

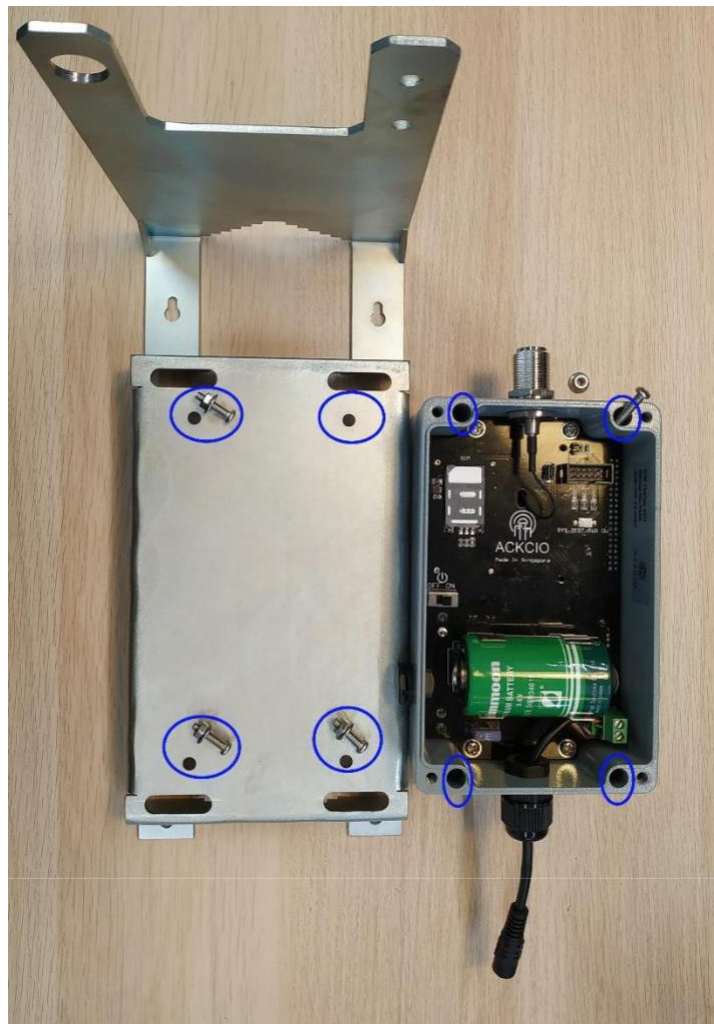
Setting up Gateway (BEAM-GW)

This page explains the process of setting up the ACKCIO BEAM gateway device.

Installation

The gateway can be directly affixed to a flat surface using M4 screws. However, for more sophisticated mounting scenarios, we recommend using the gateway bracket. The gateway bracket can be used to easily mount the gateway on flat surfaces, on pipes using U-bolts, or in other complicated settings. (One of our clients hung it using cable ties as well!)

If you are using the bracket, first fix the gateway device to the bracket using M4 screws and nuts as shown below.



Four screws/nuts to attach the gateway to the bracket

Fix the gateway antenna and the cellular antenna to the bracket as shown below. Note that the Gateway has two identical ports at the bottom for GPS and Cellular (GSM) antennas. Therefore, please connect the cellular antenna to the correct port which is the GSM port.



Gateway antenna & Cellular (GSM) antenna positioning - left and right respectively

Setting up the Gateway

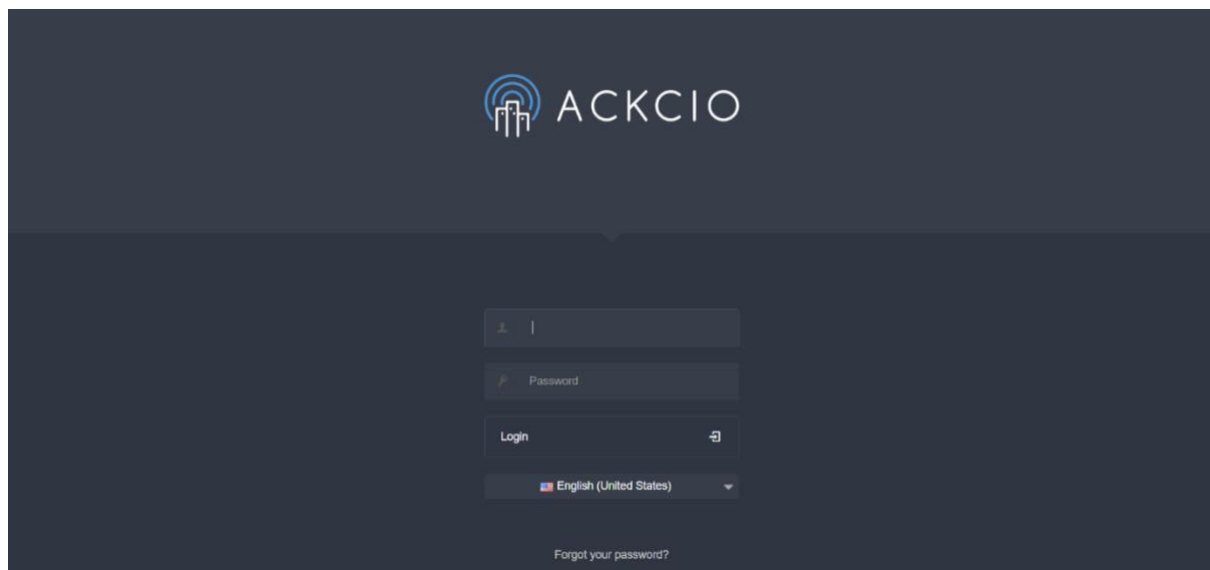
Gateway Settings

1. Connect a 12V DC power supply to the gateway. Ensure the polarities are affixed correctly while the power supply is connected. The power supply can be a 12V DC power adapter or a 12V solar panel power setup.
2. Switch on the gateway by putting the power switch to ON position.
3. Once the gateway turns on, you will see RF LED (Radio Signal) stays steady. RPI LED will be on for about 1~2 minutes later. Do not switch off gateway while RPI LED is solid. RPI LED will be in blinking status for about 4 minutes afterwards.
4. Once the Gateway is booted up, connect the Gateway to your laptop using a micro-USB to LAN adaptor.

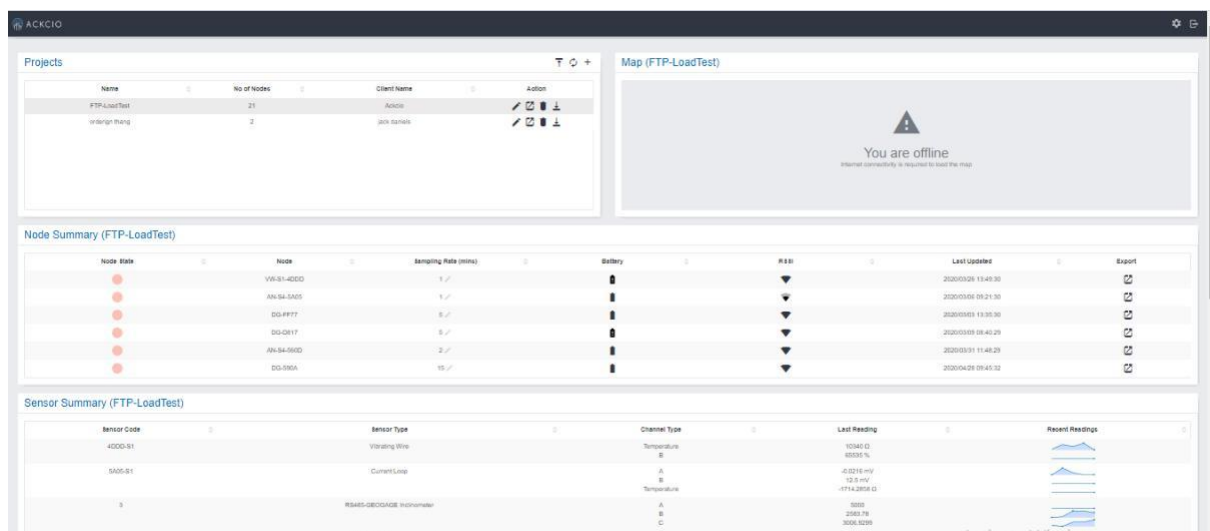
Open any browser on you PC and visit <http://beam.local> On the below shown screen enter the

Username: *admin*

Password: *adminadmin (or) admin123*

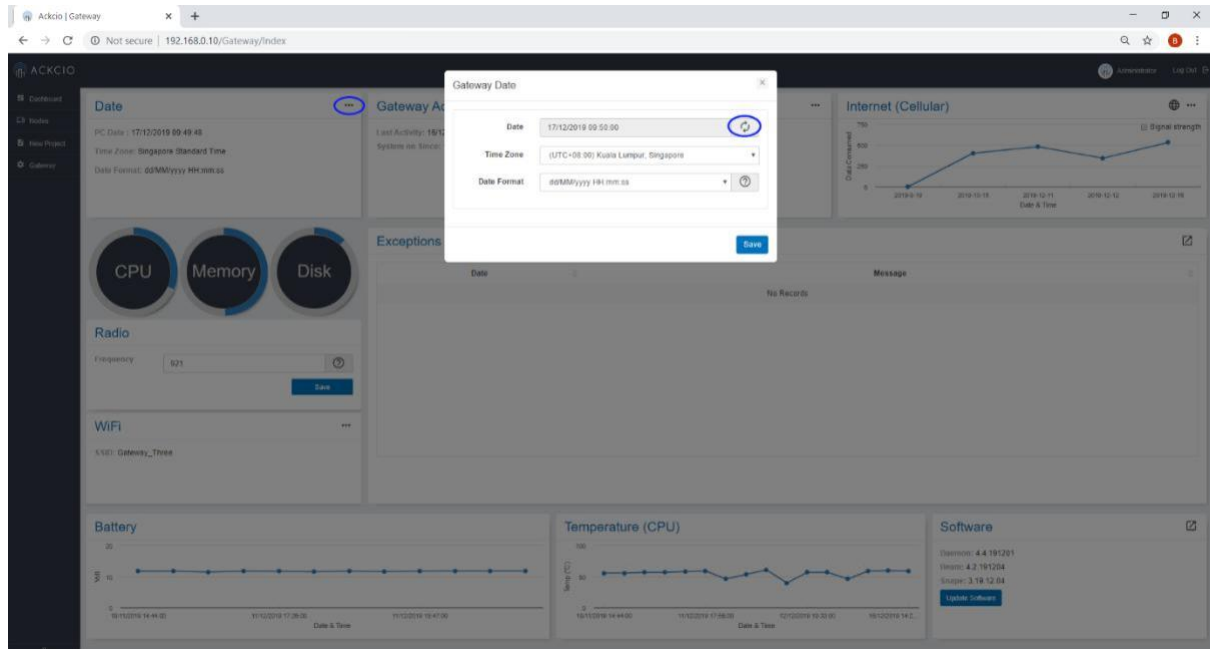


Click the (Gear Icon) settings button for Gateway setting configuration.



Date

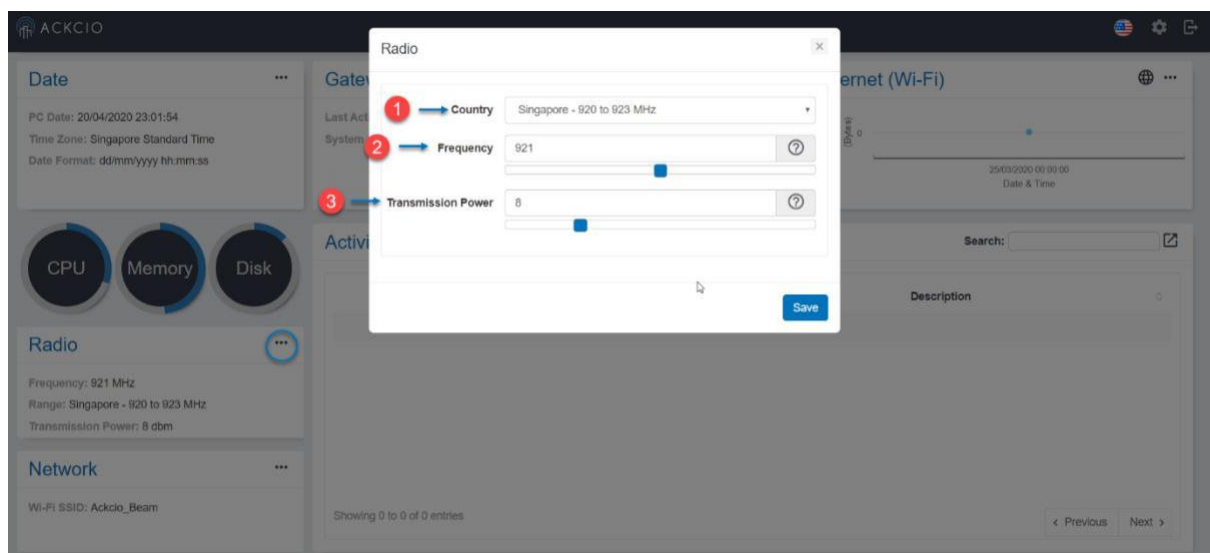
Select the time zone with respect to your country and click on “Sync” icon to sync with computer date and time. Click Save button afterwards.



Radio

Select the country and set the “Frequency” accordingly. Afterwards set the transmission power. Refer to the following link to get your country frequency.

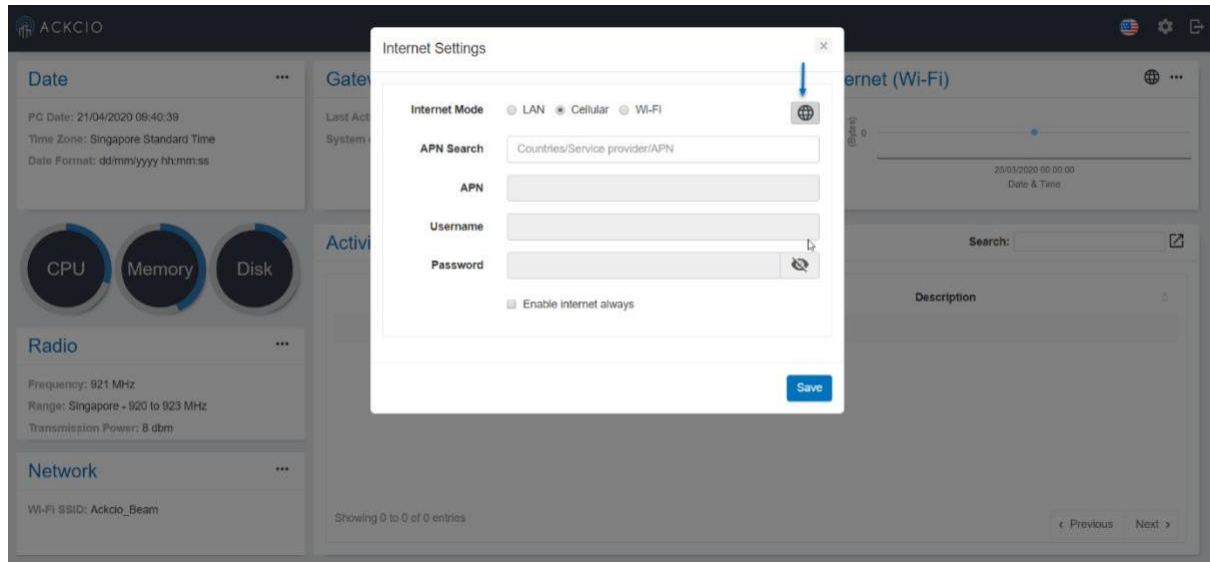
<https://www.thethingsnetwork.org/docs/lorawan/frequencies-by-country.html>



Internet

Select either LAN **or** Cellular.

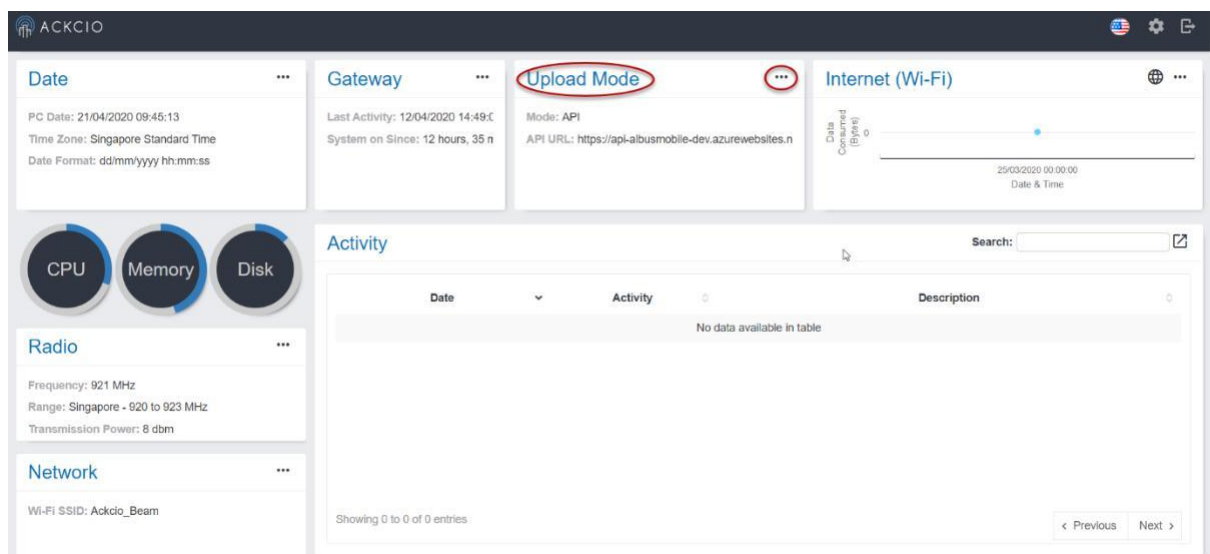
If **Cellular** is selected, choose your respective country and Service provider from the search bar. The APN, Username & Password based on the configuration will be automatically set. Once configuration is done, you can click on little world icon to test signal strength. You may also tick the check box on "Enable Internet Always" if you want to enable Internet permanently.



Cellular option for Internet

Upload Mode

Out of the three upload modes, API, FTP, ACKCIO Cloud one could select either one or many modes to upload the data.



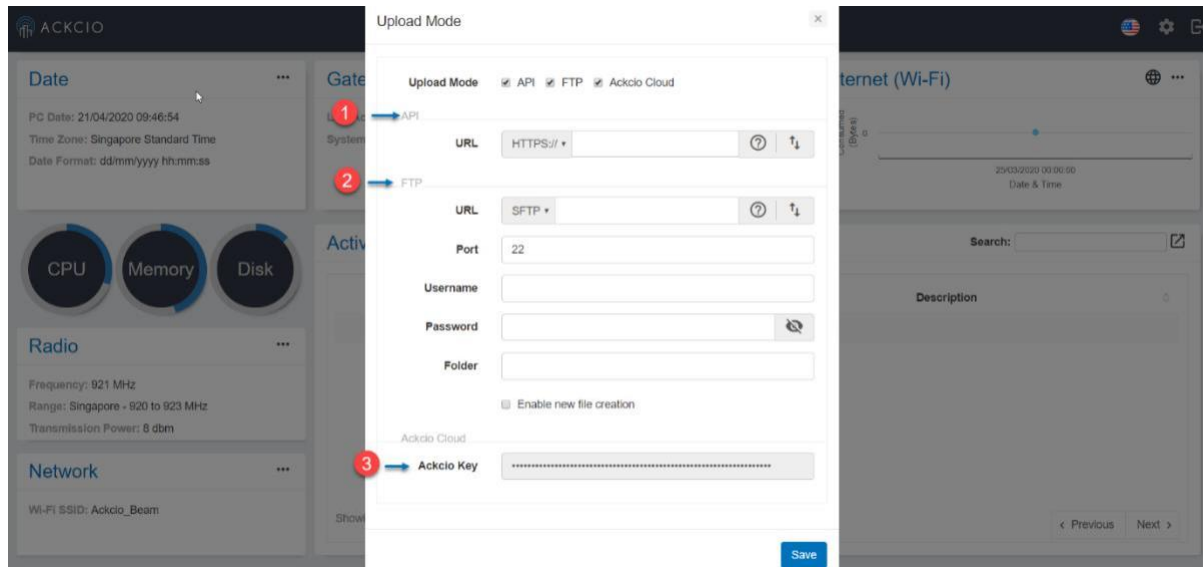
Upload data to an API

Enter the relevant link to which the data needs to be pushed as shown in Diagram below (1)

Upload data to a FTP server/ SFTP server

Enter the respective URL, Port, Username and password if any, and the folder to which the data needs to be pushed as shown in the diagram below. (2)

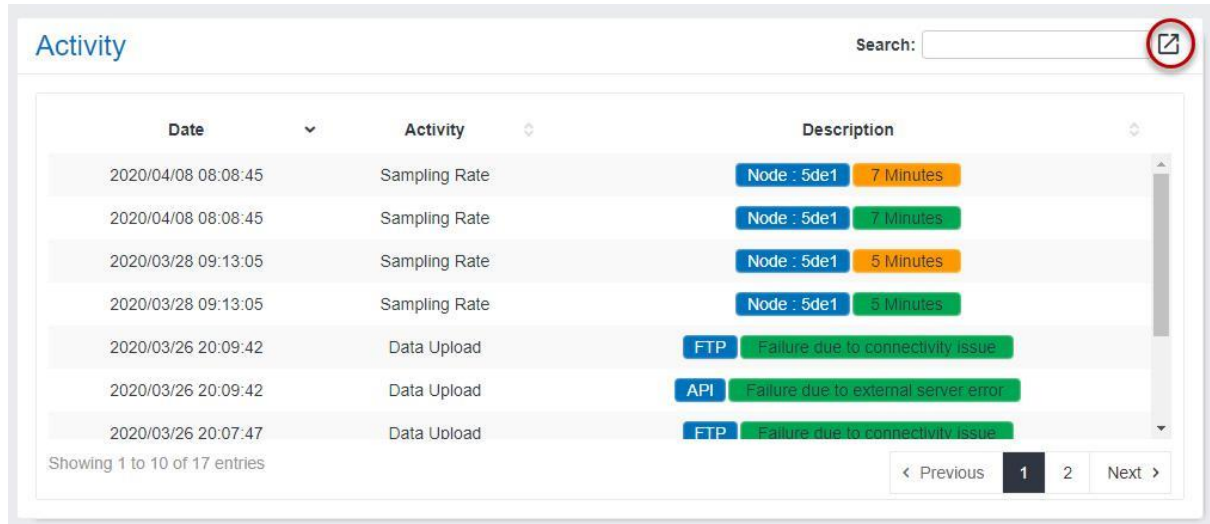
Select ACKCIO CLOUD mode if you are setting up project at Ackcio Cloud by entering the Ackcio Key.



Activity Grid

The activity grid will depict the key functionalities and changes that are conducted in the gateway where one could see information with related to the changes that are made.

Using the red circled export icon in the below shown diagram one could can export the gateway logs.



The screenshot displays the 'Activity' section of a gateway management interface. It features a search bar at the top right and a table of activity logs. A red circle highlights an export icon (a document with a plus sign) in the top right corner. The table has three main columns: 'Date', 'Activity', and 'Description'. The 'Description' column contains status indicators (blue boxes with node names) and error messages (green boxes with text). The table shows 17 entries, with the first 10 displayed. A pagination bar at the bottom indicates 'Showing 1 to 10 of 17 entries' and includes 'Previous', '1', '2', and 'Next' buttons.

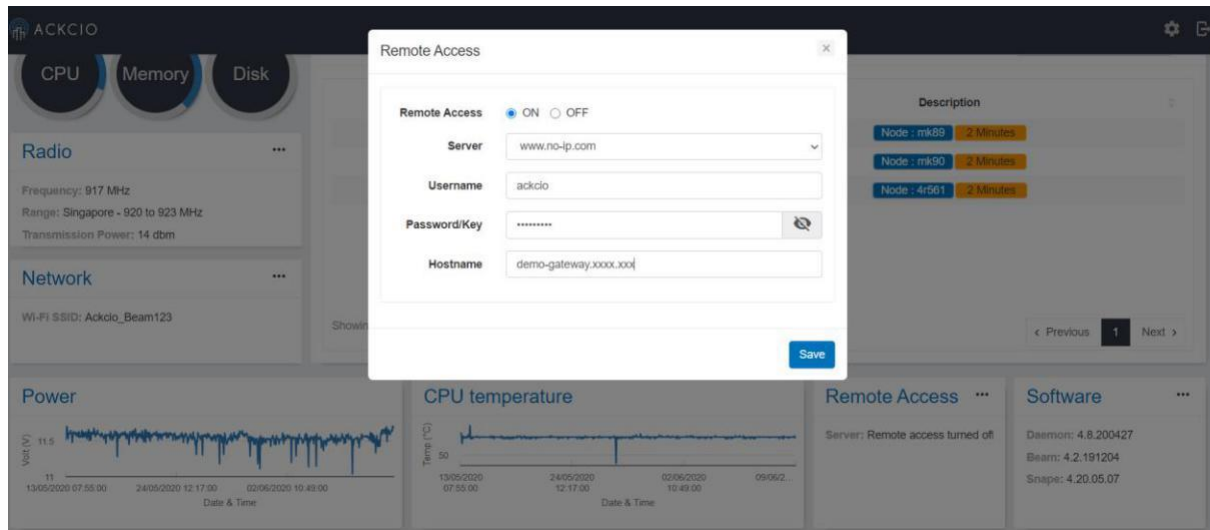
Date	Activity	Description
2020/04/08 08:08:45	Sampling Rate	Node : 5de1 7 Minutes
2020/04/08 08:08:45	Sampling Rate	Node : 5de1 7 Minutes
2020/03/28 09:13:05	Sampling Rate	Node : 5de1 5 Minutes
2020/03/28 09:13:05	Sampling Rate	Node : 5de1 5 Minutes
2020/03/26 20:09:42	Data Upload	FTP Failure due to connectivity issue
2020/03/26 20:09:42	Data Upload	API Failure due to external server error
2020/03/26 20:07:47	Data Upload	FTP Failure due to connectivity issue

Showing 1 to 10 of 17 entries

< Previous 1 2 Next >

Remote Access

If the gateway needs to be accessed remotely using a dynamic DNS, it could be done by providing the details requested, as shown below. Once they are provided the gateway could be remotely accessed via the dynamic DNS. Also, during this procedure, it is necessary to make sure that the gateway has the internet connection.

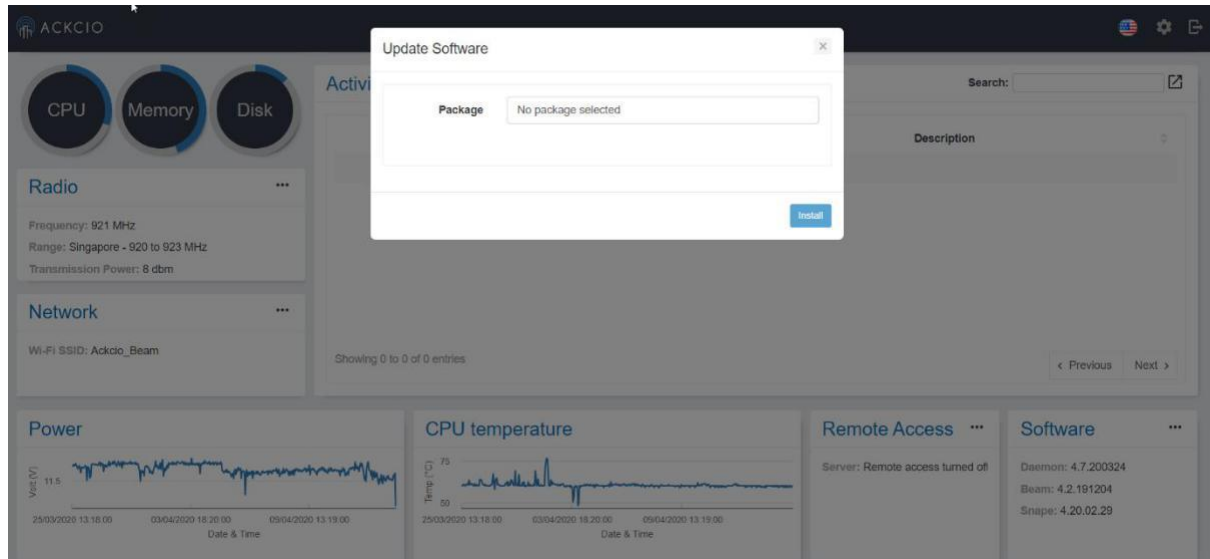


The Remote access configuration steps are explained below.

1. Set up a free host name and an account using one of five given dynamic dns providers, using the web browser.
2. Once the hostname and the account information are received, go to the remote access tile and access the model. and then type in the information regarding the hostname, account username, and password.
3. Upon save, the ddclient file in the back-end will be configured automatically based on what the user saves in that model and ddclient will set up the remote access.
4. The user will now be able to type in their custom hostname in the search bar and access the gateway via said hostname instead of ip.

Software

You can find current firmware & software version in this section. by uploading the software package provided by Ackcio one could update Gateway software when necessary. The steps of the installation process will be shown accordingly.



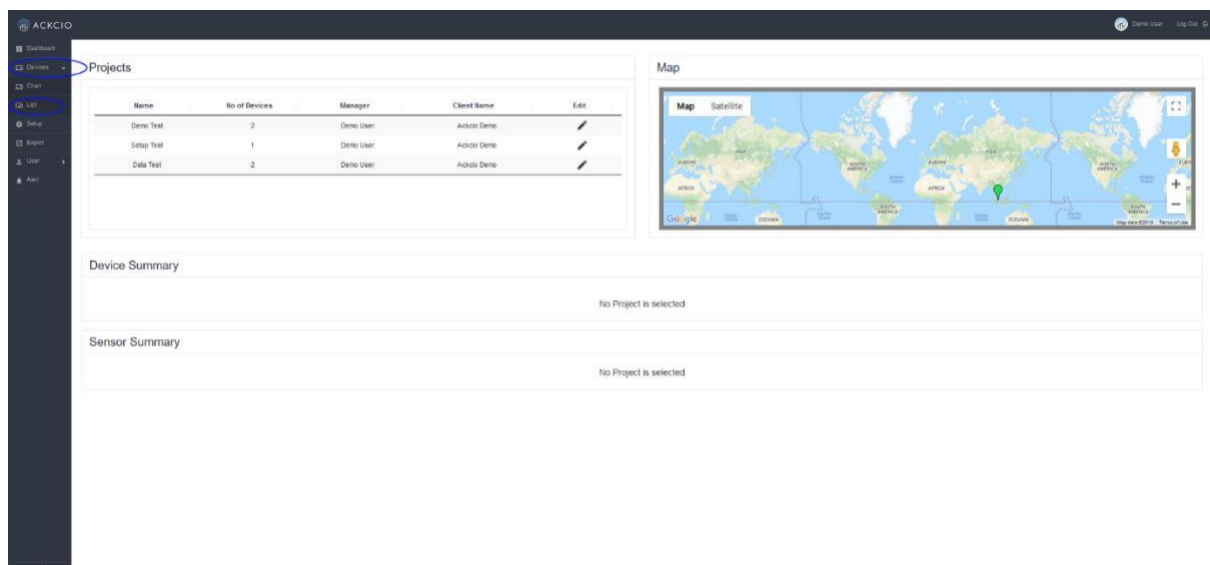
That brings the end to the Gateway Settings.

Setting up with ACKCIO cloud

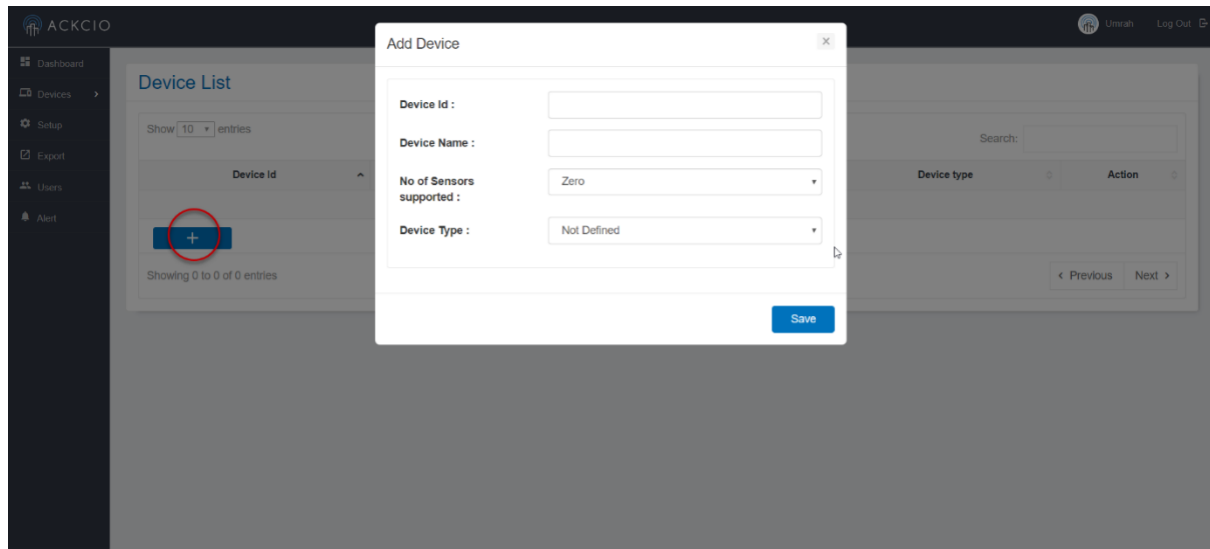
To kick start log in to Ackcio Cloud with your registered account.

Connect your PC to internet LAN. Click on the following link to login Ackcio Cloud online portal with your registered account. <https://live.ackcio.com>

1. Procedure for adding Nodes (i) Initially add all Nodes before creating Project.



(ii) Expand the Devices list at the side menu by clicking the arrow mark. Then, Click on + button. **Device ID (Mac ID):** the first 4 digits found on the sticker of the device **Device Name:** Name the node as per your preference.(Ex: Your device location or sensor). **No of Channels:** Select either **1,4 or 8** based on the device channels (ports). **0** is for Relay Node. **Device Type:** Select Node type based on your Node. After filling up the device information, click “Save” button.

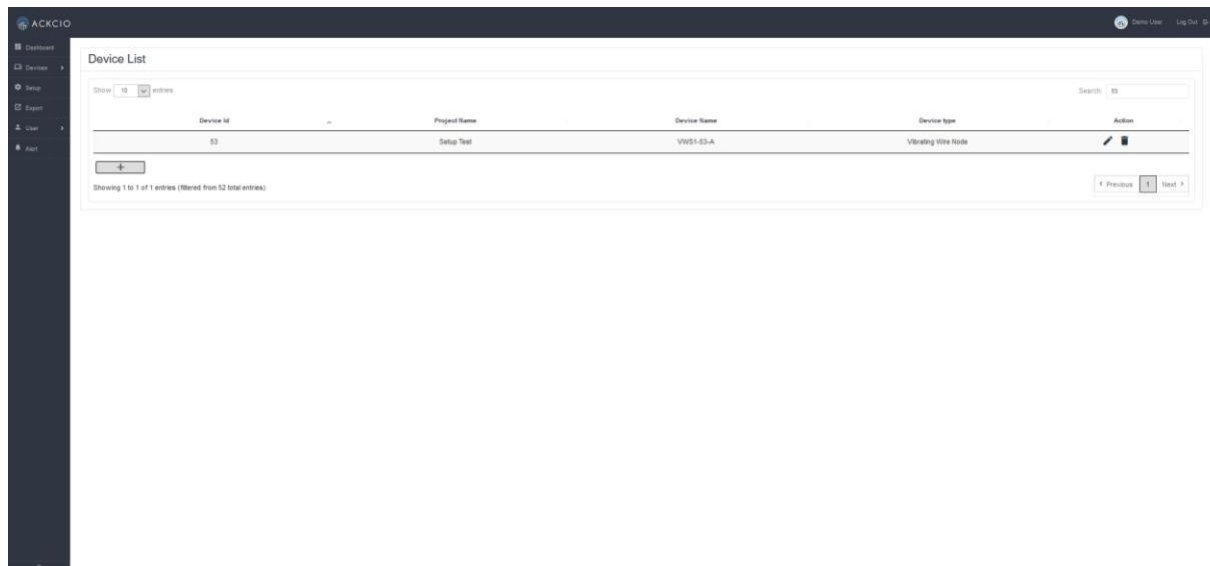


This is a close-up of the 'Add Device' modal form. The fields are filled with the following data:

Device Id	53
Device Name	VWS1-53
No of Sensors supported	One
Device Type	Vibrating Wire Node

A 'Save' button is located at the bottom right of the form.

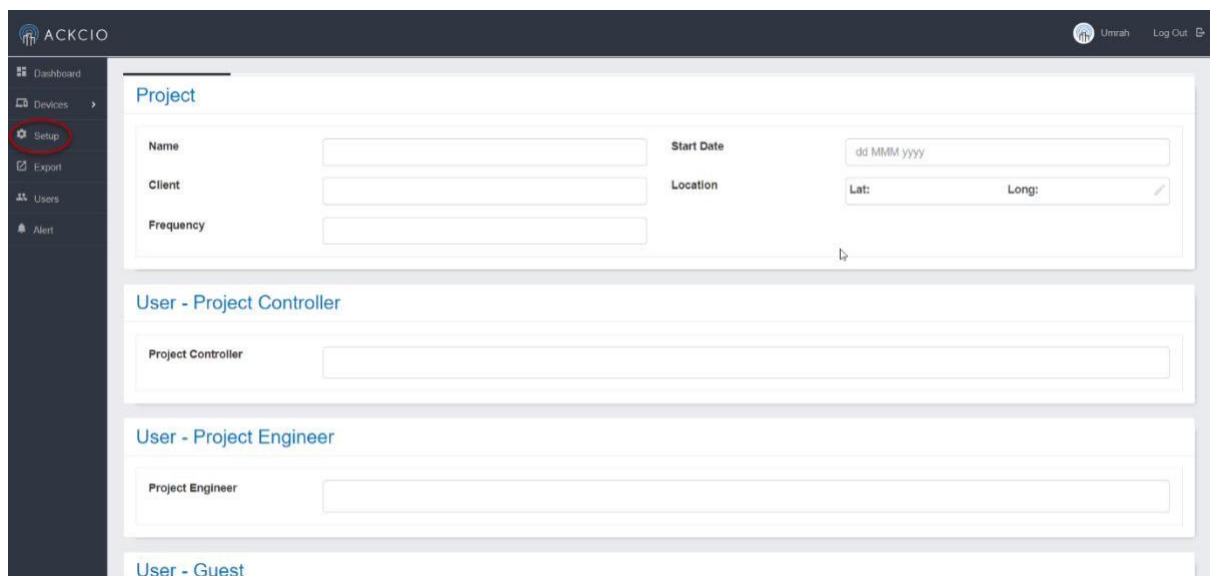
(iii) You will see the prompt and added device information under “Device list” section.



(iv) Repeat above steps to add additional Nodes.

2. Procedure to create a new Project.

Click on “Setup” at side menu.



3. Input the requested information as per instructed below

- **Name, Client, Frequency, Start Date and Location** (click on pencil icon to input the location).
- **Project Controller** field: mandatory.
- **Gateway** field: Select your respective Gateway ID(s) by clicking on text box.
- **Device** field: Click in text box, you will see the Node(s) which you have already added previously. Please select accordingly. (Multiple selection)
- **Sensor** field: Select the respective sensor types. (Multiple selection)

Click **Next**.

The screenshot shows the 'Project' setup page in the ACKCIO interface. The page is divided into several sections for configuration:

- Project:** Includes fields for Name (Setup Test), Client (Ackcio Pte Ltd), Frequency (921), Start Date (02 Apr 2018), and Location (Lat: 1.299454, Long: 103.785877).
- User - Project Controller:** Includes a Project Controller field with a '+ Create User' button.
- User - Project Engineer:** Includes a Project Engineer field with a '+ Create User' button.
- User - Guest:** Includes a Guest User field with a '+ Create User' button.
- Gateway:** Includes a Gateway field with a '+ Create Gateway' button.
- Device:** Includes a Device field with a '+ Create Device' button.
- Sensor:** Includes a Sensor field with buttons for '+ Tracking Rate', '+ Control Link', and '+ Setup'.

A 'Next' button is located at the bottom center of the form.

4. You can set the desired “Sampling Rate” at this page for all the nodes. Click Next.

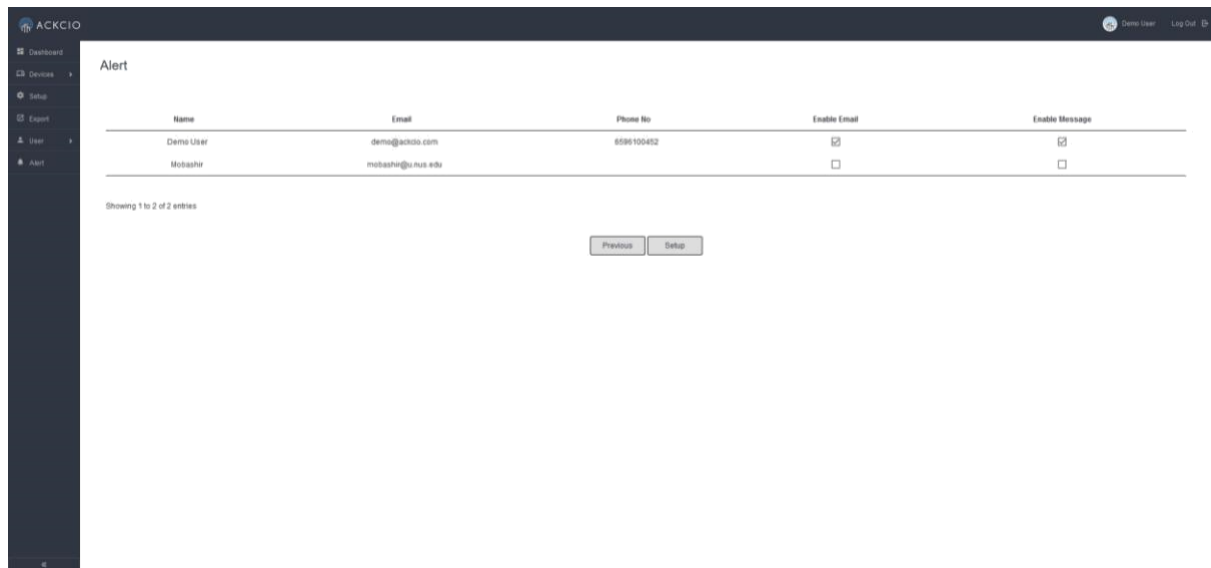
The screenshot shows the 'Device & Channels' page in the ACKCIO interface. It features a table with the following columns: Device, Device Name, Sampling Rate, and Location.

Device	Device Name	Sampling Rate	Location
53	WWS1-53-A	5	Lat: 1.299454 Long: 103.785877

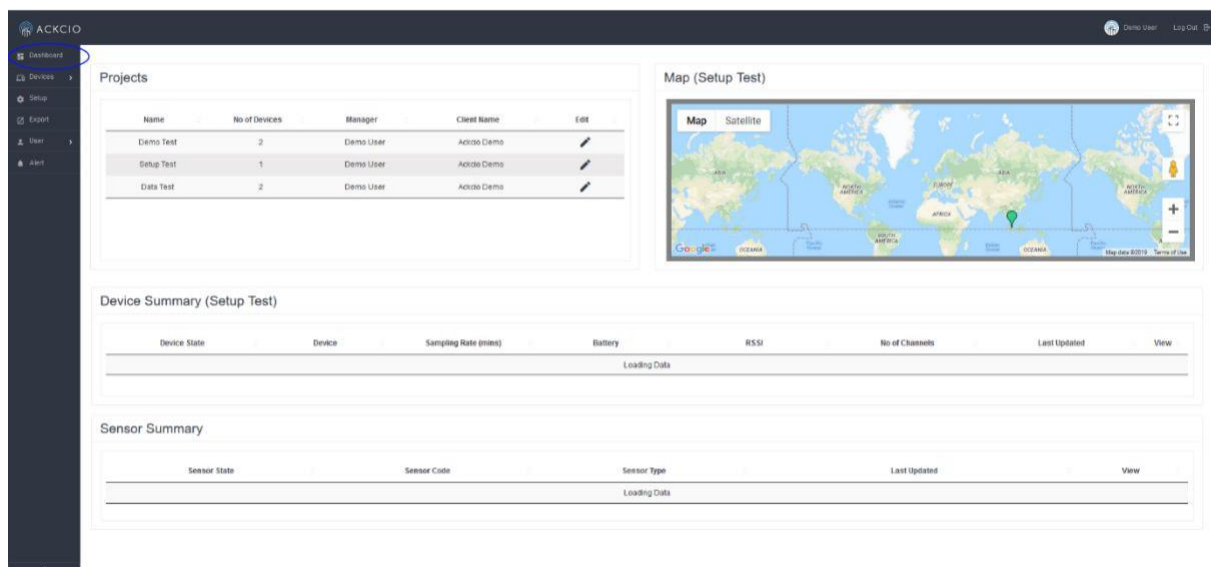
Below the table are 'Previous' and 'Next' buttons.

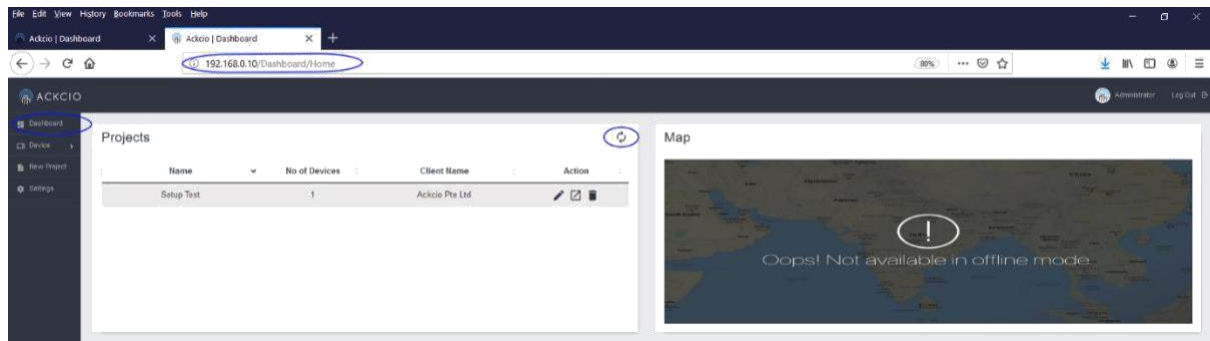
5. For the Alert, please enable at least one channel (either email or message)

6. Click "Setup" to complete the project creation.



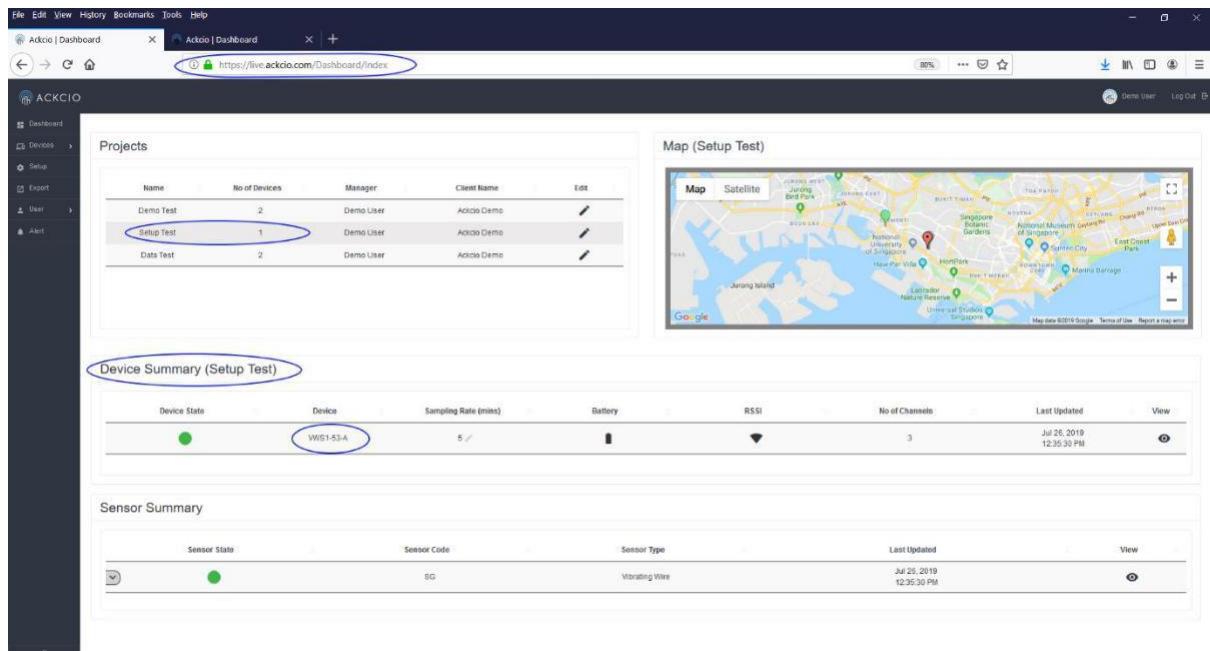
7. Click on Dashboard at the side menu, you can now see newly created project. If you want to edit the project, click on pencil button.





9. Once "Step.8" is done, please refer to Node Manual (Analogue or Vibrating Wire) to commission the nodes.

10. After you have commissioned all the nodes, go to "Online" dashboard, click on your project, you will now be able to see your Nodes under “Device Summary” Section.



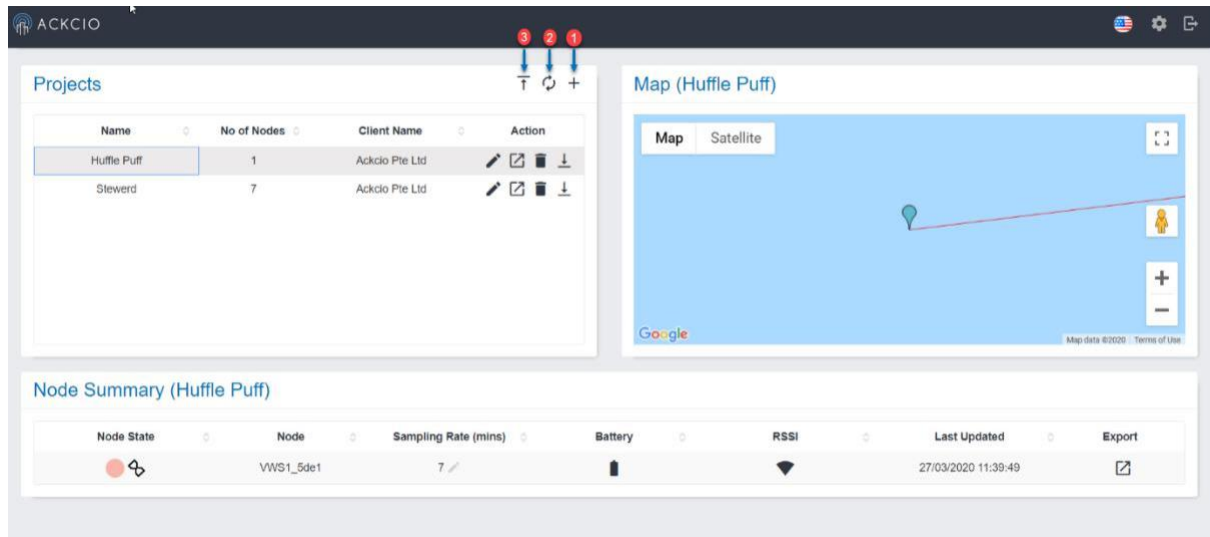
Setting up with Third Party Services

Open your favourite browser, and visit <http://192.168.0.10>. Thereby enter the credentials. Username: *admin*

Password: *adminadmin*

Creating a Project

1. Click “+” icon next to the Projects to create new project. 2. Refresh (or) Click on "Sync Projects" icon if you need to refresh the project or sync with a cloud project (if any). 3. Import/Export Project Configuration if you have any previous saved project configuration file. Please refer to this [link](#) for more information.



Input **Name**, **Client**, **Start Date** and **Location** with respect to the project that is about to be created. (click on pencil icon to input the location).

The screenshot shows the 'Project' setup form. It has the following fields:

- Name:
- Client:
- Start Date:
- Location:

Below the form is a 'Nodes' section with a table for 'Node List'.

Node ID	Project Name	Node Name	Node Type	Action
---------	--------------	-----------	-----------	--------

Creating a Node

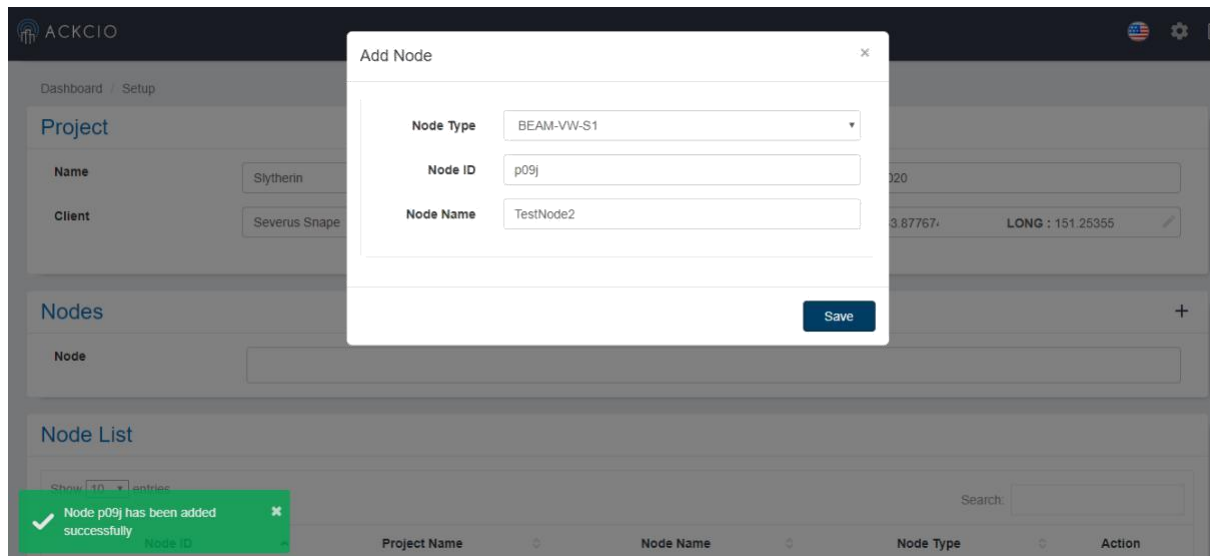
To add Nodes, click on the "+" icon next to "Nodes" section. Input credentials and save.

Node Type: Select the type of your node accordingly.

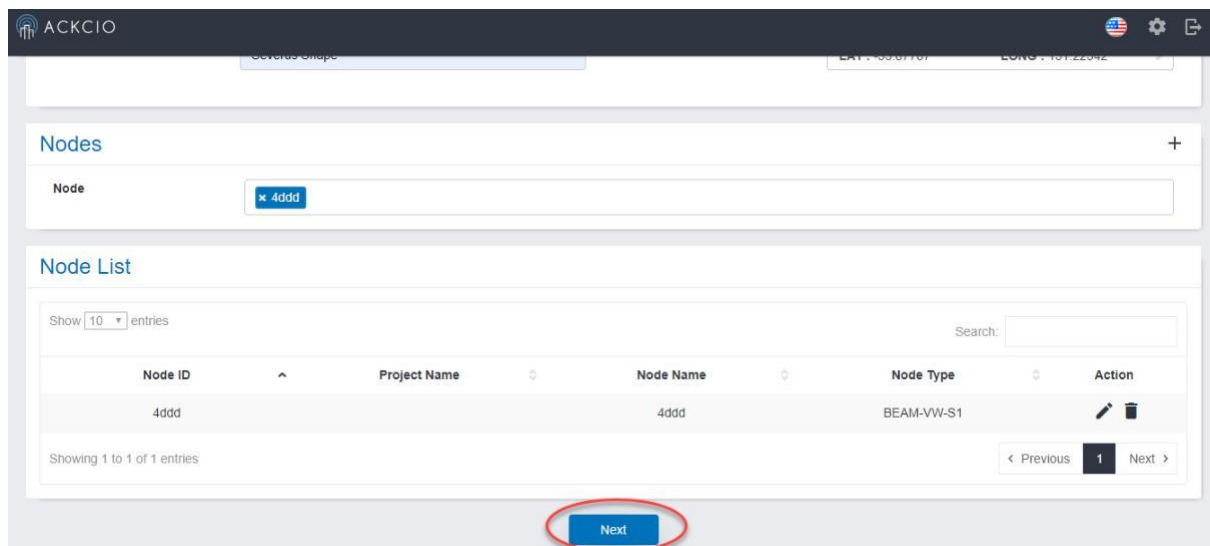
Node ID: Enter the unique ID provided in the sticker, on top of the Node.

Node Name: Name it according to your device location or sensor as per your preference.

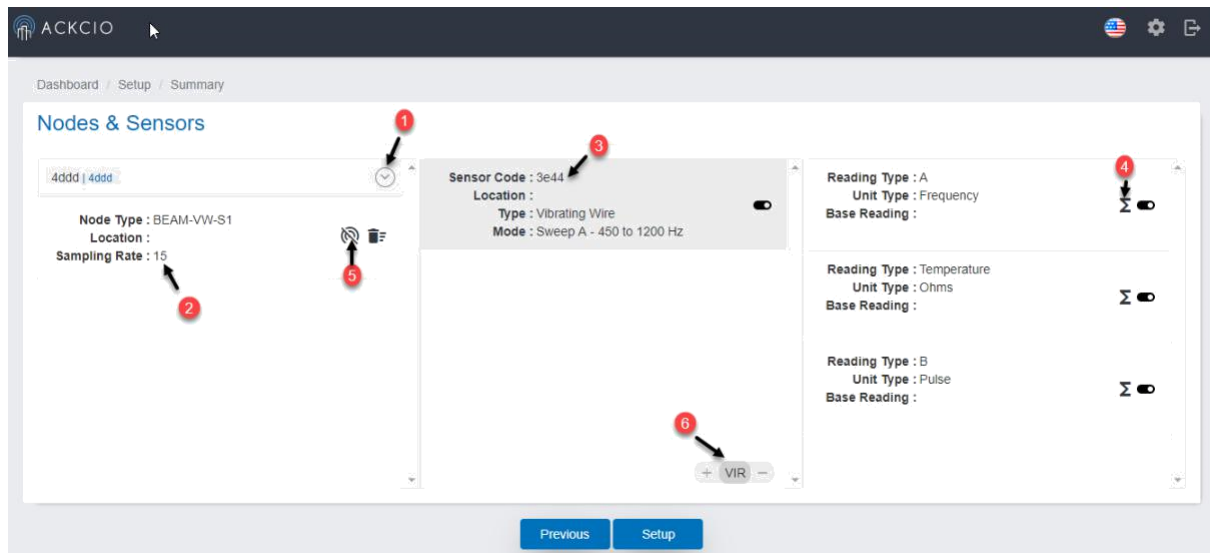
****Repeat above steps to add additional Nodes.**



You can now see the Node(s) that you have just added in the "**Node List**" section. On Node text field, please select your Nodes. (You can select multiple Nodes.)



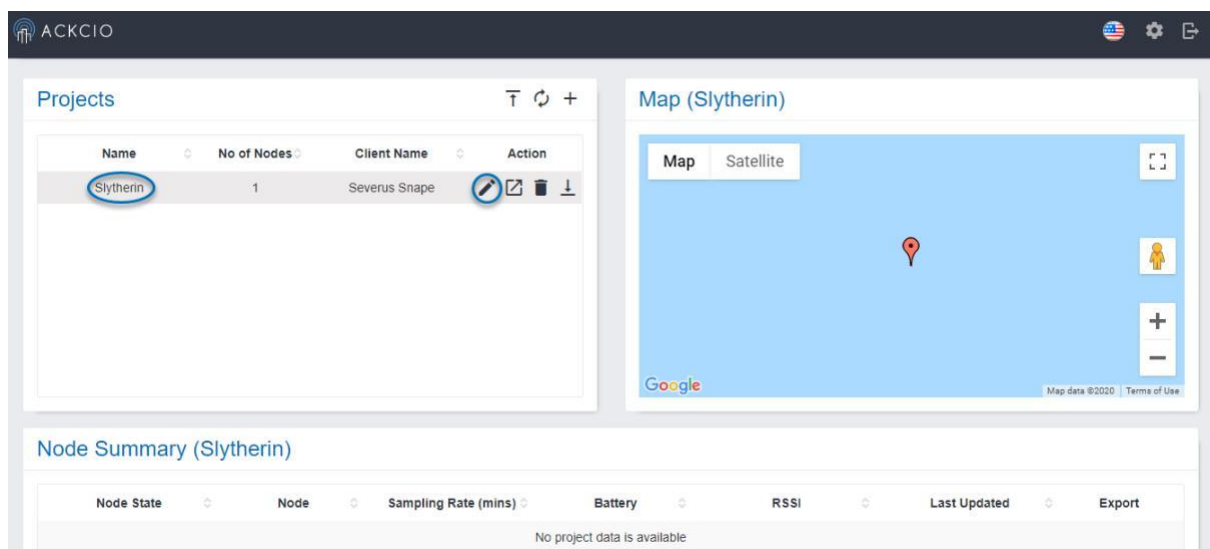
Click on the "Next" button afterwards. You will be navigated to the sensor Nodes and sensors page.



On this screen, you will see all the added Nodes to the project on the left pane.

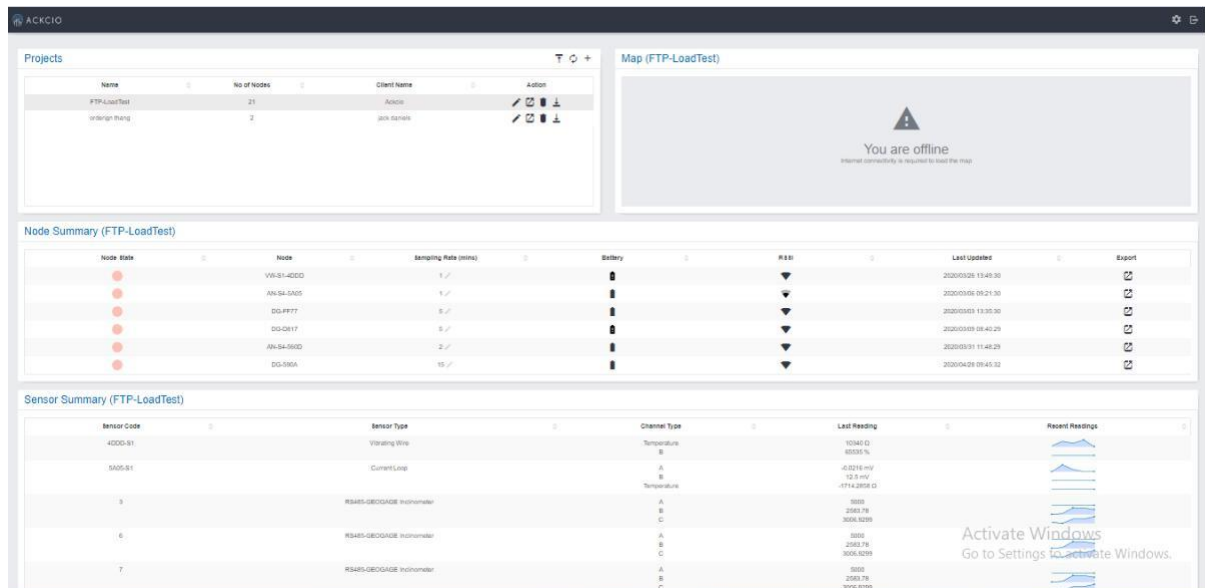
1. Click on arrow icon to expand selected Node information.
2. You can set a preferred “Sampling Rate (in mins)” at this page for your node.
3. Input the corresponding **Sensor Code, Type and Mode**.
4. You can set an equation by clicking this icon.
5. You can enable the wireless mesh, if necessary.
6. If you wish to add virtual channel, click +. Click the “Setup” button to complete the Project Creation.

Upon successful project creation, the system will take you to the "**Main**" screen and you will see newly created project. If you want to edit the project, you can do so by clicking pencil icon.



Next step, please refer to respective Node Manuals to commission the nodes.

After you have commissioned all the nodes, log in and click on your project, you will now be able to see your Nodes under “**Node Summary**” Section and sensor details under “**Sensor Summary**”.



Normal Operating Status of the Gateway

1. You should see (RPI, NET, RF LEDs) of the gateway should remain off most of the time.
2. WF LED will be solid all the time unless you turn it off. (You can turn off/on WF by pressing and holding FUNC button more than 5 seconds)
3. The RPI & RF LEDs will blink every 5 seconds.
4. The NET LED will blink if the Internet mode has been set to CELLULAR and when there is Internet activity (e.g., real-time data uploading to a server via FTP or API). Afterwards, the LED will turn off until next internet activity.

Turning off the Gateway

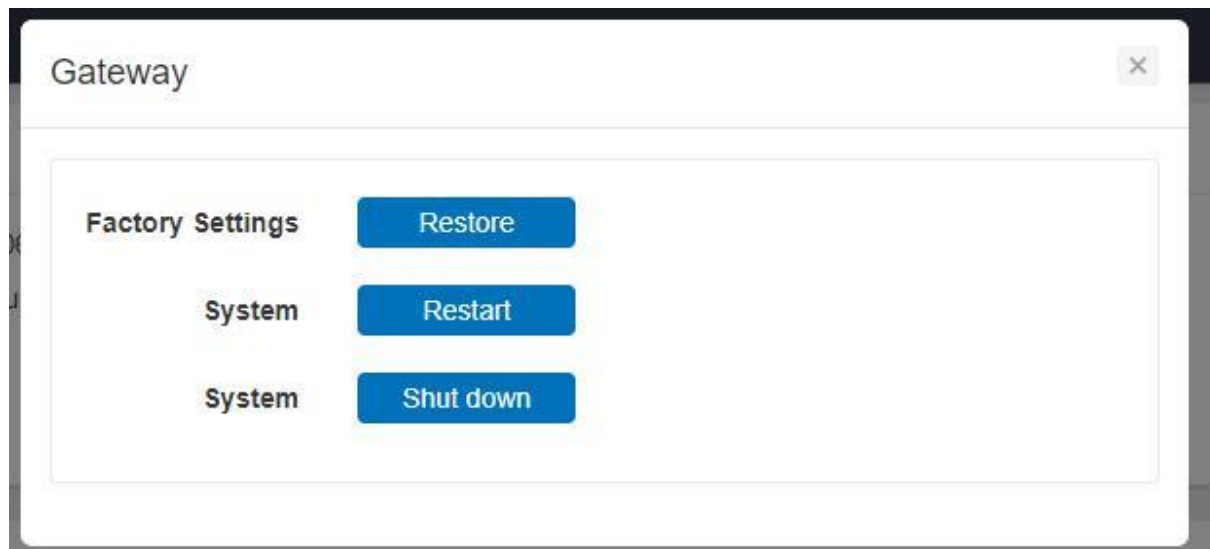
Turning off using the device

1. Press and hold the FUNC button for more than 10 seconds. You will see that the RPI, NET, WF LEDs will be turned off.
2. RF LED may continue to blink every 5s which is normal.
3. Put the power switch to off position. RF LED will be turned off at this stage too.

Turning off / Reset using the dashboard

The gateway could be reset/brought to the initial status by clicking the "Restore" button on gateway activity module. Yet it should be done attentively as all the data and configurations may loose and it may need a Re - configuration.

Also its necessary to note that upon the System restart button click, the gateway would restart and upon the shutdown button the gateway device would shutdown.



FCC Caution:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC RF Radiation Exposure Statement:

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. This equipment complies with RF radiation exposure limits set forth for an uncontrolled environment.
3. This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.