

1 minute set up to prototype environmental IoT application using HummBox Devices and Opensensors.io

GreenCityZen: who are we:

GreenCityZen is an eco-startup that designs and sells technology solutions for the environmental measurement, addressed to its environmental industrial customers and the smart and sustainable cities. *GreenCityZen* develops the Humm solution "IoT for the environment" an innovative solution for the management and control of environmental sensors fleets, cost effective, scalable, and natively interoperable.

What is HummBox device:



The HummBox is a multiple sensor connected device provided by **GreenCityZen**.

HummBox provides advanced IoT monitoring solution of soil moisture and temperature. Its low cost, low power and easy scalability allow to address new fields of applications such as rainwater management performance in smart cities, irrigation precisions and decision for golfs, green areas and agriculture.

Requirements:

HummBox Device ID.

Opensensors.io account.

Skill level:

Beginner: This recipe is done for GreenCityZen clients.

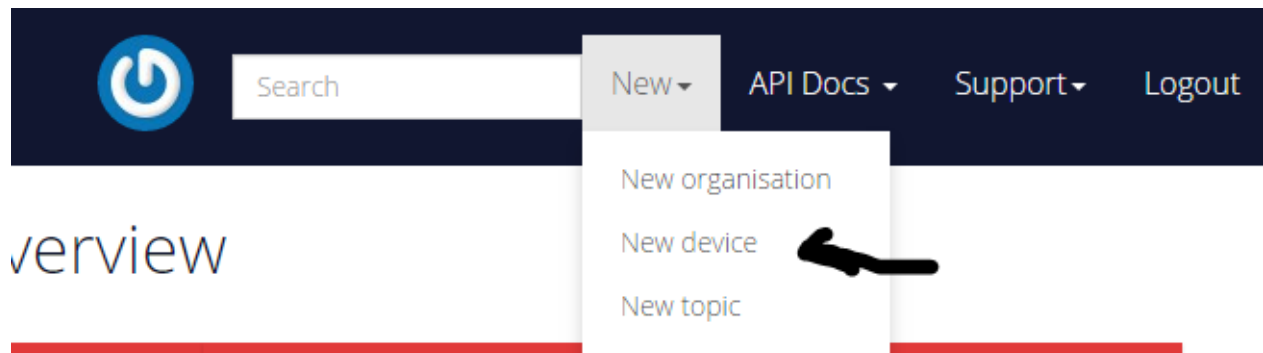
Overview:

In order to manage and treat efficiently the data sent by your HummBox device, Opensensors.io offers you a way to supervise your data instantly.

This recipe will show how to create an opensensors.io account, get your device data and to play with **Node Red** service.

Step 1: Create your own account and create your device:

- 1-Connect to <https://www.opensensors.io>.
- 2-Create your account then log in to the site.
- 3-Create a new Device by selecting "New" from the banner at the top of the page. Choose Device from the drop down menu.



- 4-Press "New device" to open the Device creation page. You have the option to give this device a name, tags, location and description metadata.
- 5-You will be provided by a **client ID** (which is your device ID) and password, in order to subscribe to the topic.
- 6-Make sure that you save your Client ID and your device password.

Step 2: Get your device data:

In order to get your device data we will provide you four ways to do this.

1- Your device URL:

The simplest way to get your data instantly is to enter to this URL:

https://www.opensensors.io/topics/orgs/gcz_opendata/starterkit/hummbbox_ID

Just you have to add your device ID (**given by GreenCityZen**), example for the device 1BC00 the URL is:

https://www.opensensors.io/topics/orgs/gcz_opendata/starterkit/hummbbox_1BC00

2- Using mosquitto:

The second way to get your data instantly is to use your command line and mosquitto service.

In fact as we are in an mqtt service you can enter this command in your command line and then you will receive the data send into the mentioned topic:

```
mosquitto_sub -h mqtt.opensensors.io -i ClientID -t topic -u username -P device_pwd
```

You have to change the red fieds by the correspond information:

Client_ID: The client_ID you got after creating your device (*see step 1*)

topic: /orgs/gcz_opendata/starterkit/hummbbox_Device_ID

username: Opensensors.io account username.

device_pwd: The password you got after creating you device (*see step 1*)

3- Using node red service:

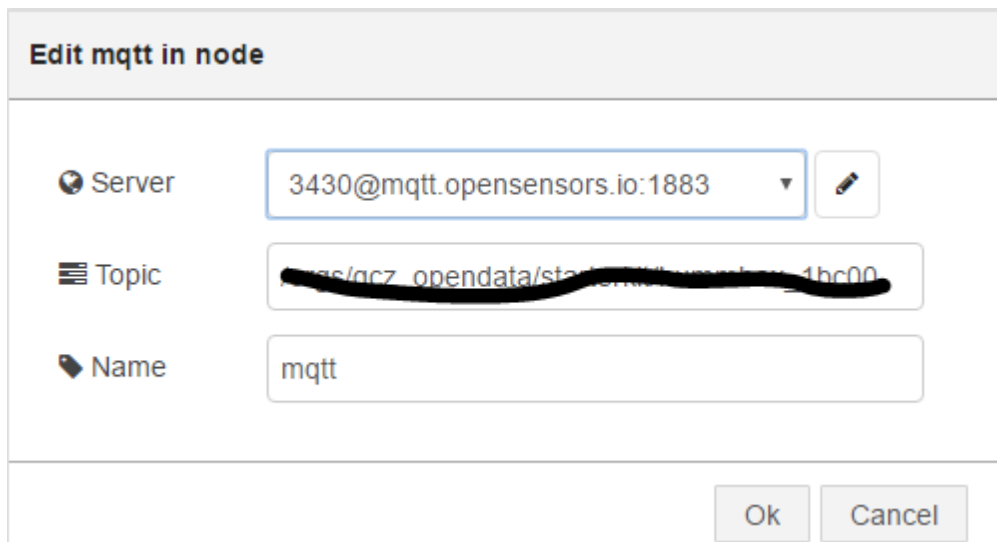
a. Go to <http://nodered.org/docs/getting-started/installation> and choose the correspond node Red installation to your operation system.

b. Once installed, lunch node red with your command line.

We will propose you a simple schema to visualize your flow of data:



c. First step add an **mqtt input** node onto the canvas. Double click on the node to edit the configuration. Set the following properties:



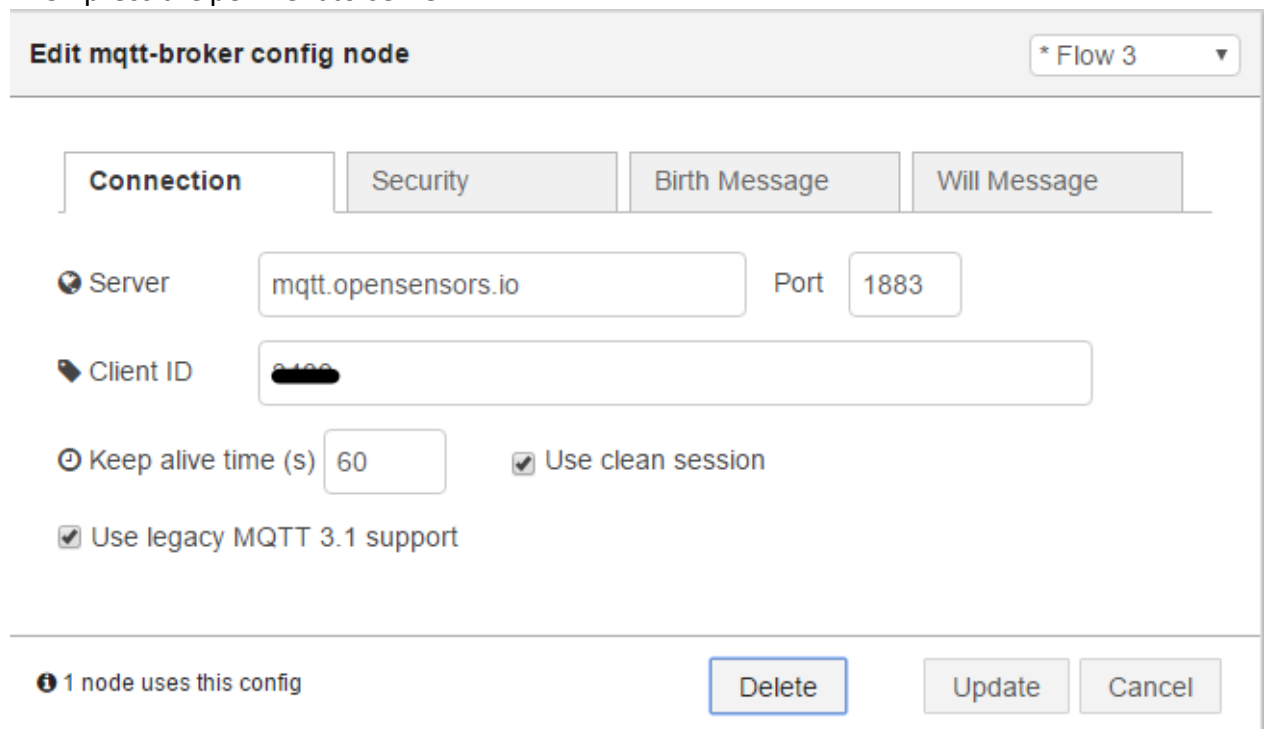
The screenshot shows the 'Edit mqtt in node' configuration window. It has three main fields: 'Server' with a dropdown menu showing '3430@mqtt.opensensors.io:1883' and a pencil icon; 'Topic' with a text field containing a partially obscured URL; and 'Name' with a text field containing 'mqtt'. At the bottom right are 'Ok' and 'Cancel' buttons.

Add the topic to which you want to subscribe, which is:

https://www.opensensors.io/topics/orgs/gcz_opendata/starterkit/hummbbox_ID

https://www.opensensors.io/topics/orgs/gcz_opendata/EIVP/hummbbox_ID

Then press the pen next to server:



The screenshot shows the 'Edit mqtt-broker config node' configuration window. It has a title bar with '* Flow 3' and a dropdown arrow. Below the title bar are four tabs: 'Connection', 'Security', 'Birth Message', and 'Will Message'. The 'Connection' tab is active. It contains fields for 'Server' (mqtt.opensensors.io), 'Port' (1883), 'Client ID' (partially obscured), 'Keep alive time (s)' (60), and checkboxes for 'Use clean session' and 'Use legacy MQTT 3.1 support'. At the bottom, there is a status bar that says '1 node uses this config' and three buttons: 'Delete', 'Update', and 'Cancel'.

Here you find several windows, we start with the first one *connection*, in this window you have to insert the server name: **mqtt.opensensors.io** and your client ID.

Edit mqtt-broker config node * Flow 3 ▼

Connection

Security

Birth Message

Will Message

Username

hemza

Password

.....

☐ Enable secure (SSL/TLS) connection

☒ Verify server certificate

1 node uses this config

Delete

Update

Cancel

In the security window you have to enter your opensensors.io Username and the password of your device.
And that is all for the mqtt node.

d. Then add a debug node and wire it to the mqtt input node and configure it like shown below:

Edit debug node

Output

message property ▼

msg.

payload

to

debug tab ▼

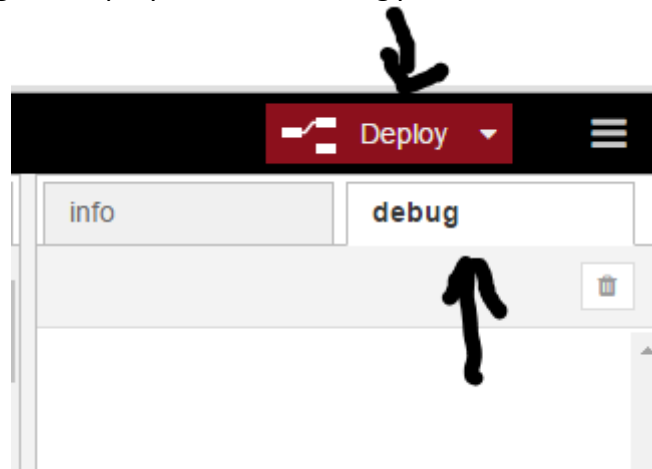
Name

Name

Ok

Cancel

Finally press debug and deploy to start receiving your data:

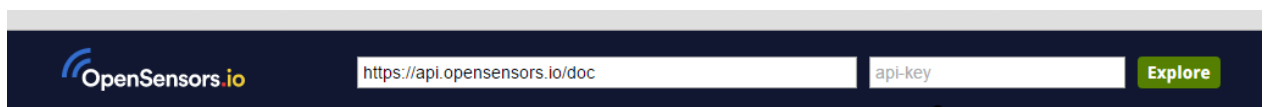


4- Using the API service:

Opensensors.io provides each user with an API key which he can use to get data via <https://api.opensensors.io/index.html>.

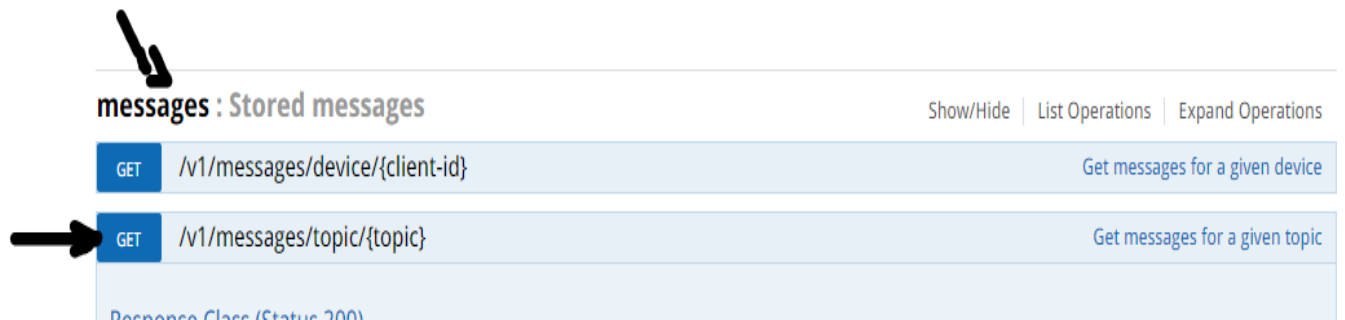
In this case we can have all the historical messages sent.

- Go to <https://www.opensensors.io/my-account/profile> and get your API key (**save it**)
- Access to the site <https://api.opensensors.io/index.html> and enter your API key in the appropriate place, then press *explore*:

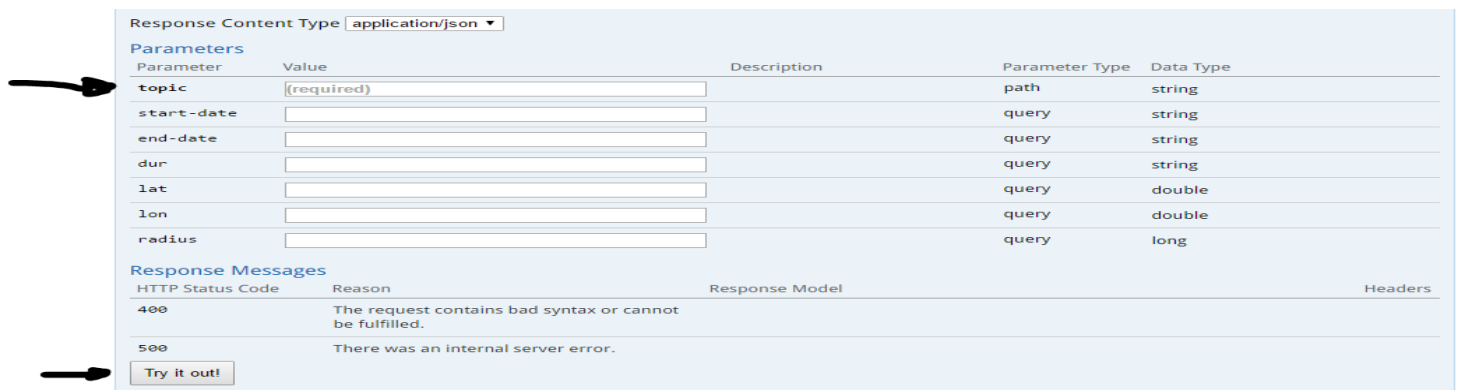


OpenSensors REST API

c. Then go to **messages** and press **get message for a given topic**:



d. At this step you have to provide several information, but you can only add the topic you which you want to subscribe, then press try it out to get your result:



Step 3: Get all client devices data:

If you are a client and you have many devices, and you want to see all your devices data at the same time, you can do this by using either your command line or your node red configuration.

- Mosquitto:** We keep the same steps as in step 2, the only difference is in the topic. For example if you want to get all the starterKit devices data you have to subscribe to: **/orgs/gcz_opendata/starterkit/+**
- NodeRed:** the same for nodeRed, we will keep the same configuration shown in *step 3*, and the only difference consists on changing the topic: **/orgs/gcz_opendata/starterkit/+**: all the starterKit devices data.

Step 4: Get GreenCityzen open data:

The simplest way to see instantly all the data sent by GreenCityzen Devices is to access to:

https://www.opensensors.io/orgs/gcz_opendata

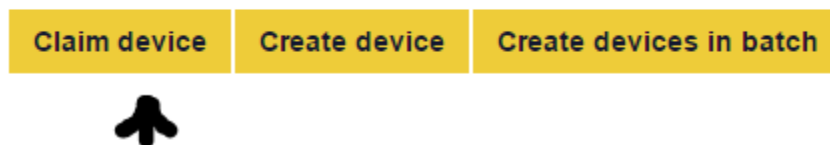
But we can do this using mosquito and node red by putting the topic: [/orgs/gcz_opendata/#](#)

Step 5 optionally: if you want to see the status of your GreenCityzen Device:

In order to see you device state at your opensensors.io Dashboard, you can claim it by doing these steps:

- Connect to your opensensors.io account
- Go to devices.
- Press claim a device.

Your devices



- Enter your device ID (given by GreenCityZen) and your device location.

Now you possess your device and you can see its status.

Also in order to get your device data, go to the site <https://api.opensensors.io>, enter your API key, select get message for a given device and enter your device ID, then you will get all the message sent by your device.

