

# CFR de Vigo

## Integración da IoT e da Domótica

# Instalación



*Flaticon*



## 1. Raspberry Pi

Utilizar a aplicación Pi Imager para crear a imaxe de Raspberry Pi OS, seleccionar o OS segundo o modelo de Raspberry Pi. Clic na roda dentada e completar a configuración da WiFi e do usuario e habilitar acceso por ssh.

The screenshot shows the 'Advanced options' window in the Pi Imager application. At the top, there's a title bar with 'Advanced options' and a close button 'X'. Below it, a section 'Image customization options' has a dropdown menu set to 'to always use'. The main configuration area contains several sections:

- Set hostname:** A checkbox is unchecked, with the text 'raspberrypi.local' next to it.
- Enable SSH:** A checkbox is checked. Below it, two radio buttons are present: 'Use password authentication' (selected) and 'Allow public-key authentication only' (unselected). A text field 'Set authorized\_keys for 'usuario':' is empty.
- Set username and password:** A checkbox is checked. Below it, 'Username:' is followed by the text 'usuario', and 'Password:' is followed by a masked password '.....'.
- Configure wireless LAN:** A checkbox is checked. Below it, 'SSID:' is followed by 'ATuaSSID'. There is an unchecked checkbox for 'Hidden SSID'. 'Password:' is followed by 'OTeuContrasinal'. A checked checkbox 'Show password' is also present. 'Wireless LAN country:' is followed by a dropdown menu showing 'ES'.
- Set locale settings:** A checkbox is checked. Below it, 'Time zone:' is followed by a dropdown menu showing 'Europe/Madrid', and 'Keyboard layout:' is followed by a dropdown menu showing 'es'.

At the bottom center, there is a red 'SAVE' button.

## 2. Instalar node-red:

1. Xa ven instalado na imaxe, pero se non está instalado:
2. Primeiro instalamos bash : apt install bash
3. bash <(curl -sL https://raw.githubusercontent.com/node-red/linux-installers/master/deb/update-nodejs-and-nodered)

2. Ao rematar a instalación responder ás preguntas sobre seguridade para que node red teña acceso seguro con usuario e contrasinal.
3. Unha vez instalado temos que facer que inicie automaticamente cada vez que acendemos a Raspberry Pi:  
`sudo systemctl enable nodered.service`
4. Para acceder a Node-Red desde calquera equipo conectado á mesma rede: <http://localhost:1880>
5. Para acceder ao Dashboard de Node-Red: <http://localhost:1880/ui>

### 3. Instalar Mosquitto:

1. `sudo apt update`
2. `sudo apt upgrade`
3. `sudo apt-get install mosquitto mosquitto-clients`
4. Se queremos executar mosquitto ao arrincar o sistema, nunha consola executamos  
`sudo systemctl enable mosquitto.service`

Para poder comunicarnos co servidor temos que modificar o documento de configuración, accedemos desde o terminal:

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

O documento ten que quedar:

```
per_listener_settings true
pid_file /run/mosquitto/mosquitto.pid

persistence true
persistence_location /var/lib/mosquitto/

log_dest file /var/log/mosquitto/mosquitto.log

include_dir /etc/mosquitto/conf.d

listener 1883
allow_anonymous true
```

### 4. Configuración do IDE Arduino

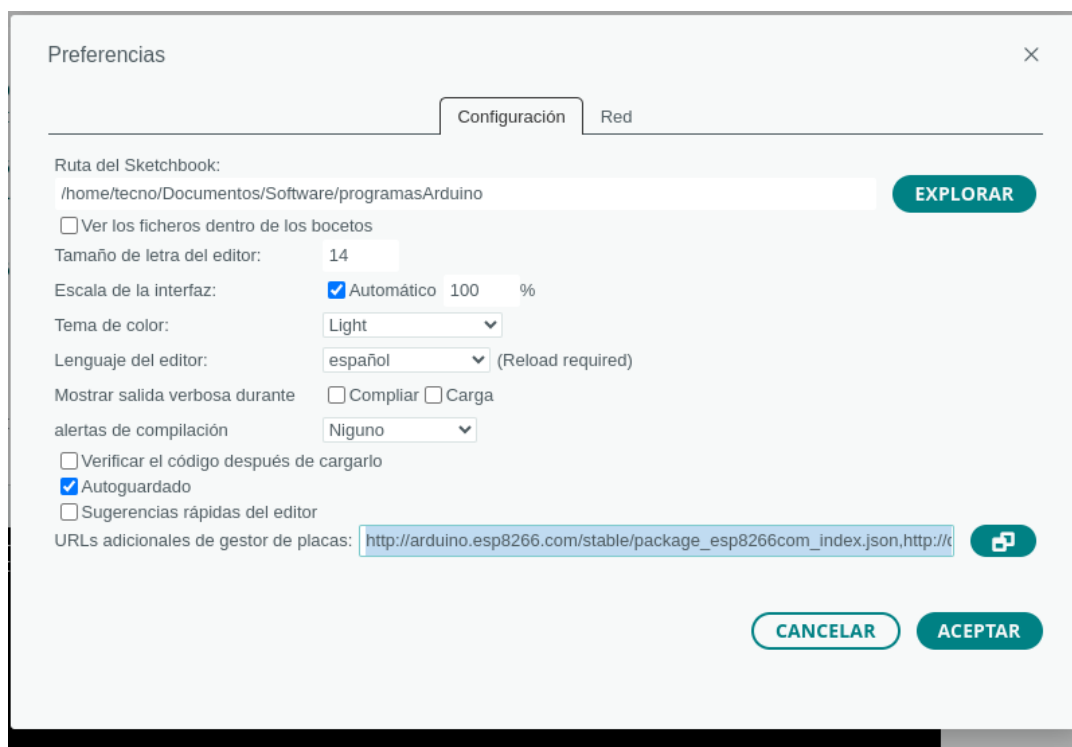
Para poder instalar os programas no ESP32 utilizando o IDE Arduino temos que seguir estes pasos:

## **1.URLs Adicionales**

Archivo -> Preferencias... -> URLs adicionales de gestor de placas:

Inxerir as seguintes URL:

[http://arduino.esp8266.com/stable/package\\_esp8266com\\_index.json](http://arduino.esp8266.com/stable/package_esp8266com_index.json),[http://drazzy.com/package\\_drazzy.com\\_index.json](http://drazzy.com/package_drazzy.com_index.json),[https://dl.espressif.com/dl/package\\_esp32\\_index.json](https://dl.espressif.com/dl/package_esp32_index.json)



## 2 Instalar as placas ESP32

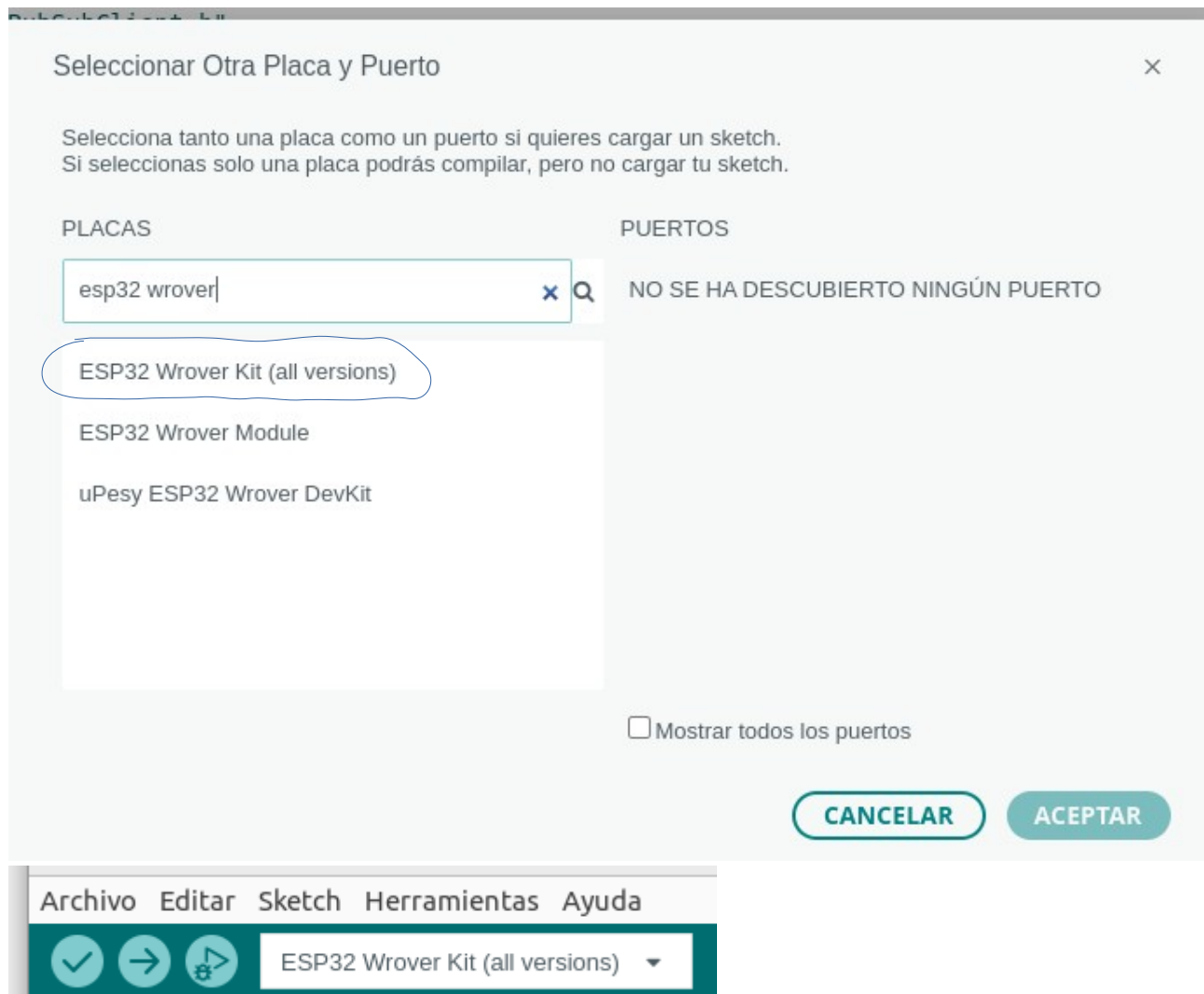
Herramientas -> Placa -> Gestor de placas...

Buscar esp32 e instalar as placas: esp32 de Espressif Systems



### 3 Seleccionar a placa ESP32 WROOM

Seleccionar Placa -> Seleccione otra placa y puerto...



### 4 Seleccionar o porto

Herramientas -> Puerto -> seleccionar o porto ao que está conectado o ESP

### 5 Só queda subir o programa no ESP

Ligazóns de interese

<https://lab.bricogeek.com/tutorial/introduccion-a-mqtt-con-node-red-raspberry-pi-y-arduino>

<https://lab.bricogeek.com/tutorial/introduccion-a-mqtt-con-node-red-raspberry-pi-y-arduino/instalacion-del-sistema-base>

<https://www.luisllamas.es/como-instalar-mosquitto-el-broker-mqtt/>