



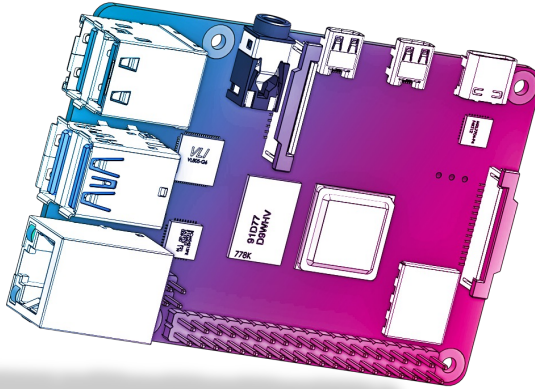
## How to build your robot

[www.pib.rocks/build](http://www.pib.rocks/build)

assembly instructions for:

## PIB'S SOFTWARE ON RASPBERRY PI

v2024



PRINT

BUILD

DEVELOP

YOUR OWN ROBOT

## Software installation

For pib to work, it is necessary to install pib.software on your Raspberry Pi.

**This tutorial consists of 3 main steps:**

1. Downloading and installing Raspberry pi OS on a Raspberry Pi
2. Setting up Raspberry pi OS
3. Installing pib.software

**To follow this tutorial you will need:**

- A device that can read a micro SD card (You may need an adapter for this to work)
- The (USB-C) power supply of the Raspberry Pi
- A keyboard and mouse
- A display and a matching micro HDMI adapter  
(For example: to connect the Raspberry Pi to a HDMI display, you need a micro HMDI to HMDI adapter)

## Step 1a

Put the **micro SD card into a device** that can read a SD card (a laptop or PC).  
You may need an adapter for this to work.



A device that can read a  
micro SD card

## Step 1b

**Download** Raspberry Pi imager from <https://www.raspberrypi.com/software>

### 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](#)

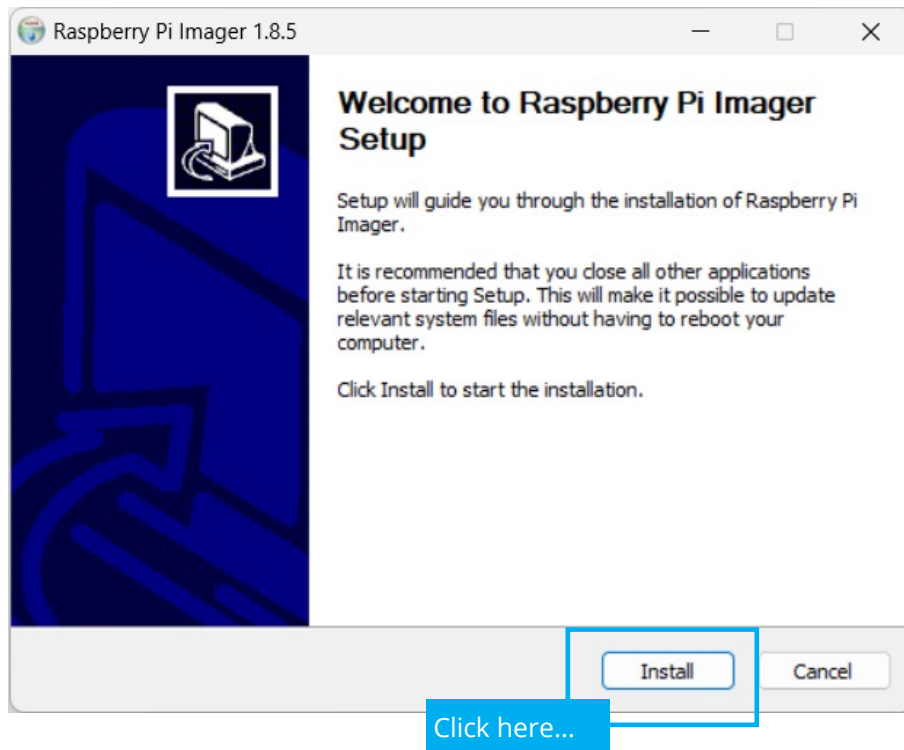
[Download for Ubuntu for x86](#)

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



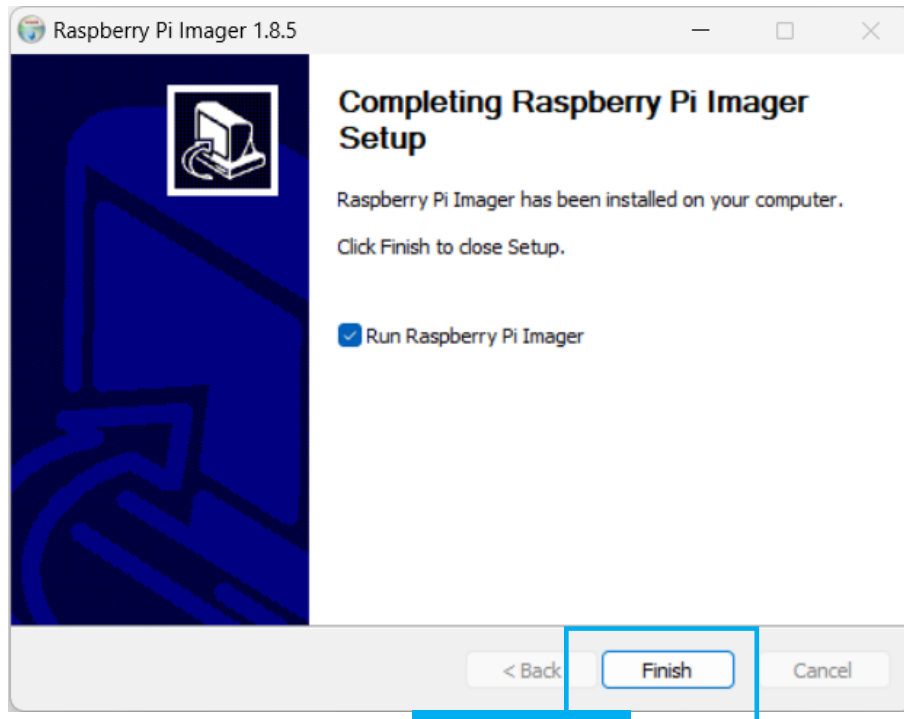
## Step 1c

**Install** Raspberry Pi imager.



## Step 1d

After installation click on „**Finish**“ and launch the application.



... and here

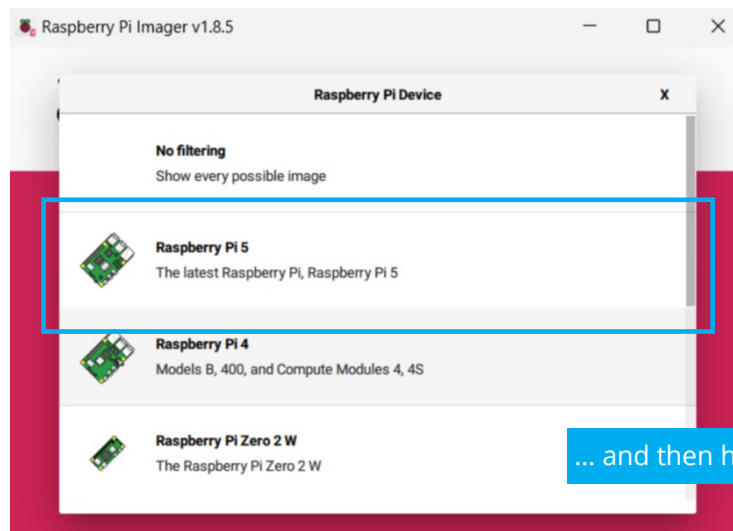
## Step 1e

Launch imager and click on „**Choose Device**“.

Then click on „**Raspberry Pi 5**“.



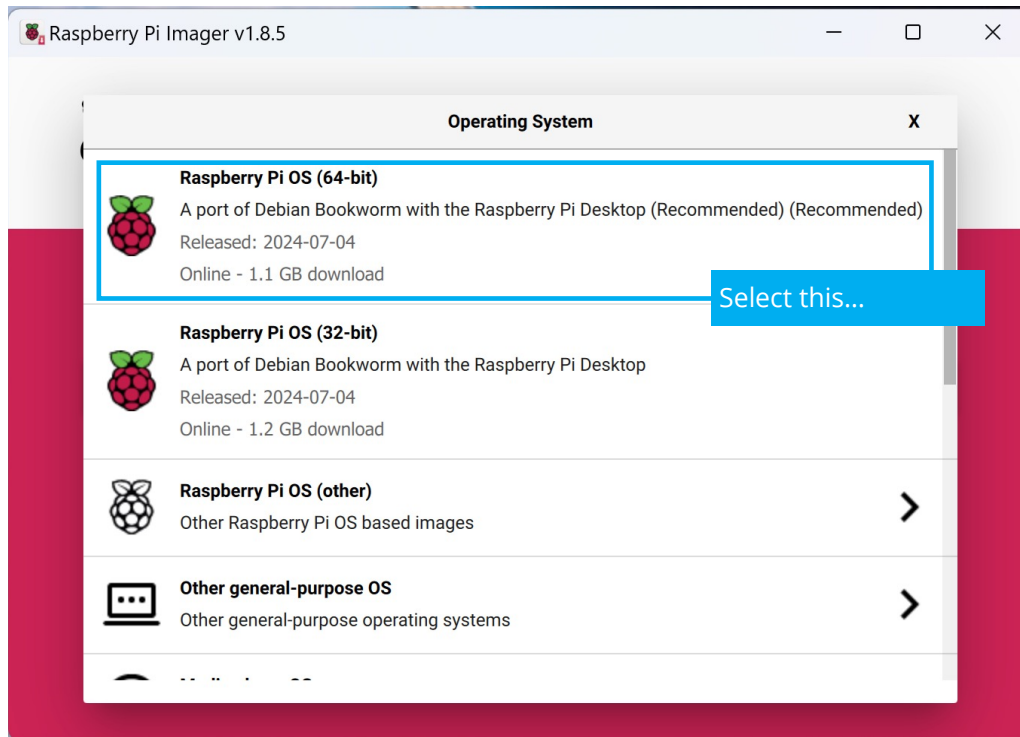
First, click here...



... and then here

## Step 1f

Select „**Raspberry Pi OS**“.

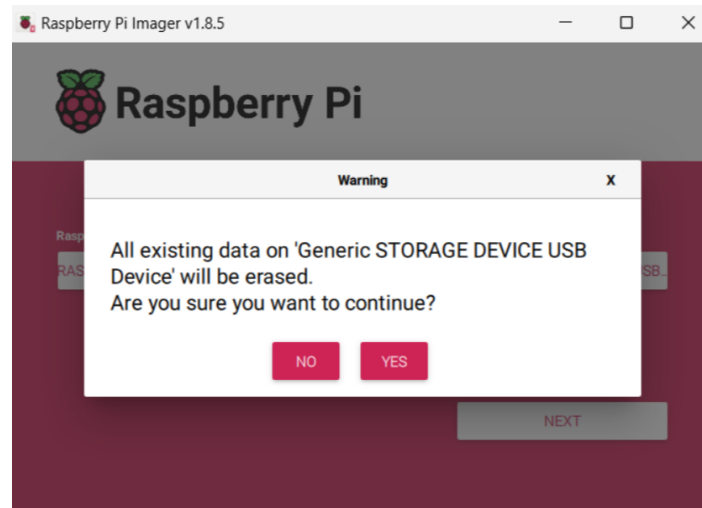
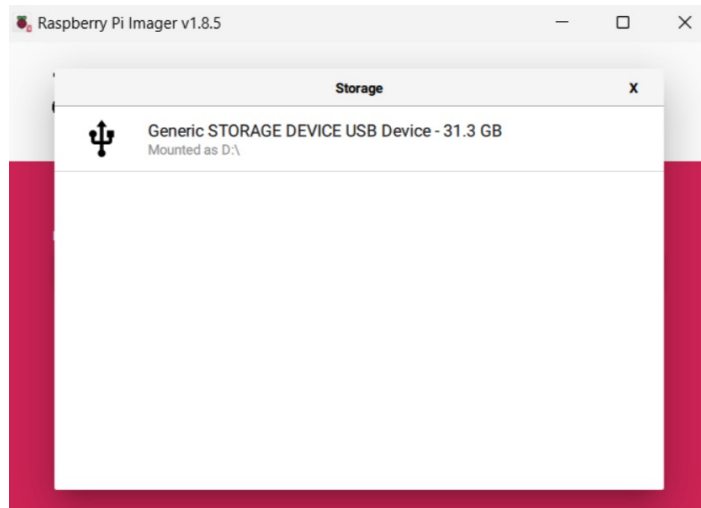




## Step 1h

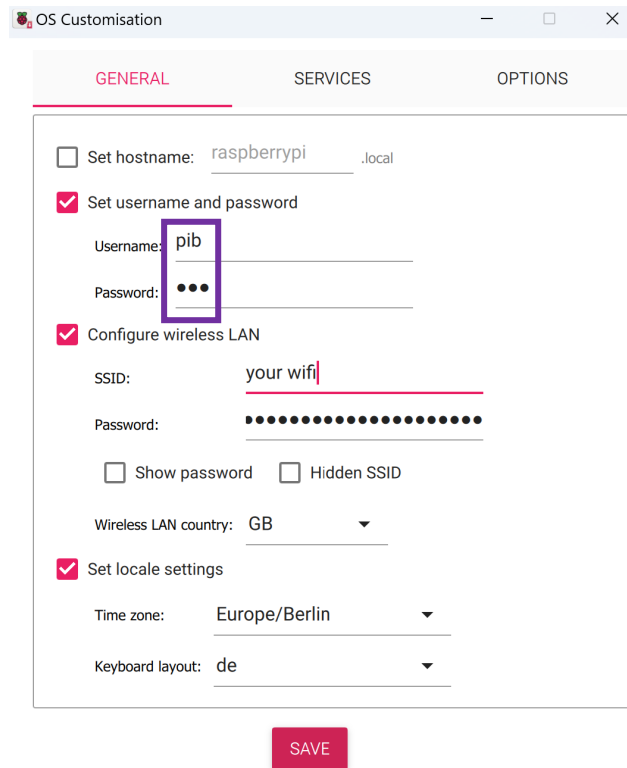
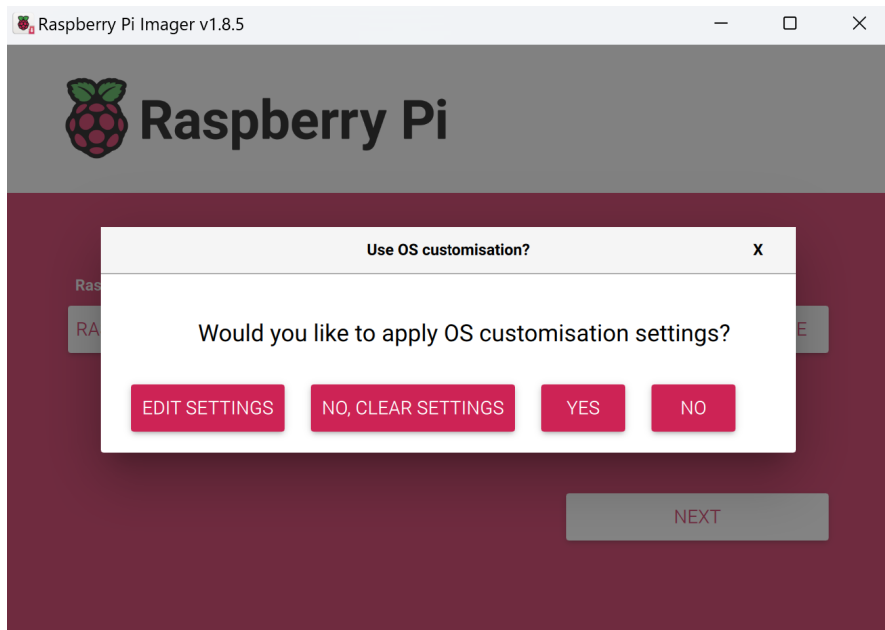
Choose your storage device – make sure to select the micro SD card.

Please note: all existing data on a pre-used card will be erased.



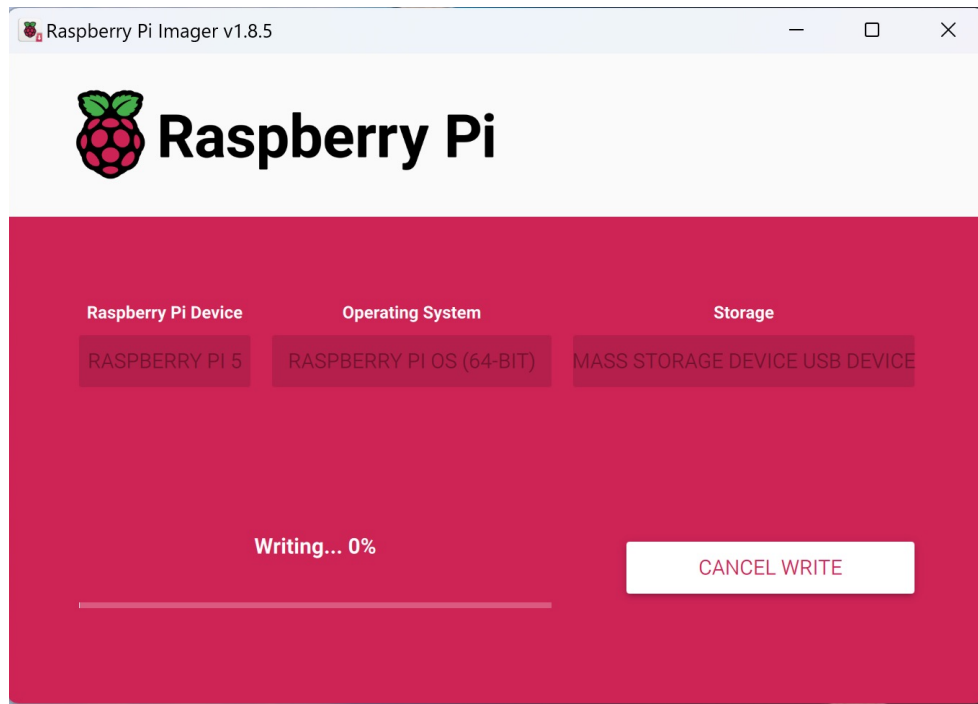
## Step 1i

Select "edit settings", add wifi SSID and password, use **"pib"** for both username and password



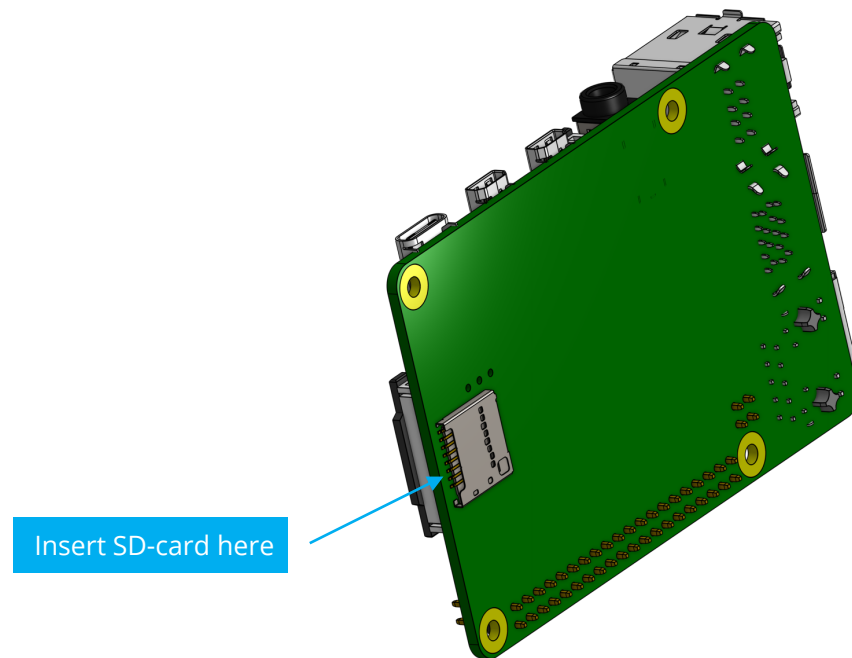
## Step 1j

Click on „**Write**“ to start installing Raspberry pi OS on the storage medium and wait until the process is finished.  
Then click on „**Continue**“ to end Step 1.



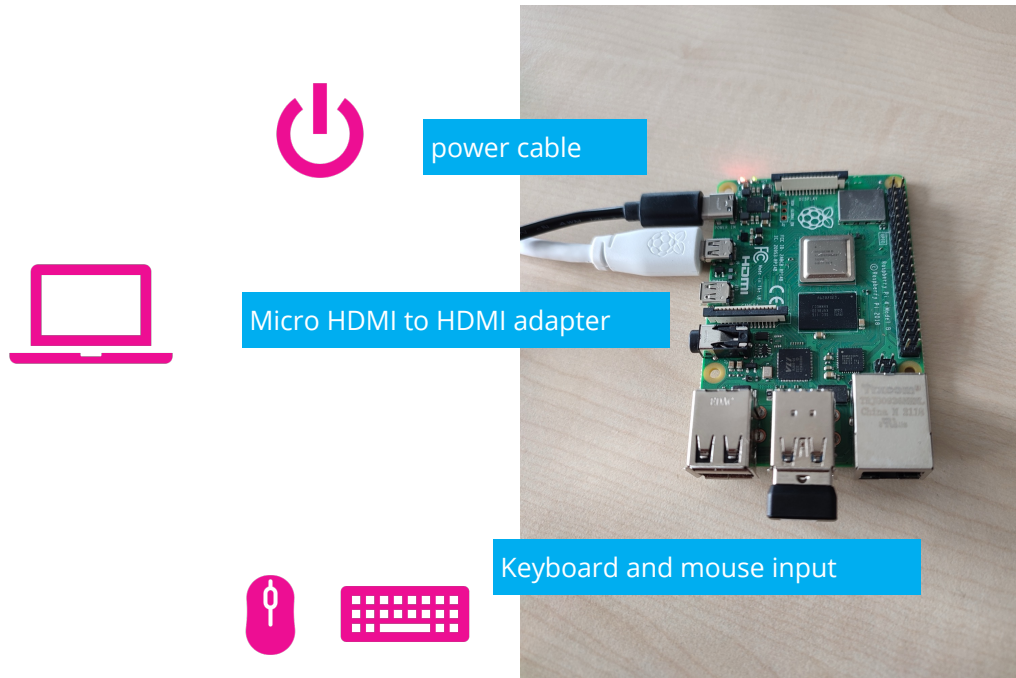
## Step 2a

Remove the micro SD card from laptop/PC and insert it to the Raspberry Pi.



## Step 2b

Connect the Raspberry Pi to your power supply, a HDMI capable screen/display and a keyboard and mouse for the next steps.  
After connecting the raspberry pi to the display and power supply, it should show the Ubuntu Raspberry pi OS screen.



## Step 3a

Open firefox and navigate to the pib.software setup page on Github using this link: <https://github.com/pib-rocks/pib-backend>

You will need these 2 commands to continue the pib.software setup.

### Software setup

This script assumes:

- that the newest Raspberry Pi OS is installed
- the user running it is **pib**

### Installing pibs software

All the software pib requires can be installed by running our setup script. Follow these steps to run it:

1. Open a terminal in Raspberry Pi OS
2. Insert the following command into the terminal to download the script:

```
wget https://raw.githubusercontent.com/pib-rocks/pib-backend/main/setup/setup-pib.sh
```

(or download it manually: <https://github.com/pib-rocks/pib-backend/blob/main/setup/setup-pib.sh>)

3. Insert this command to run the script:

```
bash setup-pib.sh
```

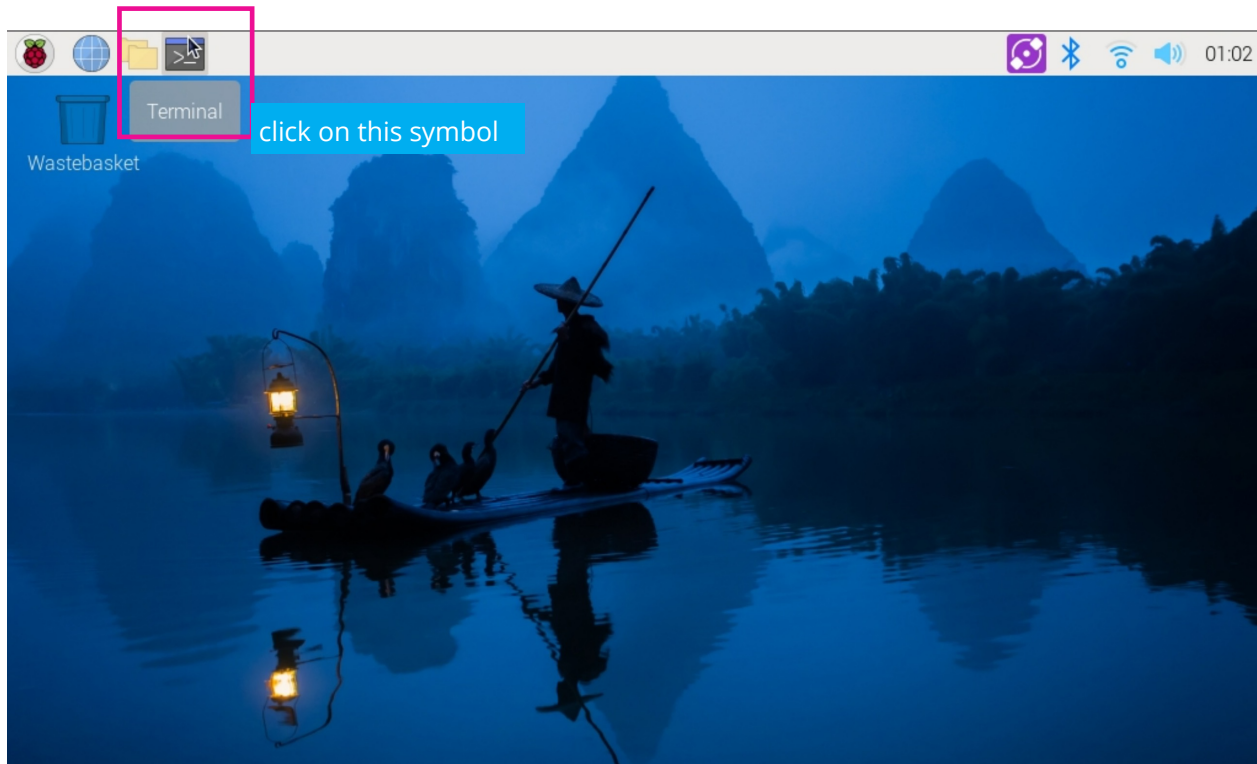
If you want to run the setup-script in legacy mode (for Raspberry Pi 4), insert:

```
bash setup-pib.sh -l
```

The setup then adds Cerebra and it's dependencies, including ROS2, Tinkerforge,... Once the installation is complete, please restart the system to apply all the changes.

## Step 3b

At first, launch the terminal.



## Step 3c

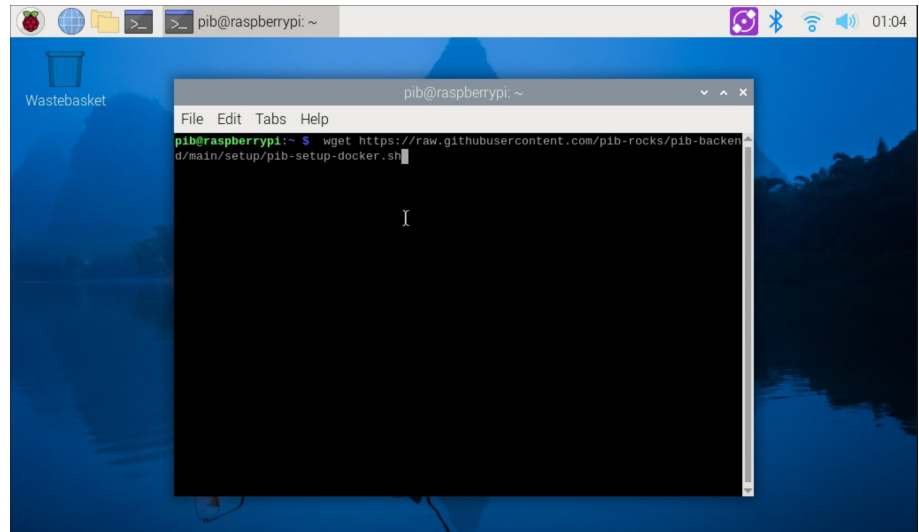
The first command will download the setup-script from our github website.

- Copy the command from github ([wget https://raw.githubusercontent.com/pib-rocks/pib-backend/main/setup/setup-pib.sh](https://raw.githubusercontent.com/pib-rocks/pib-backend/main/setup/setup-pib.sh))
- Paste it into the terminal
- Press enter to execute the command

Info: If the download isn't working you can also download the file manually via github

... NOTE: you **cannot** use "CTRL + V" to paste it into the terminal.

Instead use "CTRL + "SHIFT" + V" or right-click into the terminal and select "paste".





## Step 3d

The second command starts the setup script. Therefore, enter the command in the terminal "**bash setup-pib.sh**".

The setup process will take quite some time, depending on your internet connection (upwards of 40 minutes).

```
File Edit Tabs Help
pib@raspberrypi: ~
pib@raspberrypi:~$ wget https://raw.githubusercontent.com/pib-rocks/pib-backend/main/setup/setup-pib.sh
--2025-01-30 08:13:02-- https://raw.githubusercontent.com/pib-rocks/pib-backend/main/setup/setup-pib.sh
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.110.133, 185.199.109.133, 185.199.108.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|185.199.110.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 9103 (8.9K) [text/plain]
Saving to: 'setup-pib.sh'

setup-pib.sh      100%[=====] 8.89K --.-KB/s  in 0.004s

2025-01-30 08:13:02 (2.16 MB/s) - 'setup-pib.sh' saved [9103/9103]

pib@raspberrypi:~$ bash setup-pib.sh
```

```
File Edit Tabs Help
remote: Counting objects: 100% (625/625), done.
remote: Compressing objects: 100% (280/280), done.
remote: Total 7935 (delta 371), reused 454 (delta 344), pack-reused 7310 (from 1)
Receiving objects: 100% (7935/7935), 11.93 MiB | 966.00 KiB/s, done.
Resolving deltas: 100% (5131/5131), done.
Submodule 'pib-blockly' (https://github.com/pib-rocks/pib-blockly.git) registered for path 'pib_blockly/pib_blockly_server/src/pib-blockly'
Cloning into '/home/pib/app/pib-backend/pib_blockly/pib_blockly_server/src/pib-blockly'...
remote: Enumerating objects: 175, done.
remote: Counting objects: 100% (175/175), done.
remote: Compressing objects: 100% (95/95), done.
remote: Total 175 (delta 112), reused 135 (delta 78), pack-reused 0 (from 0)
Receiving objects: 100% (175/175), 48.20 KiB | 514.00 KiB/s, done.
Resolving deltas: 100% (112/112), done.
Submodule path 'pib_blockly/pib_blockly_server/src/pib-blockly': checked out 'bb890bef14df6d2bfb439ade4f7f6bb4b9bb30c'
Cloning into '/home/pib/app/cerebra'...
remote: Enumerating objects: 15212, done.
remote: Counting objects: 100% (1591/1591), done.
remote: Compressing objects: 100% (365/365), done.
Receiving objects: 19% (2891/15212), 1.01 MiB | 503.00 KiB/s
```

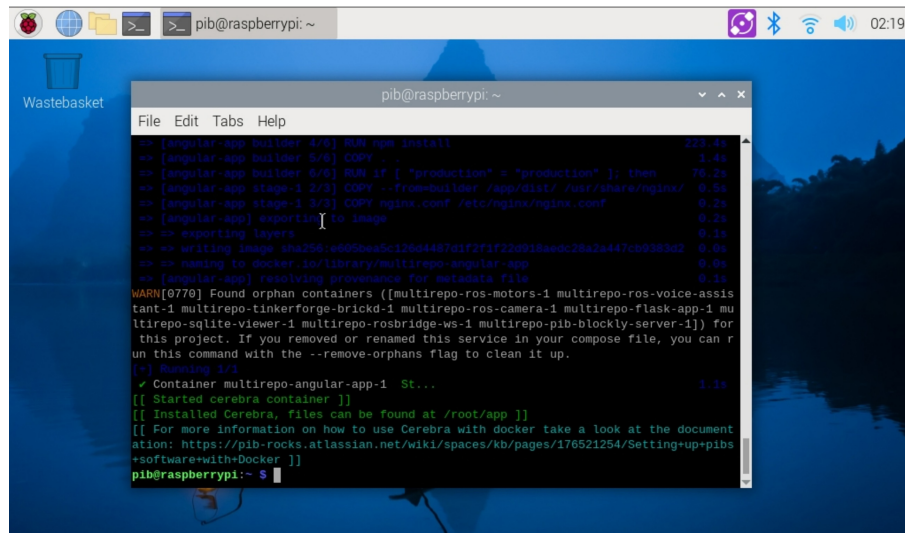
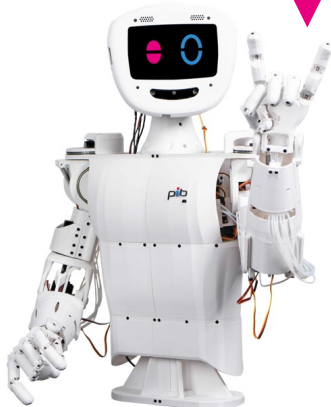
## Congratulations

You did a great job, the pib's software is now installed on your Raspberry Pi.

Please **restart** the system to apply changes.

Then, you can remove your Raspberry from all devices. The SD card should stay inside your Raspberry.

Well done!



```
pib@raspberrypi: ~  
File Edit Tabs Help  
=> [angular-app builder 4/6] RUN npm install 223.4s  
=> [angular-app builder 5/6] COPY 1.4s  
=> [angular-app builder 6/6] RUN if [ 'production' = 'production' ]; then 76.2s  
=> [angular-app stage-1 2/3] COPY --from=builder /app/dist/ /usr/share/nginx/ 0.5s  
=> [angular-app stage-1 3/3] COPY nginx.conf /etc/nginx/nginx.conf 0.2s  
=> [angular-app] exporting to image 0.2s  
=> exporting layers 0.1s  
=> writing image sha256:e605bba5c126d4487d1f2f1f22d091baedc28a2a447cb9383d2 0.0s  
=> naming to docker.io/library/multirepo-angular-app 0.0s  
=> [angular-app] resolving provenance for metadata file 0.1s  
WARN[0770] Found orphan containers ([multirepo-ros-motors-1 multirepo-ros-voice-assis  
tant-1 multirepo-tinkerforge-brickd-1 multirepo-ros-camera-1 multirepo-flask-app-1 mu  
ltirepo-sqlite-viewer-1 multirepo-rosbridge-ws-1 multirepo-pib-blockly-server-1]) for  
this project. If you removed or renamed this service in your compose file, you can r  
un this command with the --remove-orphans flag to clean it up.  
[+] Running 1/1  
✓ Container multirepo-angular-app-1 St... 1.1s  
[[ Started cerebra container ]]  
[[ Installed Cerebra, files can be found at /root/app ]]  
[[ For more information on how to use Cerebra with docker take a look at the document  
ation: https://pib-rocks.atlassian.net/wiki/spaces/kb/pages/176521254/Setting+up+pib  
s+software+with+Docker ]]  
pib@raspberrypi:~$
```

## Do you need support?

Or do you need our pib.Box with all non-printable parts?

Or maybe you have some new ideas and improvements?

Please contact us.



**team@pib.rocks**

Send us an email.



**discord.com/invite/GRdpyeDu7P**

Join us on Discord.



**shop.pib.rocks**

Order non-printable parts for pib.