

How to connect your HummBox to Node-Red (using MQTT).

Example: generating an email alert if the
temperature exceed a certain value in a 50
km wide zone

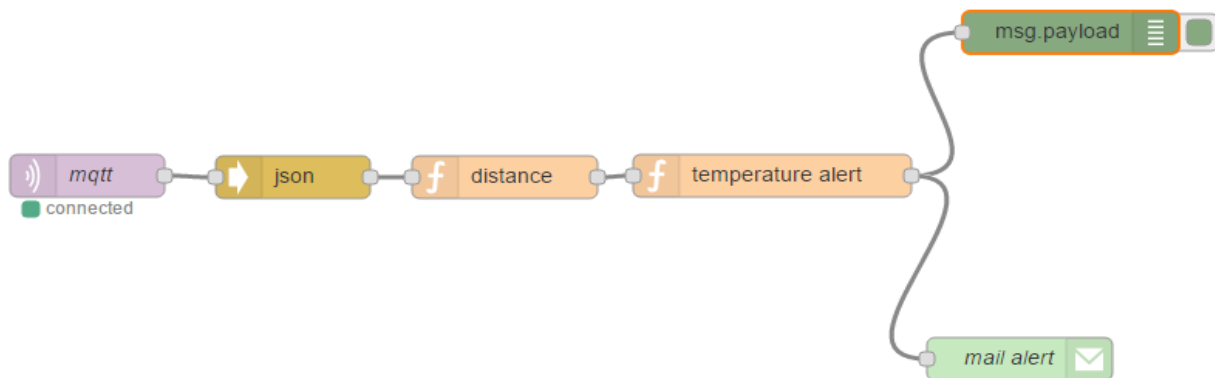
1-Node Red installation:

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

1-Connect to MQTT:

Once installed lunch Node Red.

We propose you a tutorial where you can visualize your data and send an email alert if the temperature exceed 50°C in a radius of 50 km from your position.

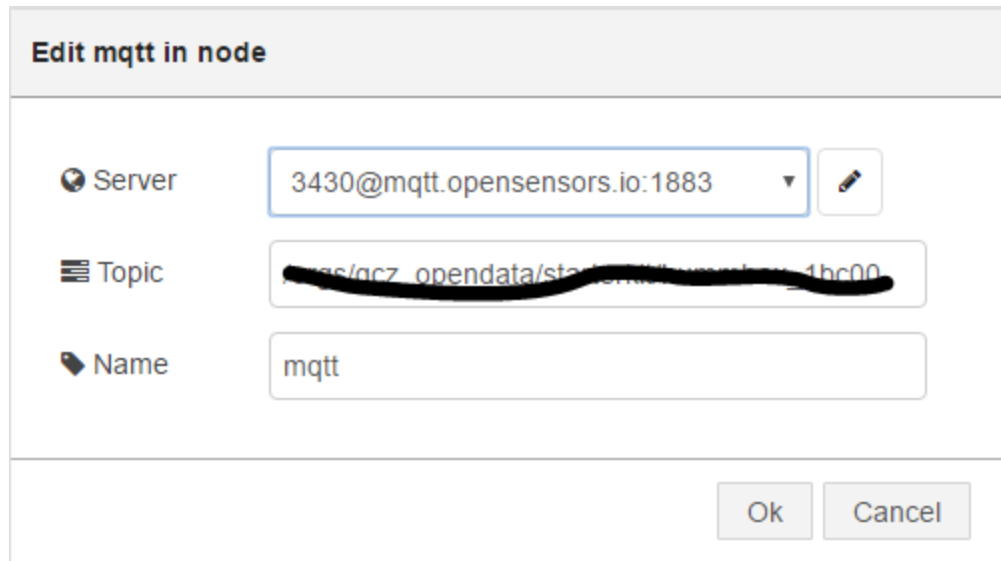


We will start by configuring node by node.

Mqtt:

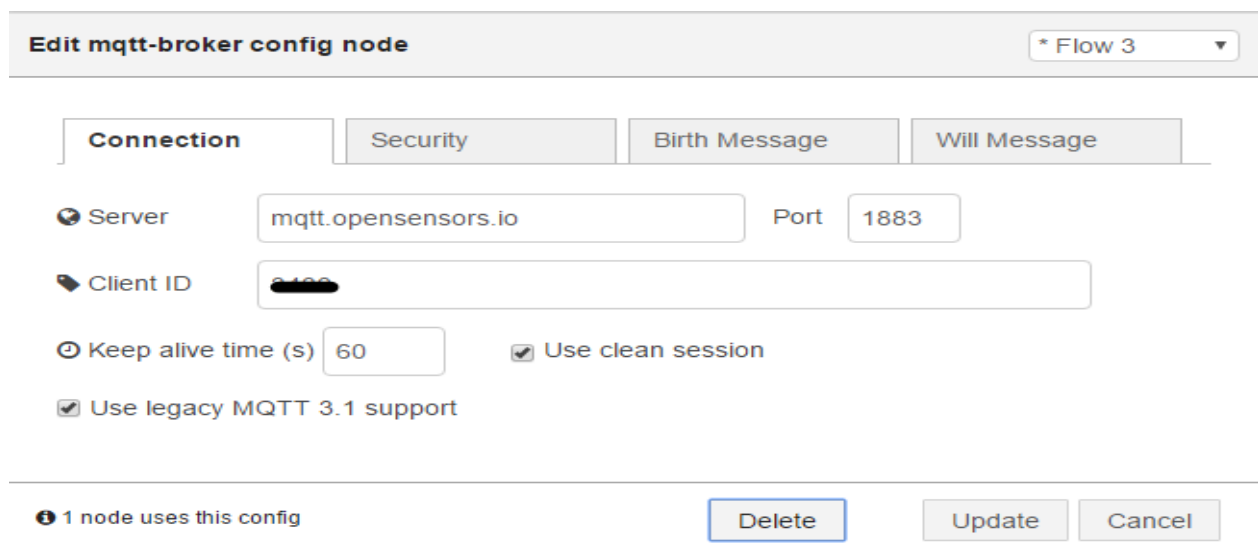
First step:

- add an *mqtt input* node onto the canvas.
- Double click on the node to edit the configuration.
- Enter your topic in the Topic field.



The screenshot shows a dialog box titled "Edit mqtt in node". It contains three input fields: "Server" with the value "3430@mqtt.opensensors.io:1883", "Topic" with a redacted value, and "Name" with the value "mqtt". There is a small edit icon (pencil) next to the Server field. At the bottom right, there are "Ok" and "Cancel" buttons.

Then click on the pen at the left side of server:



The screenshot shows a dialog box titled "Edit mqtt-broker config node" with a dropdown menu set to "* Flow 3". It has four tabs: "Connection", "Security", "Birth Message", and "Will Message". The "Connection" tab is active, showing fields for "Server" (mqtt.opensensors.io), "Port" (1883), "Client ID" (redacted), "Keep alive time (s)" (60), and checkboxes for "Use clean session" and "Use legacy MQTT 3.1 support". At the bottom, it says "1 node uses this config" and has "Delete", "Update", and "Cancel" buttons.

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.

Then go to Security window:

You have to enter your opensensors.io Username and the password of your device.

Edit mqtt-broker config node * Flow 3 ▼

Connection

Security

Birth Message

Will Message

Username

Password

☐ Enable secure (SSL/TLS) connection

☒ Verify server certificate

1 node uses this config

Delete

Update

Cancel

Then click update that is all for the mqtt node.

JSON node:

Just add a [Json](#) node onto the canvas and wire it to the mqtt node.

Function node (distance):

Add a [Function](#) node onto the canvas, wire it to the JSON node and double click on it to insert the following code:

```
var msg={payload: msg.payload};  
var Mlat={payload: x}; // change x by your latitude  
var Mlon= {payload: y}; // change y by your longitude  
var lat={payload: msg.payload.__location.lat};  
var lon={payload: msg.payload.__location.lon};
```

```

var radlat1={payload: Math.PI*(Mlat.payload)/180};
var radlat2={payload: Math.PI*(lat.payload)/180};
var theta={payload: Mlon.payload-lon.payload};
var radtheta={payload: Math.PI*(theta.payload)/180};
var dist={payload:
Math.sin(radlat1.payload)*Math.sin(radlat2.payload)+Math.cos(radlat1.payload)*Math.cos(radl
at2.payload)*Math.cos(radtheta.payload)};
var d1={payload: Math.acos(dist.payload)};
var d2={payload: (d1.payload)* 180/Math.PI};
var d3={payload: (d2.payload)*60*1.1515};
var distance={payload: (d3.payload)*1.609344};
var bool= {payload: distance.payload <= X }; //change X by the Km value you want
if(bool.payload === true){
    return msg;
}

```

Function node (temperature alert):

Add a [Function](#) node onto the canvas, and double click on it to insert the following code:

```

var msg= {payload: msg.payload};
var temp={payload: msg.payload.payload.temperature_catnip};
var bool= {payload: temp.payload >= x }; // change x by the temperature value
if(bool.payload === true){
    return msg;
}

```

Remark:

The temperature_catnip can have another name you can get this name from the message in your topics dashboard.

For example if in your dashboard you got as message:

```
{ "payload": { "created_at": "2016-05-27T07:32:04.256Z", "distance_maxbotix": 205, "alert_distance_maxbotix": false, "temperature_air_carte": 24, "alert_temperature_air_carte": false }, "__location": { "lat": "1", "lon": "113" } }
```

Then the field temperature_catnip should be temperature_air_carte.

Email node:







In order to get your data by email, Click on **e-mail node** and configure it:

- add the email address to which you will send the alert in the field **to**.
- You google address in the field **Userid** and your password.

Note: - make sure your gmail account setting "Access to less secure apps" is ON

-your password is 8 characters, not longer

Edit e-mail node

 To	<input type="text" value="hamza.zouaoui@gmail.com"/>
 Server	<input type="text" value="smtp.gmail.com"/>
 Port	<input type="text" value="465"/>
 Userid	<input type="text" value="hamza.zouaoui@gmail.com"/>
 Password	<input type="password" value="....."/>
 Name	<input type="text" value="Mail Alert"/>

Debug node:

Edit debug node

☰ Output

message property ▼

msg.

payload

🔗 to

debug tab ▼

🔖 Name

Name

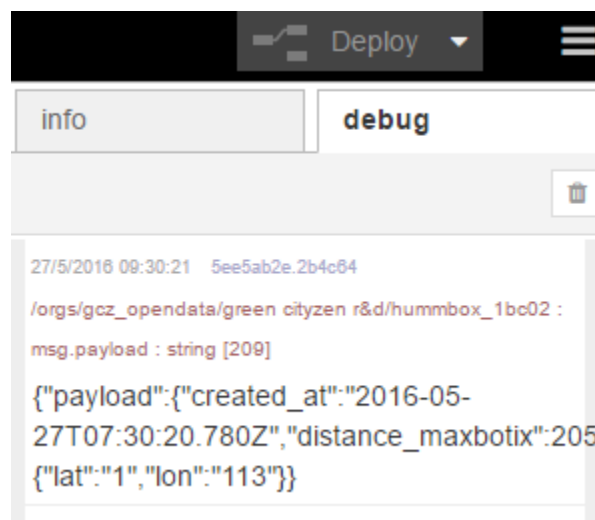
Ok

Cancel

Add a debug node and configure it like shown above.

Results:

If there is a device which the temperature indicated by the sensors exceed the value you set up in the area you set up too you will get a debug message in node red and you will get the same message in your email address.



Remark:

If you want to just generate the temperature alert for a given device you have to:

- Subscribe to the device topic.
- Delete the distance node and keep the temperature node.

