Raspberry Pi OS

Installation

- Raspberry Pi Imager

Ubuntu 22.04

```
sudo apt install rpi-imager
```

Create User

> NOTE: ?? Raspberry Pi OS ???????? pi??????????????

Headless Setup

SD Card > Boot partition > File: `userconf`

userconf:

```
alang:<encrypted-password>
```

Generate encrypted password

```
echo 'mypassword' | openssl passwd -6 -stdin
```

CLI

```
# Add user
sudo adduser <username>
sudo usermod -a -G
adm,dialout,cdrom,sudo,audio,video,plugdev,games,users,input,netdev,gpio,i2c,spi <username>

# Delete user
```

```
sudo deluser -remove-home <username>
```

Enable SSH

> Default credential is pi / raspberry

Headless setup

SD Card > Boot partition > File: `ssh` (an empty file)

SSH can be enabled by placing a file named `ssh`, without any extension, onto the boot partition of the SD Card.

Desktop

1. Launch *Raspberry Pi Configuration* from the *Preferences* menu
2. Navigate to the *Interfaces* tab
3. Select *Enabled* next to *SSH*
4. Click *OK*

Option #3: Using the `raspi-config`

1. Enter *sudo raspi-config* in a terminal window
2. Select *Interfacing Options*
3. Navigate to and select *SSH*
4. Choose *Yes*
5. Select *Ok*
6. Choose *Finish*

Wireless LAN

Headless setup

SD Card > Boot partition > File: `wpa_supplicant.conf`

wpa_supplicant.conf :

```
country=TW # Your 2-digit country code
ctrl_interface=DIR=/var/run/wpa_supplicant GROUP=netdev
network={
    ssid="YOUR_NETWORK_NAME"
    psk="YOUR_PASSWORD"
```

```
    key_mgmt=WPA-PSK
}
```

CLI

rasp-config CLI

```
# Usage: sudo raspi-config nonint do_wifi_ssid_passphrase <ssid> <passphrase> [hidden] [plain]
sudo raspi-config nonint do_wifi_ssid_passphrase myssid 'mypassphrase' 0 0 # Visible SSID,
passphrase quoted
```

nmcli

```
nmcli dev wifi list
sudo nmcli dev wifi connect <example_ssid>
sudo nmcli --ask dev wifi connect <example_ssid> hidden yes
```

Python

Install pip

```
sudo apt install python3-pip
pip --version
sudo pip install --upgrade pip
```

?? pip ?????????????? 3rd-party ????????????

> ❝ error: externally-managed-environment
>
> × This environment is externally managed
> ??> To install Python packages system-wide, try apt install
> python3-xyz, where xyz is the package you are trying to
> install.
>
> If you wish to install a non-Debian-packaged Python package,
> create a virtual environment using python3 -m venv path/to/venv.
> Then use path/to/venv/bin/python and path/to/venv/bin/pip. Make
> sure you have python3-full installed.
>
> For more information visit http://rptl.io/venv

?? Raspberry Pi OS ????????? 3rd-party ???????? python ???????????

?? python ????

```
# 以下指令在 user 帳號下執行，例如 pi
mkdir myproject
cd myproject
python -m venv env
source env/bin/activate
which python
# 記得先升級 pip 至最新版
pip install --upgrade pip
# 開始安裝套件
pip install paho-mqtt
# 檢視已安裝套件
pip list
```

??? python ???????????????? python??????????? python venv?

```
#!<path-to-venv>/bin/python
```

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