# NodeRed

In NodeRed are present two flow:

1.   one is for command session **bTicino CMD**,
        and is used to send command to the gateway (turn on and off the lights),

2.   one is for event session **bTicino EVENT**,
 and read continuosly the event from gateway for update state off all light, value from sensor and state of switch.
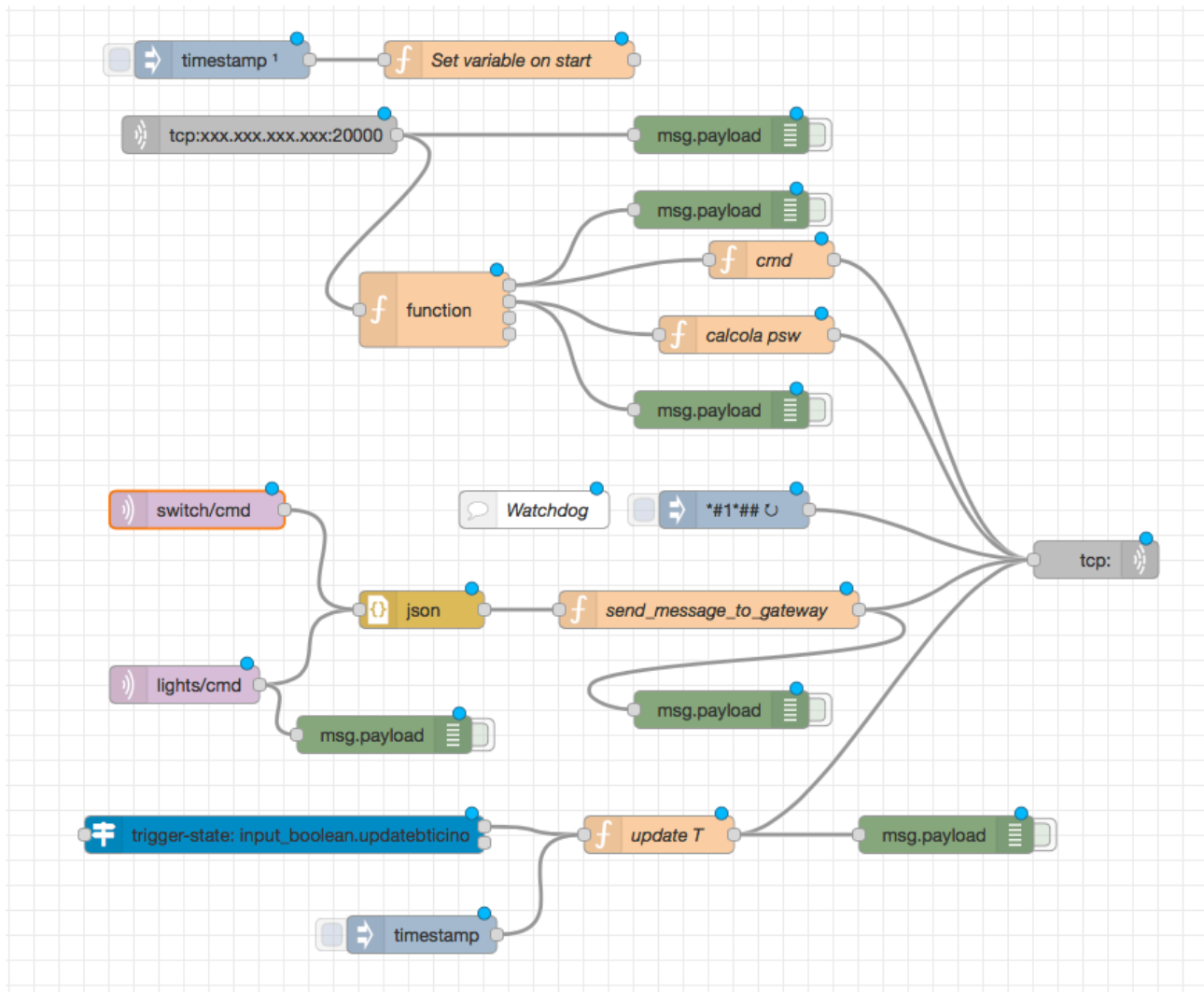
To Import in NodeRed the two flows, download files on your pc, then in NodeRed select Import
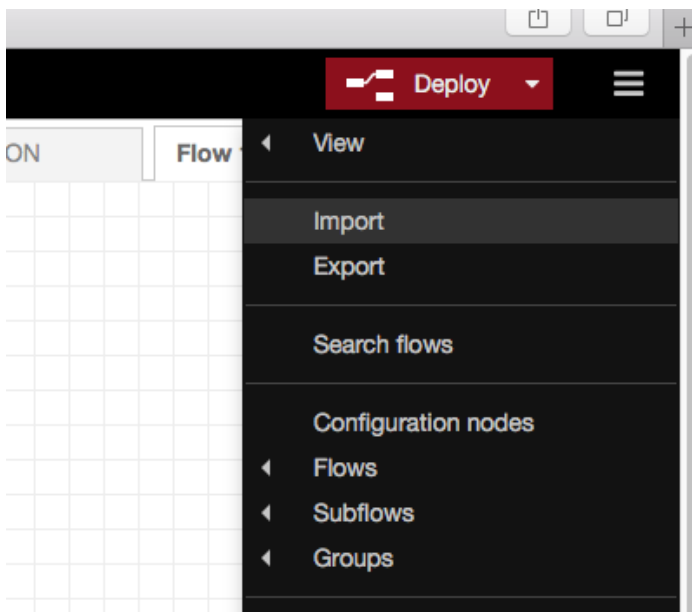
Select **bTicino CMD.txt** file to Import, and import in a new flow as in the following image
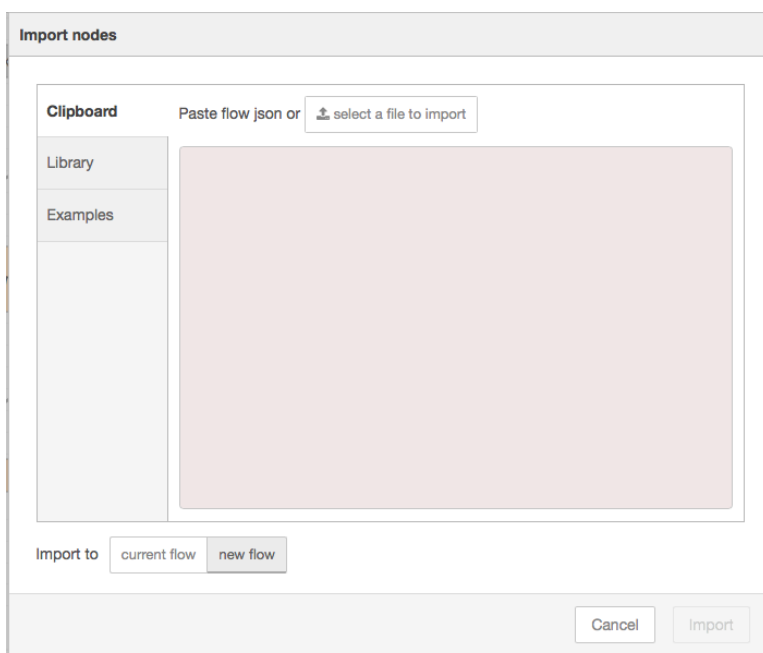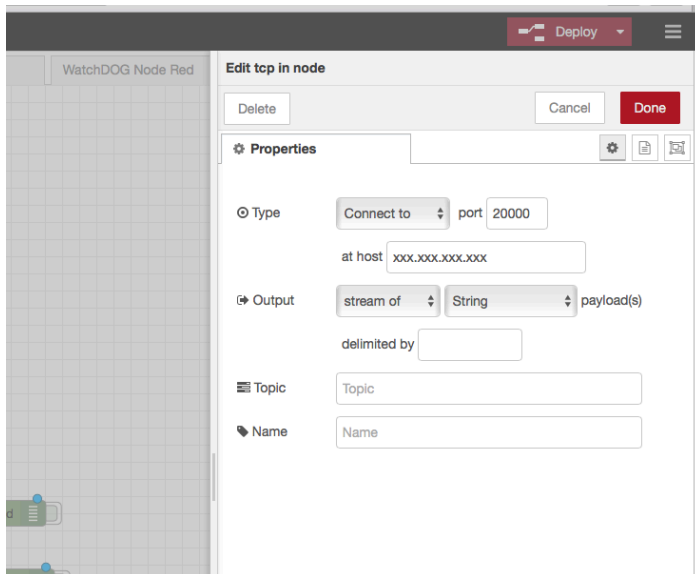
The flow must be as the image here below

This is a generic flow, several parameters must be set to ensure that it adapts to the specifications of the individual system present.

You have to click on the grey node **tcp:xxx.xxx.xxx.xxx:20000**

This is the node to connect with MQTT server.

In the field
At host change xxx.xxx.xxx.xxx with the IP address of your Mosquito Server then click **Done**

In my system I use an HL4684 as a gateway, which is not officially recognized as such by bTicino. To be able to connect it is therefore necessary to enter a password and create a whole calculation routine for its verification.
On all the other gateways, the bTcino allows you to set the IP addresses that can connect to the gateway without having to resort to the calculation of the psw.
The flow shown here does not work in these cases of no PSW request, because not having it available, I cannot test how the initial dialogue phase takes place.
I therefore recommend not adding the HomeAssistant IP to the enabled addresses and entering a password in your system, or modify the initial part of the flow where there is the node FUNCTION .

Click on node **calcola psw**
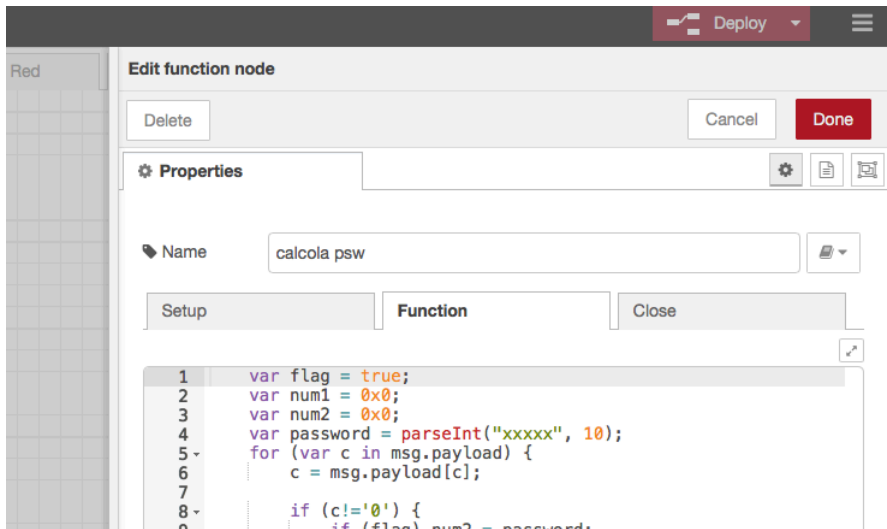
Change in line 4
      var password = parseInt("xxxxx", 10);
the xxxxx with the password to acces to your Gateway bTicino, then click **Done**

Click on node switch/cmd

Edit mqtt in node

Delete · Cancel · Done

⚙ **Properties**

🌐 Server   HomeAssistant

☰ Topic   switch/cmd

✳ QoS   2

➡ Output   auto-detect (string or buffer)

🏷 Name   Name

Then on the pencil near Server HomeAssistant

Edit mqtt in node > **Edit mqtt-broker node**

Delete · Cancel · Update

⚙ **Properties**

🏷 Name   HomeAssistant

Connection · Security · Messages

🌐 Server   xxx.xxx.xxx.xxx   Port   1883

☐ Enable secure (SSL/TLS) connection

🏷 Client ID   Leave blank for auto generated

⏱ Keep alive time (s) 60   ☑ Use clean session

☐ Use legacy MQTT 3.1 support

In the field Server change the xxx.xxx.xxx.xxx with the IP address of server where run you HomeAssistant, if do you use a different port than 1883, also change that than click on Update and Done on the next page.

In the flow click on update T node and open it
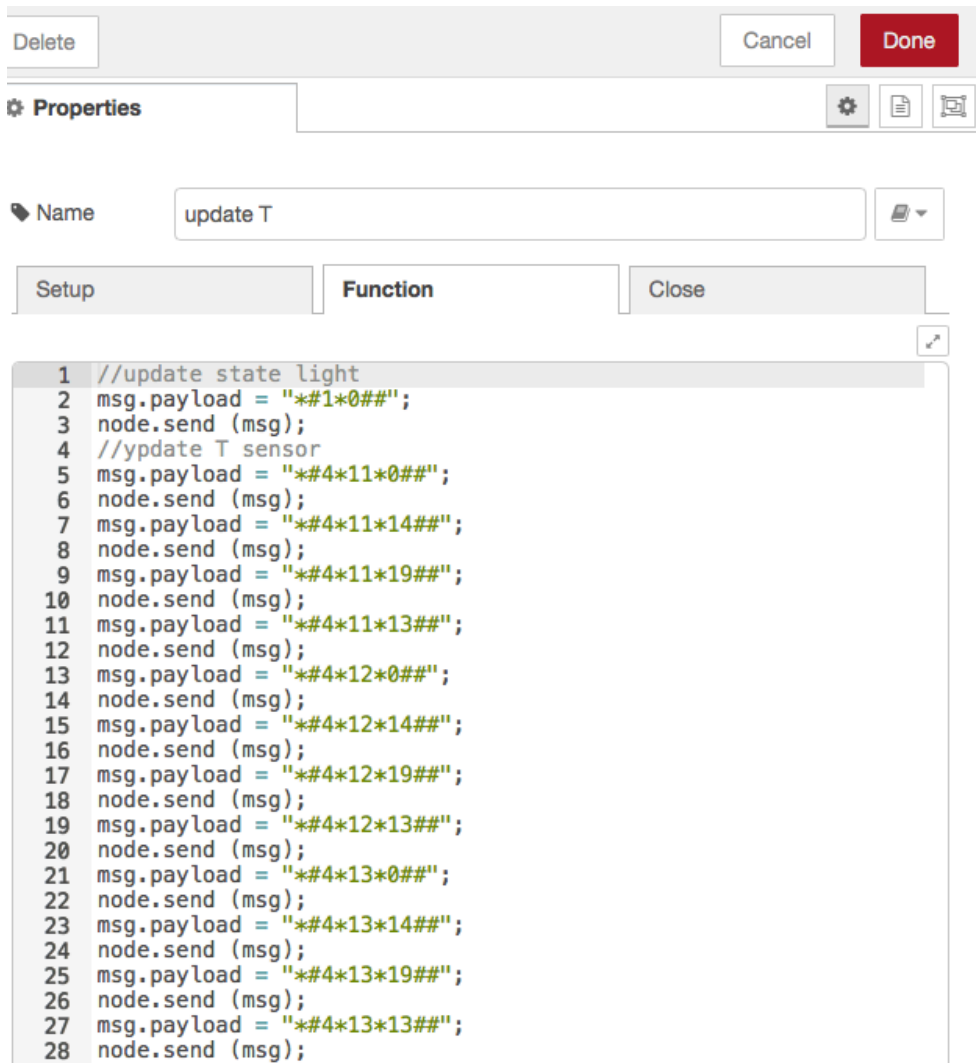
Here is where you tell to NodeRed to update all the data for thermal sensors,

The msg

*#4*11*0## read the Temperature from probe 11, change the 11 with the value you set your probe ID on the plant

*#4*11*14## red the set temperature for probe 11, change the 11 with value you set your probe ID in the plant

*#4*11*19## red the status of actuator (on or off) for probe 11, change the 11 with value you set your probe ID in the plant

*#4*11*13## red the offset temperature for probe 11 (my probe has a roll that you can turn and change the offset temperature from 0 to +1,+2,+3 or -1,-2, -3. Change the 11 with value you set your probe ID in the plant

Add as many of these code blocks as there are probes in the system.

Now import the second flow

Select **bTicino EVENT.txt** file to Import, and import in a new flow as in the following image
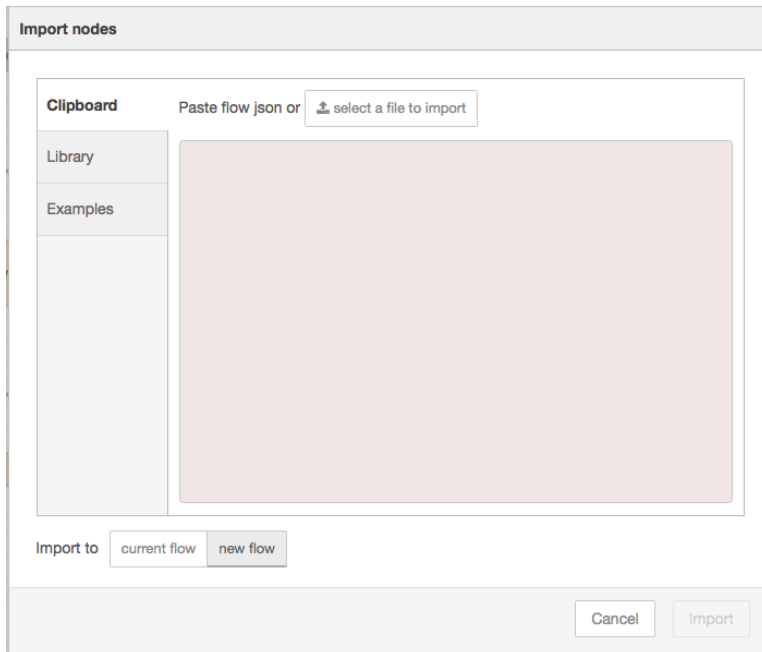
The flow must be as the image here below
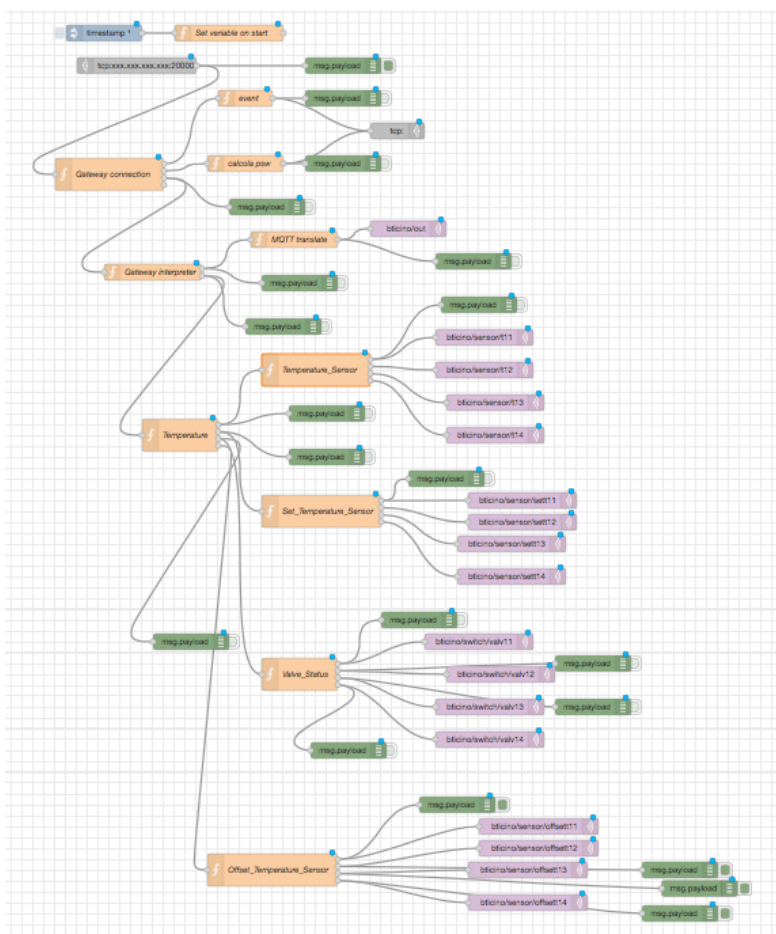
You have to click on the grey node **<u>tcp:xxx.xxx.xxx.xxx:20000</u>**
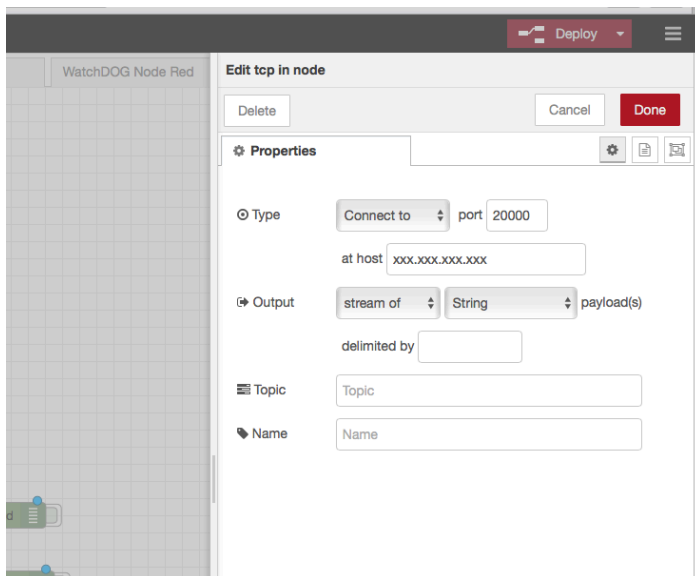
This is the node to connect with MQTT server.

In the field
At host change xxx.xxx.xxx.xxx with the IP address of your Mosquito Server then click **Done**

Click on node **calcola psw**
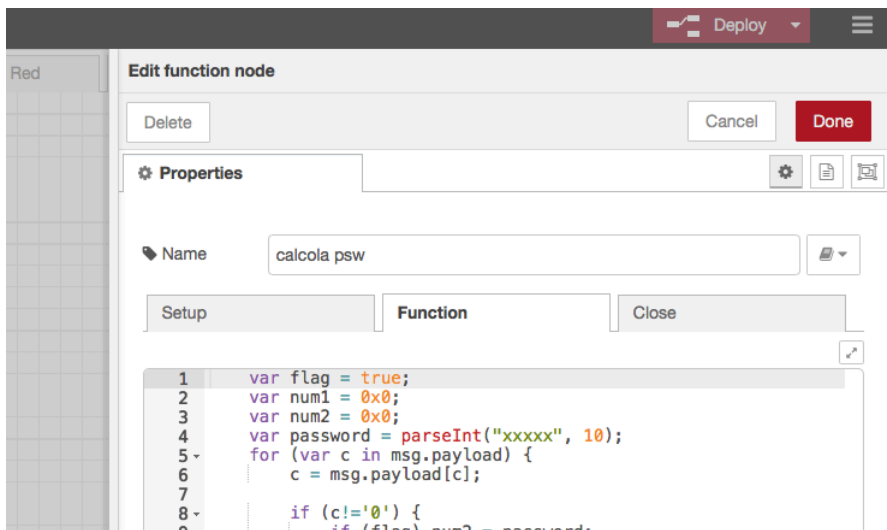
Change in line 4
    var password = parseInt("xxxxx", 10);
the xxxxx with the password to acces to your Gateway bTicino, then click **Done**

Click on node **Temperature_Sensor**
This node read the temperature from all your probes in the plant, so you have to add as many connection point (small gray circles) and if condition (see below) as probes do you have.
I have the thermal central unit and 3 probe, so 4 exit and 4 if condition.
My bTicino ID are 11, 12, 13 and 14, you have to insert your value.

Edit function node

Delete　　　　　　　　　　　　　　　**Cancel**　　**Done**

⚙ Properties

🏷 **Name**　　Temperature_Sensor

Setup	**Function**	Close

```
1   var tmp = msg.payload.split("##");
2   var sensorValue = tmp[0].split("*");
3 ▾ if (sensorValue[2] == "11"){
4       nvalue = parseInt(sensorValue[4])/10;
5       msg.payload = '{'+'"idx": ' + '11'+', "nvalue": ' +nvalue+'}'
6       return [msg,null,null,null];
7 ▴ }
8 ▾ else if (sensorValue[2] == "12"){
9       nvalue = parseInt(sensorValue[4])/10;
10      msg.payload = '{'+'"idx": ' + '12x'+', "nvalue": ' +nvalue+']
11      return [null,msg,null,null];
12 ▴ }
13 ▾ else if (sensorValue[2] == "13"){
14      nvalue = parseInt(sensorValue[4])/10;
15      msg.payload = '{'+'"idx": ' + '13'+', "nvalue": ' +nvalue+'}'
16      return [null,null,msg,null];
17 ▴ }
18 ▾ else if (sensorValue[2] == "14"){
19      nvalue = parseInt(sensorValue[4])/10;
20      msg.payload = '{'+'"idx": ' + '14'+', "nvalue": ' +nvalue+'}'
21      return [null,null,null,msg];
22 ▴ }
```
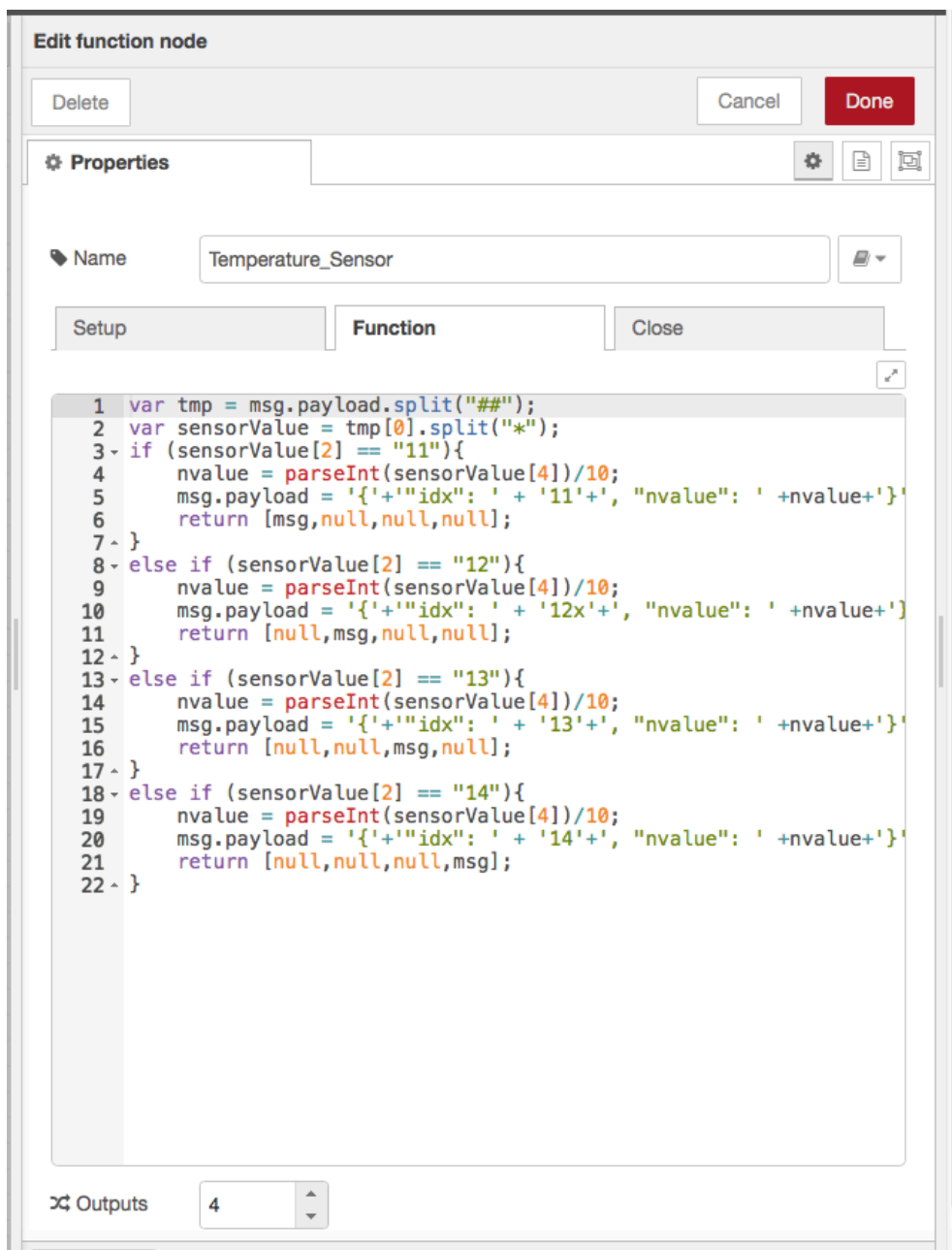
⤬ **Outputs**　　4

Change in line 3 the '11' with your value, same thing in line 5 after '"idx": ' + '11' + etc change '11' with the same value you put in line 3

This node read from EVENT bus the data coming from al the probe, the line 3 check witch probe is and in line 5 create the MQTT message to send to HA with the correct data for that probe.

Repeat for all you probe if more or less than 4 you have to add/cancel the group of code between line 8 to 12

Also on Botton of the page change the value of Outputs to the number of probe you have.
This will change the connection point of the node
In previous sample are 4 connection points linked with bticino/sensor/txx

You must change also this part to adapt to your plant , if you have only one probe (Thermal central unit) you will have only one connection point and only one bticino/sensors/txx.

To add more bticino/sensor/txx node select it, then copy and past, then connect it to the Temperature_Sensor node

Click on bticino/sensor/txx and open node

Change in Topic bticino/sensor/t11 with number of you ID probe.
This must be the same number you use in the definition of the MQTT sensory in HA

```
- platform: mqtt
  device_class: 'Temperature'
  name: "T Zona Notte"
  state_topic: "bticino/sensor/t11"
  value_template: '{{value_json.nvalue }}'
```

Repeat all these passage for

Set_Temperature_Sensor (this reads the temperature set for each individual probe)

Valve_Status (this reads the status of the actuator that controls the valve for each individual probe, in practice it tells you if that part of the system is on)

Offset_Temperature_Sensor (this reads any local modification of the temperature for each individual probe, it is the modification that is controlled by the wheel present on certain probe components of the bticino)