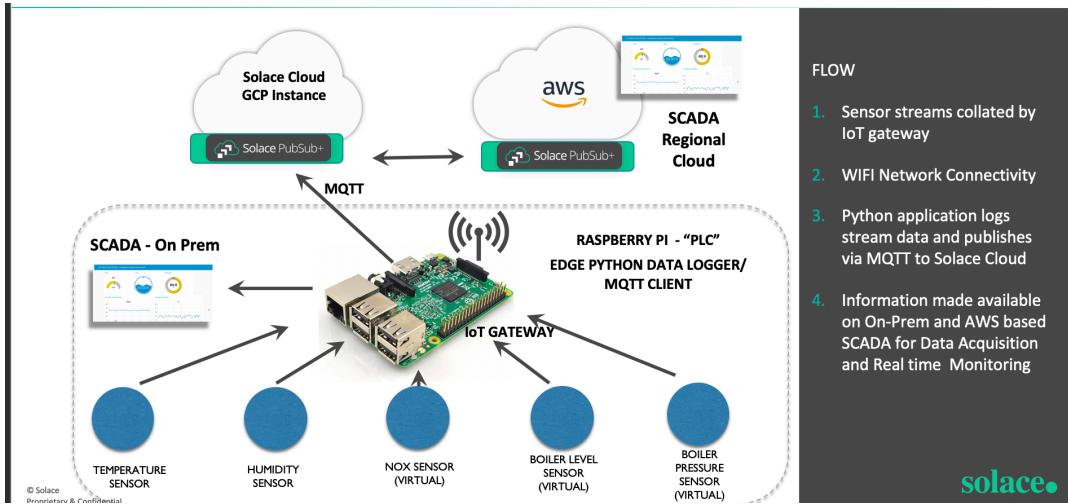


RaspberryPi2Solace Project

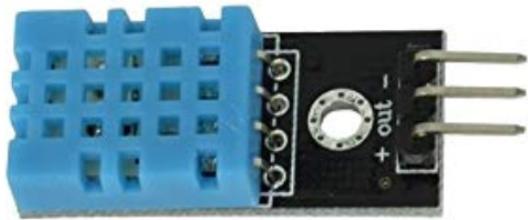


Requirements

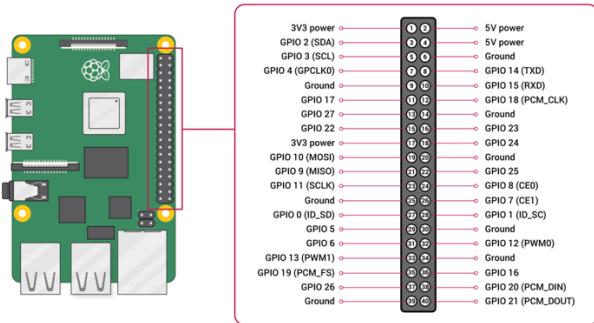
Raspberry Pi 3 Hardware



DHT11 Digital Temperature and Humidity sensor

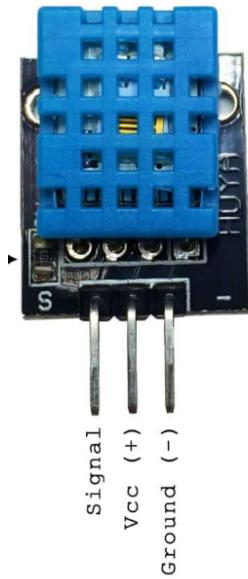


Raspberry Pi Pin Configuration

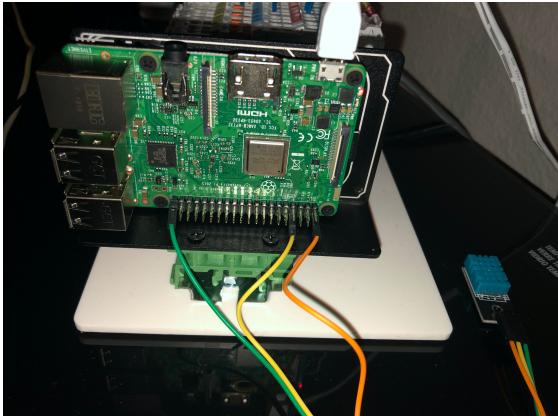


<https://www.raspberrypi.org/documentation/usage/gpio/>

DHT11 Pin configuration



- Connect DHT11 Sensor to Raspberry Pi (see wiring below – Signal connected to GPIO 14)
- Make sure Wifi/Ethernet connectivity is available for Raspberry Pi
- Power ON Raspberry Pi



Software Requirements

- Install Raspbian
 - <https://www.raspberrypi.org/documentation/installation/installing-images/>
- Install python 3.7
- Install pip - sudo apt install python3-pip

Dependencies

- paho-mqtt
 - pip3 install paho-mqtt
- Adafruit_DHT
 - pip3 install Adafruit_DHT

Software installation/Configuration

On your Mac/PC

- Clone/Download git repository - <https://github.com/SolaceLabs/makeuoft-hackathon.git>
- Ssh into your raspberry pi

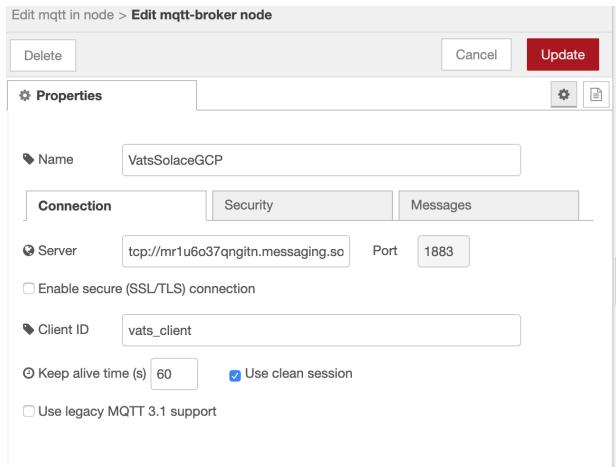
On your Raspberry Pi

- From makeuoft-hackathon-master/raspberrypi2solace/publish on local machine

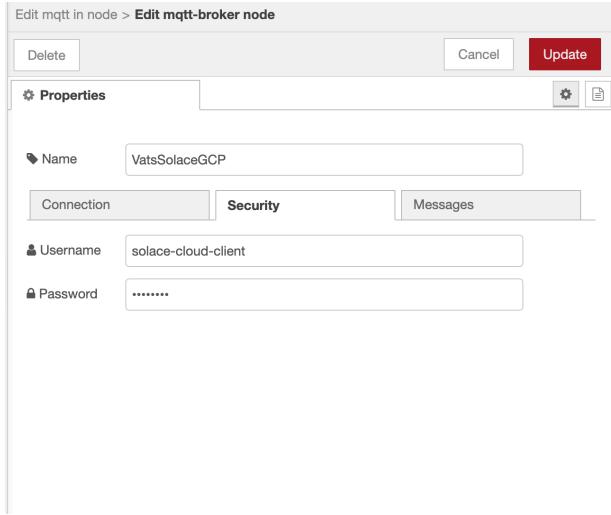
- Copy simpletest.py, dht11.py, raspi_solace_publish_json.py and virtual_solace_publish_json.py
 - Into any directory in raspberry pi

On your Mac/PC

1. Install Node-Red - <https://nodered.org/docs/getting-started/local>
2. Run node-red on terminal/command prompt
3. Go to <http://localhost:1880> to verify installation
4. Install Dashboard Nodes - <https://flows.nodered.org/node/node-red-dashboard>
5. From the folder - makeuft-hackathon-master/raspberrypi2solace/subscribe
6. Copy SCADA_subscribe.json to any folder on local machine
7. Import the json into Node-Red editor from Menu-Import
8. Follow the following instructions for config
9. Open node “Temperature Events via Solace” Click edit



10. Provide Server address - This is your Solace Event Broker Endpoint
11. Provide any name for client ID



12. Provide Username/Password for Solace Event Broker
13. Make sure all 5 other “Event” nodes (Level Events via Solace, Pressure Events via Solace etc) have the connectivity information you just provided. It should persist from steps 10-12.
14. Click “Deploy” button on right corner of the screen.
15. Go to <http://localhost:1880/ui>
16. The SCADA dashboard should be displayed with static values.

Streaming Sensor values to Node-Red via Solace Event Brokers

- Ssh into Raspberry Pi
- Type
 - python3 simpletest.py
- You should see Humidity and Temperature reding on the screen
- Type
 - python3 raspi_solace_publish_json.py
- You should see Humidity and Temperature streaming readings on the screen and on Node-Red SCADA (see screenshot below)
- Type
 - python3 virtual_solace_publish_json.py
- You should see Level, Pressure, NoX and SoX streaming readings on the screen and on Node-Red SCADA (see screenshot below)

IoT AWS Cloud SCADA - Enabled by Solace Event Mesh

