SU25 ME3500J M-Lab Pre-lab

Installing Raspberry Pi OS and OBS Studio

Instructor: Kevin ZHAO Weiming **[mail]** (mailto:weiming.zhao@sjtu.edu.cn?
subject=%5BMLab%5D%20Pre-
Lab%20Question&body=Dear%20Mr.%20Zhao%2C%0AI%20have%20a%20question%20about%
Lab Technician: Yuze (Otto) ZHANG
M-Lab Teaching Assistants: Chang LIU, Yitian LIU

Table of Contents

Objectives

By the end of this pre-lab, you should be able to:

1. Install Raspberry Pi OS on your SD card
2. Modify system settings to reduce mouse lag
3. Access your Raspberry Pi from your personal computer using OBS Studio

---

I. Installing Raspberry Pi OS

Step 1: Download Raspberry Pi Imager

Visit https://www.raspberrypi.com/software (https://www.raspberrypi.com/software) and
download the installer according to your operating system.

Install Raspberry Pi OS using Raspberry Pi Imager

Raspberry Pi Imager is the quick and easy way to install Raspberry Pi OS and other operating systems to a microSD card, ready to use with your Raspberry Pi.

Download and install Raspberry Pi Imager to a computer with an SD card reader. Put the SD card you'll use with your Raspberry Pi into the reader and run Raspberry Pi Imager.

Download for Windows

Download for macOS

Download for Ubuntu for x86

To install on **Raspberry Pi OS**, type `sudo apt install rpi-imager` in a Terminal window.

You will see options like "Download for Windows", "Download for macOS", or "Download for Ubuntu".

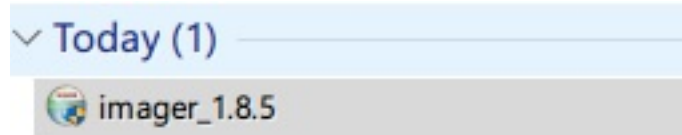
Step 2: Install Raspberry Pi OS using Raspberry Pi Imager

Raspberry Pi Imager is a simple tool to flash the OS to your SD card.

Ensure your SD card is inserted into the computer using a card reader.
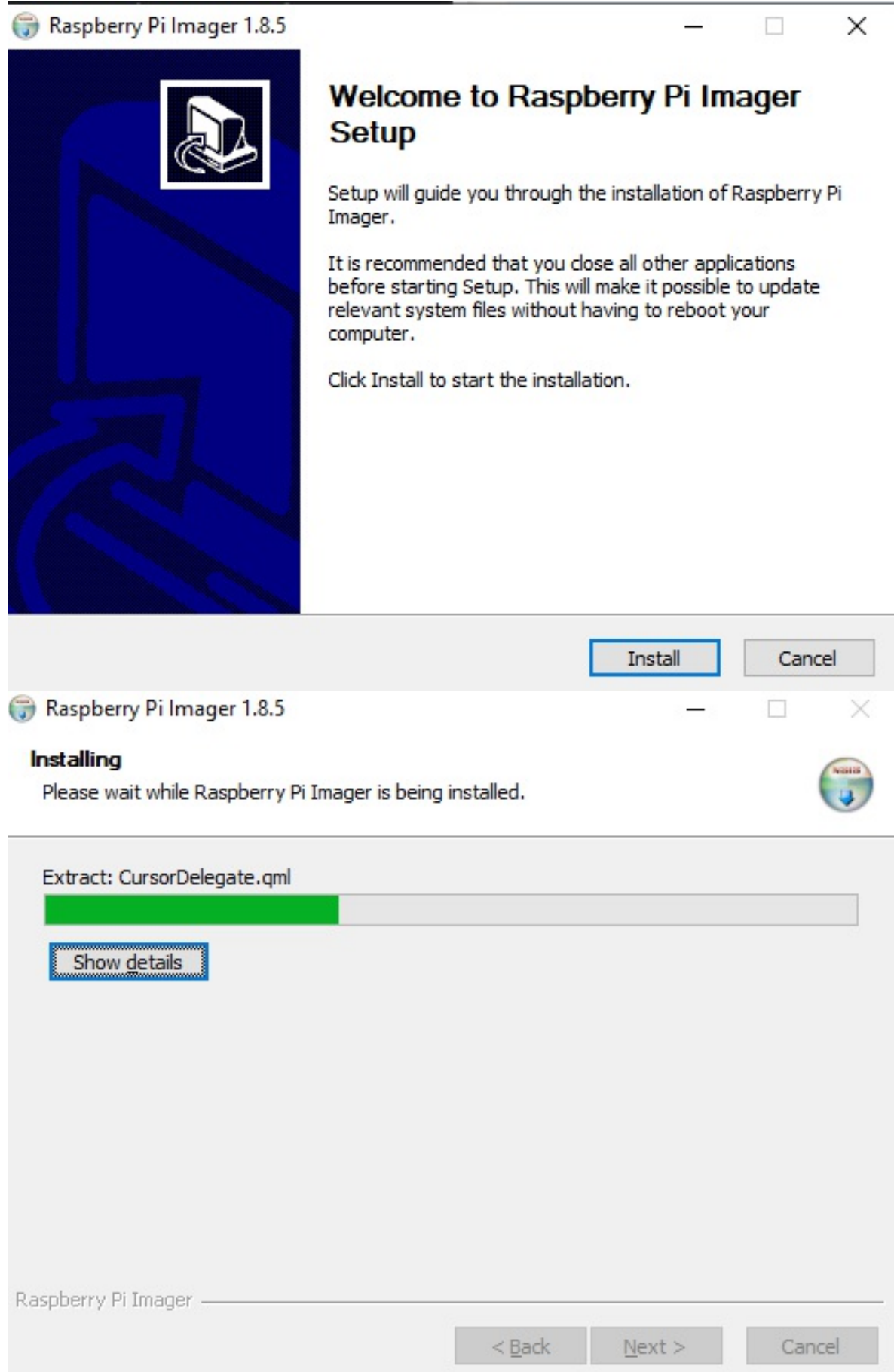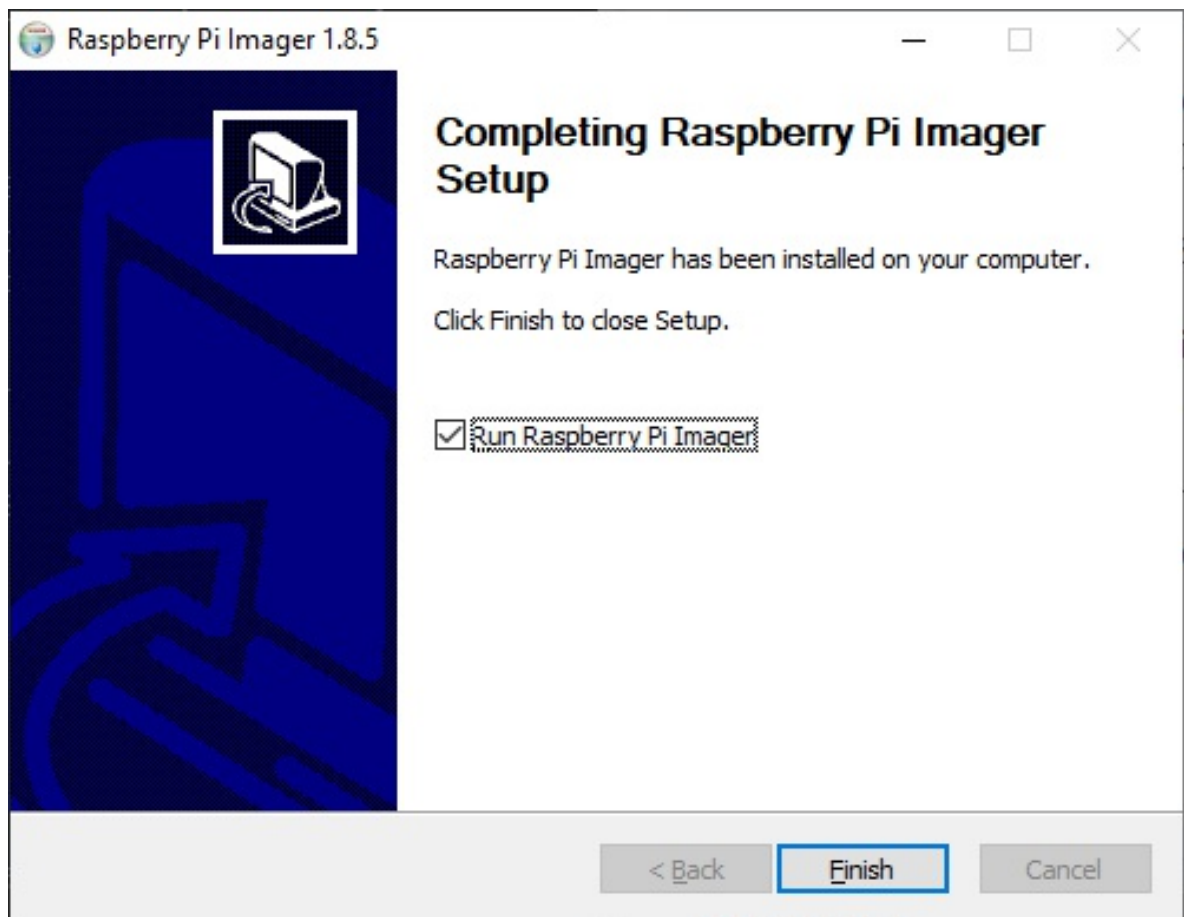

- For Windows Users
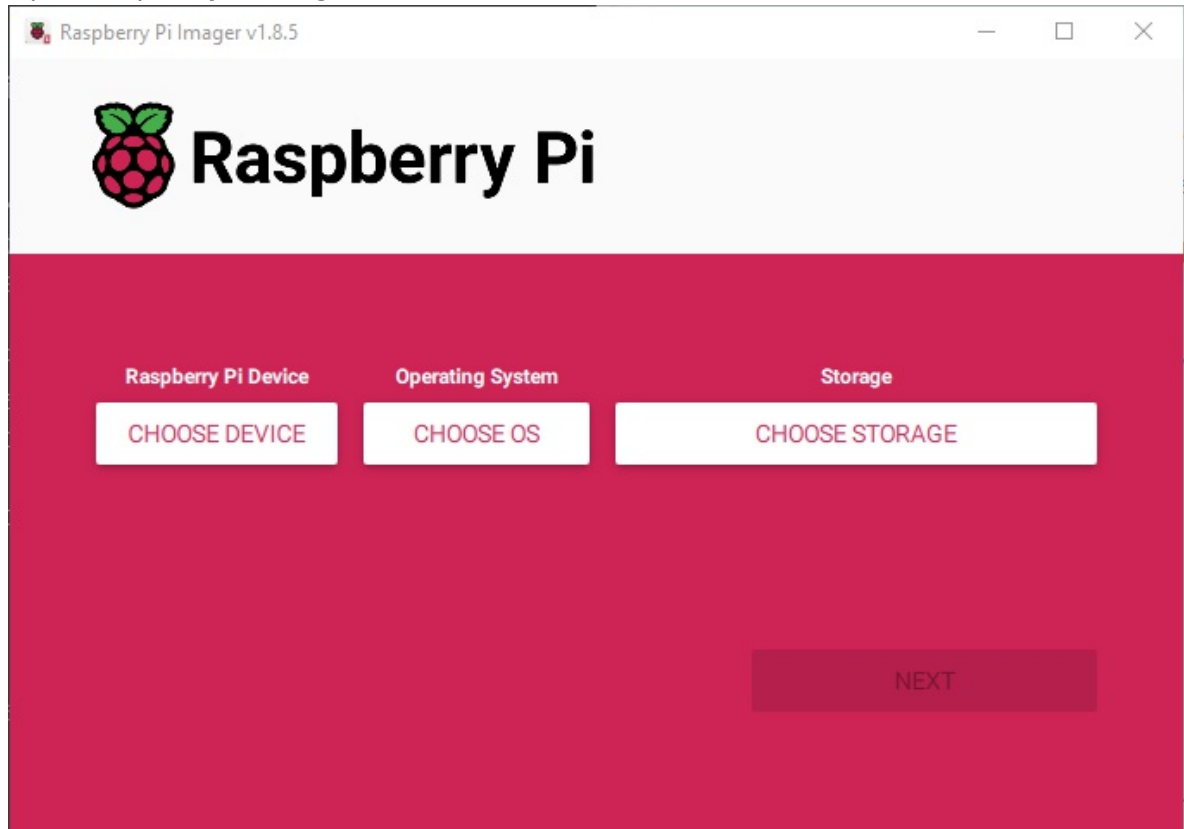
1. Download the `.exe` installer.
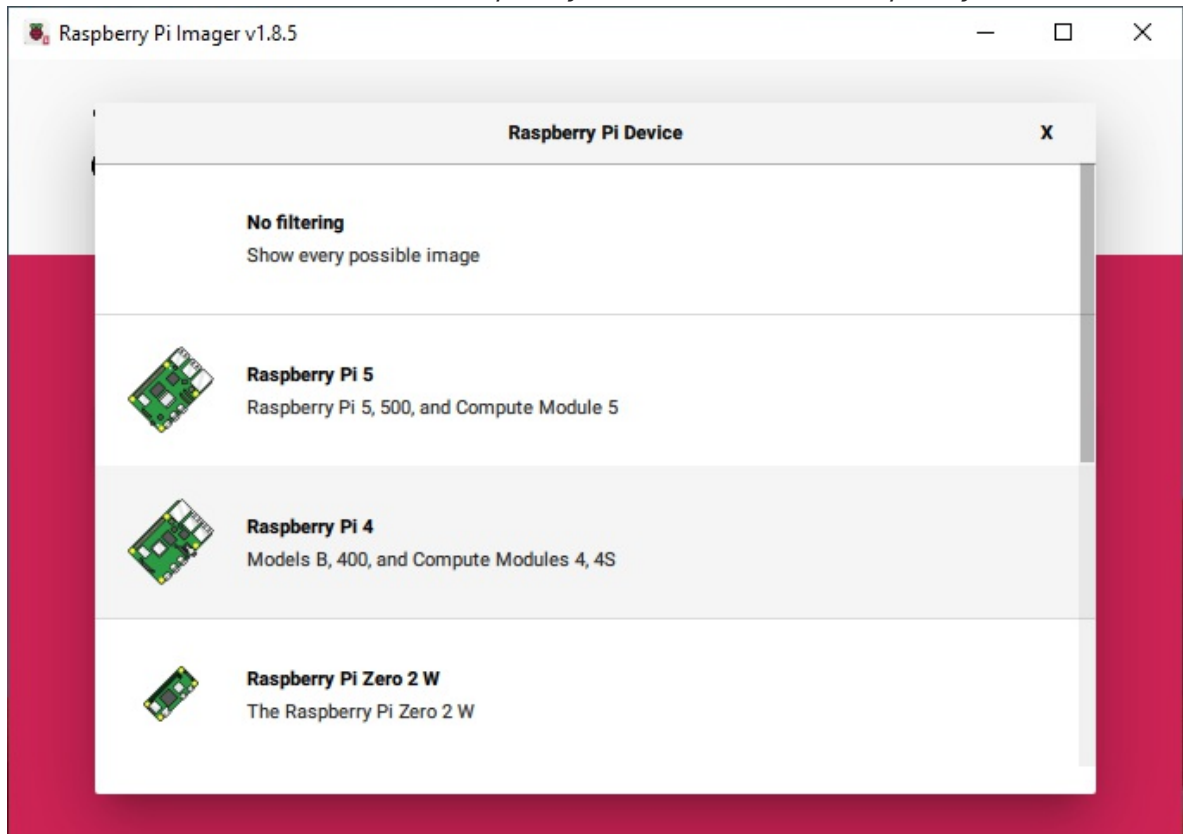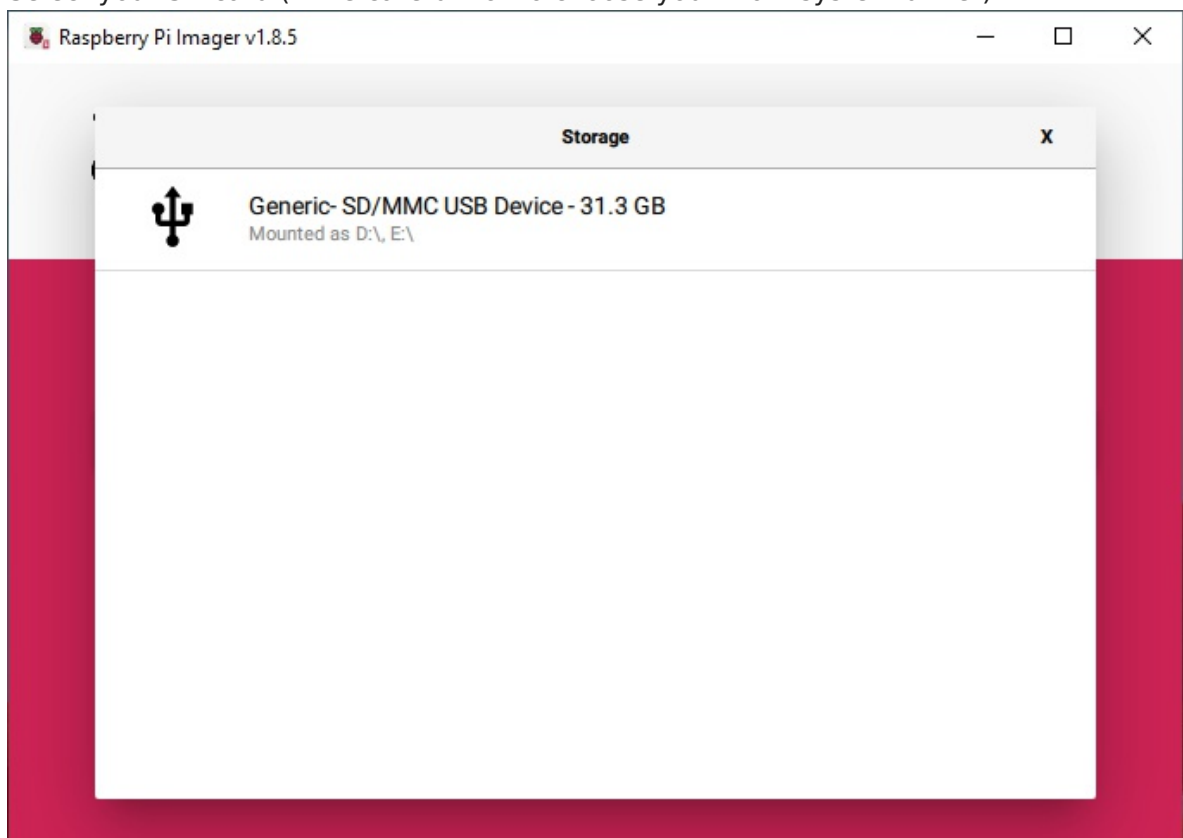
2. Run the installer:
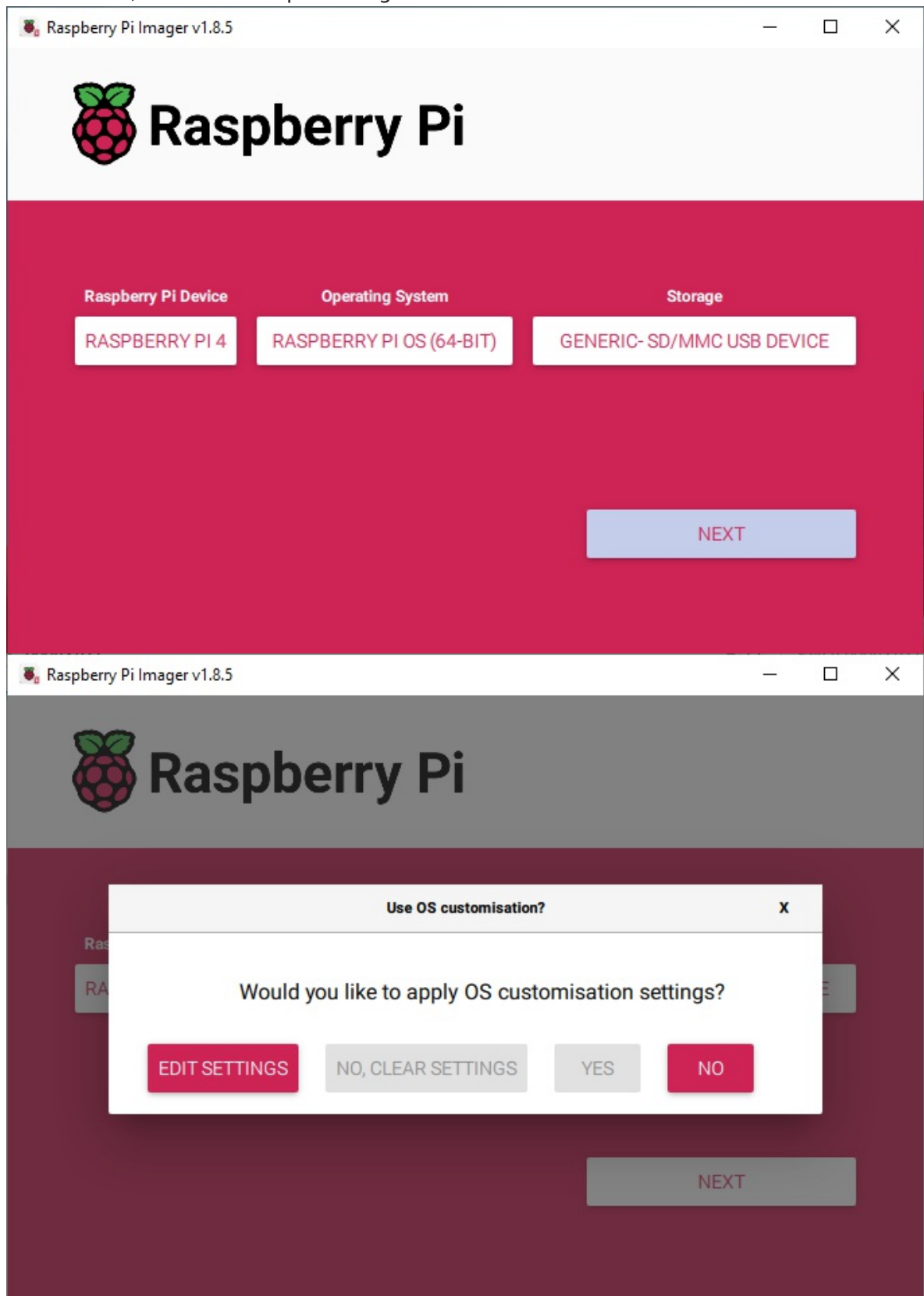
3. Open Raspberry Pi Imager:

4. Insert SD card → Choose device: *Raspberry Pi 4* → Choose OS: *Raspberry Pi OS (64-bit)*
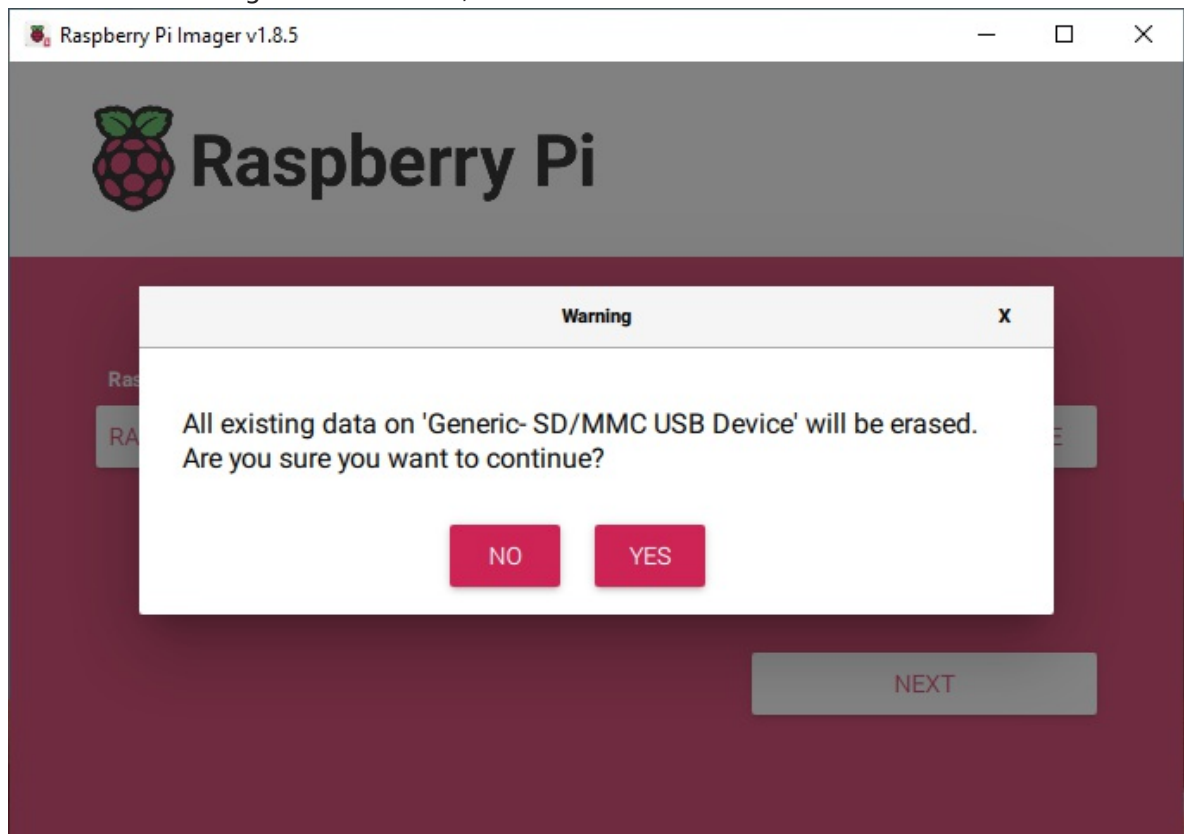

5. Select your SD card (⚠ Be careful not to choose your main system drive!)
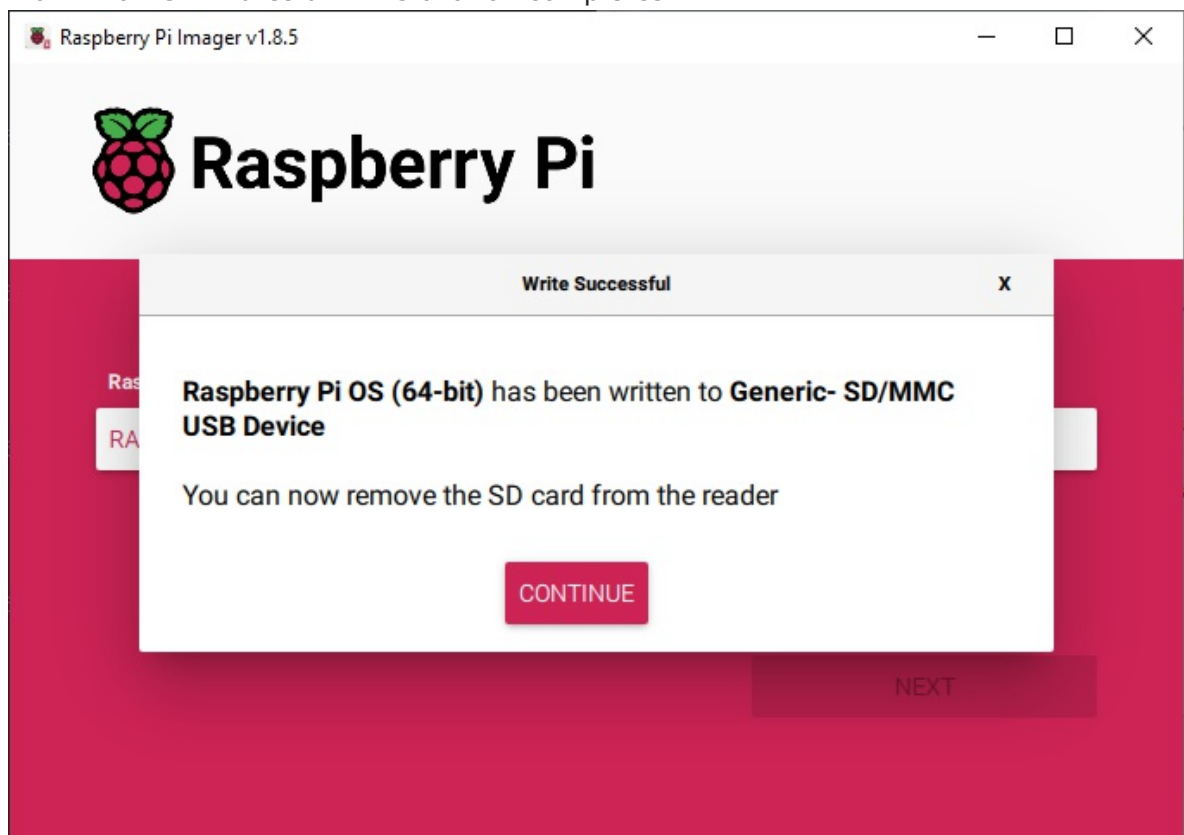
6. Click "Next", then "No" for pre-config

7. Confirm it's writing to the SD card, then click "Yes"

8. Wait ~10–15 minutes until installation completes

Congratulations! You've installed Raspberry Pi OS.

For macOS Users

1. Download the `.dmg` file

   **Install Raspberry Pi OS using
   Raspberry Pi Imager**

   Raspberry Pi Imager is the quick and easy way to install
   Raspberry Pi OS and other operating systems to a microSD
   card, ready to use with your Raspberry Pi.

   Download and install Raspberry Pi Imager to a computer
   with an SD card reader. Put the SD card you'll use with
   your Raspberry Pi into the reader and run Raspberry Pi
   Imager.

   Download for macOS

   Download for Windows

   Download for Ubuntu for x86

   To install on **Raspberry Pi OS**, type
   `sudo apt install rpi-imager`
   in a Terminal window.

2. Drag the Imager into `Applications`

   Name

   imager_1.8.5.dmg

3. Open Raspberry Pi Imager

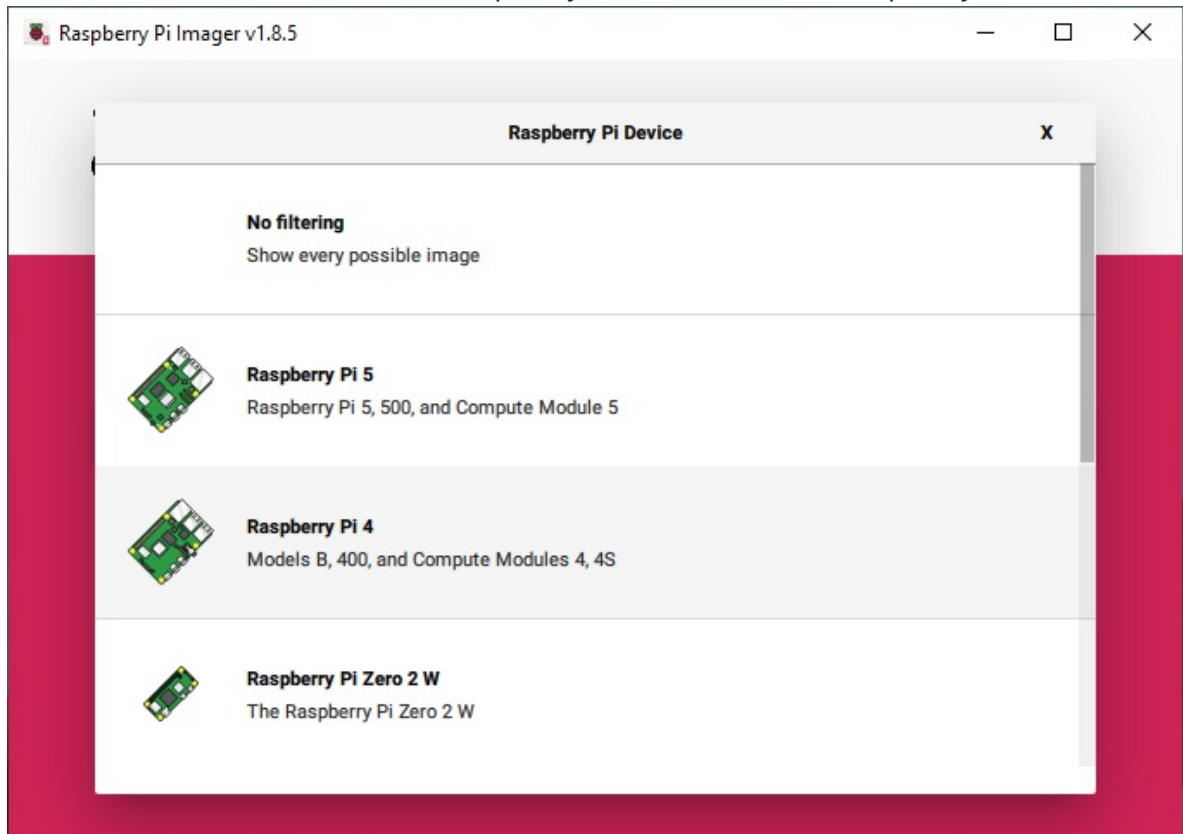Choose 0pen when macOS pop out a security box

?

"Raspberry Pi Imager" is an app downloaded from the Internet. Are you sure you want to open it?

Safari downloaded this file today at 15:27. Apple checked it for malicious software and none was detected.
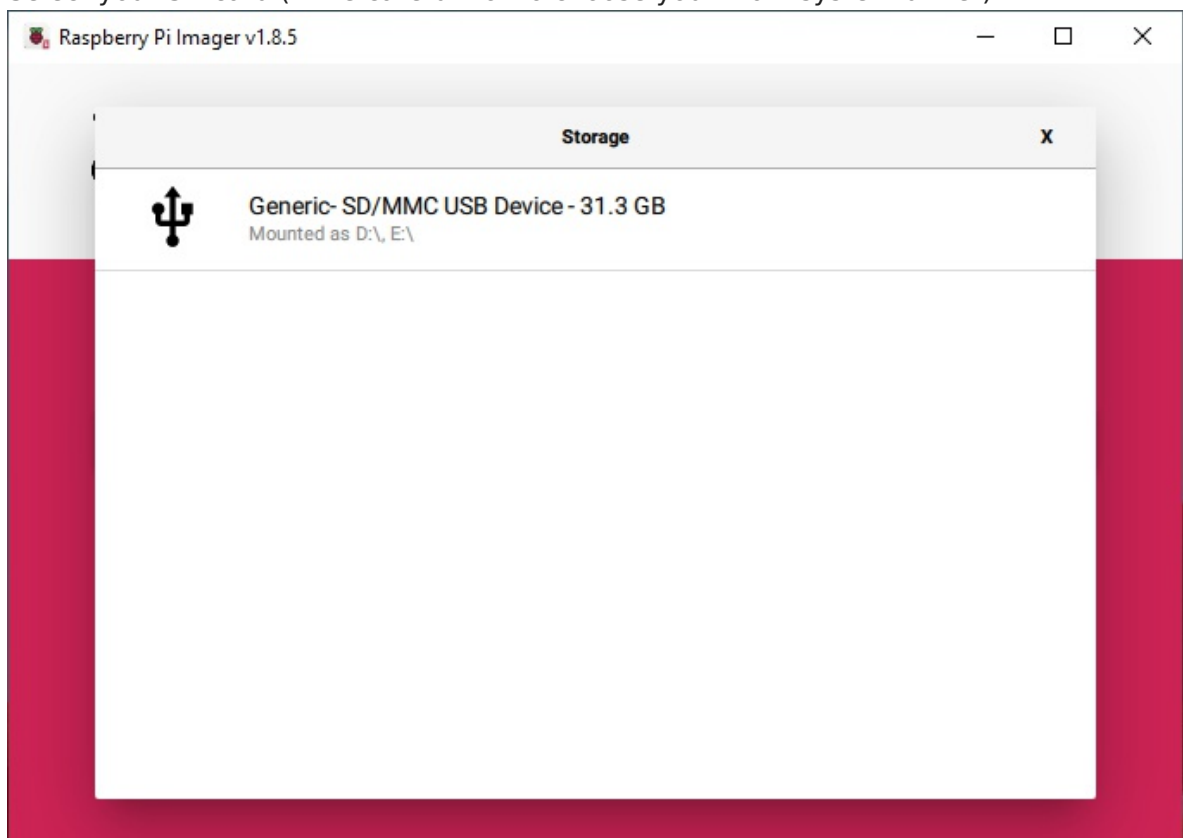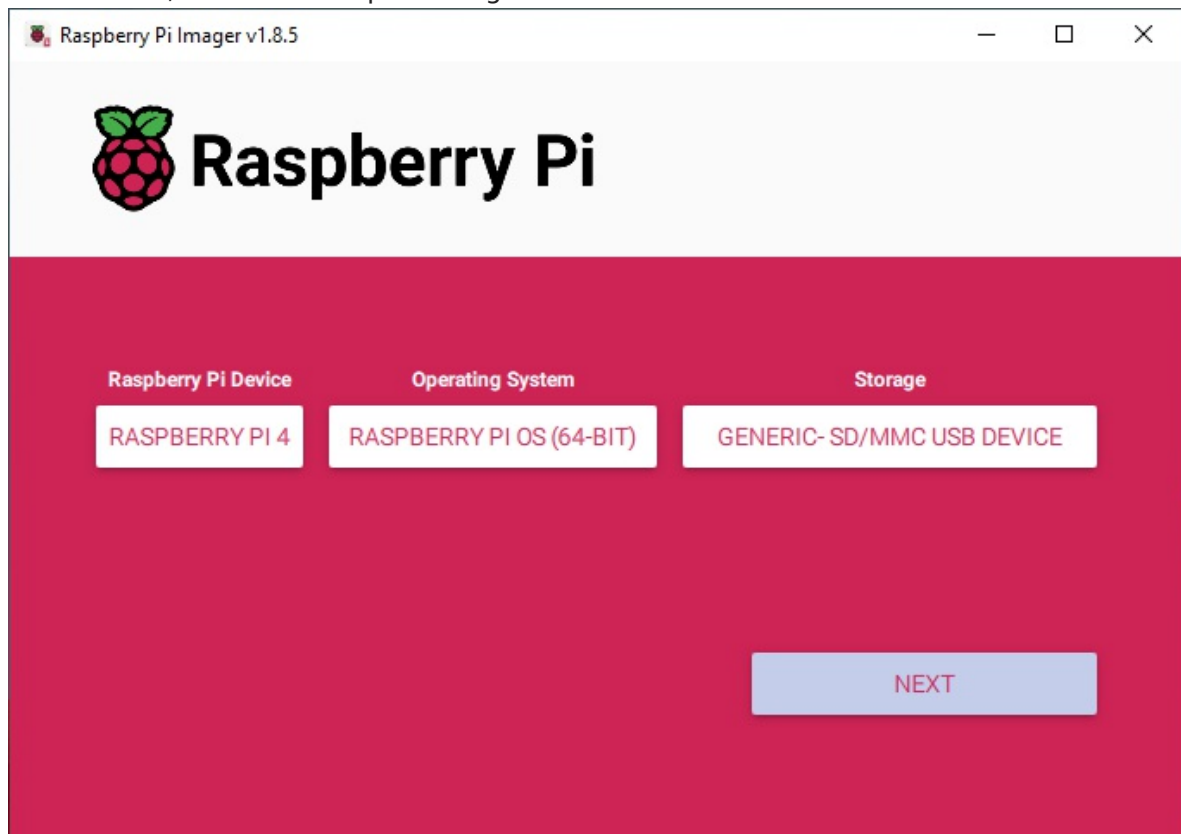
Cancel   Open

4. Insert SD card → Choose device: *Raspberry Pi 4* → Choose OS: *Raspberry Pi OS (64-bit)*
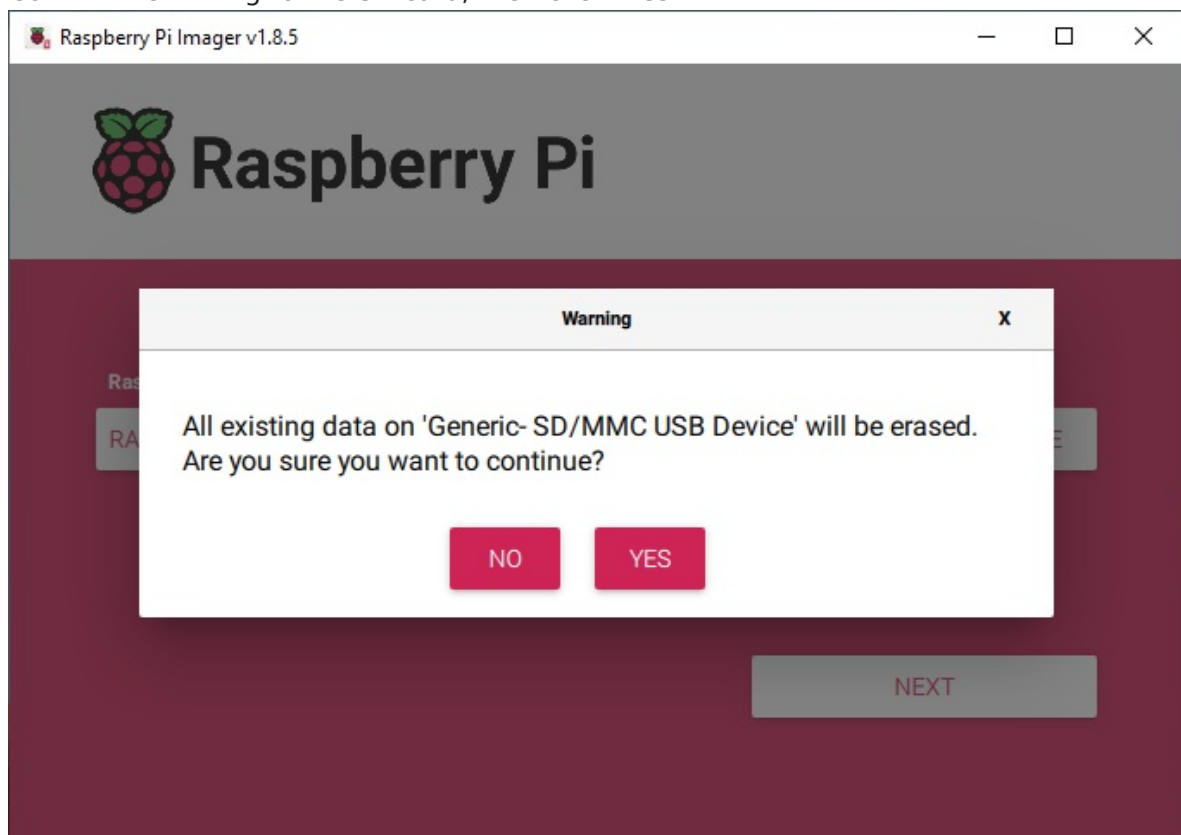

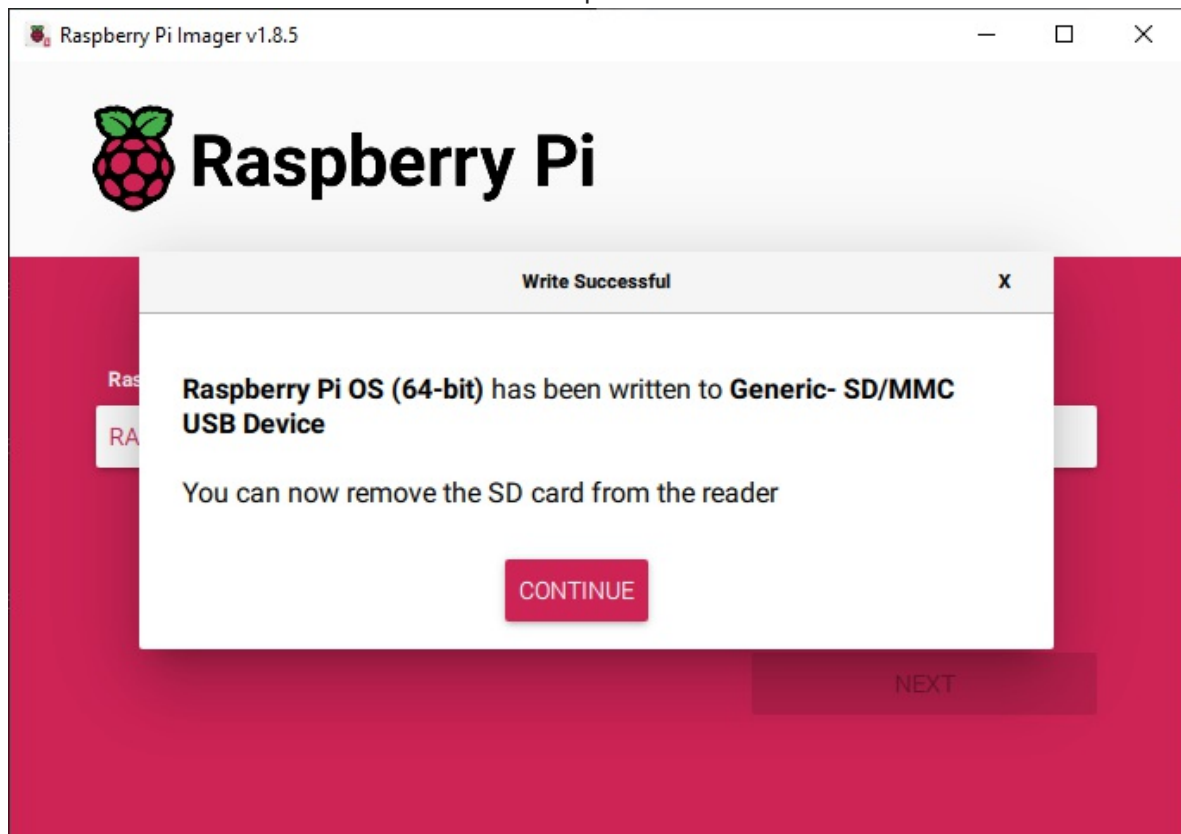5. Select your SD card (⚠ Be careful not to choose your main system drive!)

6. Click "Next", then "No" for pre-config

7. Confirm it's writing to the SD card, then click "Yes"

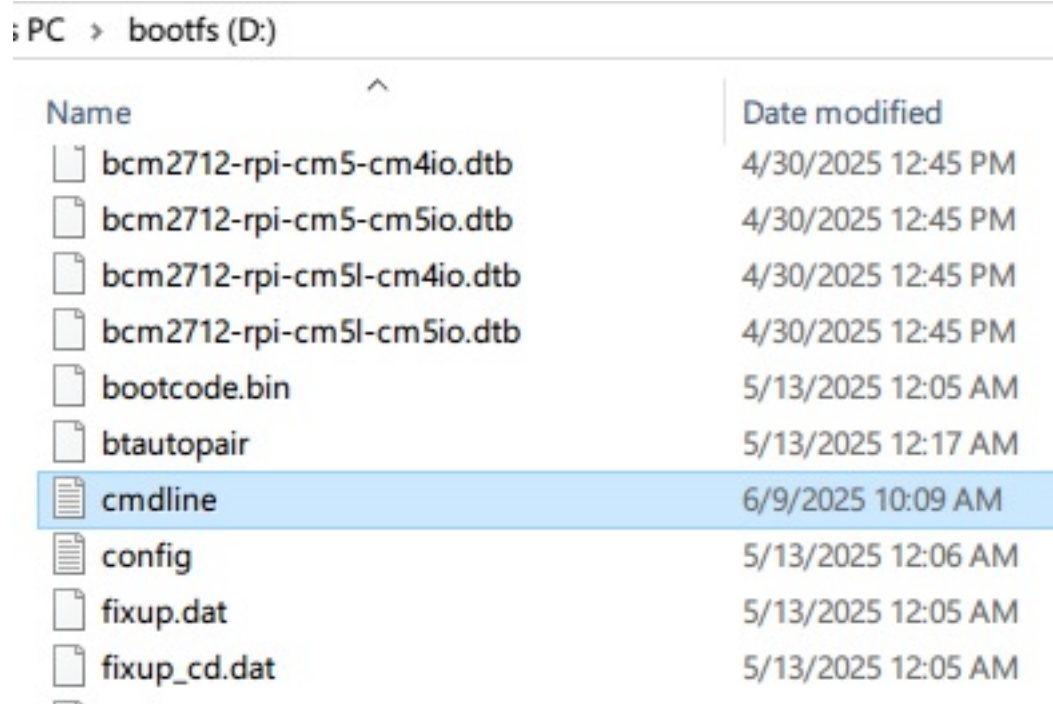8. Wait ~10–15 minutes until installation completes

II. Edit to Reduce Mouse Lag

1. Open the SD card on your computer. Locate and open `cmdline.txt`.

2. Add the following to the end of the line (with a space before it):
   `usbhid.mousepoll=0`

Then save and close. This will reduce mouse drag and improve responsiveness.
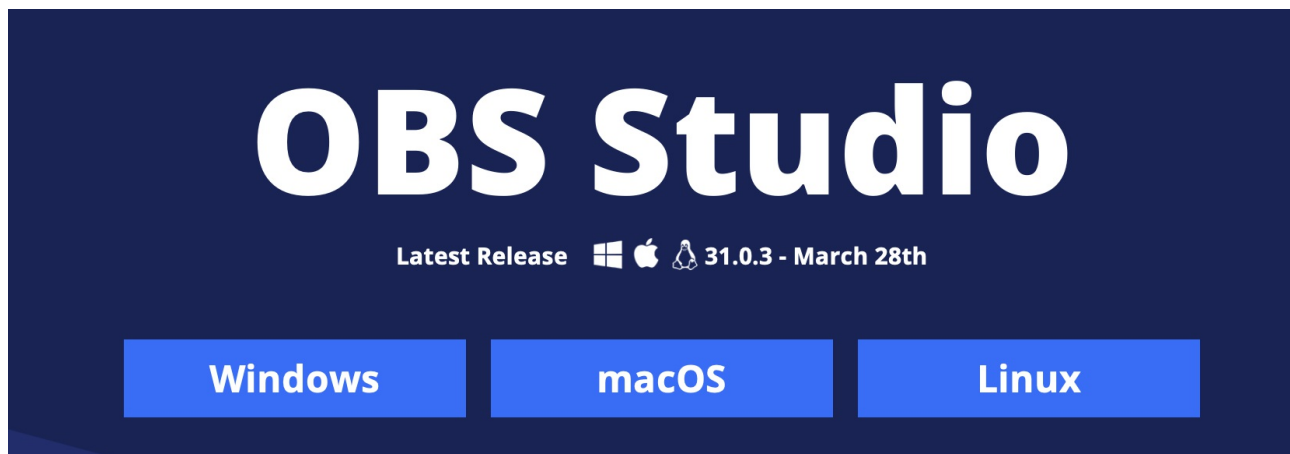


```
cmdline - Notepad
File  Edit  Format  View  Help
console=serial0,115200 console=tty1 root=PARTUUID=6e0b26c6-02
plymouth.ignore-serial-consoles usbhid.mousepoll=0
```

III. Installing OBS Studio

1. Download OBS Studio: https://obsproject.com (https://obsproject.com)

> This software allows you to display the Raspberry Pi desktop on your PC.

OBS Studio

Latest Release   ⊞ ⬤ 🐧 31.0.3 - March 28th

| Windows | macOS | Linux |

2. Run the installer:

- OBS-Studio-30.1.2-Full-Installer-x64.exe
- Click Next → Next → Install → Finish

3. When asked for usage mode, select "Recording only, no livestream".

Great job! You're ready for M-Lab 0.

Video References

1. Raspberry Pi Desktop Setup & Preferences (https://www.youtube.com/watch?v=1WDagiA8fdU&list=PLGs0VKk2DiYxdMjCJmcP6jt4Yw6OHK85O&index=1)

> Recommended: Watch from 7:42 to 18:10

This segment shows how to configure your Raspberry Pi after the first boot — including desktop layout, panel settings, and basic preferences. Helps you get familiar with the UI before M-Lab 0.
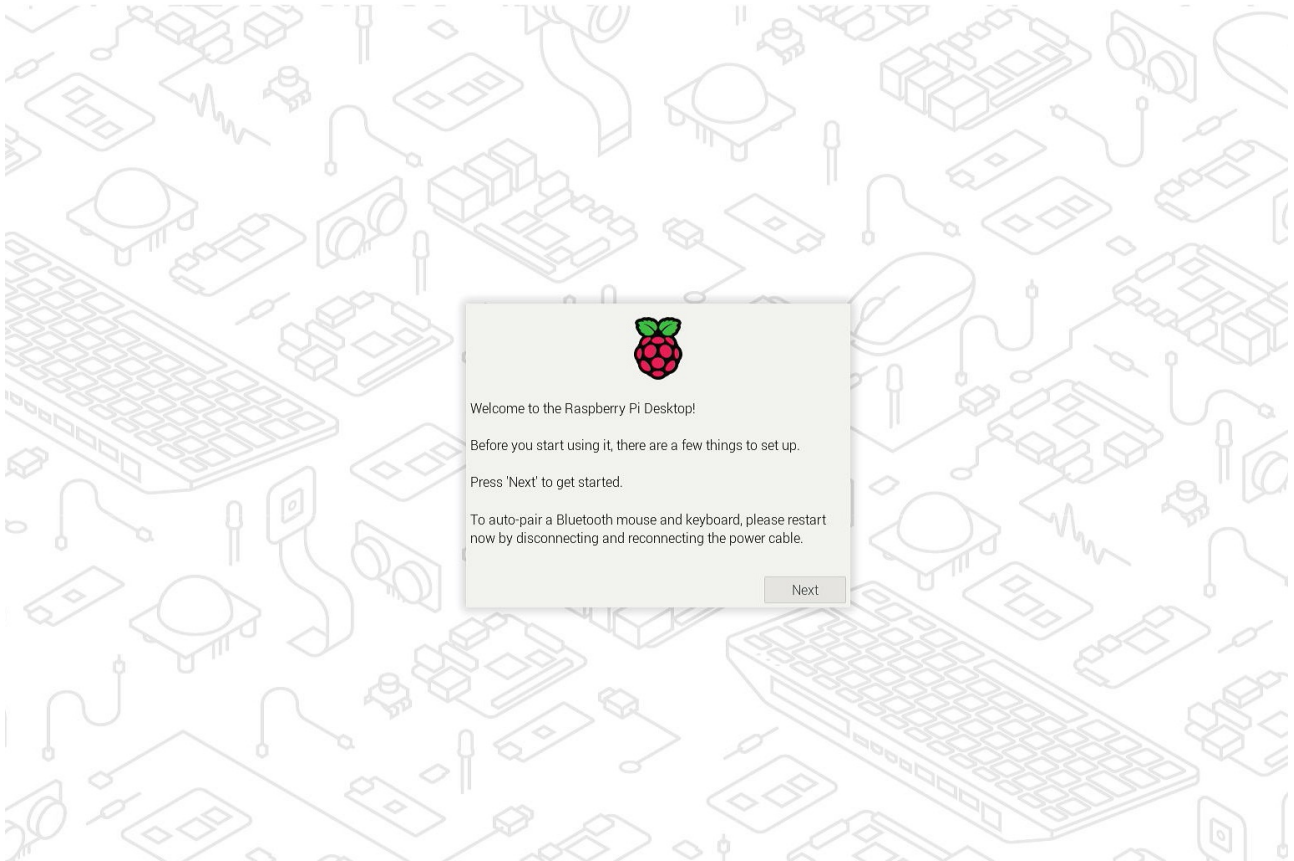
2. [Using Your Laptop as a Display for Raspberry Pi] (https://www.youtube.com/watch?v=uO0XtSckHOM)

> Useful, must watch

Demonstrates how to display Raspberry Pi's screen on your laptop using OBS Studio and/or VNC. If you're curious how OBS works or want to troubleshoot display issues, give this one a try.

If you encounter any problems, feel free to **contact the instructor (mailto:weiming.zhao@sjtu.edu.cn?subject=%5BMLab%5D%20Pre-Lab%20Question&body=Dear%20Mr.%20Zhao%2C%0AI%20have%20a%20question%20about%** or come early before M-Lab 0. I can't wait to meet you in JI-310 and discuss more about Raspberry Pi!

<!--

Welcome to the Raspberry Pi Desktop!

Before you start using it, there are a few things to set up.

Press 'Next' to get started.

To auto-pair a Bluetooth mouse and keyboard, please restart now by disconnecting and reconnecting the power cable.

Next

-->