

Updating and upgrading Raspbian

This section covers how to deploy software updates to devices running Raspbian.

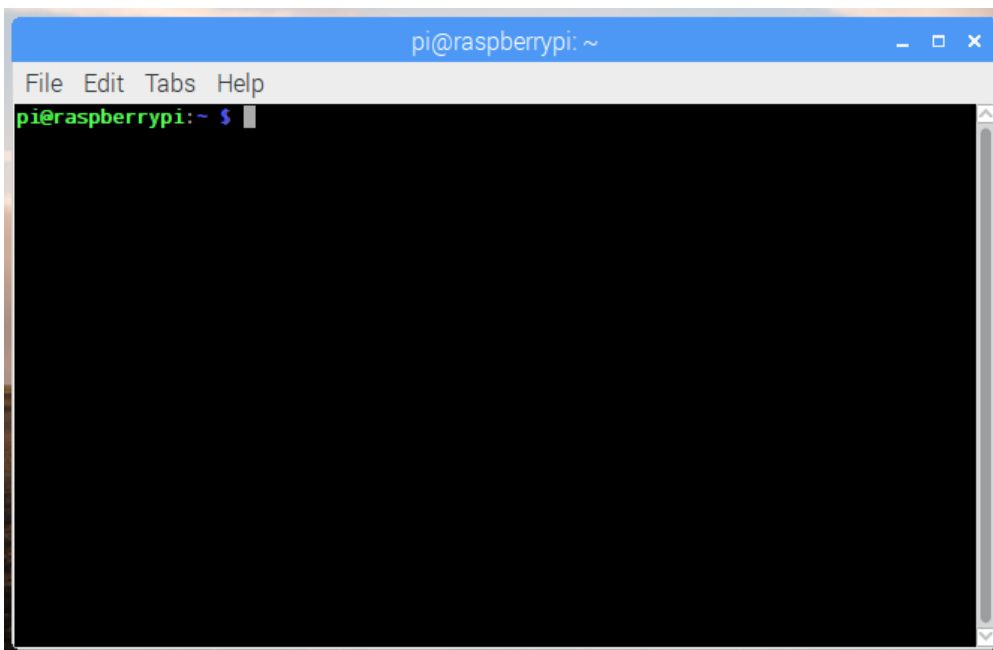
Before we go any further, let's investigate why keeping our devices updated is important.

The first and probably the most important reason is security. A device running Raspbian contains millions lines of code that you rely on. Over time, these millions lines of code will expose well-known vulnerabilities known as [Common Vulnerabilities and Exposures \(CVE\)](#), which are documented in publicly available databases meaning that they are easy to exploit. [Here is a example](#) of a recent CVE found in KODI that provides a bit more insight on what information is available in the database and how CVEs are tracked. The only way to mitigate these exploits as a user of Raspbian is to keep your software up to date, as the upstream repositories track CVEs closely and try to mitigate them quickly.

The second reason, which is related to the first, is that the software you are running on your device most certainly contains bugs. Some bugs are CVEs, but bugs could also be affecting the desired functionality without being related to security. By keeping your software up to date, you are lowering the chances of hitting these bugs.

APT (Advanced Packaging Tool)

To update software in Raspbian, you can use the [apt](#) tool in a terminal. Open a terminal window from the taskbar or application menu:



First, **update** your system's package list by entering the following command:

```
sudo apt update
```

Next, **upgrade** all your installed packages to their latest versions with the following command:

```
sudo apt full-upgrade
```

Note that `full-upgrade` is used in preference to a simple `upgrade`, as it also picks up any dependency changes that may have been made.

Generally speaking, doing this regularly will keep your installation up to date for the particular major Raspbian release you are using (e.g. Stretch). It will not update from one major release to another, for example, Stretch to Buster.

However, there are occasional changes made in the Foundation's Raspbian image that require manual intervention, for example a newly introduced package. These are not installed with an upgrade, as this command only updates the packages you already have installed.

Updating the kernel and firmware

The kernel and firmware are installed as a Debian package, and so will also get updates when using the procedure above. These packages are updated infrequently and after extensive testing.

Running out of space

When running `sudo apt full-upgrade`, it will show how much data will be downloaded and how much space it will take up on the SD card. It's worth checking with `df -h` that you have enough free disk space, as unfortunately `apt` will not do this for you. Also be aware that downloaded package files (`.deb` files) are kept in `/var/cache/apt/archives`. You can remove these in order to free up space with `sudo apt clean`.

Upgrading from Jessie to Stretch

Upgrading an existing Jessie image is possible, but is not guaranteed to work in every circumstance. If you wish to try upgrading a Jessie image to Stretch, we strongly recommend making a backup first — we can accept no responsibility for loss of data from a failed update.

To upgrade, first modify the files `/etc/apt/sources.list` and `/etc/apt/sources.list.d/raspi.list`. In both files, change every occurrence of the word `jessie` to `stretch`. (Both files will require `sudo` to edit.)

Then open a terminal window and execute:

```
sudo apt update
sudo apt -y dist-upgrade
```

Answer 'yes' to any prompts. There may also be a point at which the install pauses while a page of information is shown on the screen — hold the space key to scroll through all of this and then press `q` to continue.

Finally, if you are not using PulseAudio for anything other than Bluetooth audio, remove it from the image by entering:

```
sudo apt -y purge "pulseaudio*"
```

If moving to a new Pi model (for example the Pi 3B+), you may also need to update the kernel and the firmware using the instructions above.