# Raspberry Pi Manual

extra192

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## Author Note

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Abstract

The Raspberry Pi 3 Model B is the earliest model of the third-generation Raspberry Pi. It replaced the Raspberry Pi 2 Model B in February 2016. We'll be using this device for our project. We'll be setting it up as a wireless access point to your faculty's local connection by setting up bridges to the official faculty hotspot service.

*Keywords:* Raspberry Pi, access point

Raspberry Pi Manual

## Specification

Before anything else you will need:

- Micro SD card
- Micro USB power supply (2.1 A)
- Raspberry pi (in our case, we use raspberry pi 3 model B)

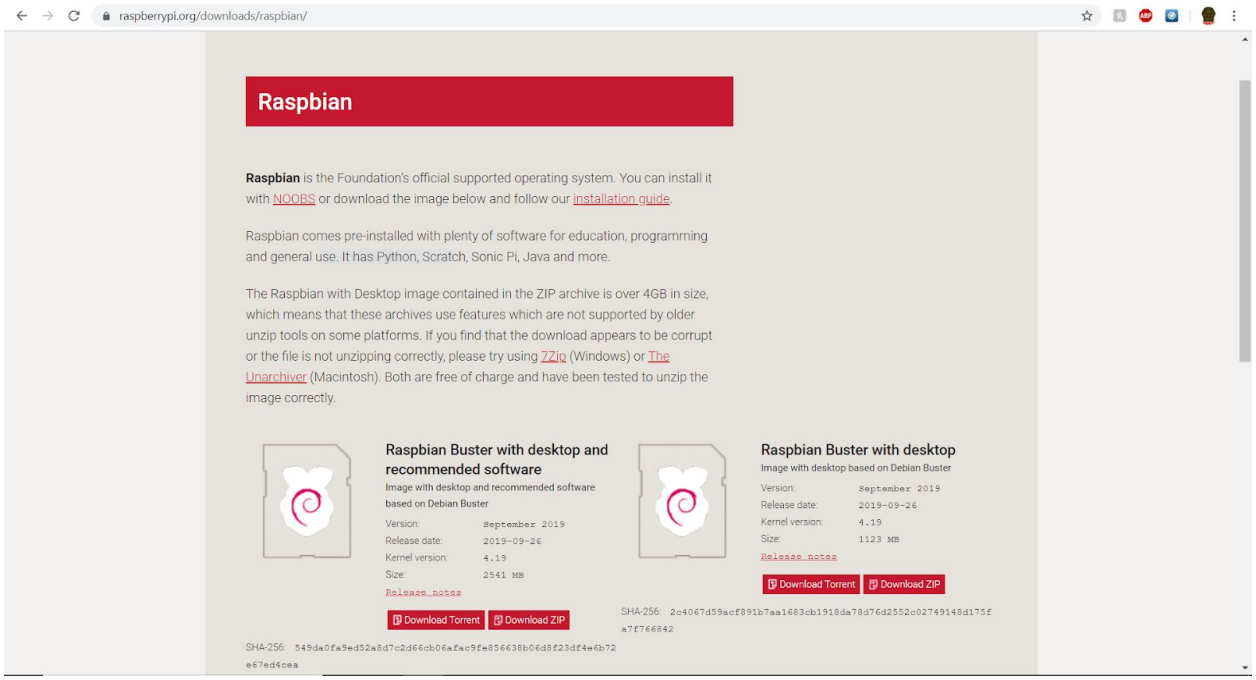
And to use it as a desktop computer, you'll need:

- TV or monitor and HDMI cable
- Keyboard and mouse

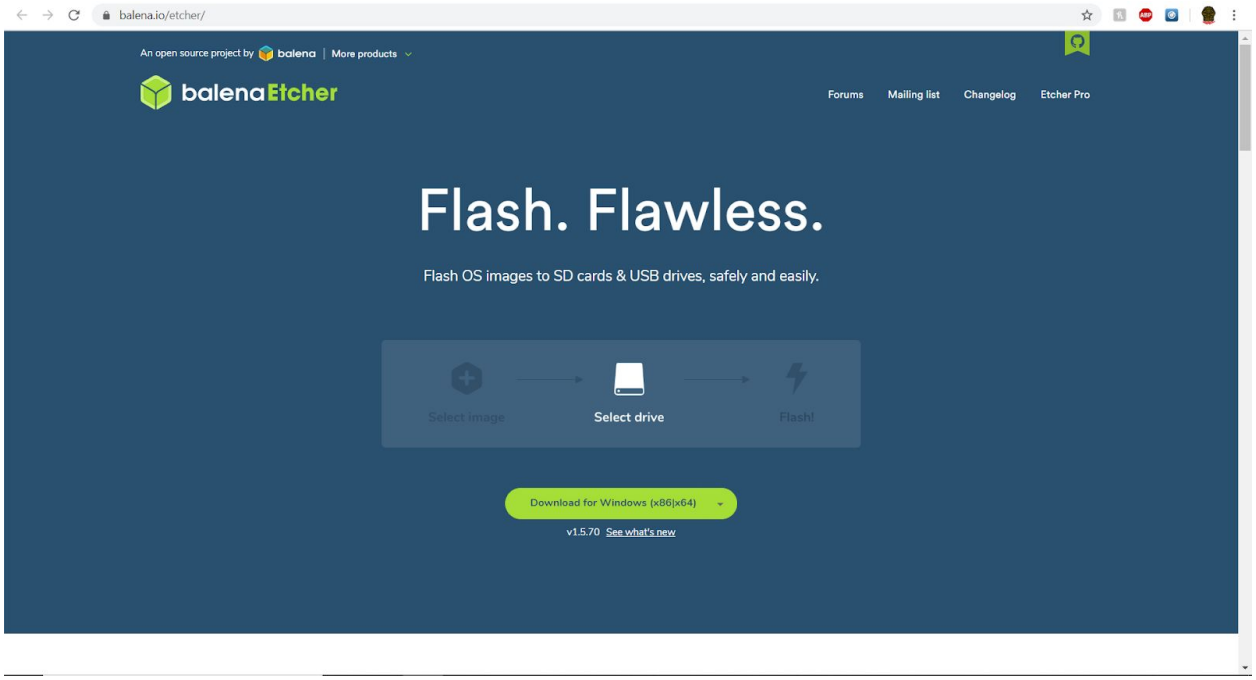
## Method

### How to Flash Raspberry Pi OS Image to SD Cards

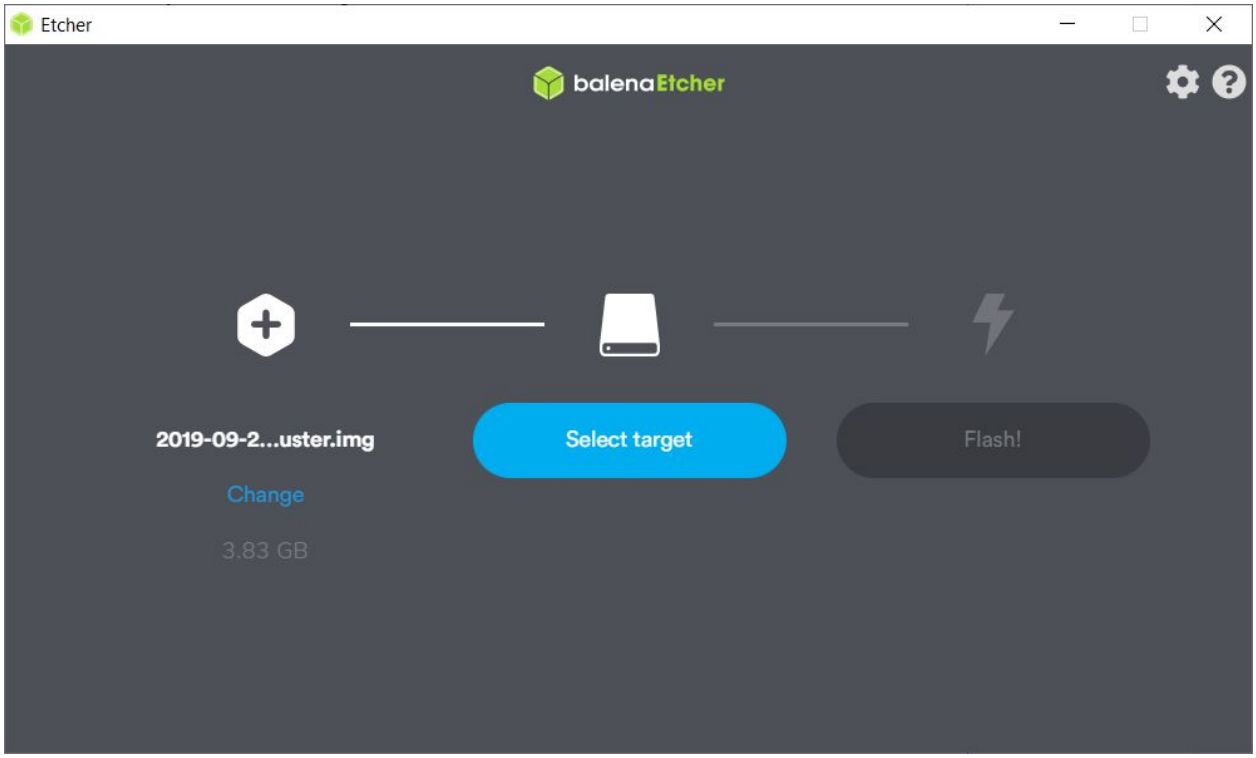
In order for us to start, our device needs to run on an OS. So we'll use the official supported Operating System, that is Raspbian. Start by following this link: https://www.raspberrypi.org/downloads/raspbian/ and choosing the latest version of Raspbian Buster with desktop, if you have a torrent client installed, feel free to download its torrent because it took me quite a while to download it as .zip.




Once you're done, we need an app to flash the image to an SD Card because that's what our device will be running on. Be sure for the SD Card to already been in Micro SD form. The app that we'll be using is Etcher, you can download it by following this link: https://www.balena.io/etcher/. Choose a version that is suitable for your OS. Lastly, when your drive is plugged in and the download finished. Start the app and choose the Raspbian




image, select targeted drive, and start flashing.




Now you can plug your SD card into your raspberry pi and start using rasbian OS.

**Adding More Users**

You can create additional users on your Raspbian installation with the **adduser** command.

1. Enter **sudo adduser [username]**

```
pi@raspberrypi:~ $ sudo adduser rms46
```

2. Enter your new password, don't leave this blank.

```
New password:
Retype new password:
```

**Setting Up Raspberry Pi as an Access Point**

To continue to this step, you should make sure that you have an access point software installed and also the DHCP server software. These two will provide connecting devices to a network access. If you haven't installed it yet, please follow the following step.

[Insert: `sudo apt install dnsmasq hostapd, sudo systemctl stop dnsmasq, sudo systemctl stop hostapd`]

Configuring Static IP

The first step on setting up a Raspberry Pi as an access point is to configure a static IP to be assigned for the wireless port. We will firstly need to edit the DHCPD configuration file, please follow the following step.

[Insert: `sudo nano /etc/dhcpcd.conf`]

At the end of the file, edit it to be like the following

[Insert: `interface wlan0 - static ip_address=192.168.4.1/24 - nohook wpa_supplicant`]

Now restart the DHCPD and set up the new wlan0 configuration

[Insert: `sudo service dhcpcd restart`]

Configuring the DHCP server (dnsmasq)

In this step, we need to firstly rename the configuration file provided by dnsmasq. So we need to move to dnsqmasq configuration, please follow this step.

[Insert: `sudo mv /etc/dnsmasq.conf /etc/dnsmasq.conf.orig, sudo nano /etc/dnsmasq.conf`]

After that, we can type the following information into dnsmasq configuration

[Insert: `interface=wlan0, dhcp-range=192.168.4.2,192.168.4.20,255.255.255.0,24h`]

Reload dnsmasq so it uses the new configuration

[Insert: `sudo systemctl reload dnsmasq`]

Configuring the access point host software

# References

https://www.raspberrypi.org/products/raspberry-pi-3-model-b/

https://www.raspberrypi.org/documentation/configuration/wireless/access-point.md