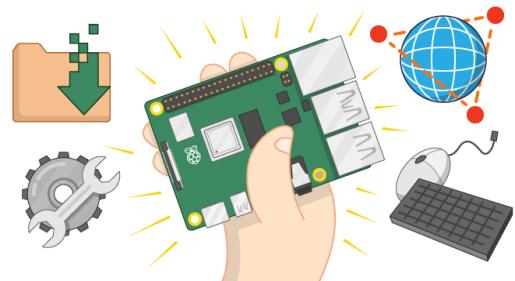




Using your Raspberry Pi

How to configure, update, and navigate your Raspberry Pi once it's set up

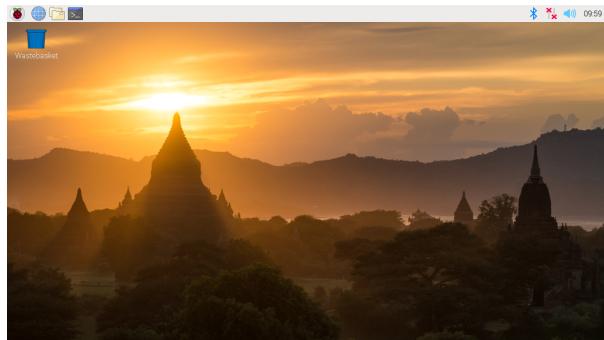


Step 1 Introduction

Here you'll learn how to use Raspberry Pi OS and some of its software, and how to adjust some key settings to your needs.

If you don't have your Raspberry Pi up and running yet, check out our **Setting up your Raspberry Pi** (<https://projects.raspberrypi.org/en/projects/raspberry-pi-setting-up>) guide.

We also have a three-week online course available **on the FutureLearn platform** (<http://rpf.io/rpi-fl>).



Step 2 Raspberry Pi Desktop

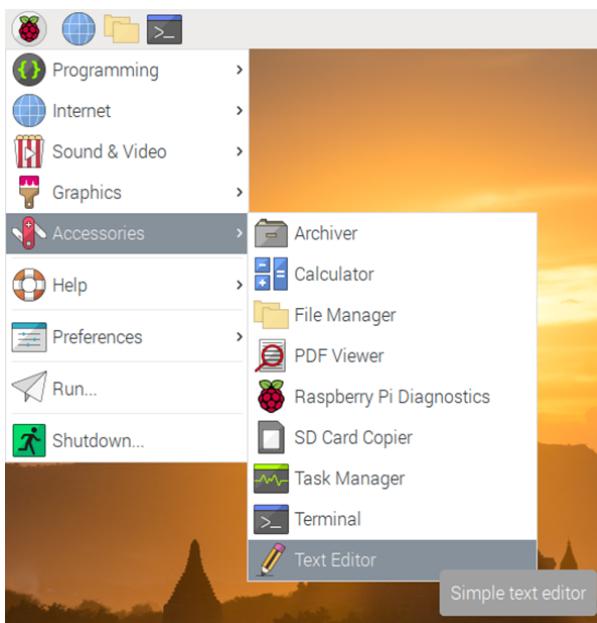
Your Raspberry Pi runs Raspberry Pi OS, a version of an operating system (OS) called Linux. (Windows and macOS are other common operating systems.)

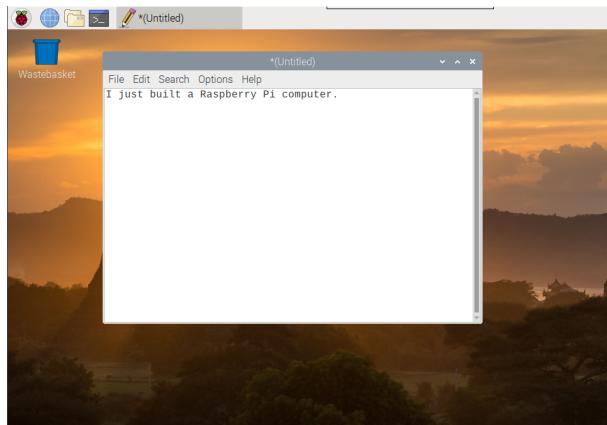
After Raspberry Pi OS starts up, you will see the Desktop appear.



The Raspberry Pi icon in the top left-hand corner is where you access the menu.

- Click on it to find lots of applications, including **Programming** applications.
- To open a text editor, click on **Accessories** and choose **Text Editor**.



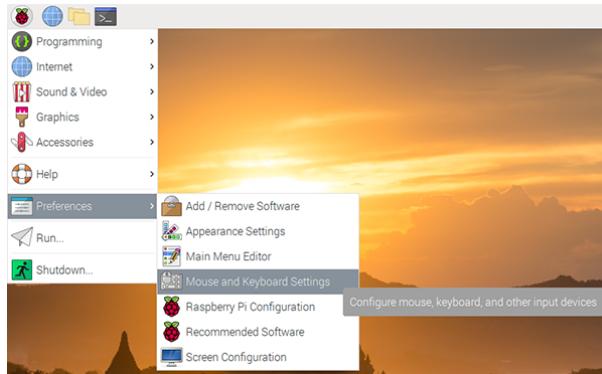


- Close the text editor by clicking the **x** in the top right-hand corner of the window.
- Explore what other applications are currently available in the menu.

Note: The Raspberry Pi Imager gives the option to install Raspberry Pi OS Full, which comes with all recommended software already loaded, including office applications and some games.

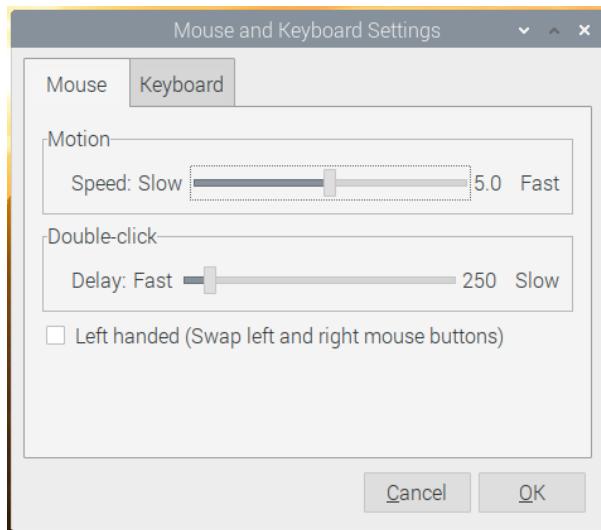
Step 3 Keyboard and mouse settings

To set up your mouse and keyboard, select **Preferences** and then **Mouse and Keyboard Settings** from the menu.



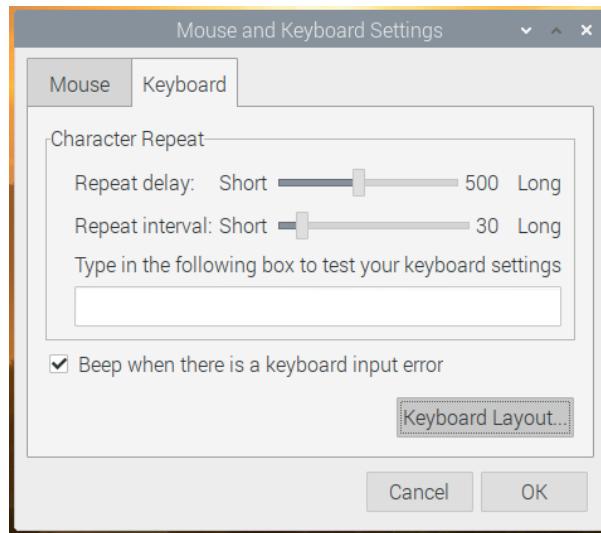
Mouse

You can change the mouse speed and double-click time here, and swap the buttons if you are left-handed.

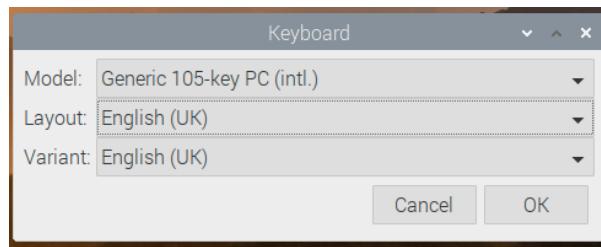


Keyboard

You can adjust the key repeat delay and interval values here.



To change the keyboard layout, click on **Keyboard Layout** and select your layout from the list of countries.



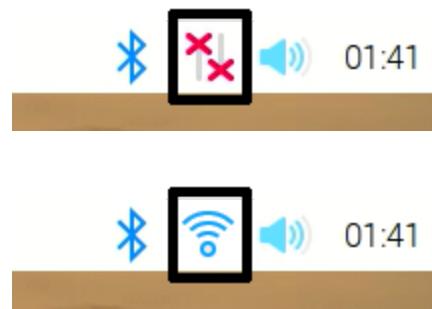
Step 4 Connecting to the internet

If you want to connect your Raspberry Pi to the internet, you can plug an Ethernet cable into it (if you have a Raspberry Pi Zero, you'll need a USB-to-Ethernet adapter as well).

If your model is a Raspberry Pi 4, Raspberry Pi 3, or Raspberry Pi Zero W, you can also connect to a wireless network.

Connecting to a wireless network

- Click on the wireless network icon in the top right-hand corner of the screen, and select your network from the drop-down menu.



- Type in the password for your wireless network, then click on **OK**.



- Once your Raspberry Pi is connected to the internet, you will see a wireless LAN symbol instead of the red crosses.



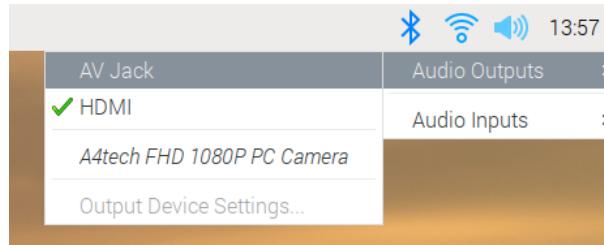
- Test your connection by clicking on the web browser icon and searching the web for `raspberry pi`.



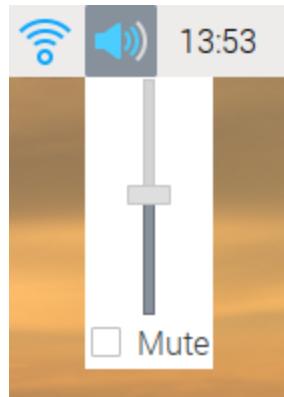
Step 5 Setting up the sound

Your Raspberry Pi can either send sound to the screen's built-in speakers through the **HDMI** connection (if your screen has speakers), or to the **analogue** headphone jack.

- Right-click on the speaker icon in the top right-hand corner, and select **Audio Outputs**, to choose whether your Raspberry Pi should use the **HDMI** or the **AV Jack** connection for sound.



- Click on the speaker icon to adjust the volume by moving the slider up or down.

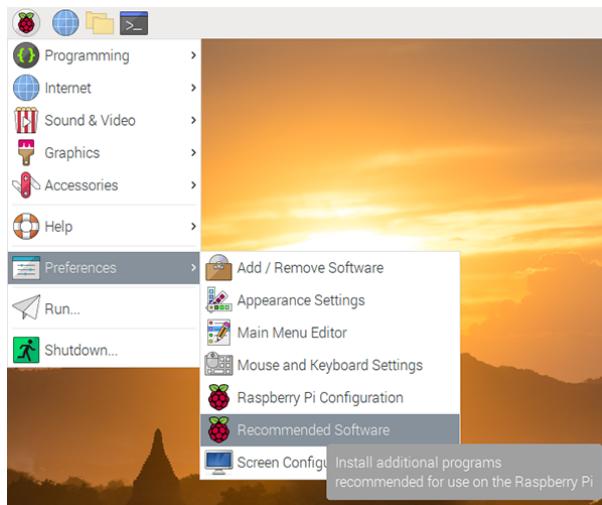


Step 6 Installing software

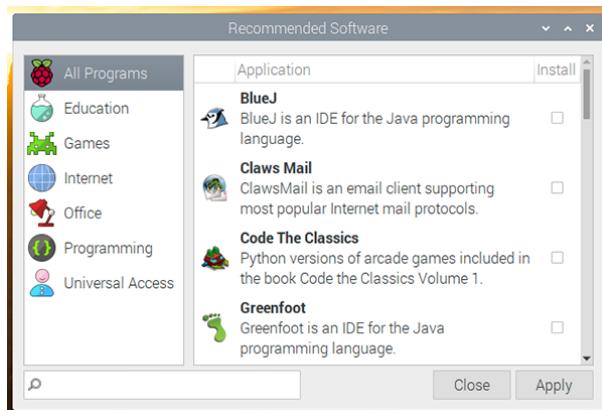
There are many, many software programs and applications you can download and install on Raspberry Pi.

Note: Your Raspberry Pi has to be **connected to the internet** (4) before you can install software.

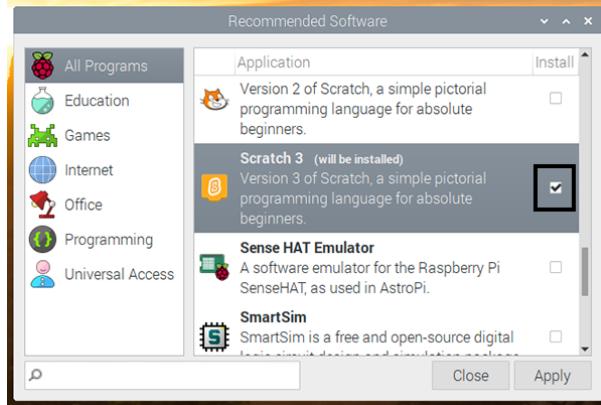
- In the menu, click on **Preferences** and then on **Recommended Software**.



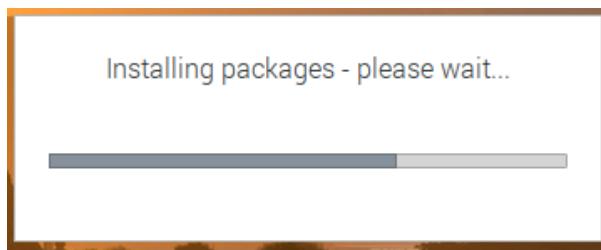
You can browse all the recommended software, or filter it by category.



- To install a piece of software, click to mark the checkbox to its right.

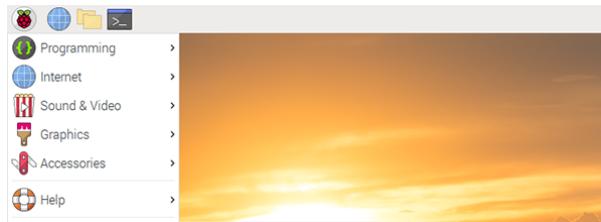


- Then click on **OK** to install the selected software.

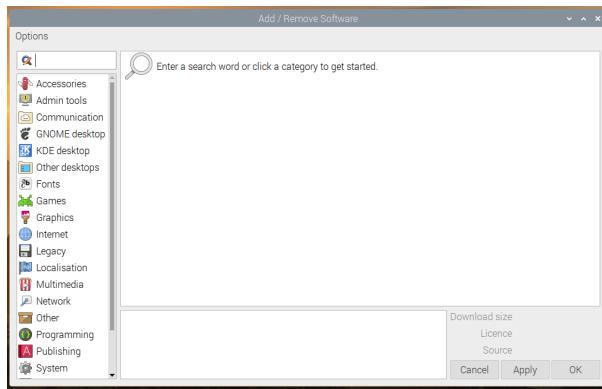


In addition to the Raspberry Pi's recommended software, there's a huge library of other available programs and applications.

- Click on **Preferences** and then on **Add / Remove Software** in the menu.

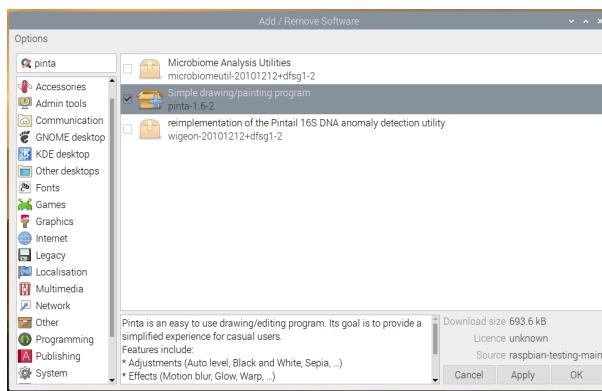


You can search for software, or browse by selecting a category from the menu on the left.

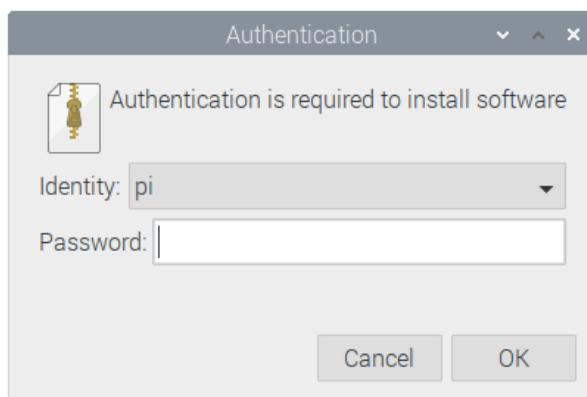


Try installing a drawing application called **Pinta**.

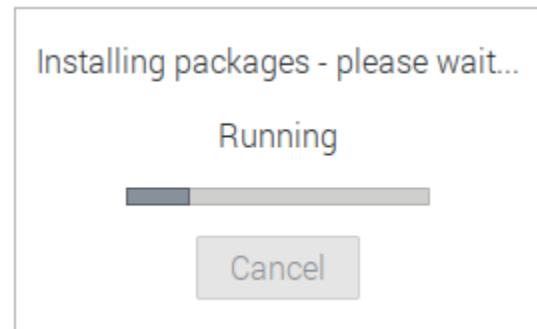
- Type 'pinta' into the search box and press **Enter**.
- Select **Simple drawing/painting program** in the list that appears.



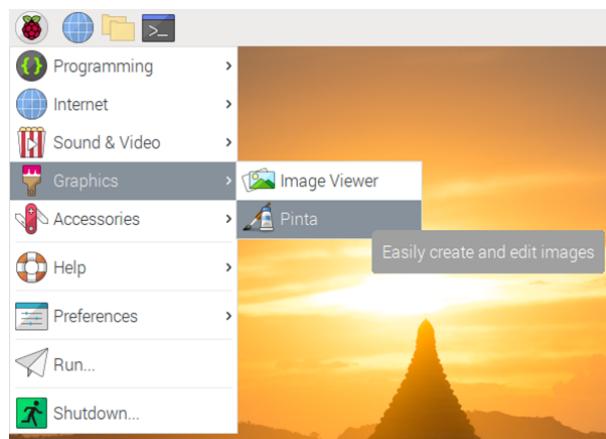
- Click on **OK** to start the installation process.
- When prompted, enter your password; if you haven't changed the password, it will be 'raspberry'.



Pinta will now be downloaded and installed.



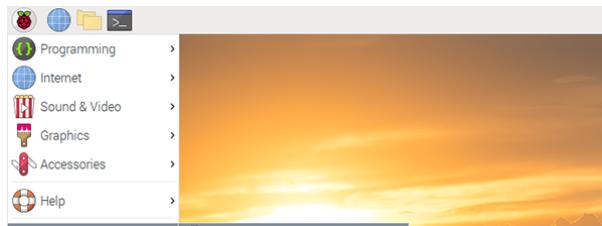
- When the process is complete, open Pinta by selecting **Graphics** and then **Pinta** from the menu.



Step 7 Updating your Raspberry Pi

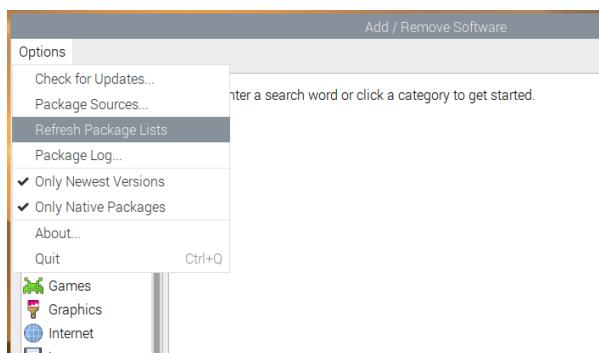
It's a good idea to regularly update the software on your Raspberry Pi with the latest features and fixes.

- You can update your Raspberry Pi using the **Add / Remove Software** application: open it by selecting it from the **Preferences** section of the menu.

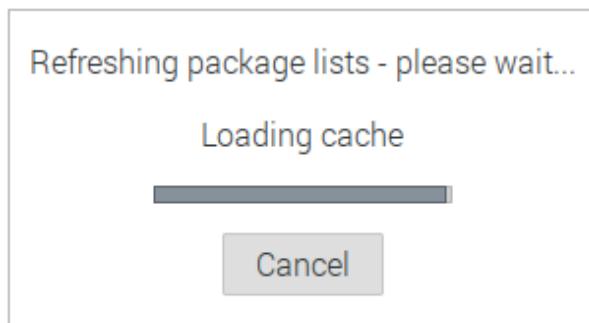


Before you check and install any updates, you should refresh the software package lists on your Raspberry Pi.

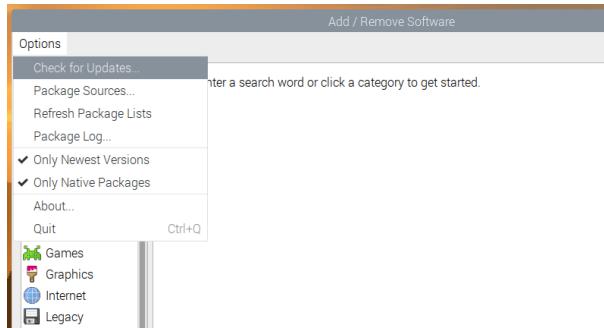
- Click on **Options** in the top left-hand corner, and select **Refresh Package Lists**.



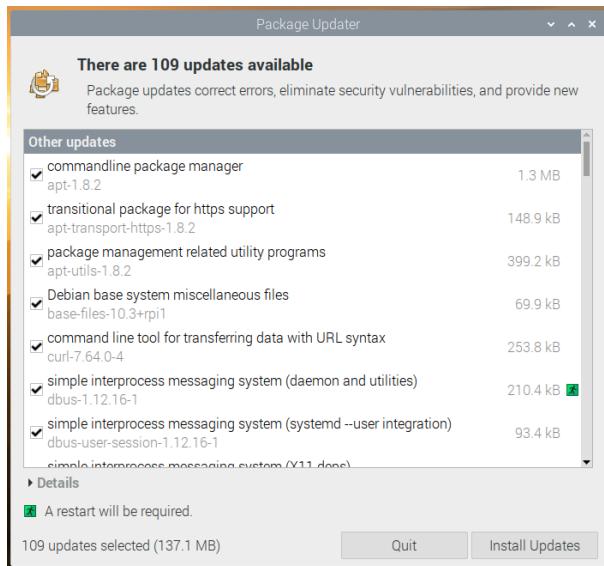
Your Raspberry Pi will then update all lists of packages.



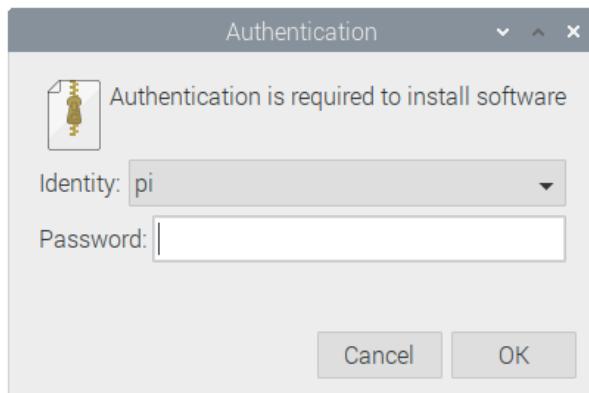
- When this is done, click on **Options** and select **Check for Updates**.



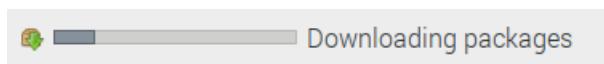
The **Package Updater** will open and automatically check whether updates are available. It will display anything it finds in a list.



- Click on **Install Updates** to install all the available updates.
- When prompted, enter your password; if you haven't changed the password, it will be 'raspberry'.



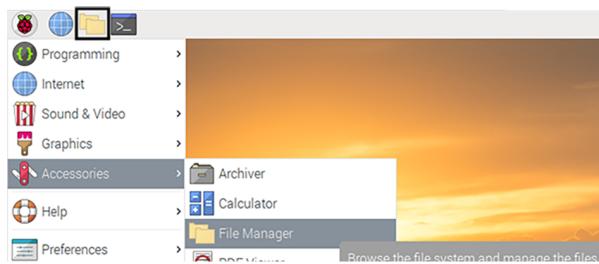
- The updates will then be downloaded and installed. You can see the installation by checking the progress bar in the bottom left-hand corner.



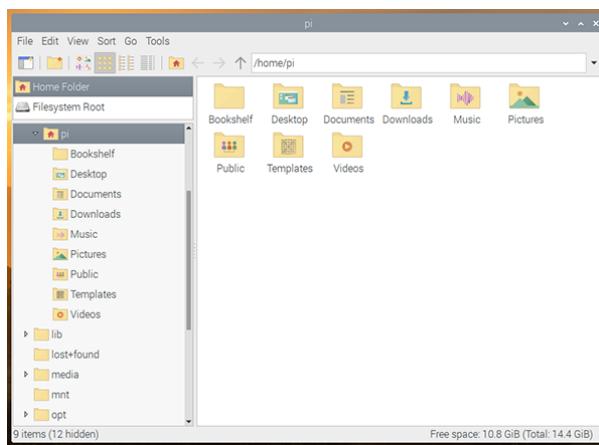
Step 8 Accessing your files

All the files on your Raspberry Pi, including the ones you create yourself, are stored on the SD card. You can access your files using the **File Manager** application.

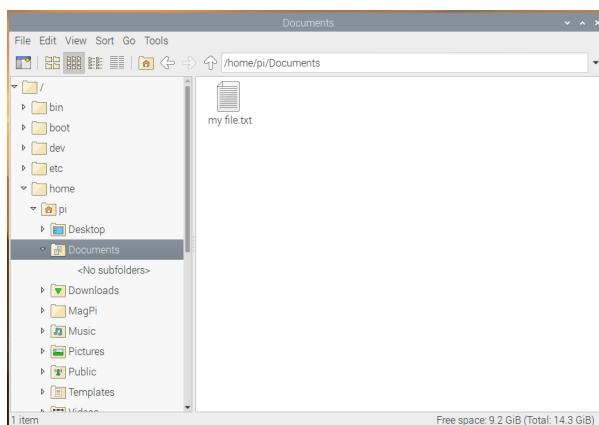
- Click on **Accessories** and then on **File Manager** in the menu, or select the **File Manager** icon on the menu bar.



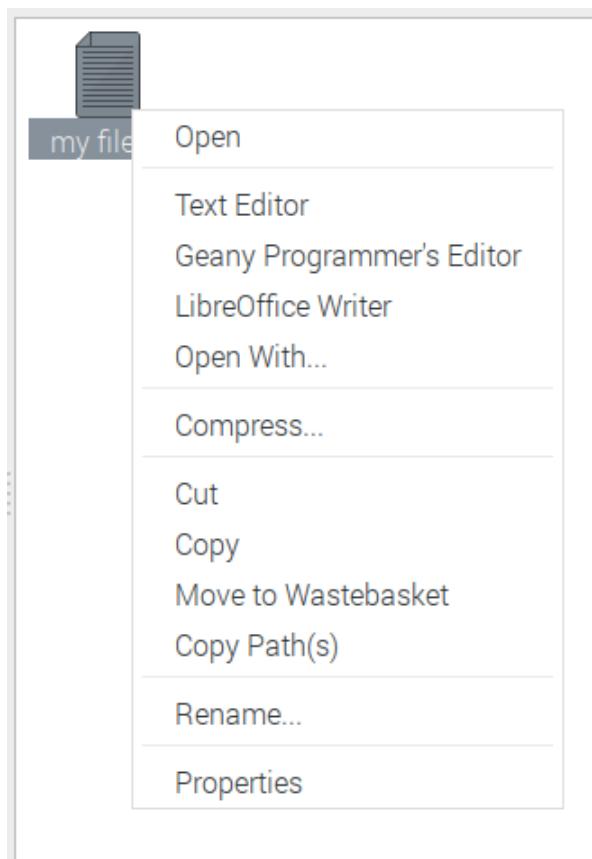
When the File Manager opens, you will be shown the `pi` directory – this is where you can store your files and create new subfolders.



- Double-click on the **Documents** icon to open the directory and view the files inside.

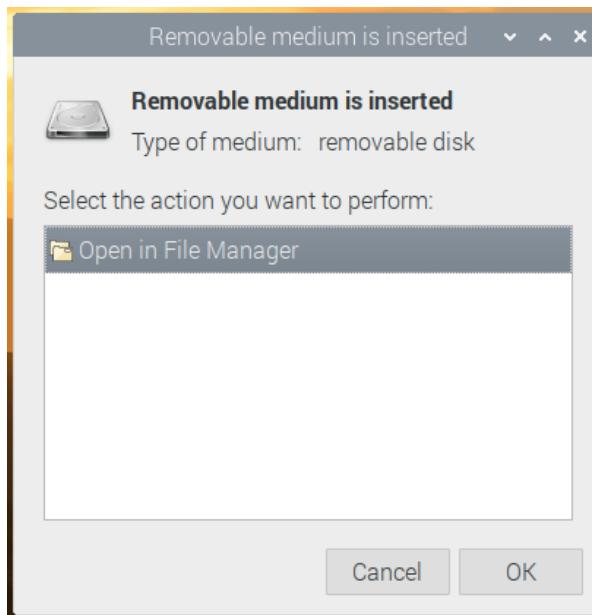


To open a file, double-click on its name, or right-click on it to open the file menu for more options.



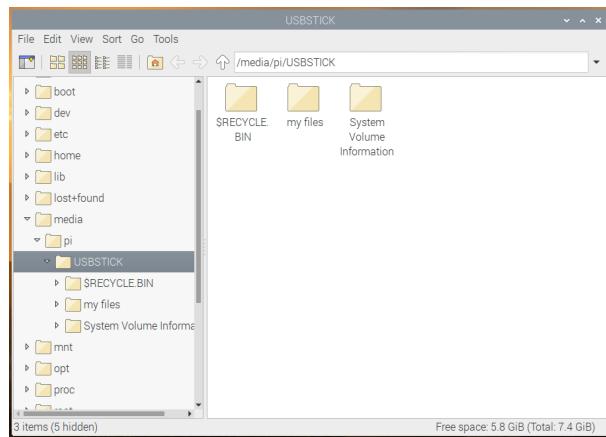
You can use USB drives and sticks with your Raspberry Pi. This is a convenient way of backing up your files and copying them to other computers.

- Insert a USB stick into your Raspberry Pi. A window will pop up, asking what action you want to perform.



- Click on **OK** to **Open in File Manager**.

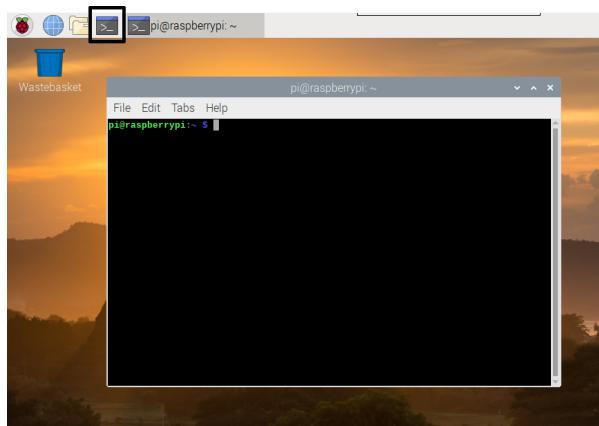
The File Manager will open and show you the files on your USB stick.



Step 9 Using the terminal

The **terminal** is a really useful application: it allows you to navigate file directories and control your Raspberry Pi using typed commands instead of clicking on menu options. It's often in many tutorials and project guides, including the ones on our website.

- To open a terminal window, click on the **Terminal** icon at the top of the screen, or select **Accessories** and then **Terminal** in the menu.



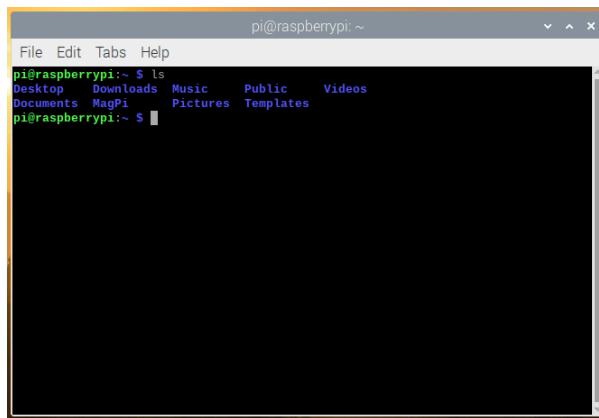
You can type commands into the terminal window and run them by pressing **Enter** on your keyboard.

- In the terminal window, type:

```
ls
```

- Then press **Enter** on the keyboard.

The command **ls** lists all the files and subdirectories in the current file directory. By default, the file directory that the terminal accesses when you open it is the one called **pi**.



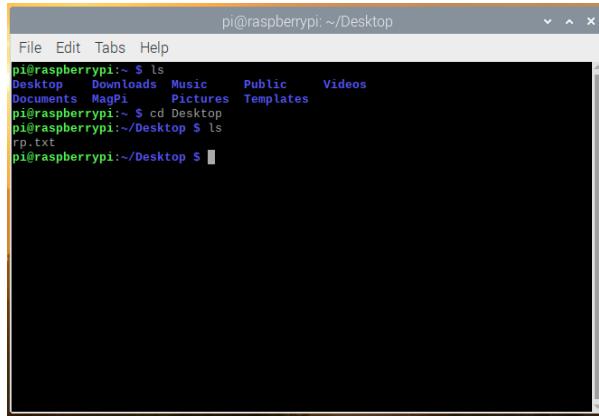
- Now type in this command to **change directory** to the Desktop.

```
cd Desktop
```

You have to press the **Enter** key after every command.

- Use the command `ls` to list the files in the Desktop directory.

```
ls
```



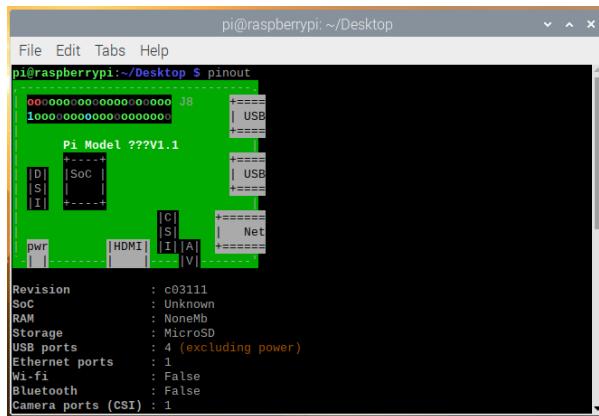
```
pi@raspberrypi:~$ ls
Desktop  Downloads  Music  Public  Videos
Documents  MagPi  Pictures  Templates
pi@raspberrypi:~$ cd Desktop
pi@raspberrypi:~/Desktop$ ls
rp.txt
pi@raspberrypi:~/Desktop$
```

The terminal can do a lot more than list files – it's a very powerful way of interacting with your Raspberry Pi!

- As just one small example, try the command `pinout`:

```
pinout
```

This will show you a labelled diagram of the GPIO pins, and some other information about your Raspberry Pi.



```
pi@raspberrypi:~$ pinout
Pi Model ???V1.1
Revision      : c03111
SoC          : Unknown
RAM          : NoneMb
Storage       : MicroSD
USB ports     : 4 (excluding power)
Ethernet ports : 1
Wi-fi         : False
Bluetooth    : False
Camera ports (CSI) : 1
```

- Close the terminal window by clicking on the **x** in the top right-hand corner, or using the command `exit`.

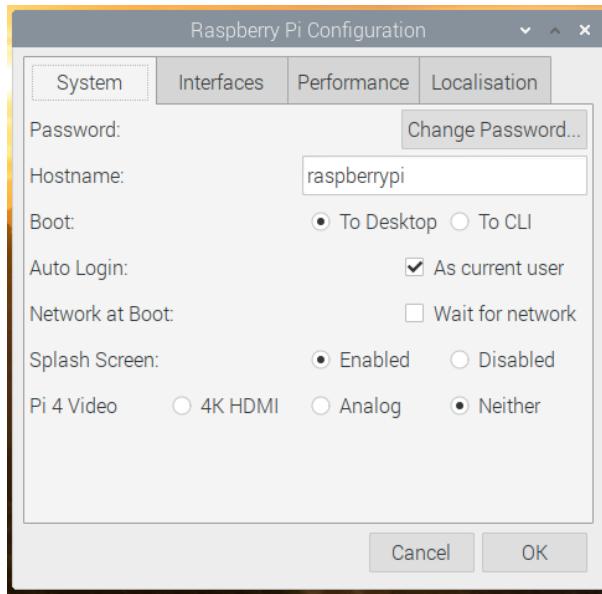
Step 10 Configuring your Raspberry Pi

You can control most of your Raspberry Pi's settings, such as the password, through the **Raspberry Pi Configuration** application found in **Preferences** on the menu.



System

In this tab you can change basic system settings of your Raspberry Pi.



- **Password** – set the password of the `pi` user (it is a good idea to change the password from the factory default 'raspberry')
- **Boot** – select to show the **Desktop** or **CLI** (command line interface) when your Raspberry Pi starts
- **Auto Login** – enabling this option will make the Raspberry Pi automatically log in whenever it starts
- **Network at Boot** – selecting this option will cause your Raspberry Pi to wait until a network connection is available before starting
- **Splash Screen** – choose whether or not to show the splash (startup) screen when your Raspberry Pi boots