Instalação do node-red

https://nodered.org/docs/getting-started/raspberrypi

instalação do git e de build-essential

```
sudo apt install build-essential git
```

Download e run do script de instalação do node red (ambos os termos devem ser aceites com Y)

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

o script seguinte será iniciado

```
Running Node-RED install for user pi at /home/pi on raspbian


This can take 20-30 minutes on the slower Pi versions - please wait.

  Stop Node-RED                    ✔
  Remove old version of Node-RED   ✔
  Remove old version of Node.js    ✔
  Install Node.js LTS
  Clean npm cache
  Install Node-RED core
  Move global nodes to local
  Install extra Pi nodes
  Npm rebuild existing nodes
  Add shortcut commands
  Update systemd script


Any errors will be logged to   /var/log/nodered-install.log
```

This script will:

- remove the pre-packaged version of Node-RED and Node.js if they are present

- install the current Node.js LTS release using the NodeSource. If it detects Node.js is already installed from NodeSource, it will ensure it is at least Node 8, but otherwise leave it alone

- install the latest version of Node-RED using npm

- optionally install a collection of useful Pi-specific nodes

- setup Node-RED to run as a service and provide a set of commands to work with the service

> 💡 a partir do comando <apt-get install nodered> pode ser instalado o nodered com os packages apropriados para o raspberry no entanto o npm não será instalado, pelo que é recomendado a utilização do script anterior

iniciar o node-red no boot do raspberry (altamente recomendado)

```
sudo systemctl enable nodered.service
```

Remover o node-red do boot do raspberry

```
sudo systemctl disable nodered.service
```

The following commands are provided to work with the service:

- `node-red-start` - this starts the Node-RED service and displays its log output. Pressing `Ctrl-C` or closing the window does *not* stop the service; it keeps running in the background

- `node-red-stop` - this stops the Node-RED service

- `node-red-restart` - this stops and restarts the Node-RED service

- `node-red-log` - this displays the log output of the service

flows para instalar em node red

- https://flows.nodered.org/node/node-red-contrib-ttn

- https://flows.nodered.org/node/node-red-node-mysql

- https://flows.nodered.org/node/node-red-dashboard

```
npm install node-red-dashboard node-red-contrib-ttn node-red-node-mysql
```