**Instruções para instalações e conexões para gerenciamento dos dados da estação meteorológica microcontrolada**

[**http://localhost:3000/d/c056bba4-e67e-434b-810c-b22e135bb517/temperatura-e-umidade?orgId=1&refresh=10s&from=1699903261025&to=1699906861025**](http://localhost:3000/d/c056bba4-e67e-434b-810c-b22e135bb517/temperatura-e-umidade?orgId=1&refresh=10s&from=1699903261025&to=1699906861025)

**Conexão MQTT**

MQTT (Message Queuing Telemetry Transport) é um protocolo de comunicação.

**Publish ←—----> Broker ←—-----> Subscriber**

Brokers:

Eclipse Mosquitto (protocolo MQTT)

Eclipse Mosquitto (protocolo MQTT):

(Linux):

Instalaçao: <https://mosquitto.org/>

Salvar as duas ou quatro URLs que o instalador dará e colocar esses arquivos .dll dentro da pasta do Mosquitto no seu computador.

Terminal:

ifconfig

Isso retornará o endereço IP

Terminal:

sudo apt-add-repository ppa:mosquitto-dev/mosquitto-ppa

sudo apt-get update

sudo apt install mosquitto mosquitto-clients

echo “mqtt\_username:mqtt\_paswd” > pwfile

cat pwfile

mosquitto\_passwd -U pwfile

cat pwfile

sudo mv pwfile etc/mosquitto/

sudo vim /etc/mosquitto/mosquitto.conf

allow\_anonymous false

password\_file /etc/mosquitto/pwfile

sudo /etc/init.d/mosquitto restart

mosquitto\_sub -v -t “#”

mosquitto\_sub -v -u mqtt\_username -P mqtt\_password -t “#”

Node Red (Windows/Linux):

Programação baseada em fluxos(fluxograma)

Baseado em Node.js

Baixar: Node.js e npm

Linux:

sudo apt update

sudo apt upgrade

sudo apt-get install nodejs-legacy

node --version

sudo apt-get install npm

npm -v

Windows:

Terminal:

npm install -g -unsafe perm node-red

node-red ←—--- para iniciar

Linux:

Terminal:

sudo npm install -g –unsafe-perm node-red node-red-admin

sudo ufw allow 1880

sudo systemctl enable nodered.service

sudo systemctl start nodered.service

Para começar:

node-red

Instalar Broker Mosquitto e influxDB no Node-Red:

Canto superior direito (Menu)

Menage paletes

Install

Procure por: node-red-contrib-aedes

influxdb

dashboard

**On Browser:**

htpps://localhost:1880

Biblioteca para o ESP (arduino IDE):  
 PubSubClient

InfluxDB:

Linux:

**Terminal:**

sudo apt update

sudo apt install wget

wget –no-check-certificate -q0 - <https://repos.influxdata.com/influxdb.key> | sudo apt-key add

echo “deb htpps://repos.influxdata.com/debian stretch stable” | sudo tee /etc/apt/sources.list.d/influxdb.list

sudo apt install influxdb

sudo systemctl unmask influxdb

sudo systemctl enable influxdb

sudo systemctl start influxdb

sudo apt install influxdb-client

influx

CREAT USER observatorio WITH PASSWORD ‘observatoriofurg’ WITH ALL PRIVILEGES

exit

sudo systemctl restart influxdb

influx -username observatorio -password observatoriofurg

CREATE DATABASE sensors

SHOW DATABASES

exit

\*segunda opção

wget <https://dl.influxdata.com/influxdb/releases/influxdb2-2.0.7-linux-amd64.tar.gz>

tar xvzf influxdb2-2.0.7-linux-amd64.tar.gz

sudo cp ./{influx,influxd} /usr/local/bin/

cd /usr/local/bin/

./influxd

To run:

sudo influxd

Windows:

<https://docs.influxdata.com/influxdb/v1/introduction/download/>

Baixar e extrair o arquivo

Terminal:

# Ir até a última pasta do arquivo extraído

run in terminal: influxdb.exe

**On Browser:**

htpps://localhost:8086/

Telegraf:

Windows:

<https://docs.influxdata.com/influxdb/v1/introduction/download/>

wget -q https://repos.influxdata.com/influxdata-archive\_compat.k

sudo apt-get update && sudo apt-get install telegraf

**Token telegraf**

export INFLUX\_TOKEN=Vc7mnrKIEpyqjIsEHCEy0CjVSNzbiZLjYwuZ5v4qOyG98wfytO3vYHe0T7GxhqOAfn19yBlZOX9FsNdIKpsIvg==

**estacao’Token**

sueGdKxaxSxiCqXC5m9mv5jUH9DCt0jG96au422asJTC-gm08CUTCXFXi5fGBGwm9yor2gJxDkxEYPhnYx9a0w==

telegraf --config <http://localhost:8086/api/v2/telegrafs/0be9e7f81be62000>

Grafana:

Linux:

wget -q0- [https://packages.grafana.com/gpg.key](https://repos.influxdata.com/influxdb.key) | sudo apt-key add -

echo “deb [https://packages.grafana.com/](https://repos.influxdata.com/influxdb.key)oss/deb stable main” | sudo tee -a /etc/apt/sources.list.d/grafana.list

sudo apt update

sudo apt install grafana

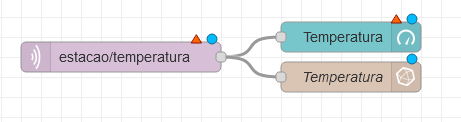
sudo systemctl enable grafana-server

sudo systemctl start grafana-server

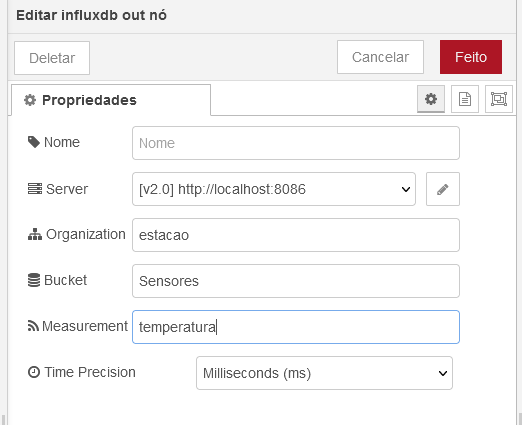
**On Browser:**

htpps://localhost:3000/

**Node-Red < —----- > InfluxDB**



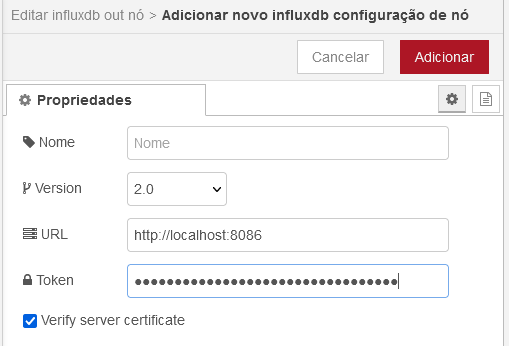
Configurando influx out nó:



Server:

rado no influx 1.8/2.0

Token geinfluxDB



Organization

-Encontre o nome de sua organização no influx ou crie uma

Bucket

-Para onde os dados serão enviados

Measurement

-Como será chamado esse dado dentro do bucket

**InfluxDB < —----- > Grafana**

Token influx

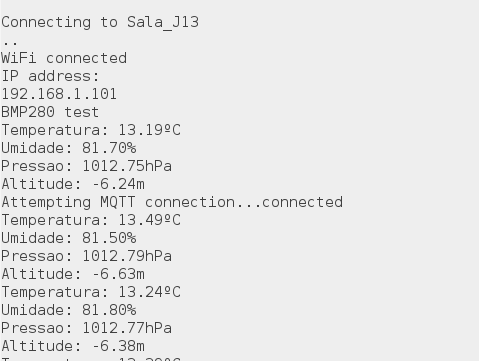
-Dashboard

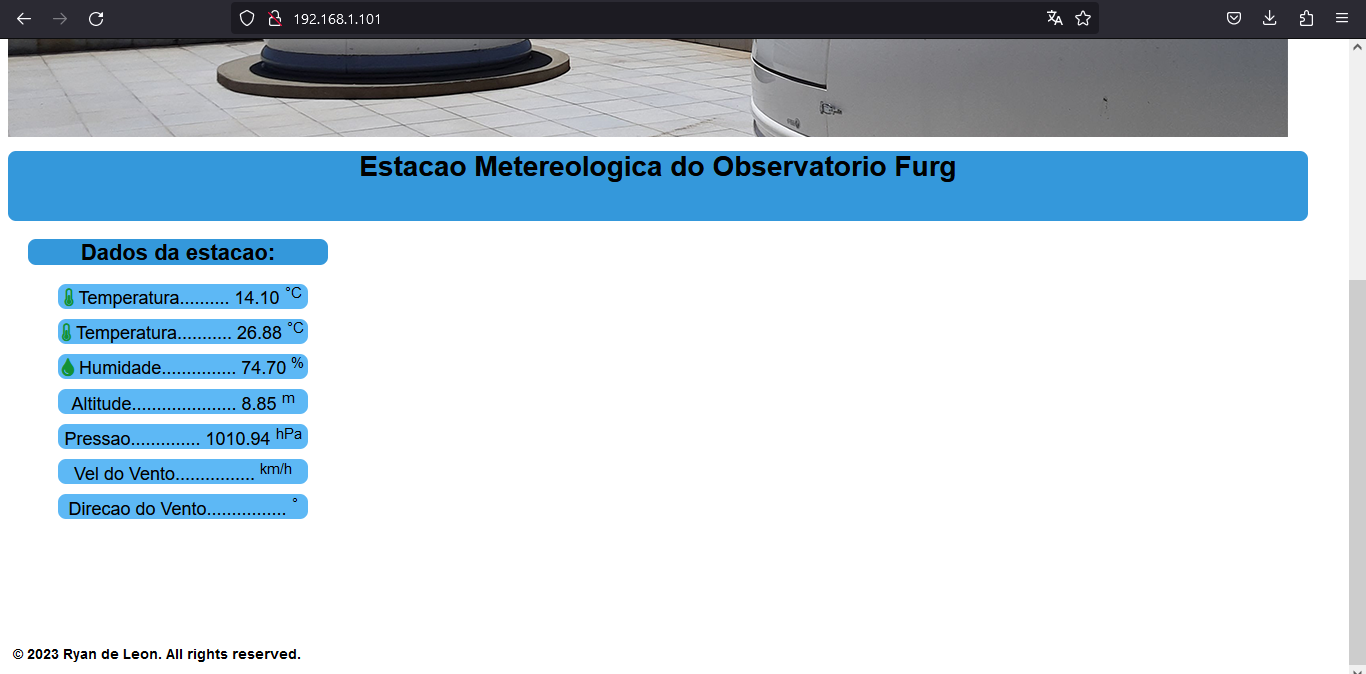
-N

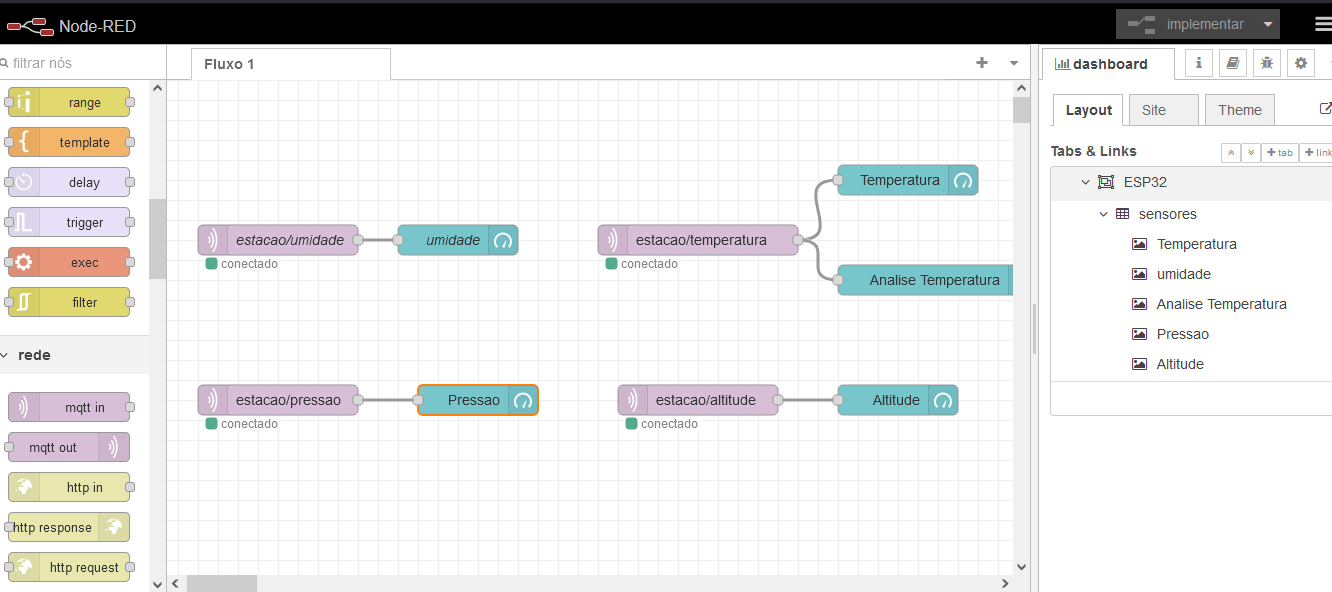
**Imagens de alguns resultados**



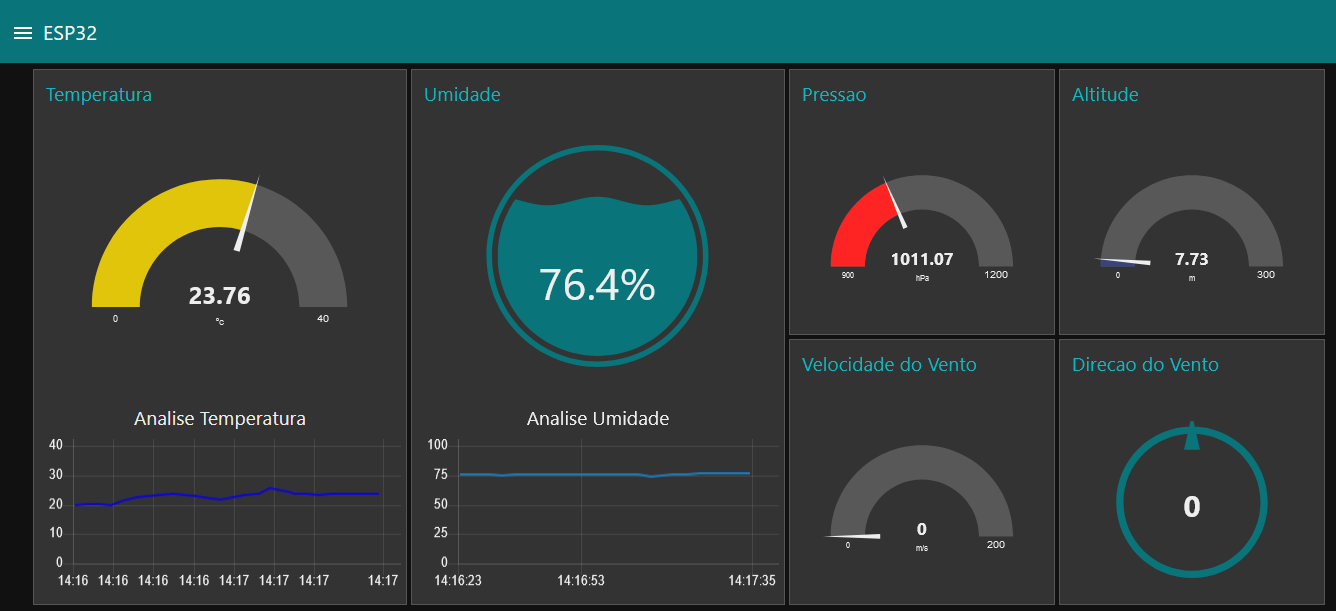
Serial Monitor arduino IDE



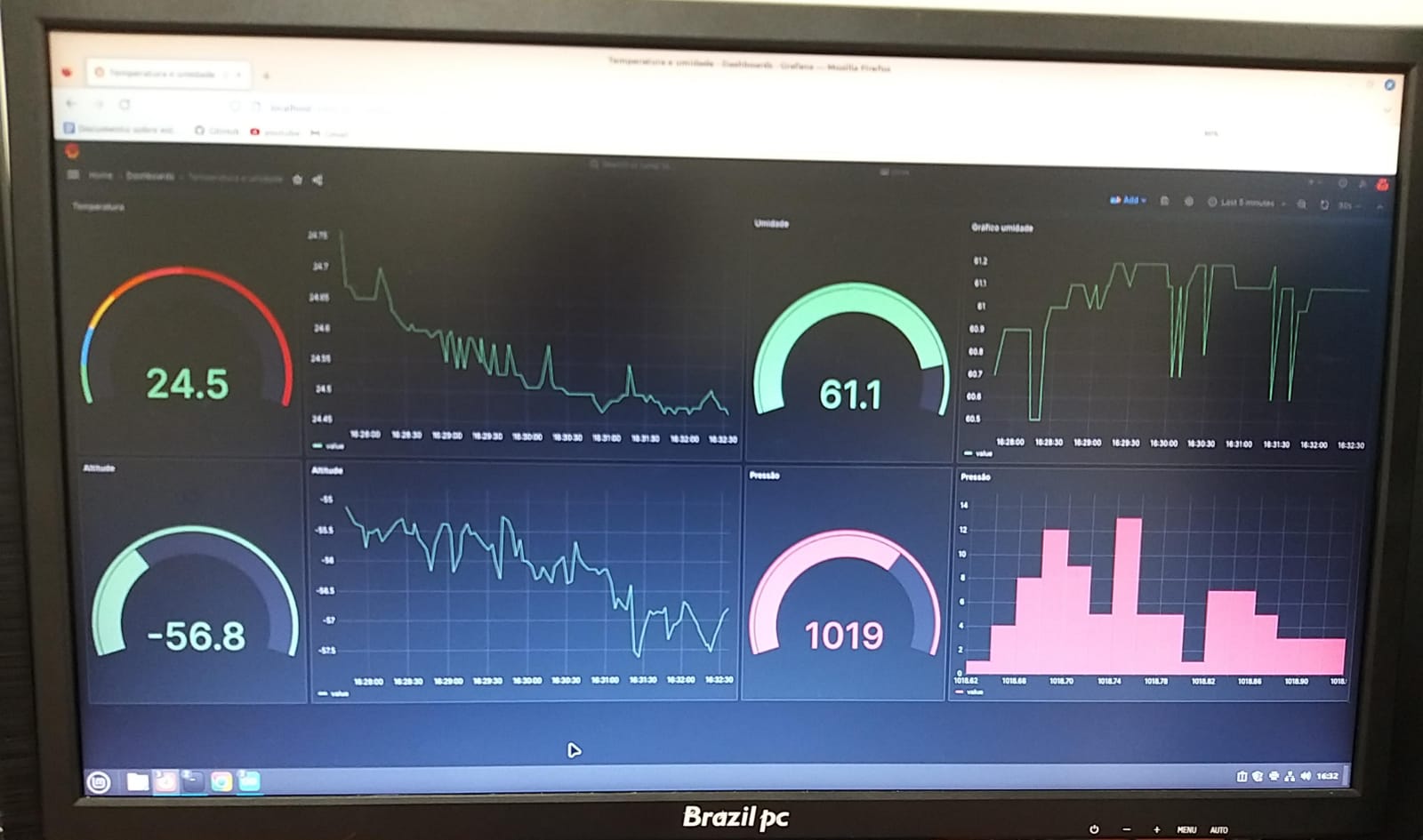




Interface do NodeRed



Dashboard NodeRed



Primeira dashboard Grafana

**Problemas extras**

- Conexão usb

sudo chmod 666 /dev/ttyUSB0

-Conexões Internet Ativas (somente servidores)

**Linux:**

**sudo netstat -plnt**

**Acessar grafana:**

URL: https://observatoriodafurg.grafana.net

User: [obervatoriodafurg@gmail.com](mailto:obervatoriodafurg@gmail.com)

Password: 0bs3rv@t0r10

**Acessar Influx:**

URL: <https://us-east-1-1.aws.cloud2.influxdata.com/>

API Token influx:

RYAEd2Bki0BDcR5apk-g5YNWpjL4JZGaPgMhSe7MEmaqTAD1zhvVlvXaVc5OrooZIdVVkKMPELHgO5xzpvOM3Q==

Organization: EstacaoMeteorologica