

# Connecting an environmental sensor on Opensensors.io in one minute

## *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.

## *What is opensensors.io:*

OpenSensors.io is an open platform for collecting sensor data generated by the Internet of Things. The company helps people share their data and put it to use.

## Overview:

In order to manage and treat efficiently the data sent by your HummBox device, this recipe offers you a way to supervise your data instantly, graph it and also play with node Red service and create mail alerts.

## Requirements:

HummBox Device ID.

Opensensors.io account.

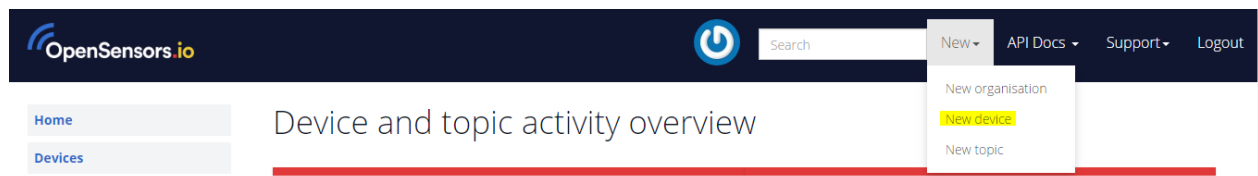
## Audience and Skill level:

Audience: companies looking for to use sensor io as their IoT platform and having a need for hardware sensor solution.

Beginner: This recipe is done for GreenCityZen customers.

## 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 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.

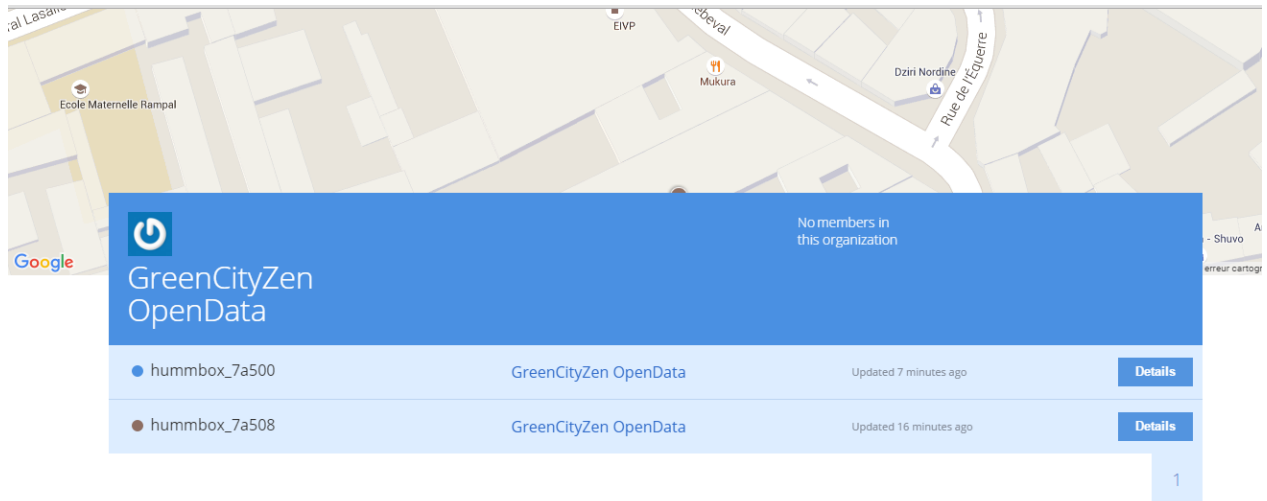
## Step 2: Get your device data:

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/orgs/gcz\\_opendata](https://www.opensensors.io/orgs/gcz_opendata)



[Become a publisher](#)

Then you will find your topic which match with your GreenCityZen device ID.

Example for the device 7A500 the URL is:

[https://www.opensensors.io/orgs/gcz\\_opendata/eivp/hummbbox\\_7a500](https://www.opensensors.io/orgs/gcz_opendata/eivp/hummbbox_7a500)

(The topic is: /orgs/gcz\_opendata/eivp/hummbbox\_7a500)

Topic: hummbbox\_7a500

## 2- Using mosquitto:

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

First you should install mosquito from <http://mosquitto.org/download/>, then enter the directory mosquitto using the command line and enter this command:

```
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:** you find your topic in the dashboard of GreenCityZen organization in Opensensors.io

**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:


**Edit mqtt in node**

 Server

3430@mqtt.opensensors.io:1883 

 Topic

as/gcz\_opendata/status/mqtt-1bc00

 Name

mqtt

Ok

Cancel

Add the topic to which you want to subscribe.  
Then press the pen next to server:


**Edit mqtt-broker config node** \* Flow 3 ▼

Connection

Security

Birth Message


Will Message

 Server


mqtt.opensensors.io

Port

1883

 Client ID


3430

 Keep alive time (s)

60

☒ Use clean session

☒ Use legacy MQTT 3.1 support

 1 node uses this config

Delete

Update

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

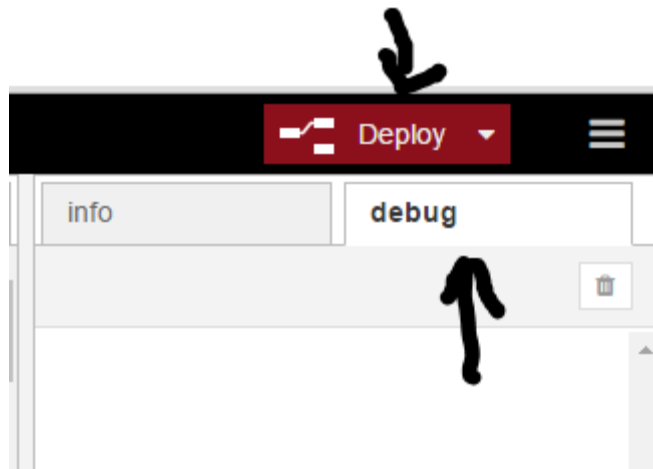
Name

Name

Ok

Cancel

Finally press debug and deploy to start receiving your data:



If you want to setup an email alert using node red you can see our second recipe:  
“How to connect your HummBox to Node-Red (using MQTT)”

#### 4- Using the API service:

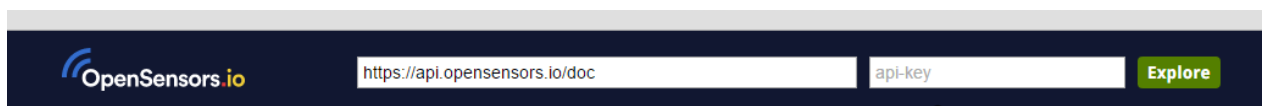
You can get your API key using the url:

<https://www.opensensors.io/my-account/Profile>

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

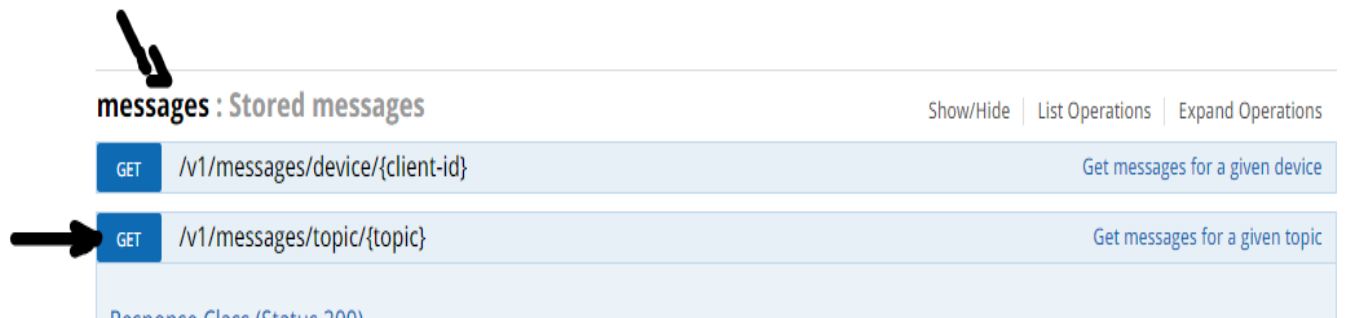
In this case we can have all the historical messages sent.

- 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, the 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:

Response Content Type: application/json

Parameters

| Parameter  | Value      | Description | Parameter Type | Data Type |
|------------|------------|-------------|----------------|-----------|
| topic      | (required) |             | path           | string    |
| start-date |            |             | query          | string    |
| end-date   |            |             | query          | string    |
| dur        |            |             | query          | string    |
| lat        |            |             | query          | double    |
| lon        |            |             | query          | double    |
| radius     |            |             | query          | long      |

Response Messages

| HTTP Status Code | Reason  | Response Model | Headers |
|------------------|---|----------------|---------|
| 400              | The request contains bad syntax or cannot be fulfilled. |                |         |
| 500              | There was an internal server error.                     |                |         |

Try it out!

## Step 3: Get GreenCityzen open data:

The simplest way to see instantly all the data sent from HummBox devices is to access to:

[https://www.opensensors.io/orgs/gcz\\_opendata](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 4 optionally: if you want to see the status of your Hummbox 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

Claim device

Create device

Create devices in batch



- Enter your device ID (*from your HummBox*) and your device location.

Now you can see your device 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.