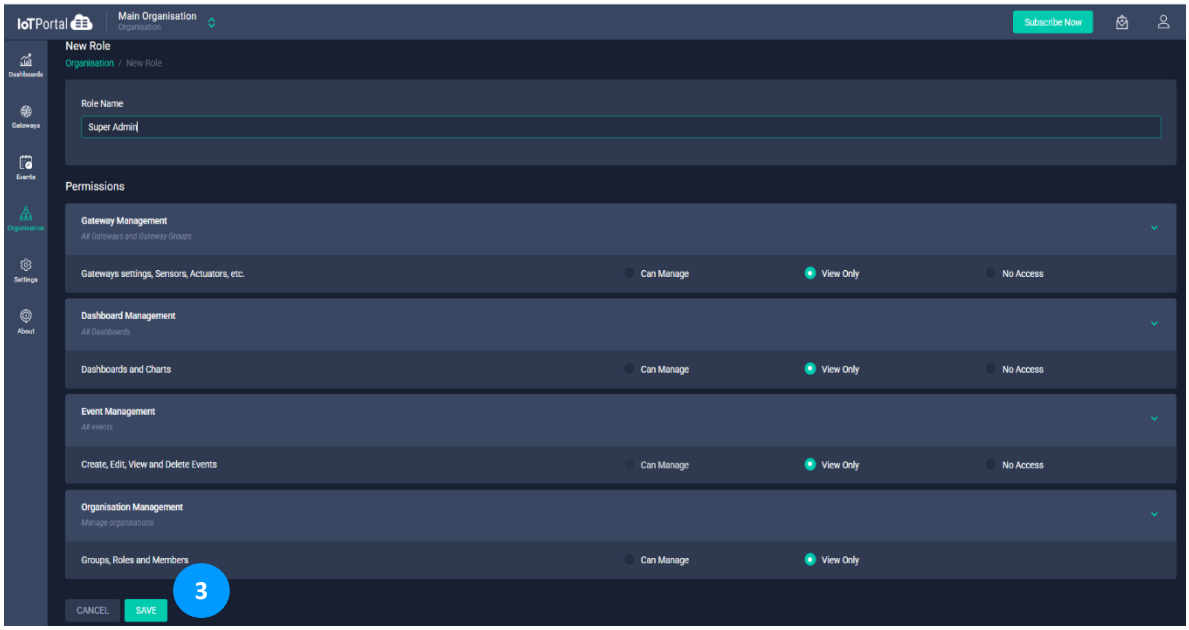
To view or create user roles –

1. Click *Roles* tab.

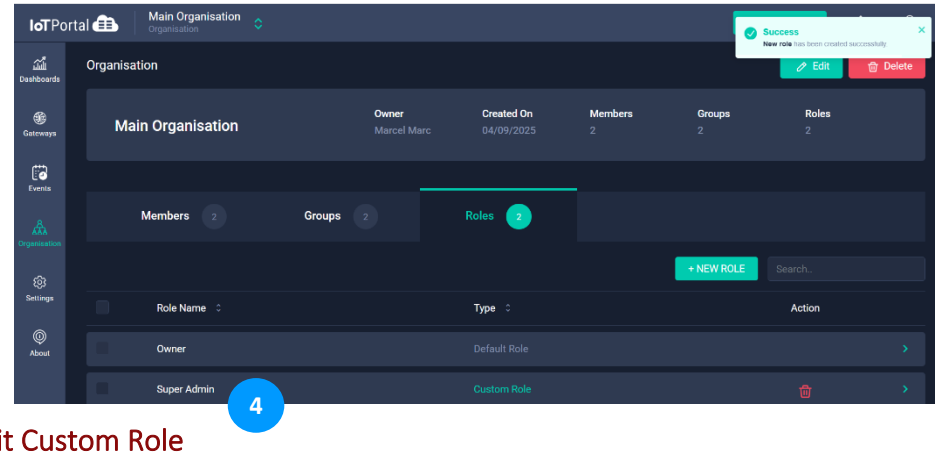


2. The owner of the organisation has the default role. To create new role, click **[+ New Role]**.

3. Enter the *Role Name; Assign Permissions* to the role and Click **[SAVE]**. Refer to Table 4 for the list of Permissions.



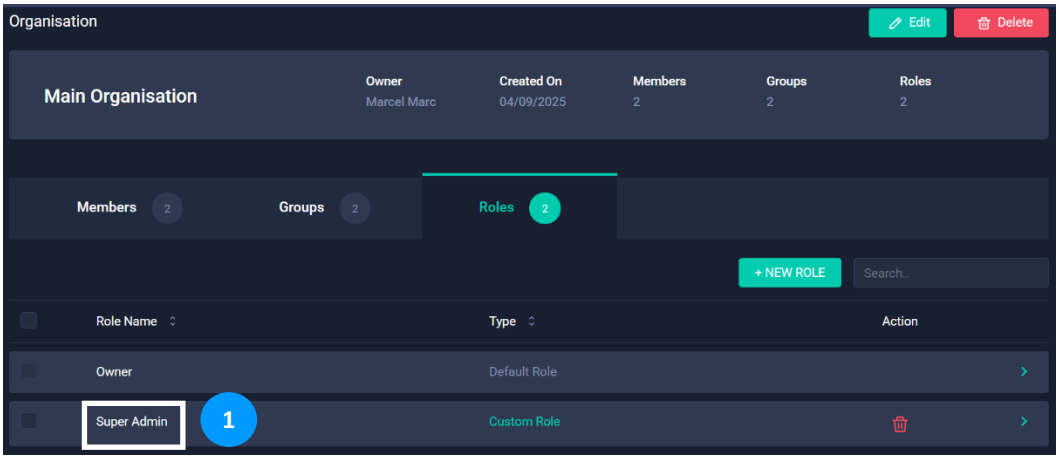
4. An appropriate message indicating the successful creation of role is displayed. The newly added role is displayed as part of the Roles table.



12.1.3.2 Edit Custom Role

To edit custom role –

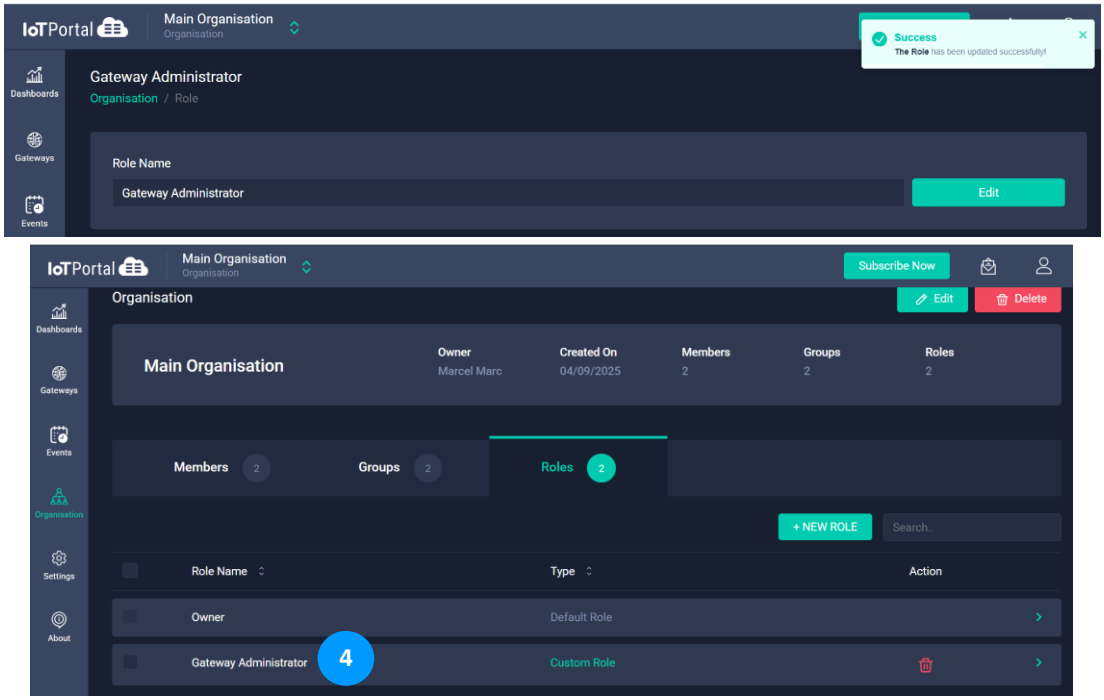
1. Click on the custom role from the Roles tab.



2. Click **[Edit]**.

3. Modify the custom role name as required and click **[Update]**.

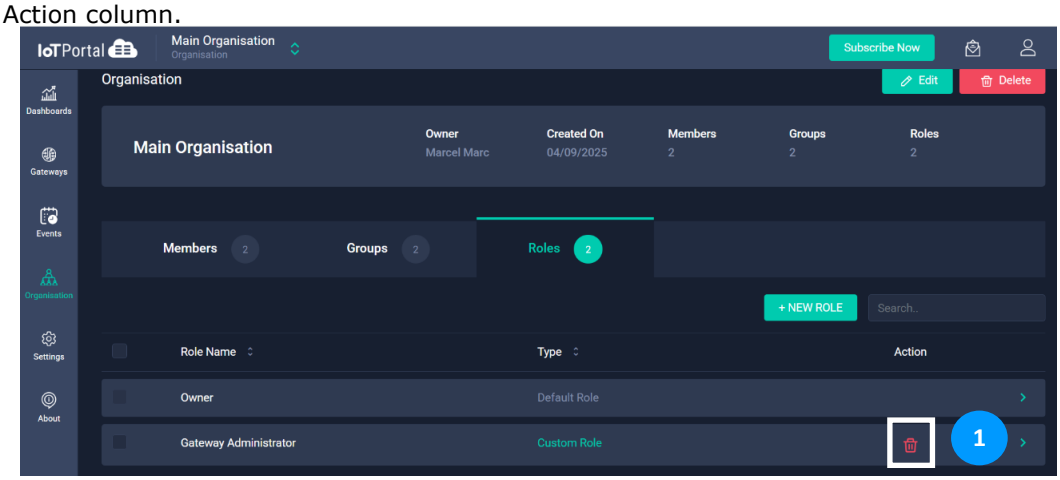
4. An appropriate message indicating the successful update of role name is displayed. The updated custom role name is displayed.



12.1.3.3 Delete Role

Only a custom role can be deleted. To delete a role –

1. Select the role you wish to delete by clicking on the check box. Click icon located under the Action column.

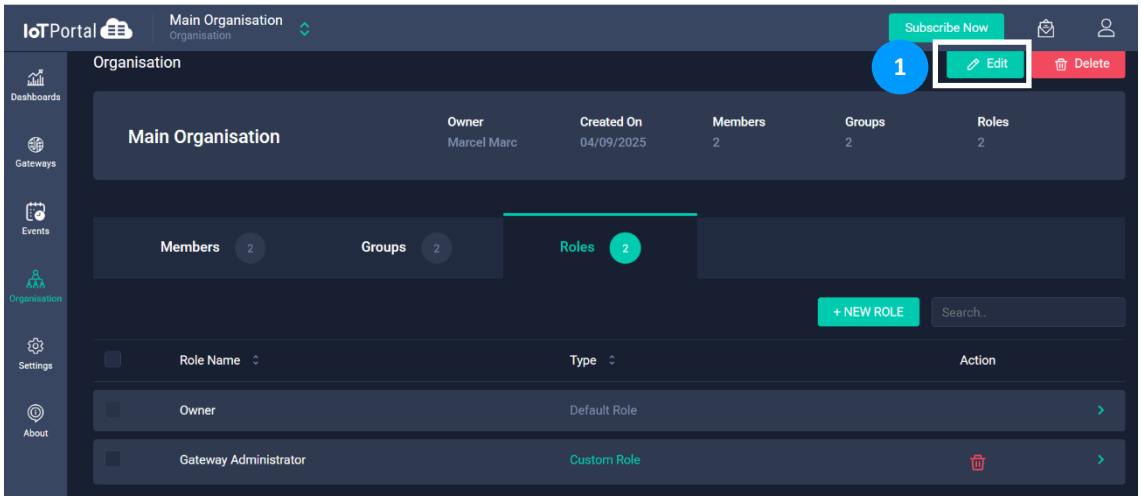


A confirmation window is displayed. Click **[DELETE]** to proceed or **[CANCEL]** to discard the deleted operation.

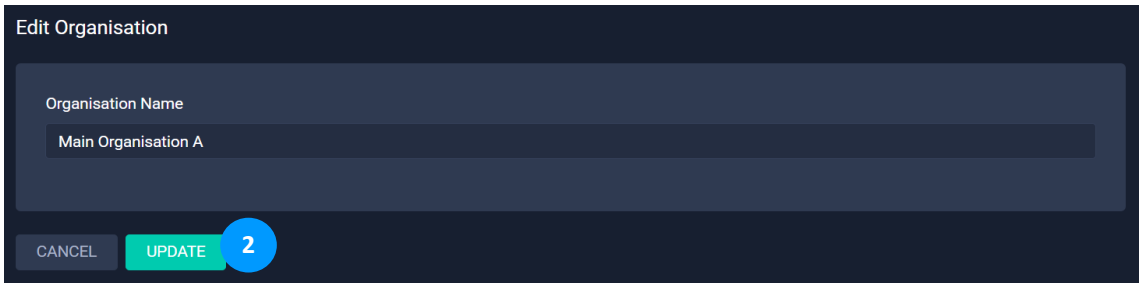
12.2 Edit Organisation Name

To edit organisation name –

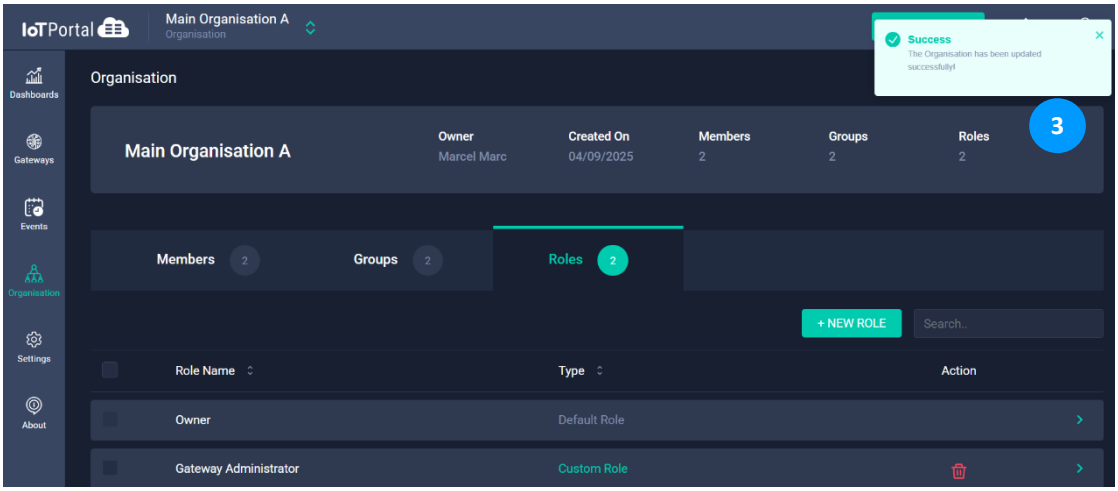
1. From the organisation interface, click **[Edit]**.



2. Edit the *Organisation Name* as required and click **[UPDATE]** to save the changes, if any.



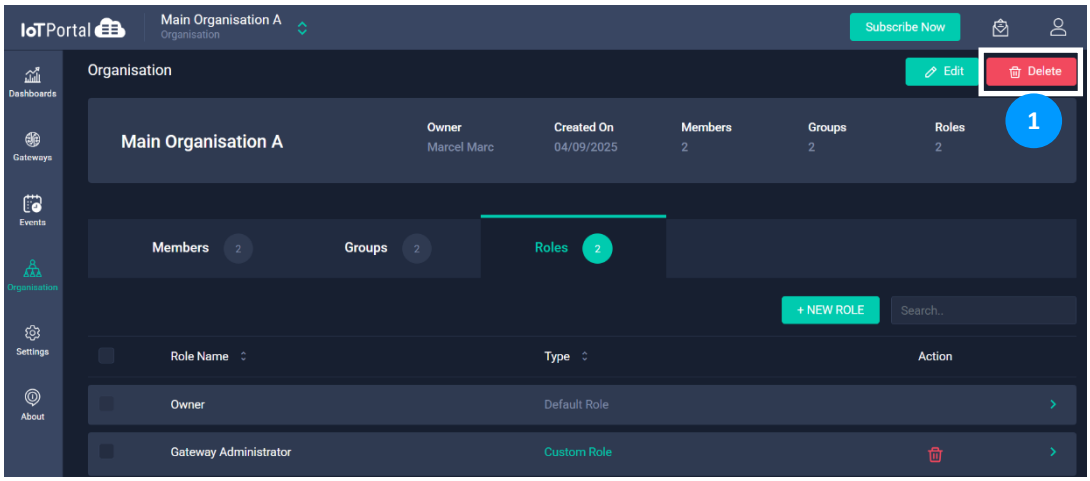
3. An appropriate message indicating the successful update will be displayed. The updated organisation name is displayed.



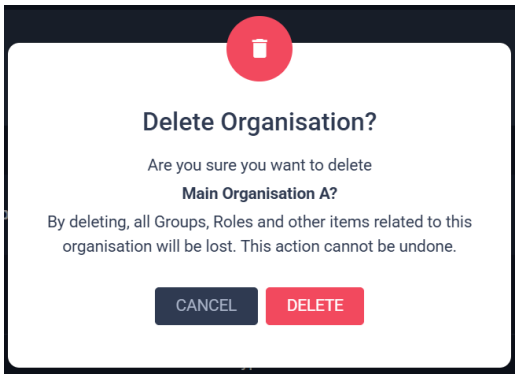
12.3 Delete Organisation

To delete organisation –

1. From the organisation interface, click **[Delete]**.



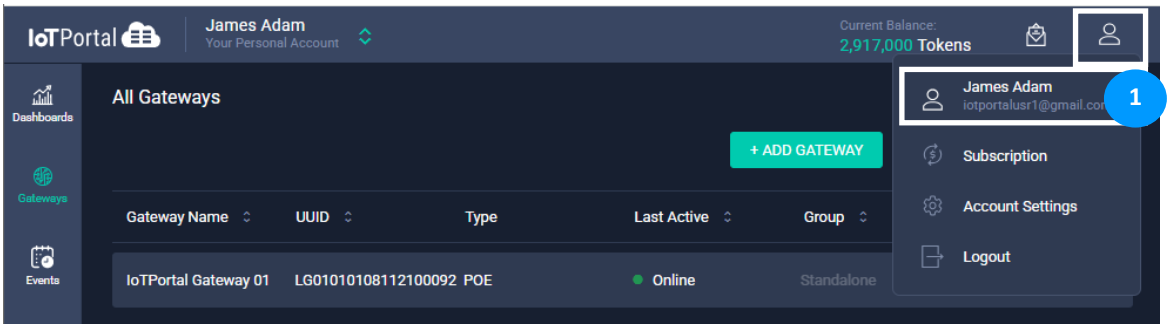
2. A confirmation message is displayed. Go through the message and click **[DELETE]** to proceed.



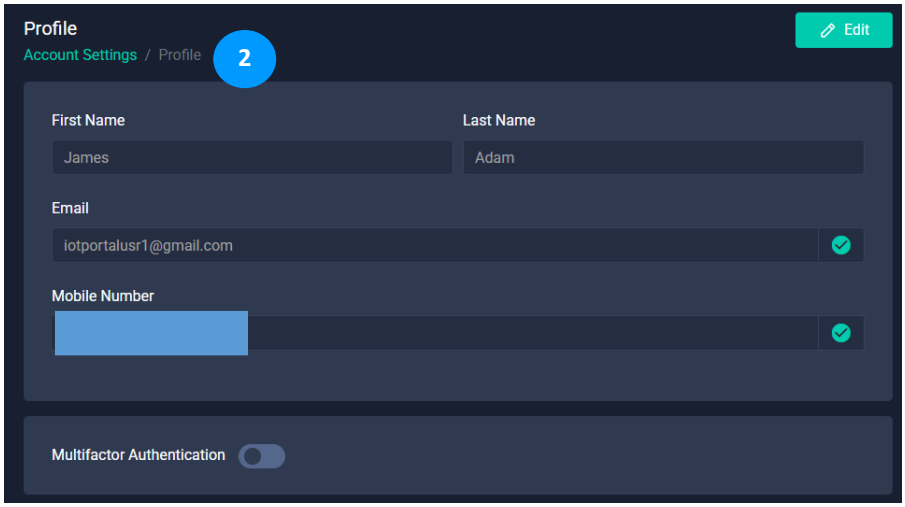
13. Profile Management

The profile management allows users to manage the personal settings. To view/edit user profile –

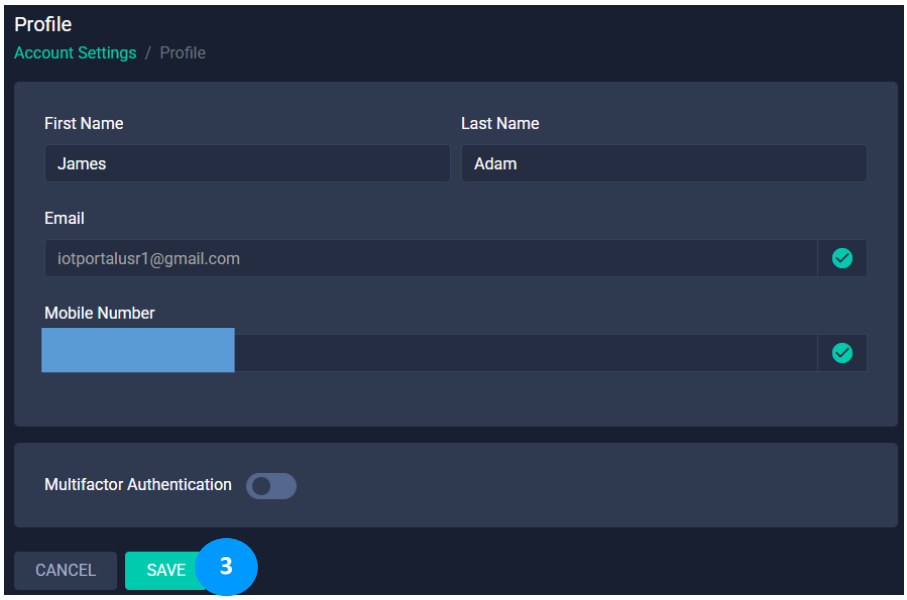
1. Click on the **Avatar** icon; Select *View/Edit profile details.* Alternatively, the profile interface can be accessed by clicking *[Account Settings > Profile Details]*.



2. The user profile interface is displayed. To modify the user profile, click **[Edit]**.



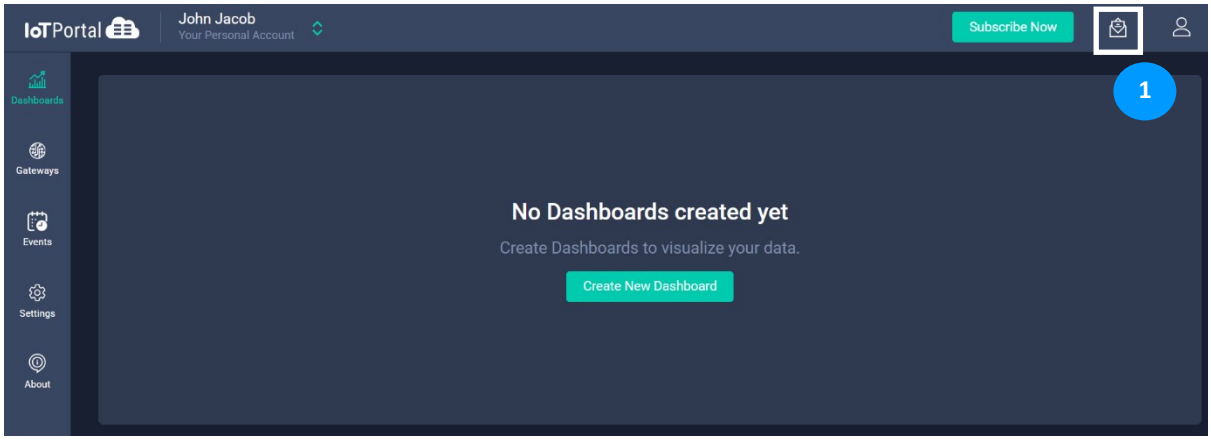
3. Except for Email Address field, all the other fields are editable. Upon editing, click **[SAVE]** to save the changes (if any).



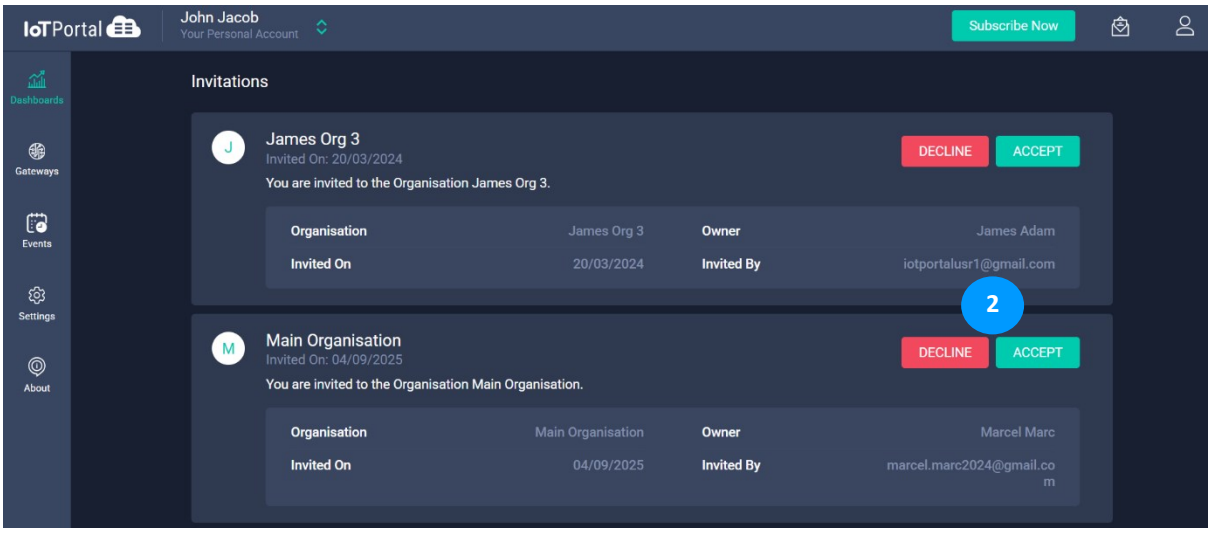
14. Invitation Notifications

To view the invitations received from other organisations (if any) –

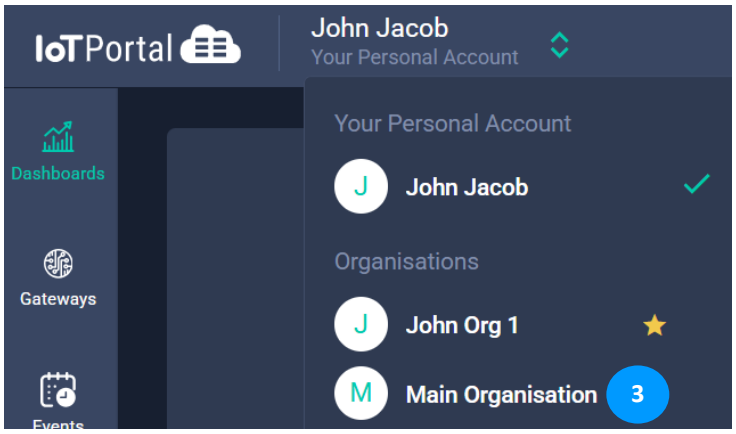
1. Click on the *Invitation* icon.



2. Invitation(s) from other organisation(s) if any is displayed. Click **[ACCEPT]** to join the organization or **[DECLINE]** to discard the invitation.



3. Upon accepting the invitation, the newly joined organisation is shown as part of the organisation list.

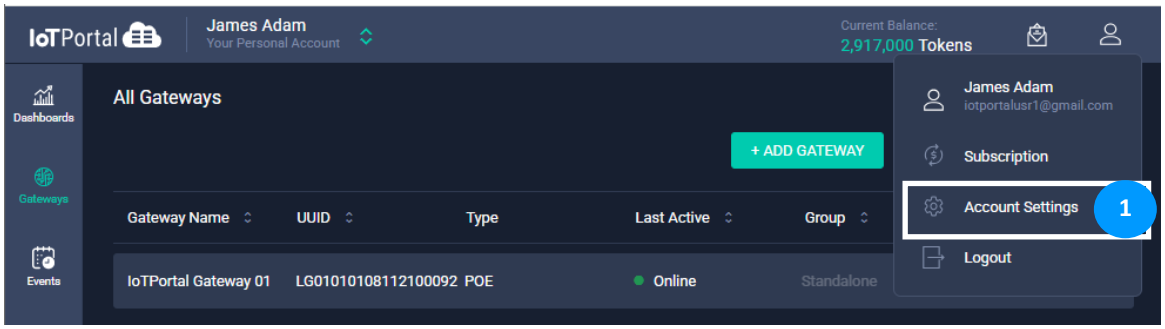


15. Account Settings

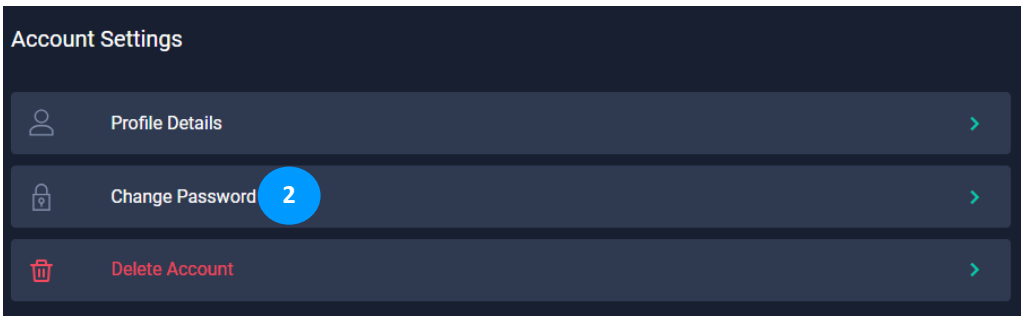
15.1 Change Password

To change password –

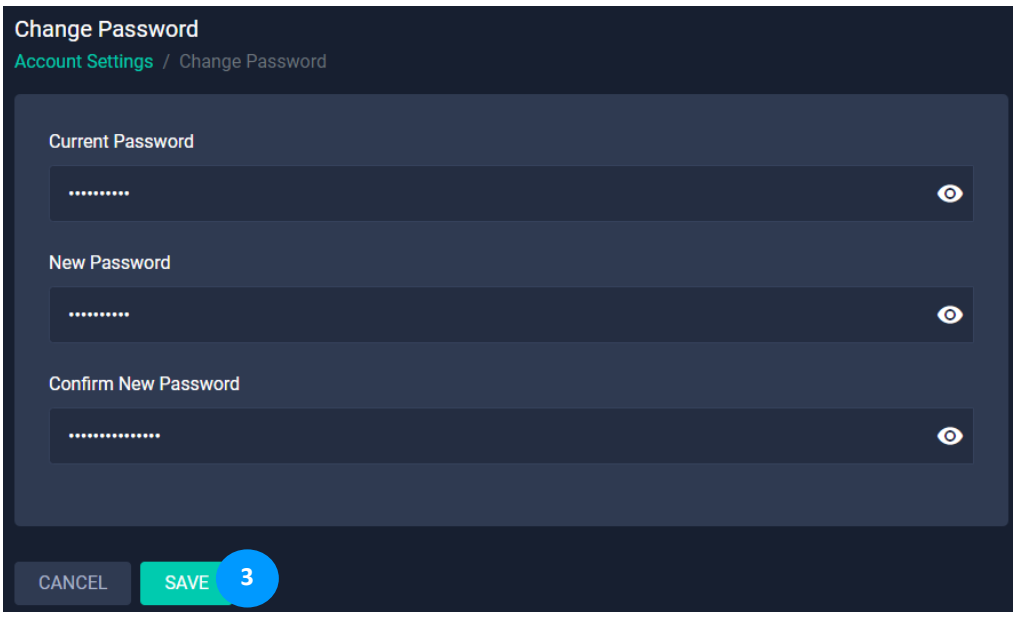
1. Click on the **Avatar** icon; Select *Account Settings*.



2. The Account Settings interface is displayed. Select **Change Password**.



3. Change the password as required and click **[SAVE]** to store the changes.



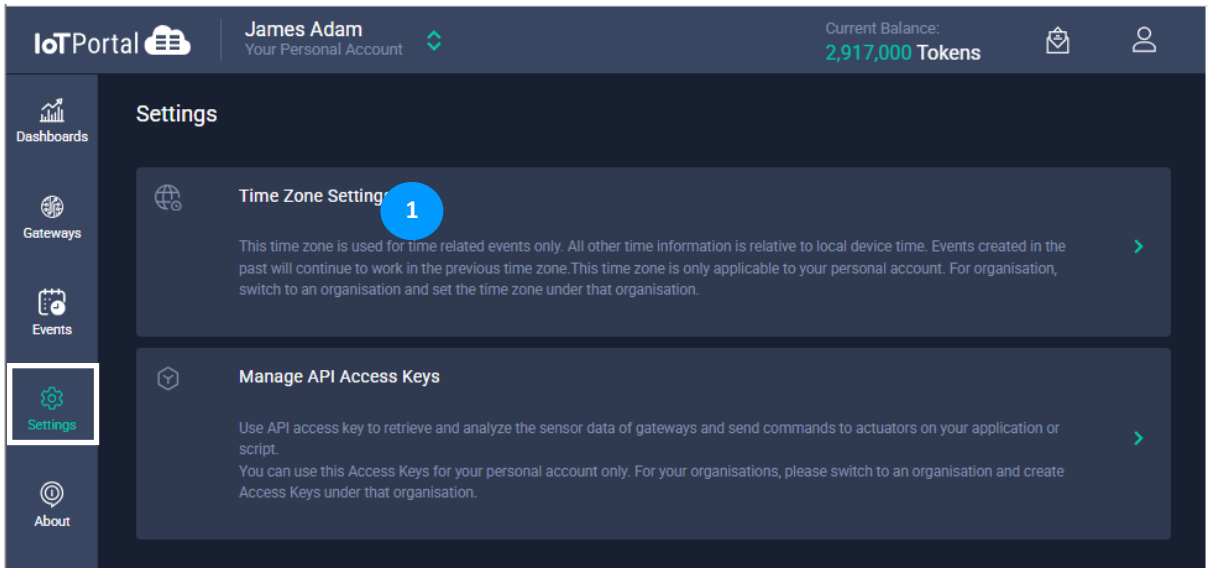
16. Settings

16.1 Time Zone Settings

This time zone applies only to time-related events on your personal account. Other times follow your device's local time. Past events retain their original time zone. For organizations, switch to the org and set its time zone separately.

To change time zone settings –

1. Click **Settings** from the menu. Click **Time Zone Settings** or **>**.



2. Select the Time Zone from the drop-down control and click **[SAVE]**. An appropriate message indicating that the time zone has been saved is displayed.

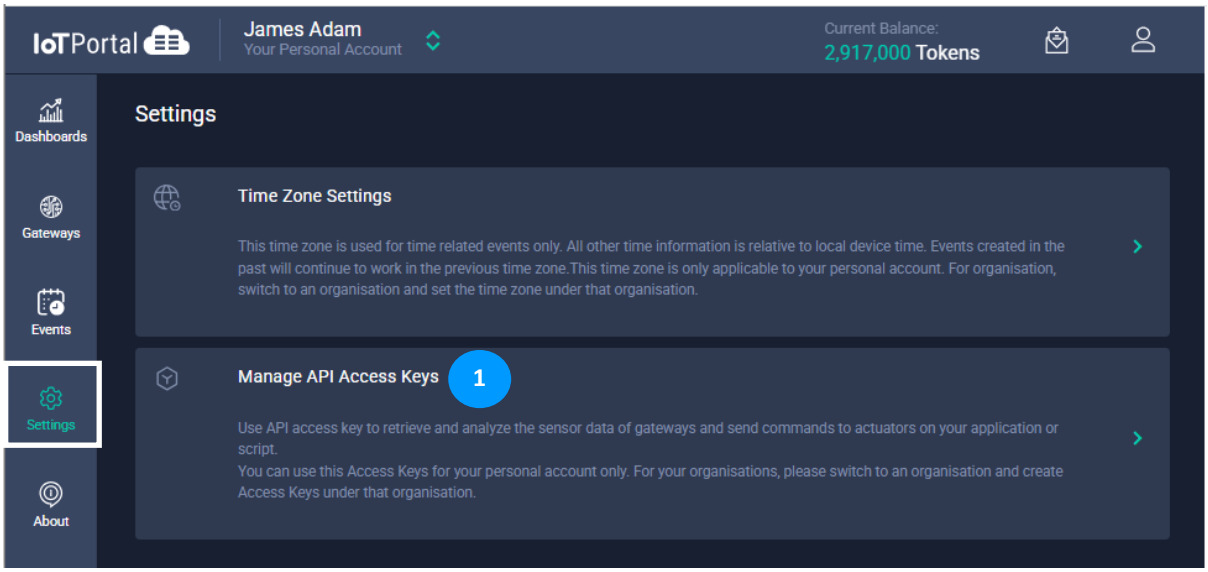
16.2 Manage API Access Keys

The API Access Keys can be used to retrieve and analyse sensor data from gateways, as well as send commands to actuators in application or script. These Access Keys can only be used for personal account. To create Access Keys for your organisations, please switch to an organisation and create Access Keys under that organisation.

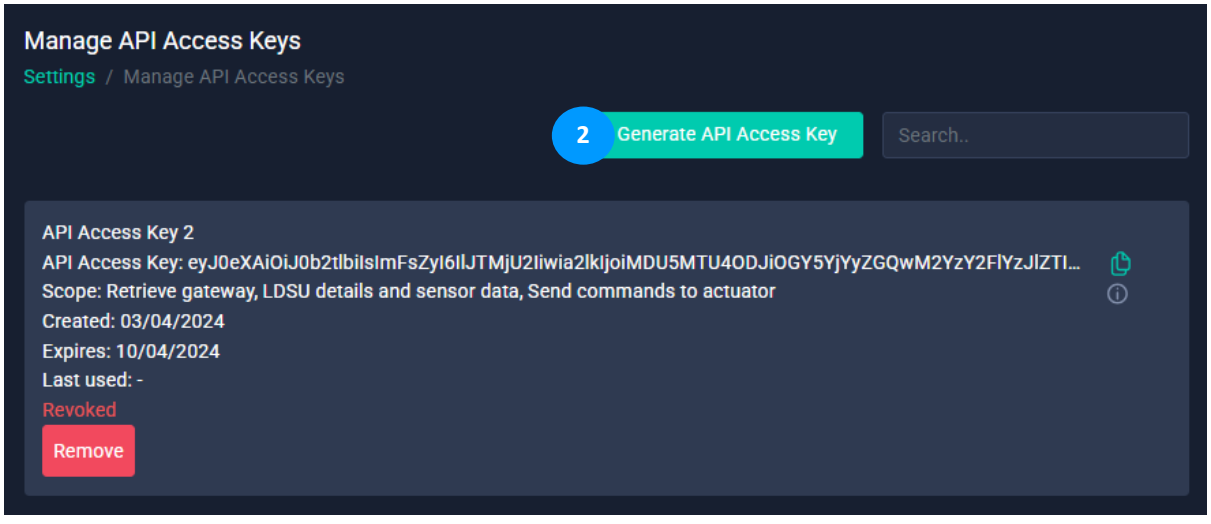
16.2.1 Generate API Access Key

To generate API Access Key –

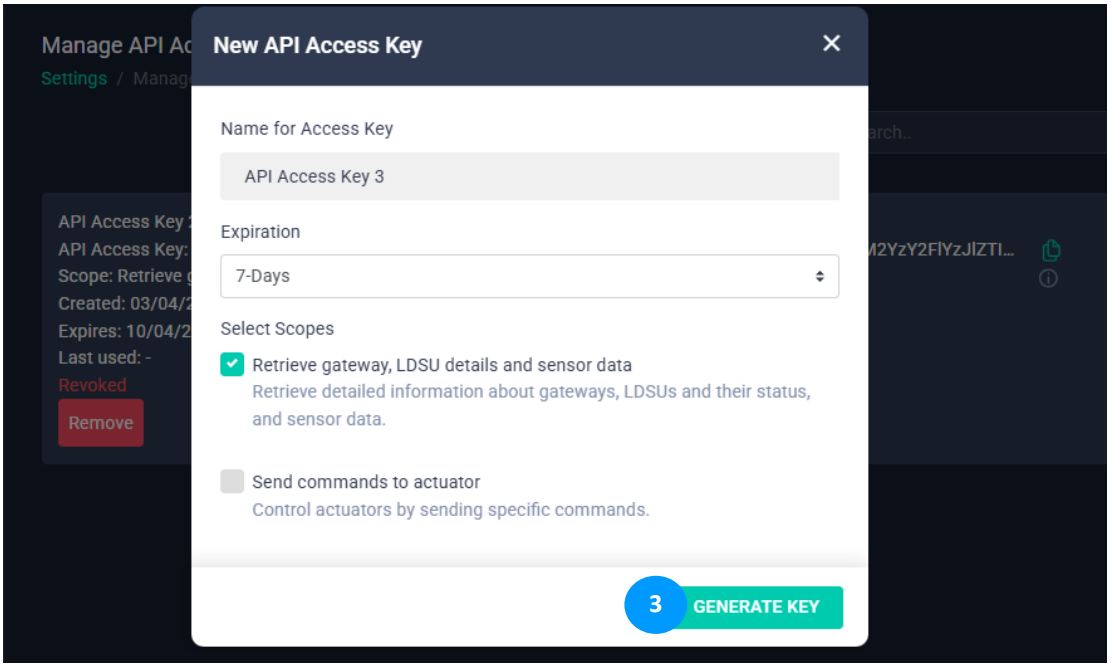
1. Click **Settings** from the menu. Click **Manage API Access Keys** or **>**.



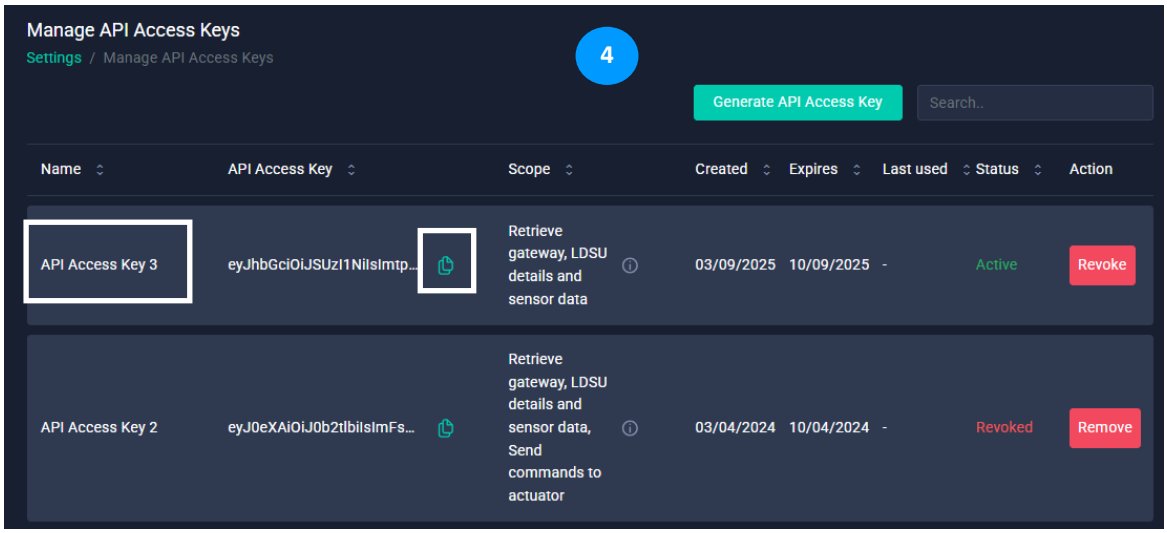
2. Manage API Access Keys interface is displayed. Click **[Generate API Access Key]** to generate a new key.



3. Input the *Name for Access Key, Expiration Date*; *Select Scopes* and click **[GENERATE KEY]**.



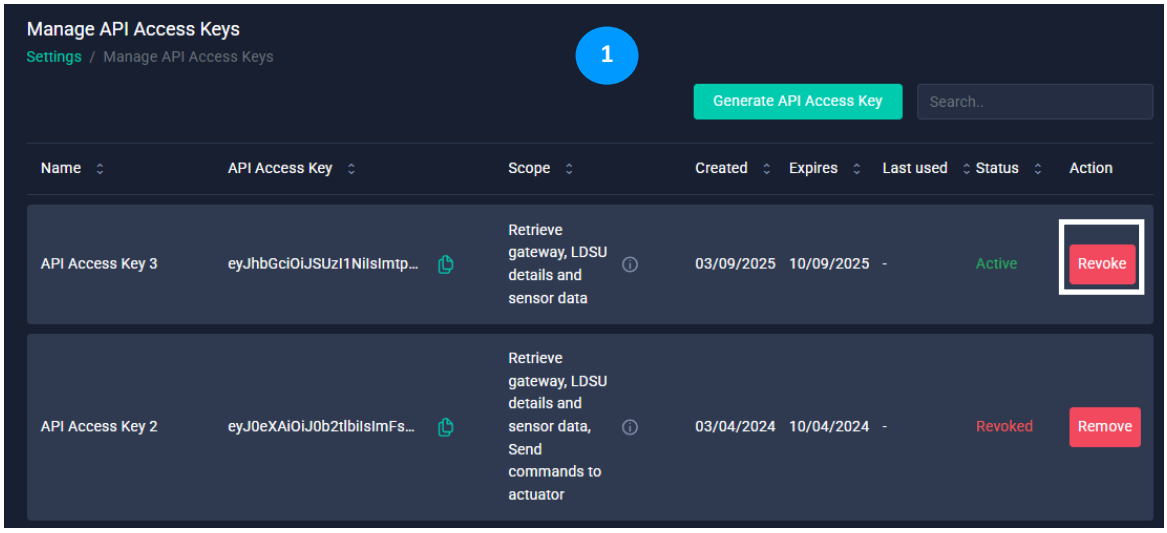
4. The newly created API Access Key is displayed as part of the table. To copy the key, click 



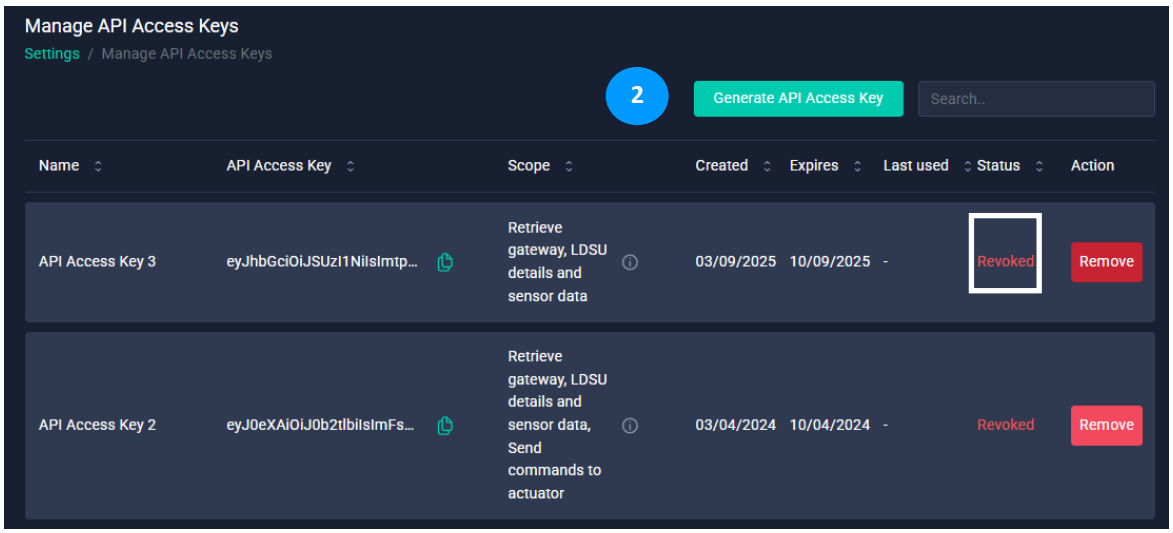
16.2.2 Revoke API Access Key

To revoke API Access Key –

1. Click **[Revoke]**.



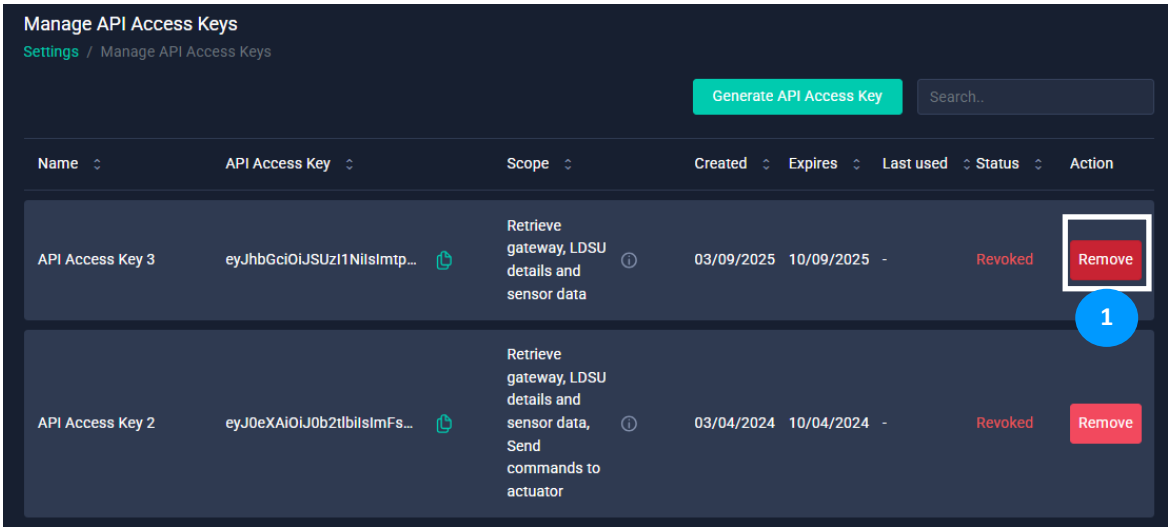
2. A confirmation window is displayed. Click **[YES]** to proceed. The status is updated to Revoked.



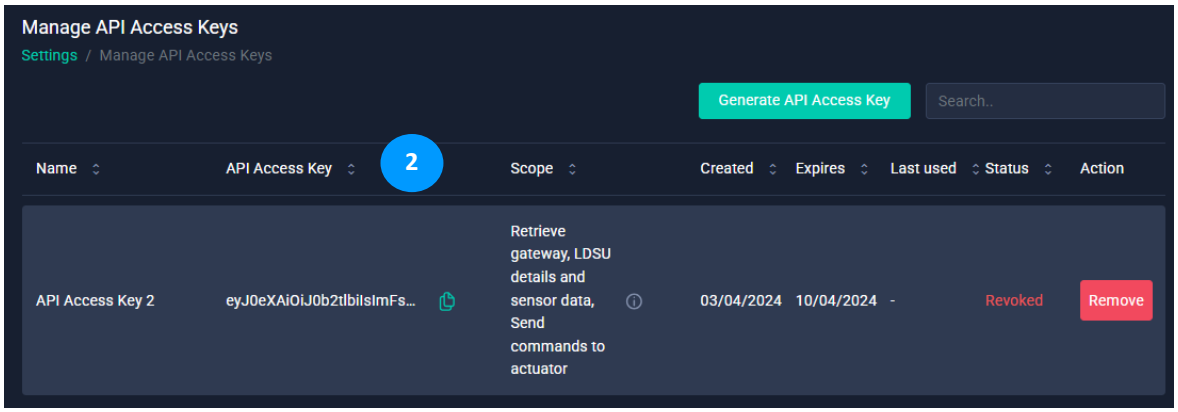
16.2.3 Remove API Access Key

To remove API Access Key –

1. Click **[Remove]**.



2. A confirmation window is displayed. Click **[YES]** to proceed. The key is removed.

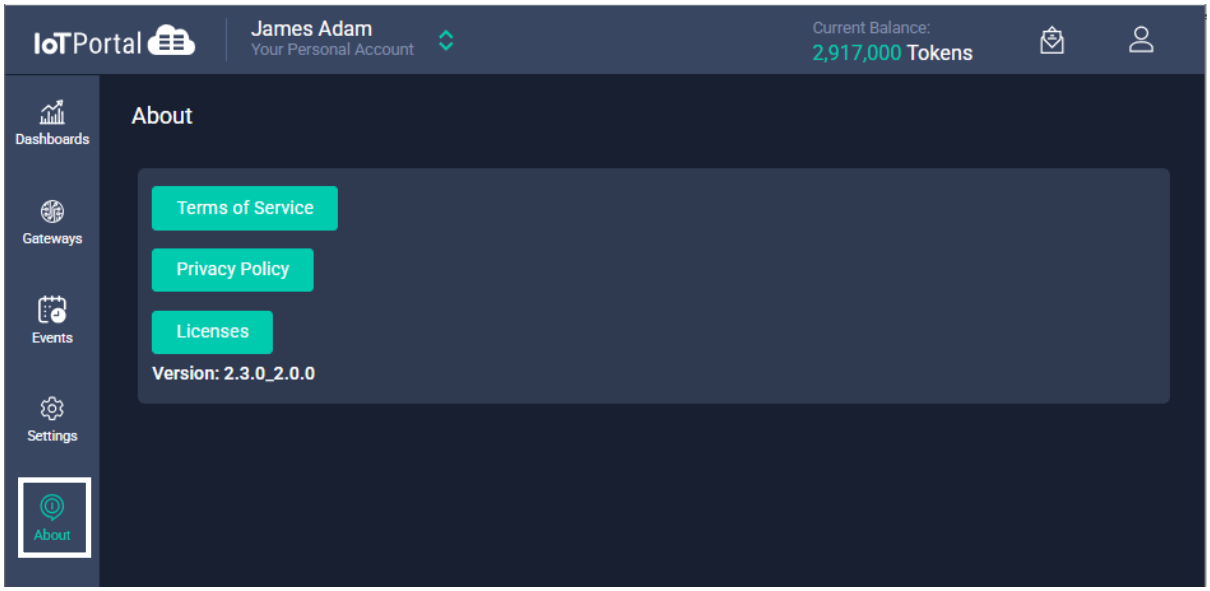


17. About

The About interface displays information related to Portal Web Client's (Web Management Console) version information.

To view version information –

Click **About** from the menu. The About interface is displayed with the version information. Click on *Terms of Service / Privacy Policy / Licenses* links to view the respective details.



18. Contact Information

Refer to https://brtsys.com/contact-us/ for contact information.

Appendix

1.5 Glossary of Terms, Acronyms & Abbreviations

Term or Acronym	Definition or Meaning
CRUD	In computer programming, Create, Read, Update and Delete are the four basic operations of persistent storage.
GUI	A Graphical User Interface is a digital interface in which a user interacts with graphical components such as icons, buttons, and menus.
IoT	The Internet of Things is a network of interrelated devices that connect and exchange data with other IoT devices and the cloud.
MFA	Multi-factor Authentication is an authentication method that requires the user to provide two or more verification factors to gain access to a resource such as an application, online account, or a VPN.
OTP	A one-time password is an identity verification tool for authenticating users logging into an account, network, or system.
QR Code	A quick-response code is a type of two-dimensional matrix barcode, invented in 1994, by Japanese company Denso Wave for labelling automobile parts.
UUID	Universal Unique Identifier is a 128-bit value used to uniquely identify an object or entity on the internet.
M2M	Machine-to-Machine refers to the direct, automated communication and data exchange between devices, machines, or systems without human intervention. M2M forms a fundamental component of the Internet of Things (IoT), acting as a key enabler for connected systems to monitor processes, make real-time decisions, and improve operational efficiency across various industries.

List of Figures

NA

List of Tables

Revision History

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Product Page	:	https://brtsys.com/iotportal/
Document Feedback	:	Send Feedback

Revision	Changes	Date
1.0	Initial release for V1.0.0	26-01-2023
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2.1	Updated release for V2.3.0_2.0.0	21-10-2025