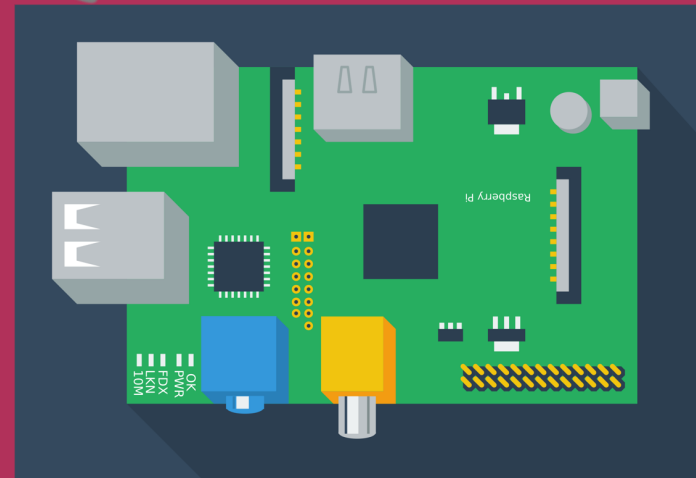
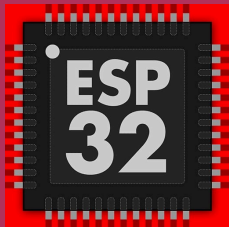
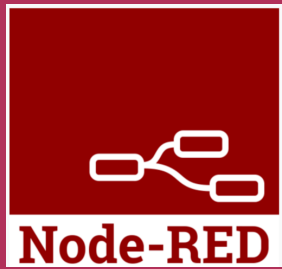


# MQTT on Pi

OCT 2021



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scriptworkz ent

# Prerequisites

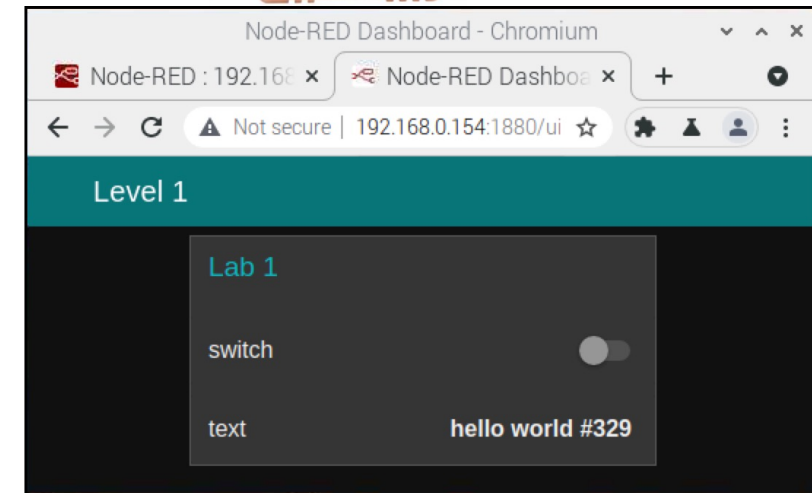
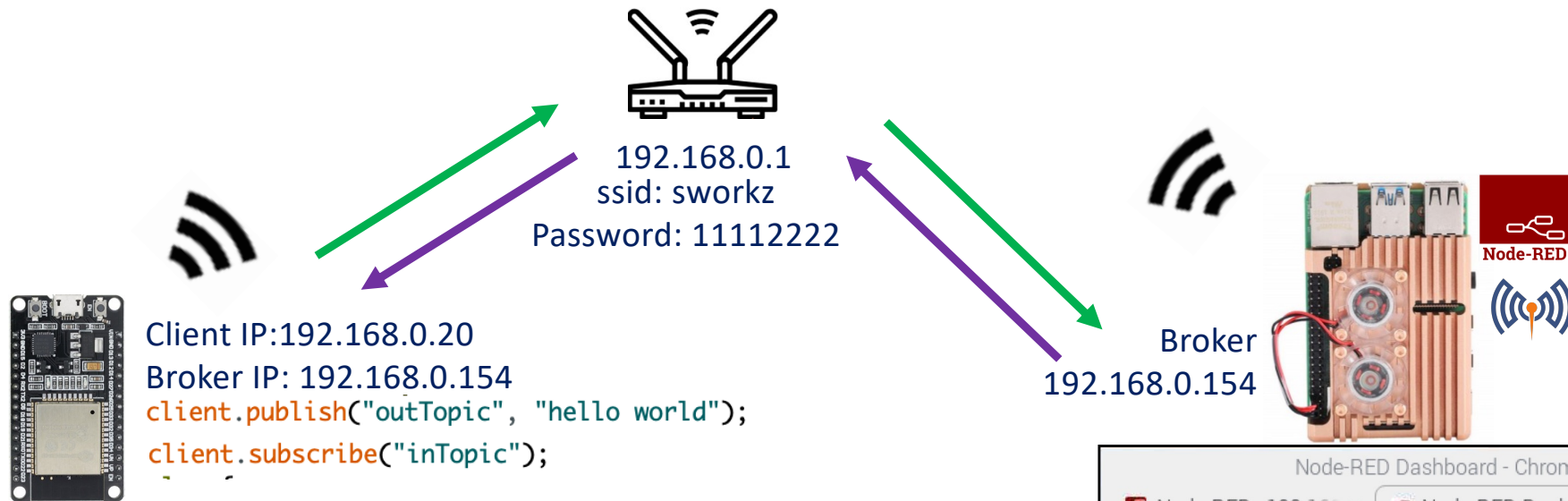
## Hardware:

- Raspberry Pi board with:
  - Raspberry Pi OS
  - 16 GB class 10 microSD
  - 5V 2.5A power supply
- ESP32 with Temperature & Humidity Sensor, DHT11

## Software:

- Node-RED
- Arduino IDE
- Arduino Client for MQTT library
- Mosquito MQTT
- InfluxDB
- Grafana

# Schematic Diagram



# i. Install Mosquitto Broker

- Open Raspberry Pi terminal window and type the following syntax:

```
pi@raspberrypi:~ $ mosquitto -v
```

- Next, type the following syntax:

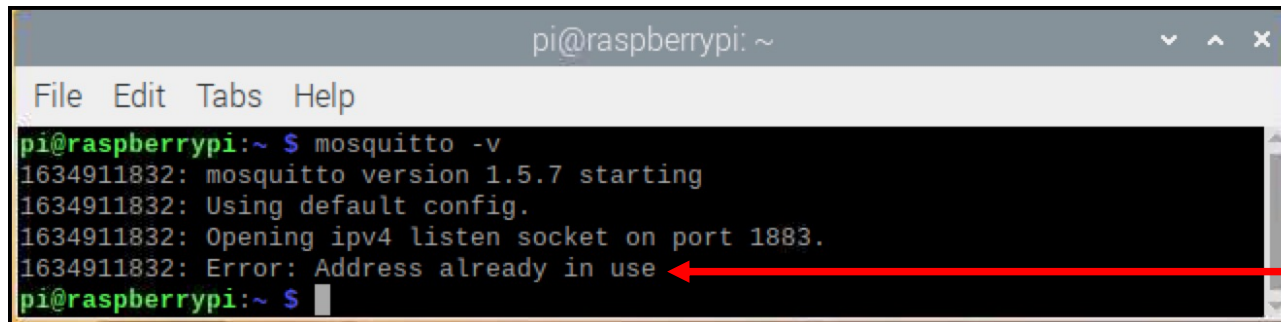
```
pi@raspberrypi:~ $ sudo apt update  
pi@raspberrypi:~ $ sudo apt install -y mosquitto mosquitto-clients
```

- This syntax will allow Mosquitto Broker to auto start its service upon booting your Rpi:

```
pi@raspberrypi:~ $ sudo systemctl enable mosquitto.service
```

- Test installation by typing the following command:

```
pi@raspberrypi:~ $ mosquitto -v
```



```
pi@raspberrypi: ~  
File Edit Tabs Help  
pi@raspberrypirpi:~ $ mosquitto -v  
1634911832: mosquitto version 1.5.7 starting  
1634911832: Using default config.  
1634911832: Opening ipv4 listen socket on port 1883.  
1634911832: Error: Address already in use  
pi@raspberrypirpi:~ $
```

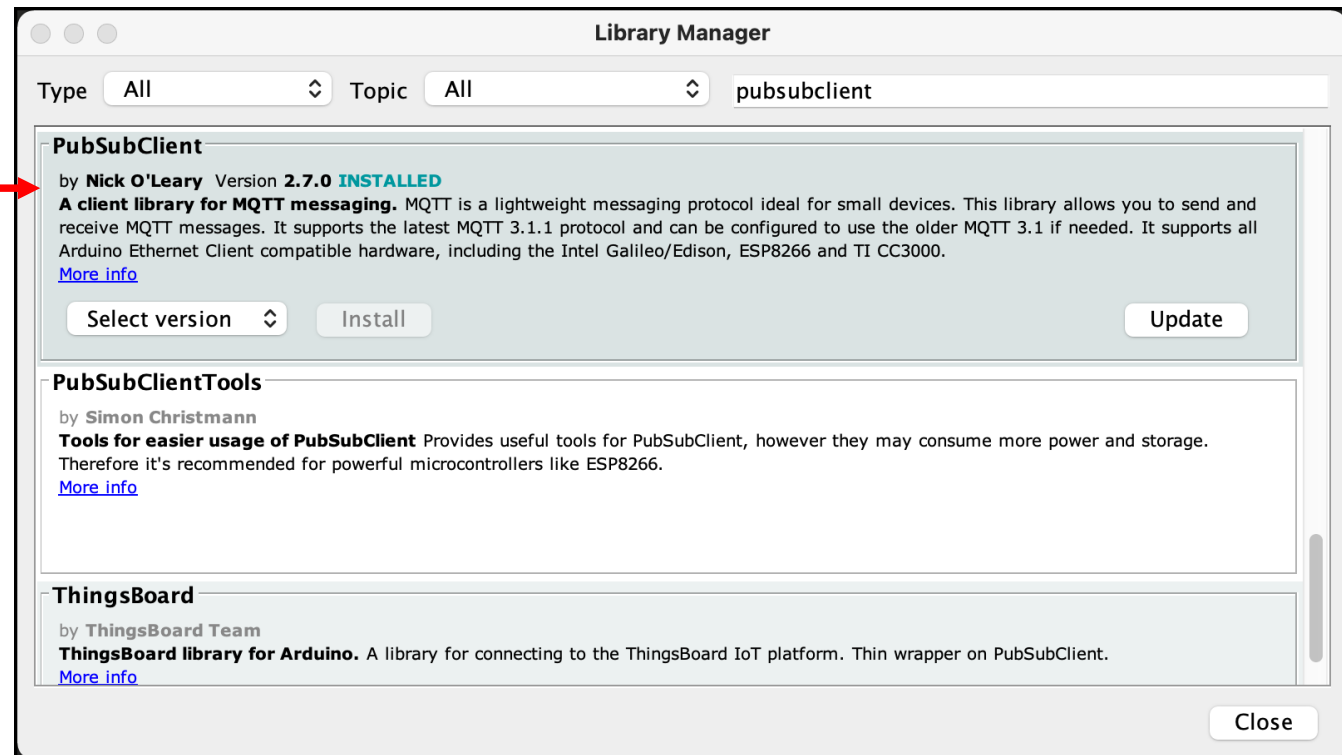
This indicates that your Mosquitto Broker is already executed.

## ii. Download Arduino Client MQTT Library

- Install New Library by opening **Library Manager** and search for **pubsubclient** by **Nick O'Leary** – ver 2.7.0.

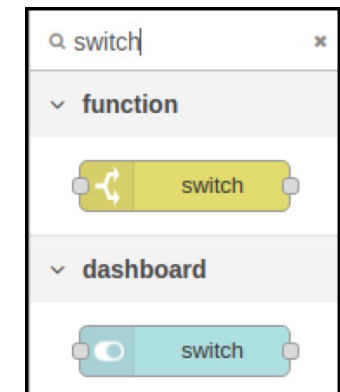
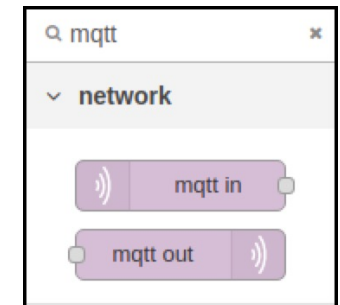
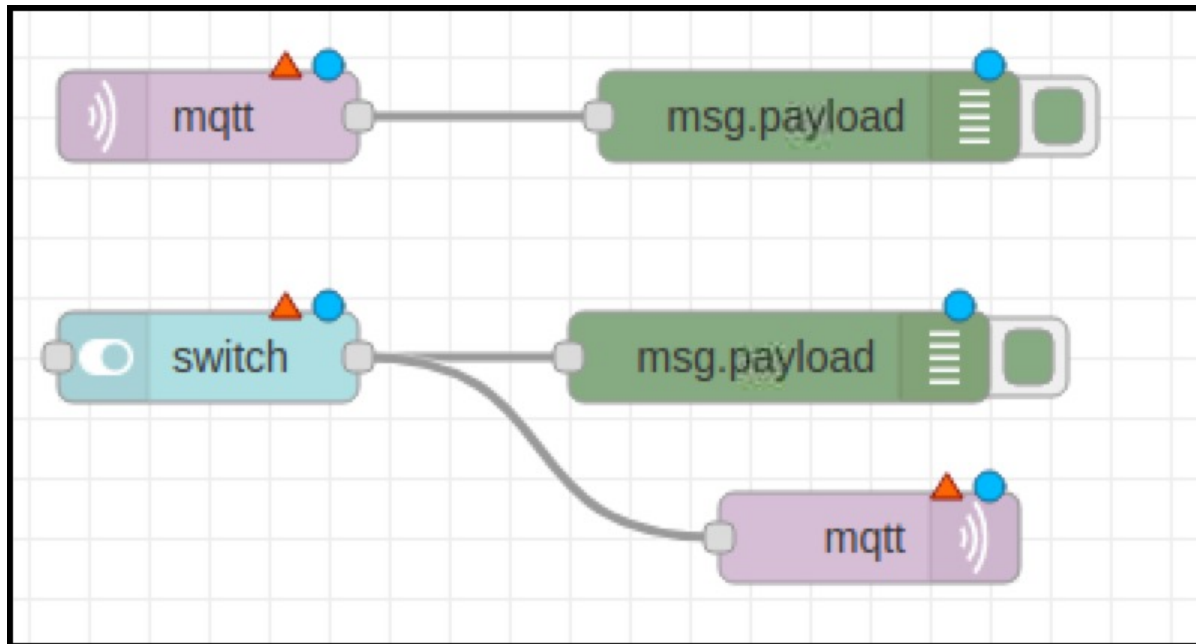
Sketch > Include Library > Manage Libraries

PubSubClient  
Nick O'Leary



## iii. Node-RED MQTT on RPi

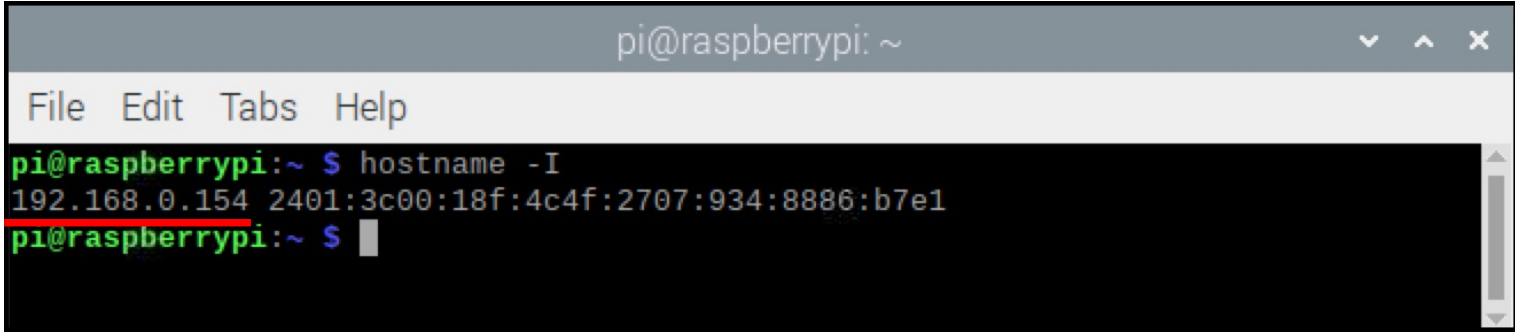
- Run Node-RED service.
- Create new **flow**.
- Add the following nodes: **mqtt in**, **mqtt out**, **msg payload** and **switch** dashboard.
- Connect as in the diagram.



## iv. Edit Nodes Properties

- To find Raspberry Pi's IP address, type **hostname -I** at its terminal.

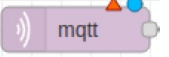
```
pi@raspberrypi:~ $ hostname -I
```



```
pi@raspberrypi: ~  
File Edit Tabs Help  
pi@raspberrypi:~ $ hostname -I  
192.168.0.154 2401:3c00:18f:4c4f:2707:934:8886:b7e1  
pi@raspberrypi:~ $
```

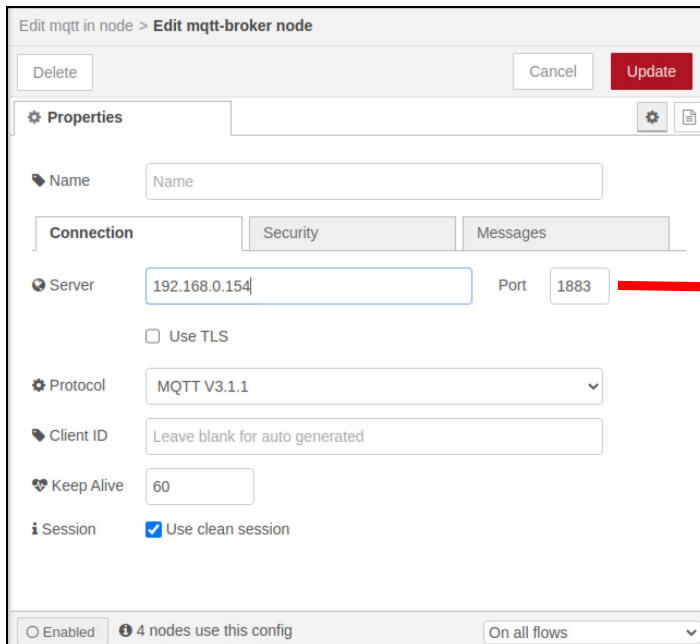
- To find Raspberry Pi's IP address, type **hostname -I** at its terminal.

# iv. Edit Nodes Properties

- We need to set up 3 important properties in Node-Red; i.e., Server, Topic and QoS. To do that, double click the **mqtt in** node .
- To key in the server's IP add, single click **pencil** icon .



- Key in the IP address of Raspberry Pi at **Server** textbox.

A screenshot of the 'Edit mqtt in node' dialog box in Node-Red. The 'Connection' tab is selected, showing the 'Server' field with the value '192.168.0.154' and the 'Port' field with the value '1883'. Other fields include 'Name', 'Protocol' (MQTT V3.1.1), 'Client ID' (Leave blank for auto generated), 'Keep Alive' (60), and 'Session' (Use clean session checked). The dialog has 'Delete', 'Cancel', and 'Update' buttons at the top.

 Server

192.168.0.154

Port

1883



QUESTIONS

**END**