Indian Institute of Technology, Jodhpur

Lab Manual

Sensors and IoT

LAB - 4

Date: 30 Sept, 2024

Lab Objective

In this lab we will get familiarity with Node RED and MQTT

Part 1 : Setting Up NodeRED on Raspberry Pi

- Connect Raspberry pi to your hotspot
- Install node red on Raspberry pi. In order to do that run

  ```
  bash <(curl -sL https://raw.githubusercontent.com/node-red/linux-installers
  /master/deb/update-nodejs-and-nodered)
  ```

- Press y and then press enter for both of them

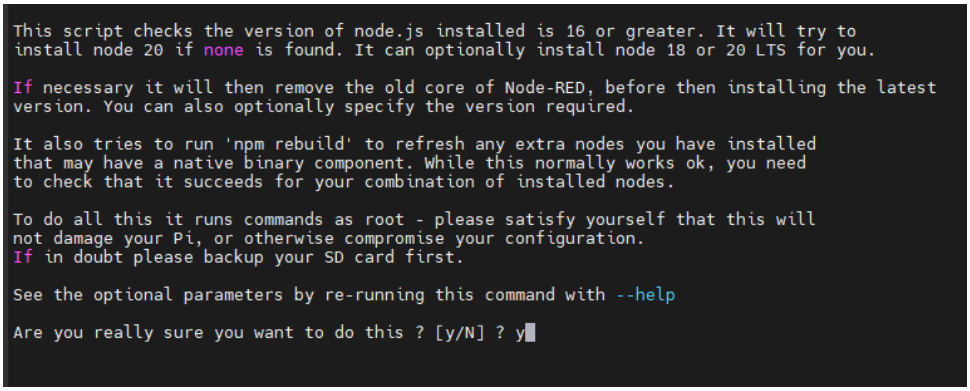

Figure 1: Enter y and press Enter

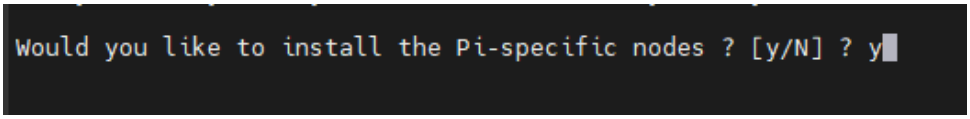

Figure 2: Enter y and press Enter

- Press Enter

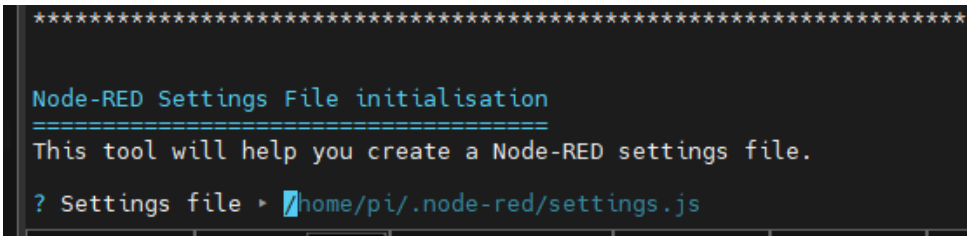

Figure 3: Press Enter

- Select Yes and press Enter

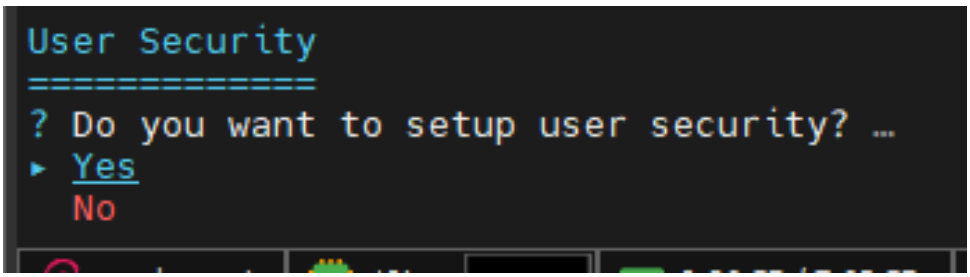

Figure 4: Enter Caption

- Set Username as admin and Password as admin123

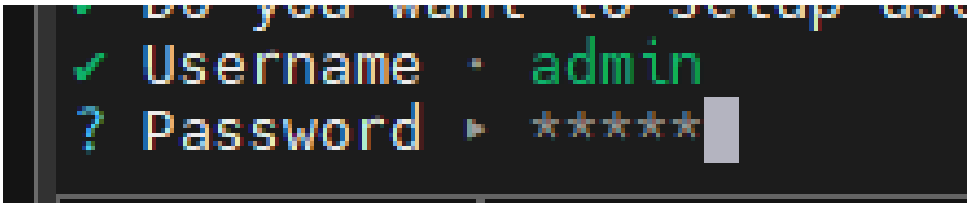

Figure 5: Username and Password setup

- Select Full access in user permission

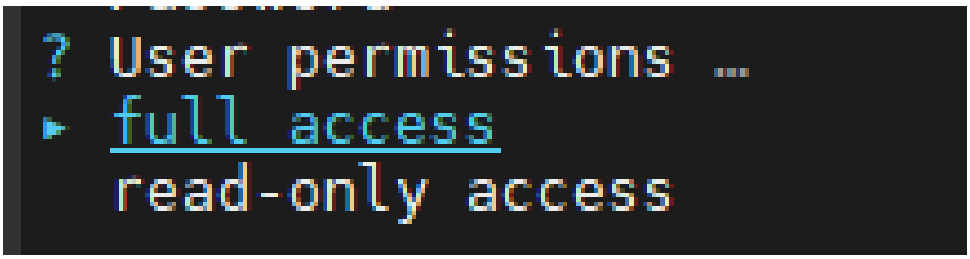

Figure 6: User Access Level

- Select no for add another user

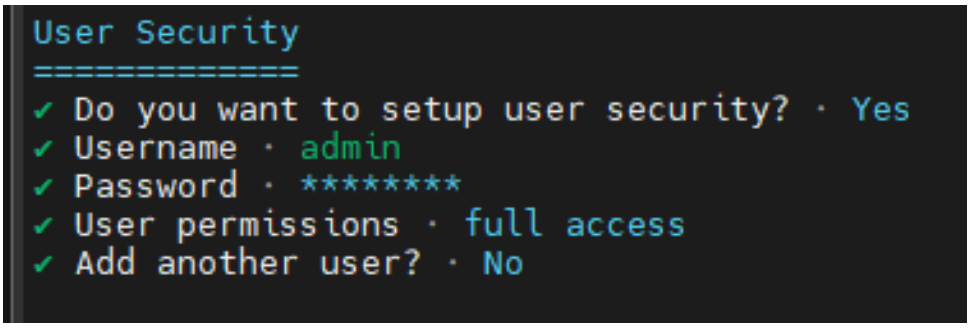

Figure 7: Add another User

- Select No for Projects features

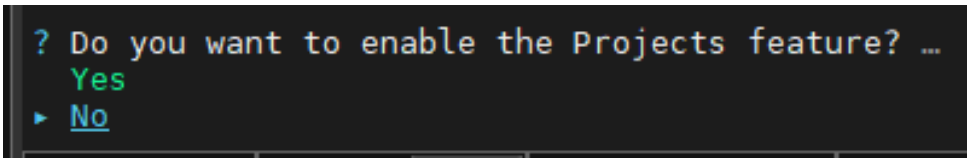

Figure 8: Project Features

- press enter to select the default flows.json
- Enter passphrase as admin123

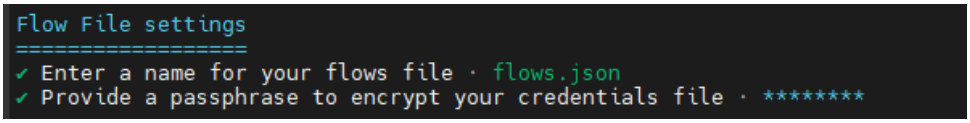

Figure 9: Flow configuration

- Select the Default Text editor by pressing enter

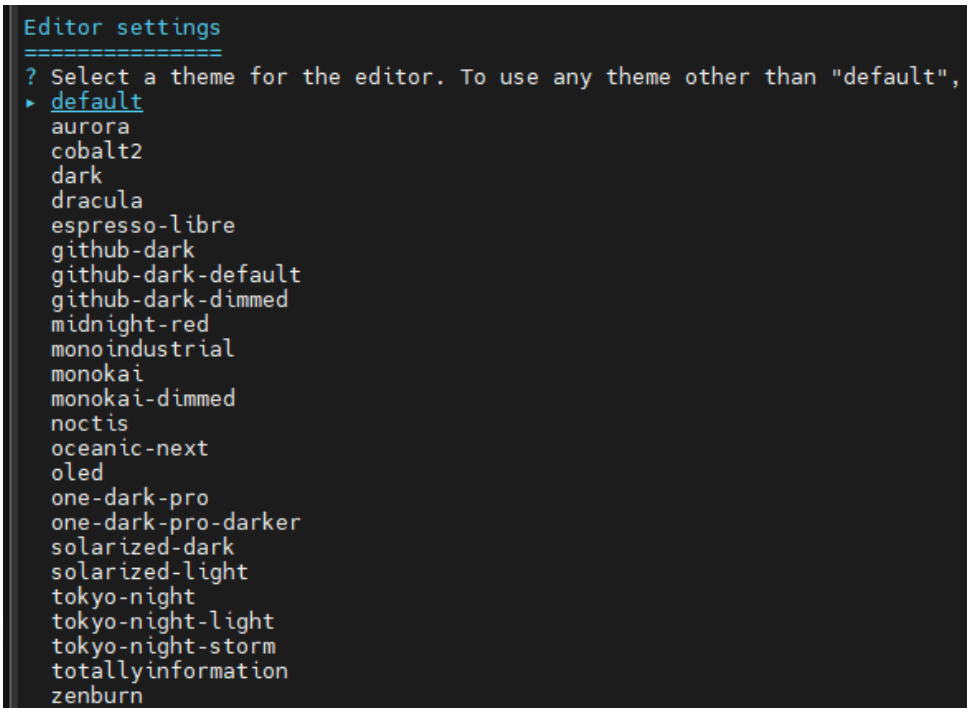

Figure 10: Text editor selection

- Final Configuration for nodered :-

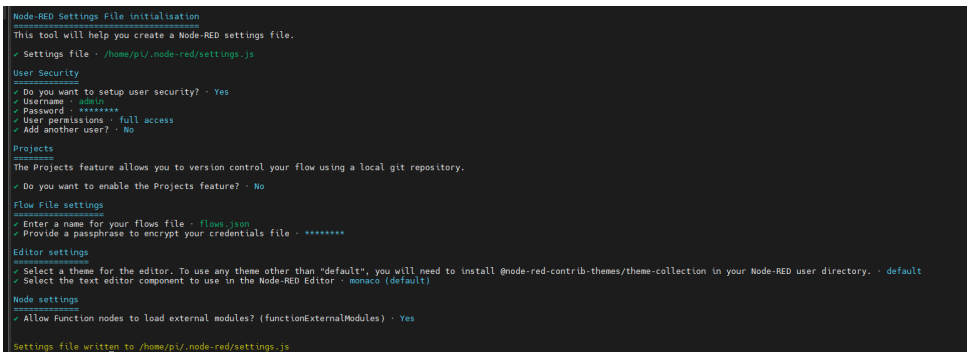

Figure 11: Final NodeRED config

- To check nodeRED status run :-

```
node-red-start
```

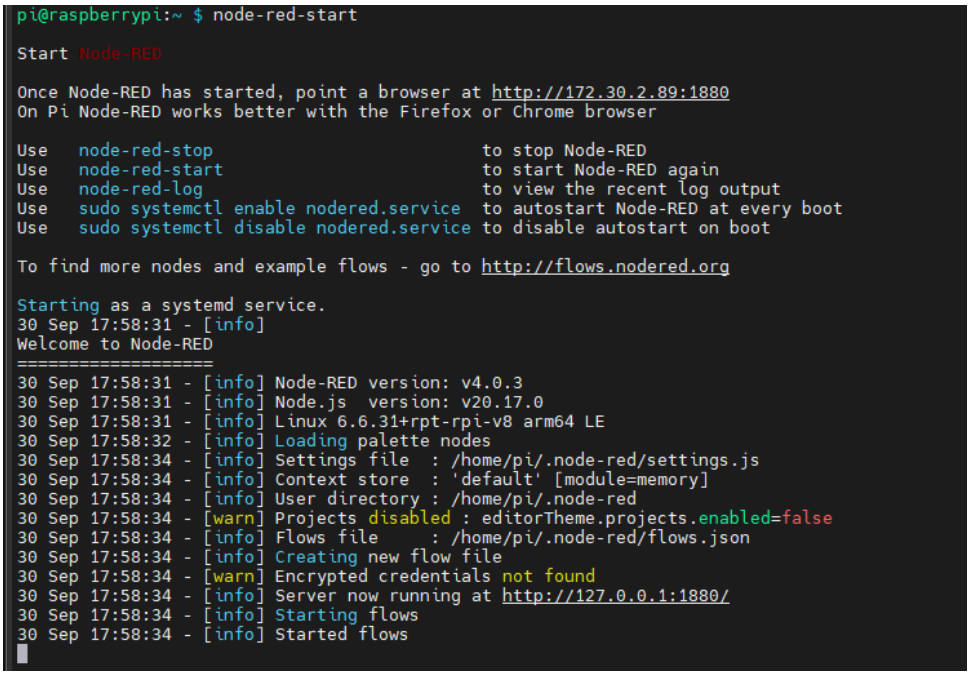

Figure 12: Successful NodeRED installation

- Access the NodeRED using the following URL on raspberrry Pi

```
http://127.0.0.1:1880/
```

Part 2 : Installing MQTT

- Open a new Terminal Window
- Execute :-

```
sudo apt install -y mosquitto mosquitto-clients
```

- Once installed execute :-

```
sudo nano /etc/mosquitto/mosquitto.conf
```

- Add the following lines at the end of the file :-

```
listener 1883
allow_anonymous true
```

- Press Ctrl + X and then Y to save the file.

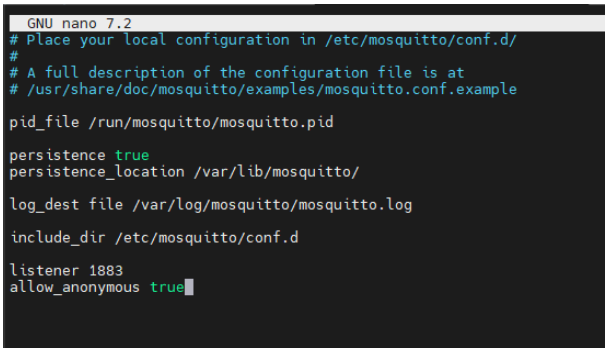

Figure 13: MQTT configuration

- Restart MQTT to apply changes

```
sudo systemctl restart mosquitto
```

- Open the NodeRED dashboard and open "Manage palette"

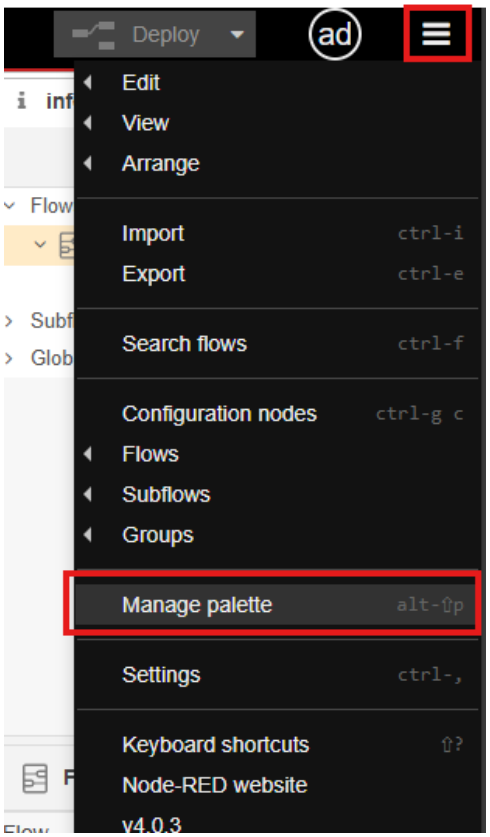

Figure 14: Edit Palette

- Under Install tab search for node-red-dashboard and install it

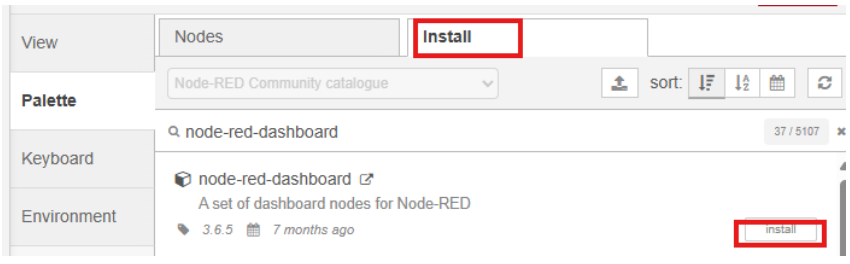

Figure 15: Install Node RED Dashboard

- Click close

- In the drop-down menu select Dashboard

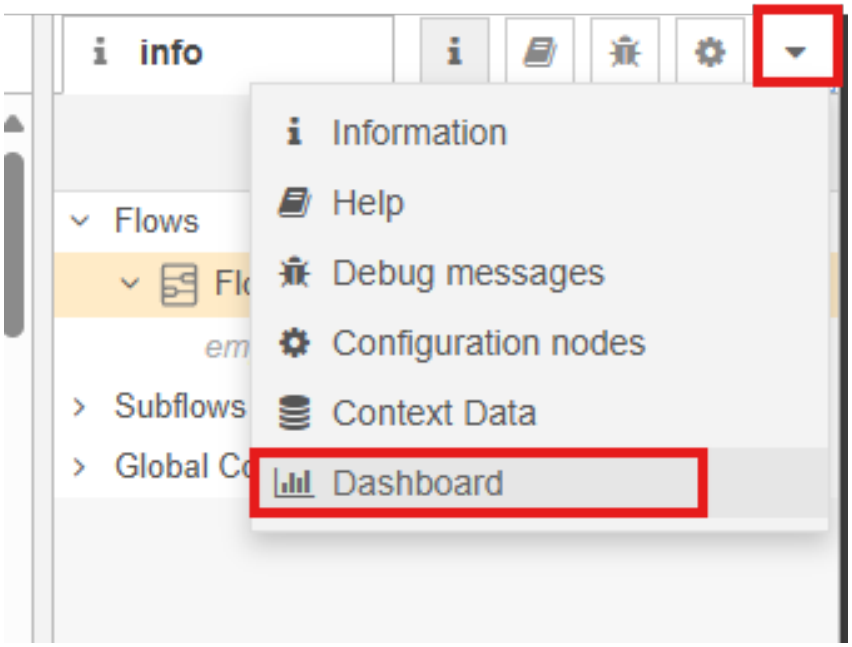

Figure 16: Select Dashboard

- Follow the following URL from "Establishing an MQTT communication with Node-RED" section to complete the LAB
  NOTE :- In the provided URL please do not make any changes in the Security tab while configuring the MQTT client
  `https://randomnerdtutorials.com/esp8266-and-node-red-with-mqtt/`
