

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

## Example: generating a mail alert if the temperature surpass a certain value in a radius of 50 km

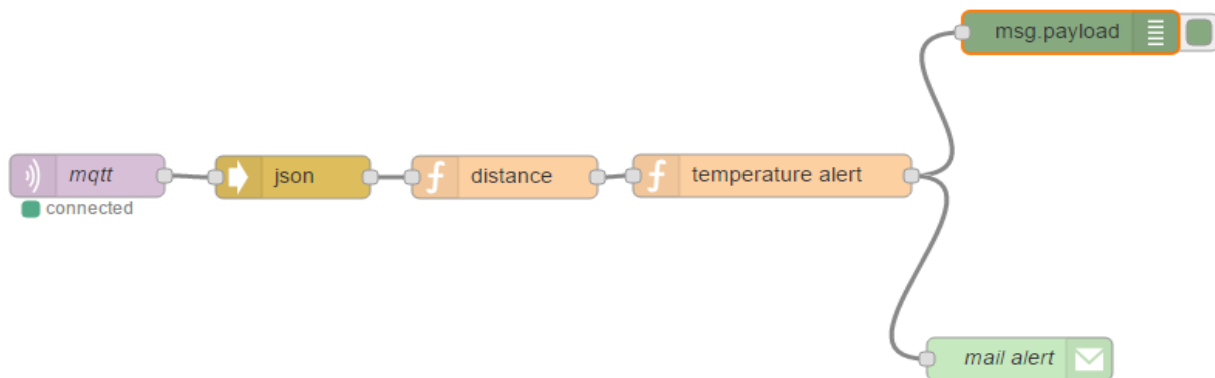
### 1-Node Red installation:

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

### 1-Connect to MQTT:

Once installed lunch Node Red.

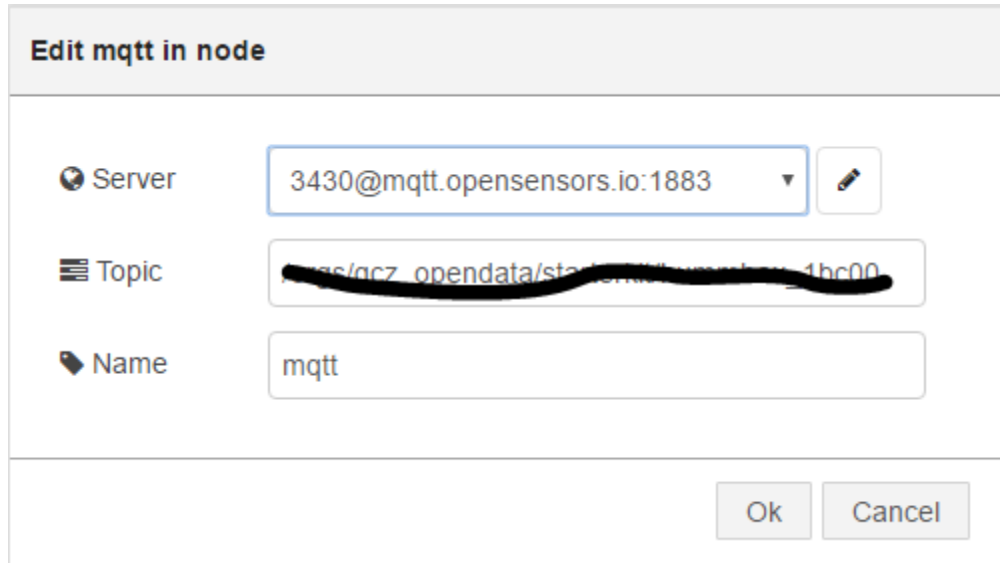
We propose you a tutorial where you can visualize your data and send a mail alert if the temperature surpass 50°C in a radius of 50 km.



We will start by configuring node by node.

## Mqtt:

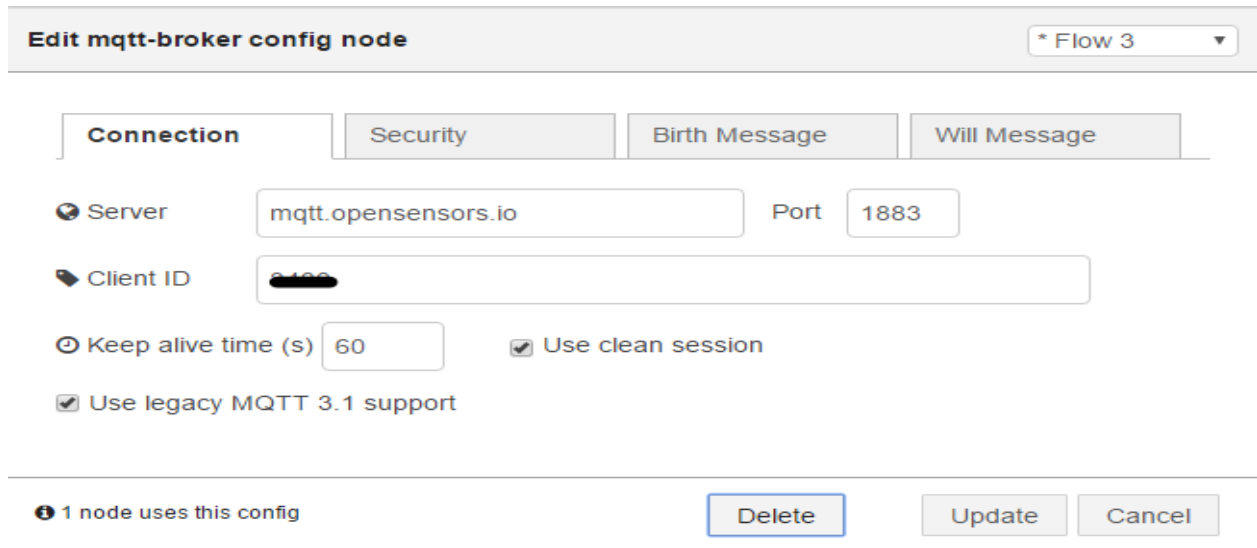
First step add an *mqtt input* node onto the canvas. Double click on the node to edit the configuration. Set the following properties:



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 are "Ok" and "Cancel" buttons at the bottom right.

First when you click you get this first window, where you have just to put the topic to which you want to subscribe.

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.

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

In the 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

Topic

QoS

0

Retain

Payload

Payload

1 node uses this config

Delete

Update

Cancel

## JSON:

Just add a *Json* node onto the canvas.

## Function node (distance):

Add a *Function* node onto the canvas, 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(radlat2.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 <= 50 };
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;  
}
```

## Email node:


In order to get your data by email, Click on **e-mail node** and configure it by adding your google mail in user id

**Edit e-mail node**

 To	<input type="text" value="namza.zuodan@gmail.com"/>
 Server	<input type="text" value="smtp.gmail.com"/>
 Port	<input type="text" value="465"/>
 Userid	<input type="text" value="namza.zuodan@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.