

// Raspberry Pi

Warning

Please remember to ensure you're using an [appropriate power supply](#) with your Raspberry Pi. Mobile chargers may not be suitable, since some are designed to only provide the full power with that manufacturer's handsets. USB ports on your computer also will not supply enough power and must not be used.

Before installing Home Assistant, you might want to [compare installation methods](#). Most notably, [add-ons](#) are only available with the Home Assistant Operating System.

Suggested Hardware

We will need a few things to get started with installing Home Assistant. Links below lead to Amazon US. If you're not in the US, you should be able to find these items in web stores in your country.

- [Raspberry Pi 4](#) (Raspberry Pi 3 Model B is ok too, but the Model A does not have enough RAM). Raspberry Pi are currently hard to come by, use [RPILocator](#) to find official distributors with stock.
- [Power Supply for Raspberry Pi 4](#) or [Power Supply for Raspberry Pi 3](#)
- [Micro SD Card](#). Ideally get one that is [Application Class 2](#) as they handle small I/O much more consistently than cards not optimized to host applications. A 32 GB or bigger card is recommended.
- SD Card reader. This is already part of most laptops, but you can purchase

a [standalone USB adapter](#) if you don't have one. The brand doesn't matter, just pick the cheapest.

- [Ethernet cable](#). Required for installation. After installation, Home Assistant can work with Wi-Fi, but an Ethernet connection is more reliable and highly recommended.

Install Home Assistant Operating System

This guide shows how to install the Home Assistant Operating system onto your Raspberry Pi using Raspberry Pi Imager.

If Raspberry Pi Imager is not supported by your platform, you can use [Balena Etcher](#) instead.

WRITE THE IMAGE TO YOUR SD CARD

1. Download and install the Raspberry Pi Imager on your computer as described under <https://www.raspberrypi.com/software/>.

Raspberry Pi OS

Your Raspberry Pi needs an operating system to work. This is it. Raspberry Pi OS (previously called Raspbian) is our official supported 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. [Watch our 45-second video](#) to learn how to install an operating system using Raspberry Pi Imager.

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 Ubuntu for x86](#)

[Download for Windows](#)

[Download for macOS](#)



2. Open the Raspberry Pi Imager and select your Raspberry Pi device.



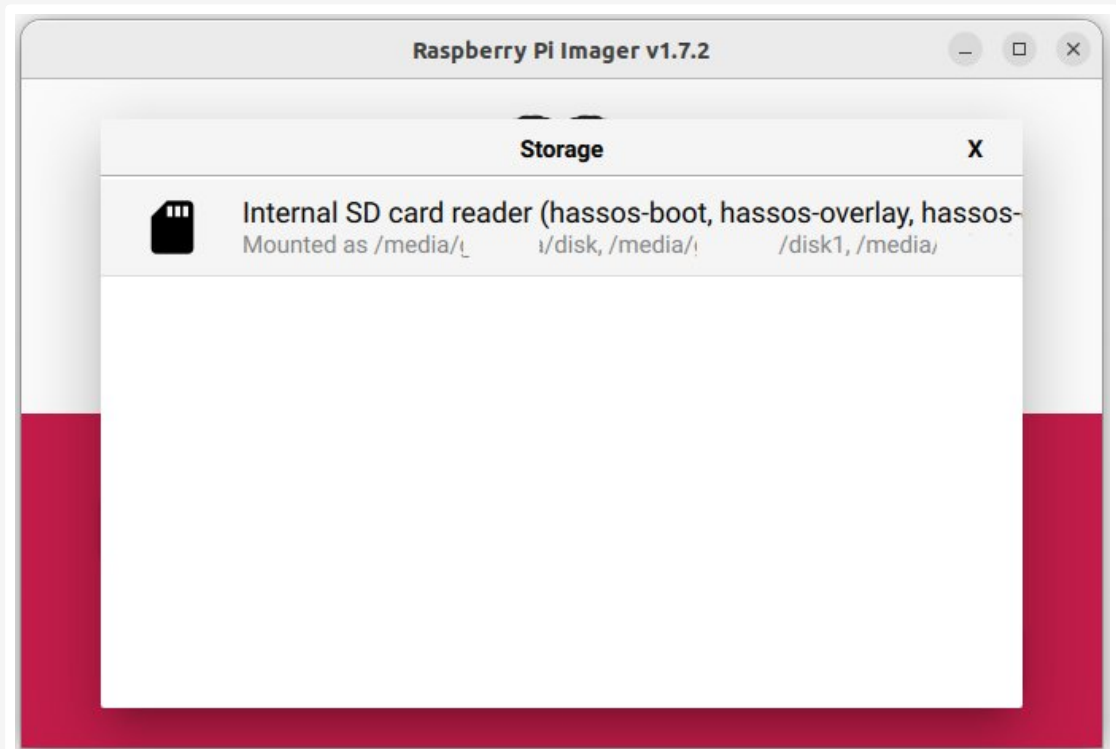
3. Choose the operating system:

1. Select **Choose OS**.
2. Select **Other specific-purpose OS > Home assistants and home automation > Home Assistant**.
3. Choose the Home Assistant OS that matches your hardware (RPi 3 or RPi 4).



4. Choose the storage:

1. Insert the SD card into the computer. Note: the contents of the card will be overwritten.
2. Select your SD card.



5. Write the installer onto the SD card:

1. To start the process, select **Next**.
2. Wait for the Home Assistant OS to be written to the SD card.



- 
6. Eject the SD card.

START UP YOUR RASPBERRY PI

1. Insert the SD card into your Raspberry Pi.
2. Plug in an Ethernet cable and make sure the Raspberry Pi is connected to the same network as your computer.
3. Connect the power supply to start up the device.

ACCESS HOME ASSISTANT

Within a few minutes after connecting the Raspberry Pi, you will be able to reach your new Home Assistant.

- In the browser of your desktop system, enter homeassistant.local:8123.

i Note

If you are running an older Windows version or have a stricter network configuration, you might need to access Home Assistant at homeassistant:8123 or `http://X.X.X.X:8123` (replace X.X.X.X with your Raspberry Pi's IP address).

- The time it takes for this page to become available depends on your hardware. On a Raspberry Pi 4, this page should be available within a minute.
 - If it does not show up after 5 minutes on a Pi 4, maybe the image was not written properly.
 - Try to flash the SD card again, possibly even try a different SD card.
 - If this did not help, view the console output on the Raspberry Pi.
 - To do this, connect a monitor via HDMI.

Congratulations! You finished the Raspberry Pi setup!

Help us improve Home Assistant

Have you just installed Home Assistant? The Home Assistant team is looking to talk to you to understand how the installation went.

Help now

With the Home Assistant Operating System installed and accessible, you can now continue with onboarding.

ONBOARDING



Install Home Assistant Container

These below instructions are for an installation of Home Assistant Container running in your own container environment, which you manage yourself. Any [OCI](#) compatible runtime can be used, however this guide will focus on installing it with Docker.

Note

Prerequisites

This guide assumes that you already have an operating system setup and a container runtime installed (like Docker).

If you are using Docker then you need to be on at least version 19.03.9, ideally an even higher version, and `libseccomp` 2.4.2 or newer.

PLATFORM INSTALLATION

Installation with Docker is straightforward. Adjust the following command so that:

- `/PATH_TO_YOUR_CONFIG` points at the folder where you want to store your

configuration and run it. Make sure that you keep the `:/config` part.

- `MY_TIME_ZONE` is a [tz database name](#), like `TZ=America/Los_Angeles`.
- D-Bus is optional but required if you plan to use the [Bluetooth integration](#).

Install Update

Once the Home Assistant Container is running Home Assistant should be accessible using `http://<host>:8123` (replace with the hostname or IP of the system). You can continue with onboarding.

ONBOARDING



RESTART HOME ASSISTANT

If you change the configuration, you have to restart the server. To do that you have 3 options.

1. In your Home Assistant UI, go to the **Settings** > **System** and click the **Restart** button.
2. You can go to the **Developer Tools** > **Services**, select the service `homeassistant.restart` and select **Call Service**.
3. Restart it from a terminal.

Docker CLI Docker Compose

DOCKER COMPOSE

Note

`docker compose` should [already be installed](#) on your system. If not, you can [manually](#) install it.

As the Docker command becomes more complex, switching to `docker compose` can be preferable and support automatically restarting on failure or

system restart. Create a `compose.yml` file:

```
version: '3'
services:
  homeassistant:
    container_name: homeassistant
    image: "ghcr.io/home-assistant/home-assistant:stable"
    volumes:
      - /PATH_TO_YOUR_CONFIG:/config
      - /etc/localtime:/etc/localtime:ro
      - /run/dbus:/run/dbus:ro
    restart: unless-stopped
    privileged: true
    network_mode: host
```

Start it by running:

```
docker compose up -d
```

Once the Home Assistant Container is running, Home Assistant should be accessible using `http://<host>:8123` (replace with the hostname or IP of the system). You can continue with onboarding.

ONBOARDING



EXPOSING DEVICES

In order to use Zigbee or other integrations that require access to devices, you need to map the appropriate device into the container. Ensure the user that is running the container has the correct privileges to access the

`/dev/tty*` file, then add the device mapping to your container instructions:

Docker CLI Docker Compose

OPTIMIZATIONS

The Home Assistant Container is using an alternative memory allocation library [jemalloc](#) for better memory management and Python runtime speedup.

As jemalloc can cause issues on certain hardware, it can be disabled by passing the environment variable `DISABLE_JEMALLOC` with any value, for example:

```
Docker CLI Docker Compose
```

The error message `<jemalloc>: Unsupported system page size` is one known indicator.

Install Home Assistant Core

⚠ Warning

This is an advanced installation process, and some steps might differ on your system. Considering the nature of this installation type, we assume you can handle subtle differences between this document and the system configuration you are using. When in doubt, please consider one of the [other installation methods](#), as they might be a better fit instead.

ℹ Note

Prerequisites

This guide assumes that you already have an operating system setup and have installed Python 3.11 (including the package `python3-dev`) or newer.

INSTALL DEPENDENCIES

Before you start, make sure your system is fully updated, all packages in this guide are installed with `apt`, if your OS does not have that, look for alternatives.

```
sudo apt-get update
sudo apt-get upgrade -y
```

Install the dependencies:

```
sudo apt-get install -y python3 python3-dev python3-venv python3-pip bluez
libffi-dev libssl-dev libjpeg-dev zlib1g-dev autoconf build-essential libopenjp2-
7 libtiff6 libturbojpeg0-dev tzdata ffmpeg liblapack3 liblapack-dev libatlas-
base-dev
```

The above-listed dependencies might differ or missing, depending on your system or personal use of Home Assistant.

CREATE AN ACCOUNT

Add an account for Home Assistant Core called `homeassistant`. Since this account is only for running Home Assistant Core the extra arguments of `-r` is added to create a system account and create a home directory. The arguments `-G dialout,gpio,i2c` adds the user to the `dialout`, `gpio` and the `i2c` group. The first is required for using Z-Wave and Zigbee controllers, while the second is required to communicate with GPIO.

```
sudo useradd -rm homeassistant -G dialout,gpio,i2c
```

CREATE THE VIRTUAL ENVIRONMENT

First we will create a directory for the installation of Home Assistant Core and change the owner to the `homeassistant` account.

```
sudo mkdir /srv/homeassistant
sudo chown homeassistant:homeassistant /srv/homeassistant
```

Next up is to create and change to a virtual environment for Home Assistant Core. This will be done as the `homeassistant` account.

```
sudo -u homeassistant -H -s
cd /srv/homeassistant
python3 -m venv .
source bin/activate
```

Once you have activated the virtual environment (notice the prompt change to `(homeassistant) homeassistant@raspberrypi:/srv/homeassistant $`) you will need to run the following command to install a required Python package.

```
python3 -m pip install wheel
```

Once you have installed the required Python package, it is now time to

install Home Assistant Core!

```
pip3 install homeassistant==2024.1.2
```

Start Home Assistant Core for the first time. This will complete the installation for you, automatically creating the `.homeassistant` configuration directory in the `/home/homeassistant` directory, and installing any basic dependencies.

```
hass
```

You can now reach your installation via the web interface on

<http://homeassistant.local:8123>.

If this address doesn't work you may also try <http://localhost:8123> or <http://X.X.X.X:8123> (replace X.X.X.X with your machines' IP address).

i Note

When you run the `hass` command for the first time, it will download, install and cache the necessary libraries/dependencies. This procedure may take anywhere between 5 to 10 minutes. During that time, you may get a **site cannot be reached** error when accessing the web interface. This will only happen the first time. Subsequent restarts will be much faster.

Writing the image with Balena Etcher

Use this procedure if Raspberry Pi Imager is not supported by your platform.

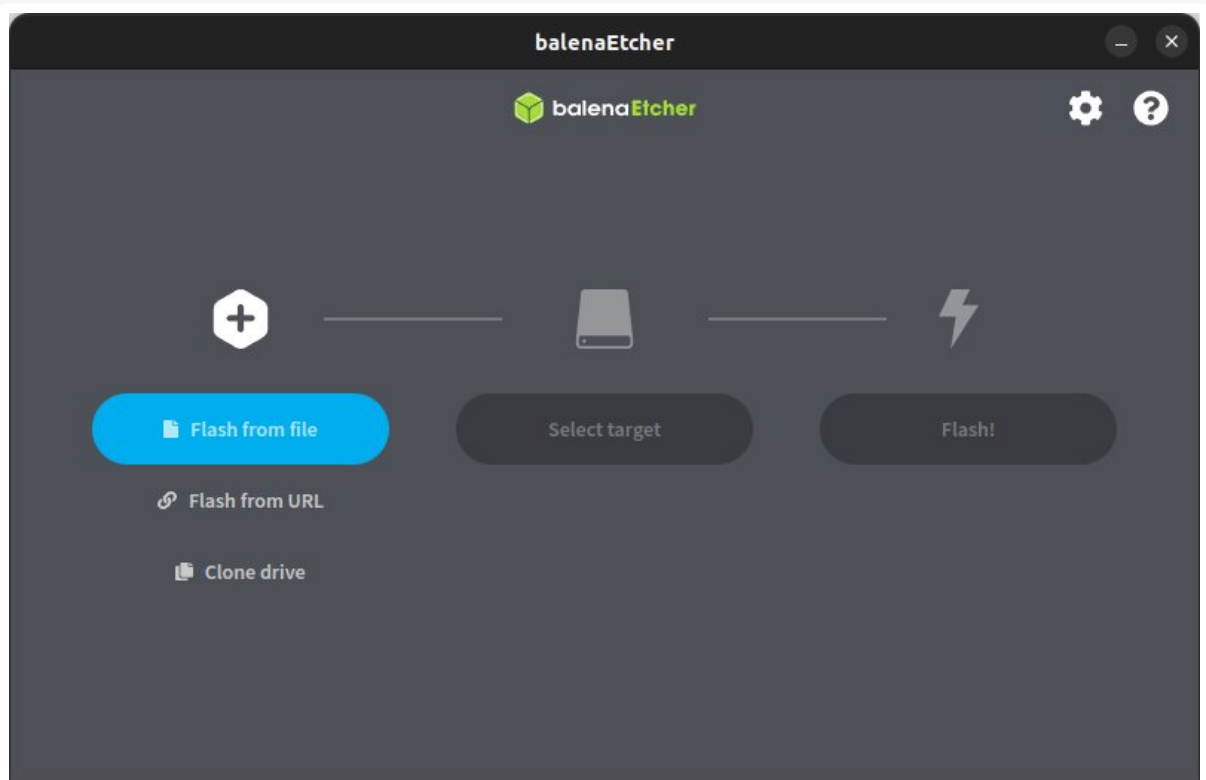
1. Insert the SD card into the computer. Note: the contents of the card will be overwritten.
2. Download and start [Balena Etcher](#). You may need to run it with administrator privileges on Windows.
3. Download the image to your computer.

- Copy the correct URL for the Raspberry Pi 3 or 4 (Note: there are 2 different links below!):

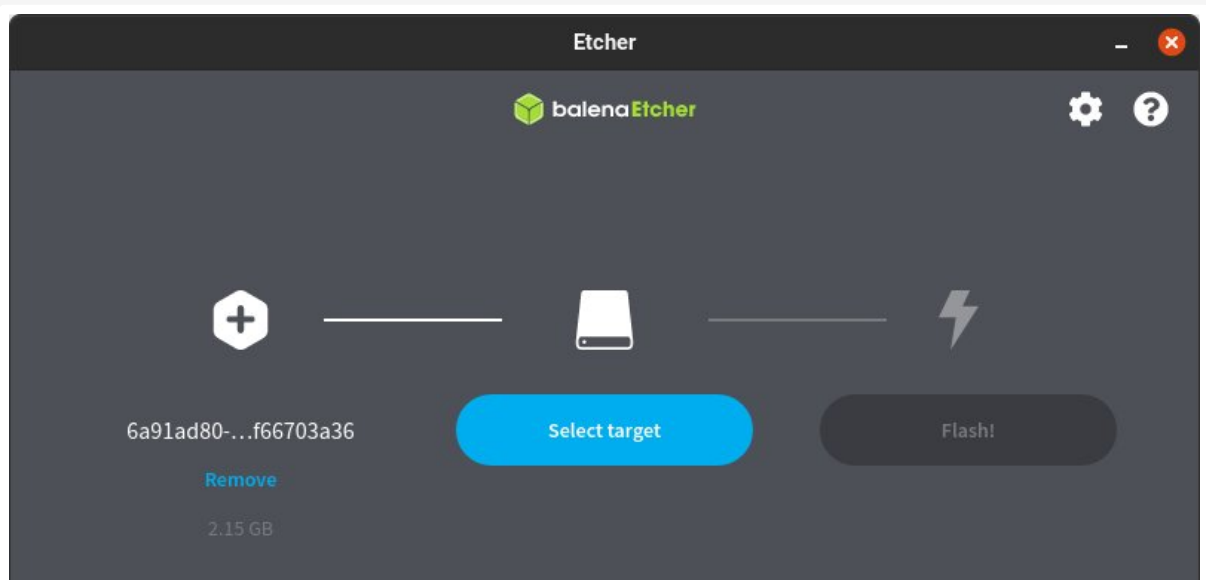
Raspberry Pi 4 Raspberry Pi 3

Select and copy the URL or use the “copy” button that appear when you hover it.

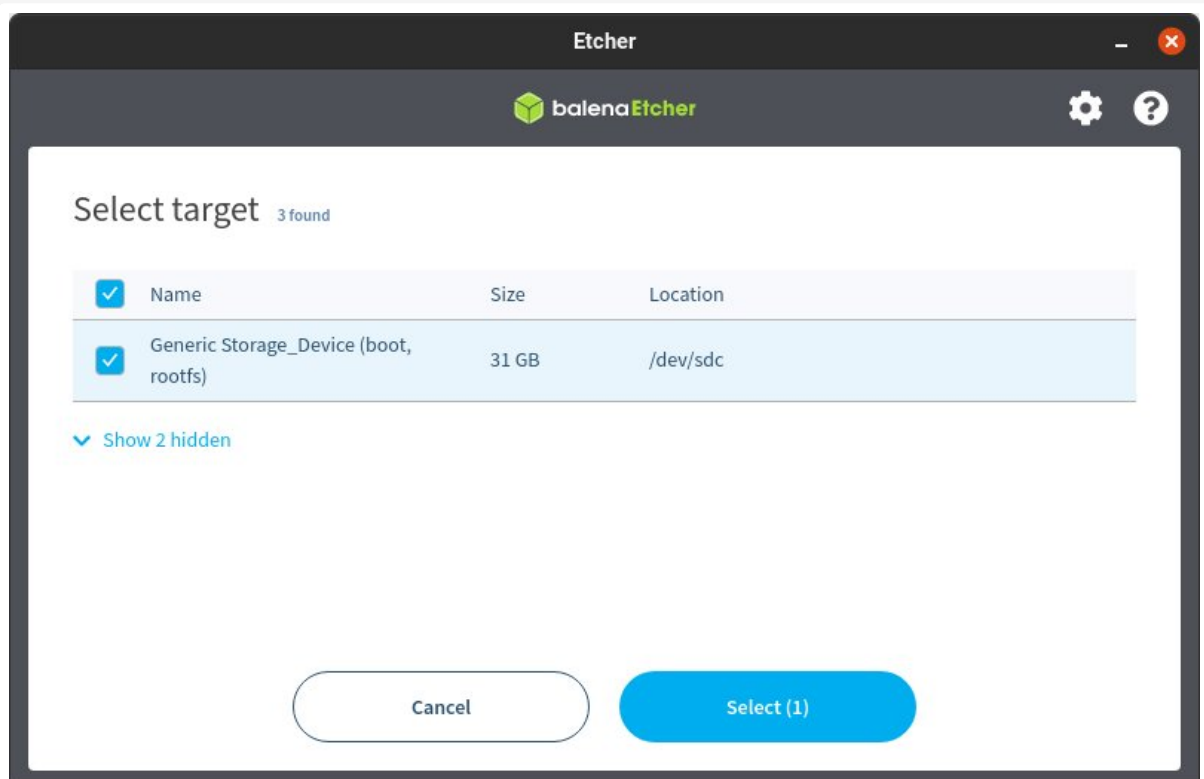
4. Paste the URL into your browser to start the download.
5. Select **Flash from file** and select the image you just downloaded.
 - **Flash from URL** does not work on some systems.



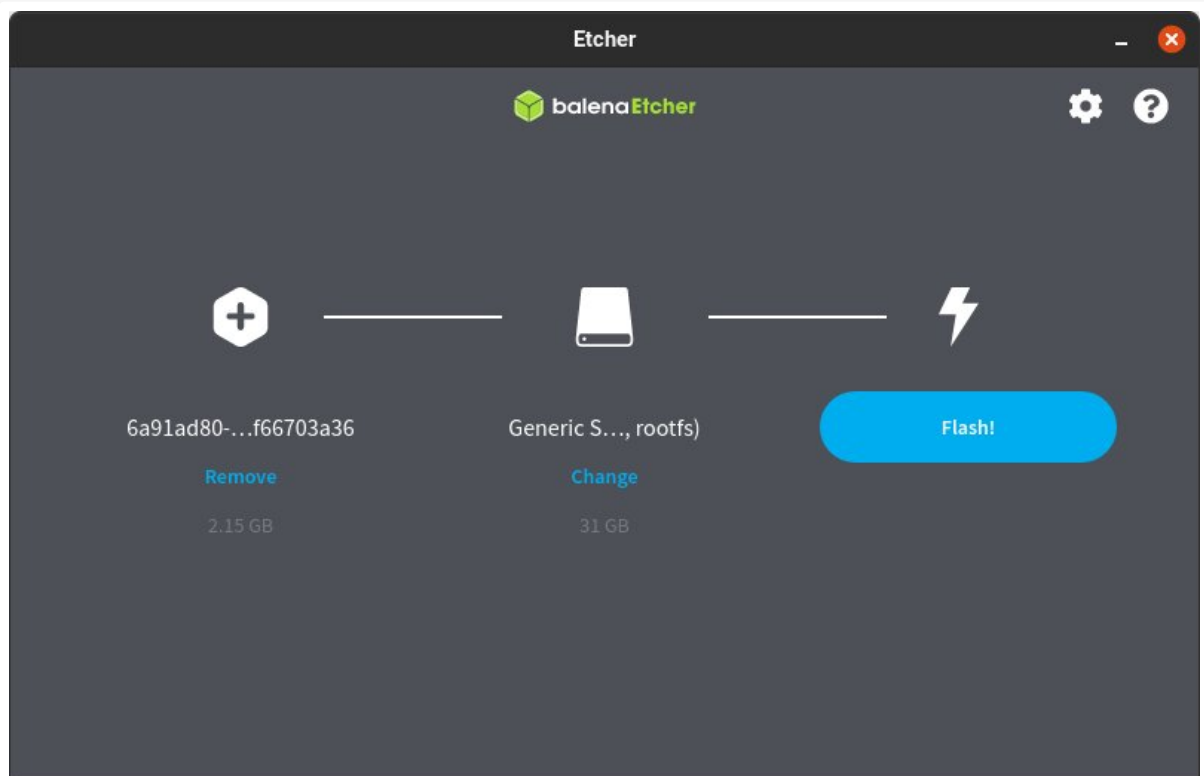
6. Select target.



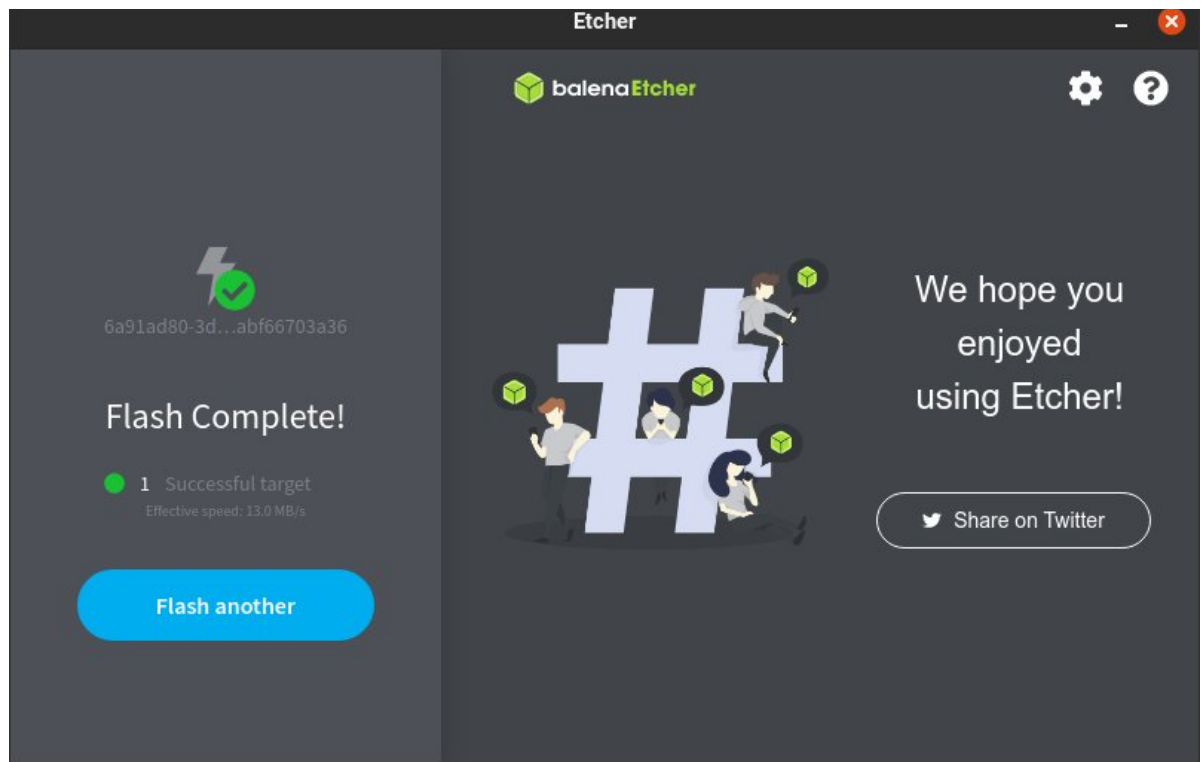
7. Select the SD card you want to use for your installation.



8. Select **Flash!** to start writing the image.



9. Once Balena Etcher has finished writing the image, you will see a confirmation.



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Installation

Suggested Hardware

Install Home Assistant Operating System

- [Write the image to your SD card](#)
- [Start up your Raspberry Pi](#)
- [Access Home Assistant](#)

Install Home Assistant Container

- [Platform installation](#)
- [Restart Home Assistant](#)
- [Docker compose](#)
- [Exposing devices](#)
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Install Home Assistant Core

- [Install dependencies](#)

- [Create an account](#)
- [Create the virtual environment](#)

[Writing the image with Balena Etcher](#)



Home Assistant



Website powered by [Jekyll](#) and the [Oscailte theme](#).



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