

# **WEB3 PI WELCOME BOX**

## **INSTRUCTIONS MANUAL**

[www.web3pi.io](http://www.web3pi.io)



# UNBOXING

- 1** Open the Web3 Pi Welcome Box and place its content on the table
- 2** Find the microSD card & the USB card reader



# PREPARATION



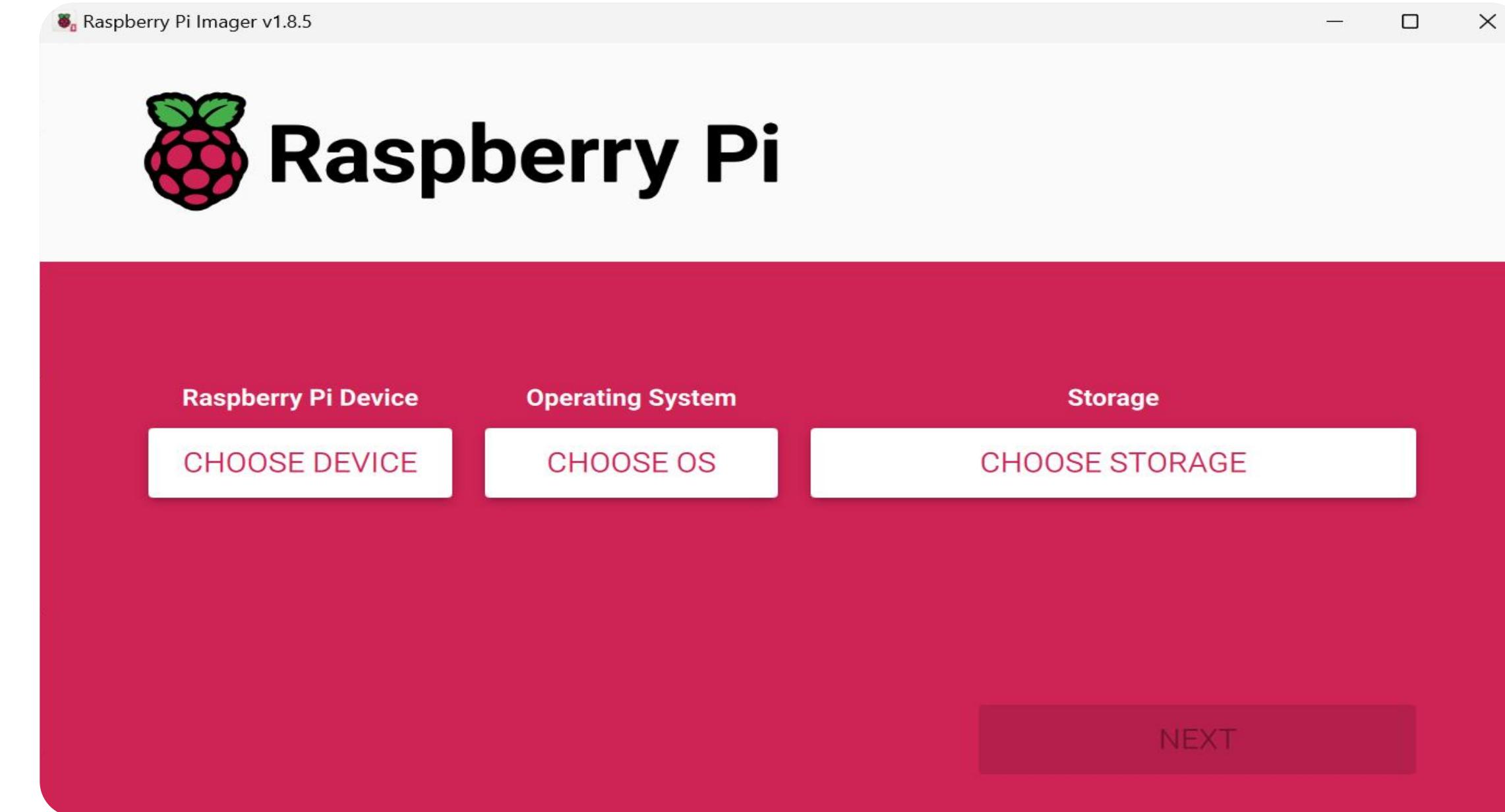
- 3** Download the latest [Web3 Pi Image](#)
- 4** Download and install the [Raspberry Pi Imager](#) software

# PREPARING THE SD CARD USING RASPBERRY PI IMAGER

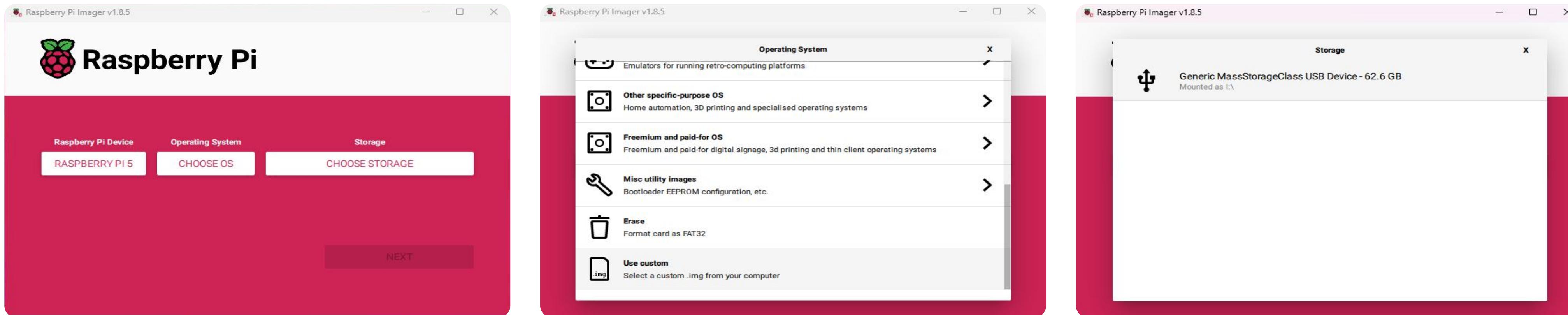


Follow the instructions below to write images on the microSD card:

- 1** Insert the microSD card into the card reader and connect the reader to your PC
- 2** Open the Raspberry Pi Imager on your PC



# PREPARING THE SD CARD USING RASPBERRY PI IMAGER

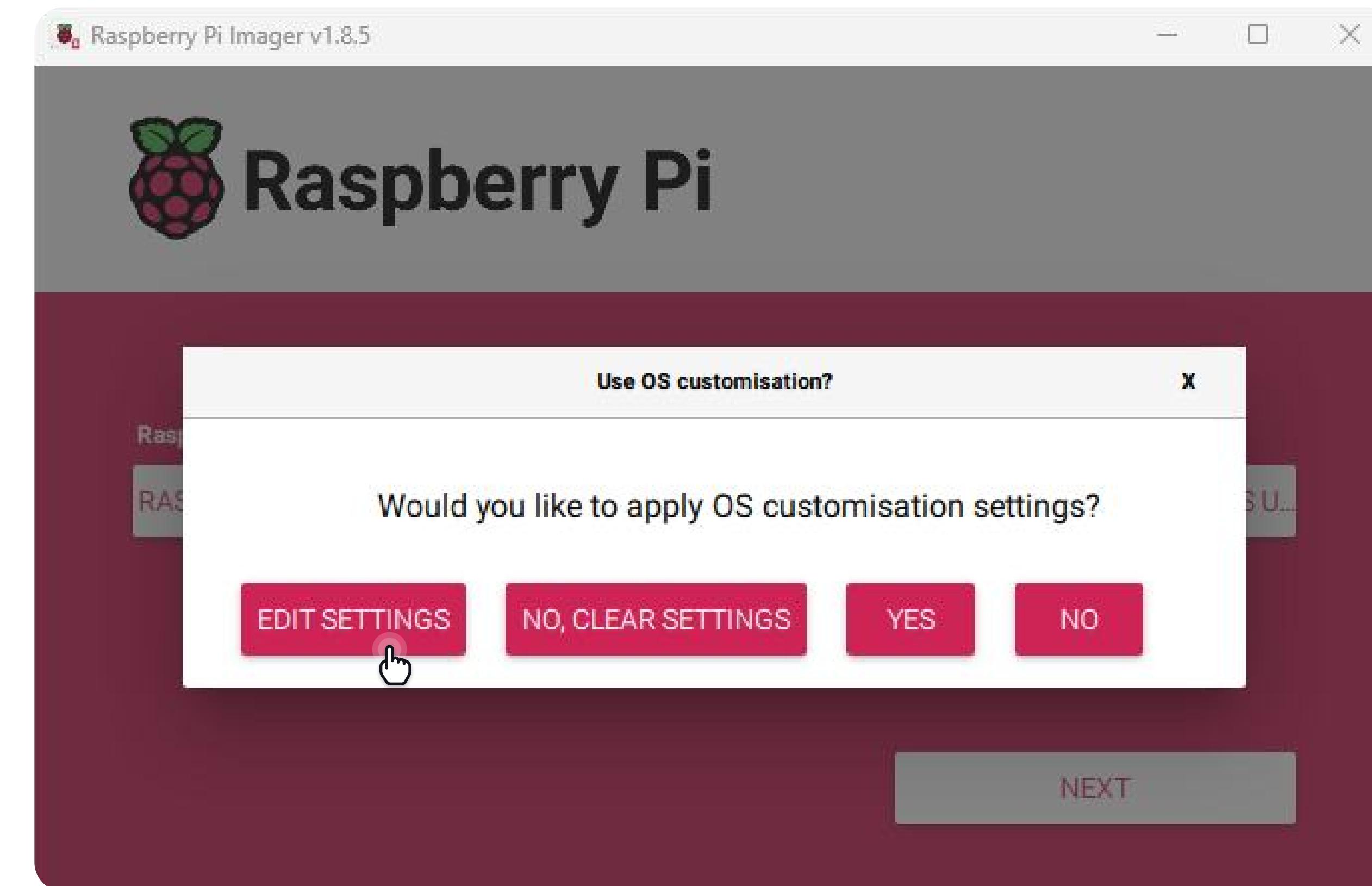


- 3** Choose the device type: Raspberry Pi 5
- 4** Choose the downloaded Web3 Pi OS Image as a source image (**“Use custom” option on the bottom of the list**)
  - A** Select:  
“Web3Pi\_Single\_Device.img.xz” ~ 1 GB
- 5** Choose the SD card as a target device
- 6** Click NEXT

# PREPARING THE SD CARD USING RASPBERRY PI IMAGER



- 7 Perform custom configuration [[Edit settings](#)] based on the following instructions



# PREPARING THE SD CARD USING RASPBERRY PI IMAGER



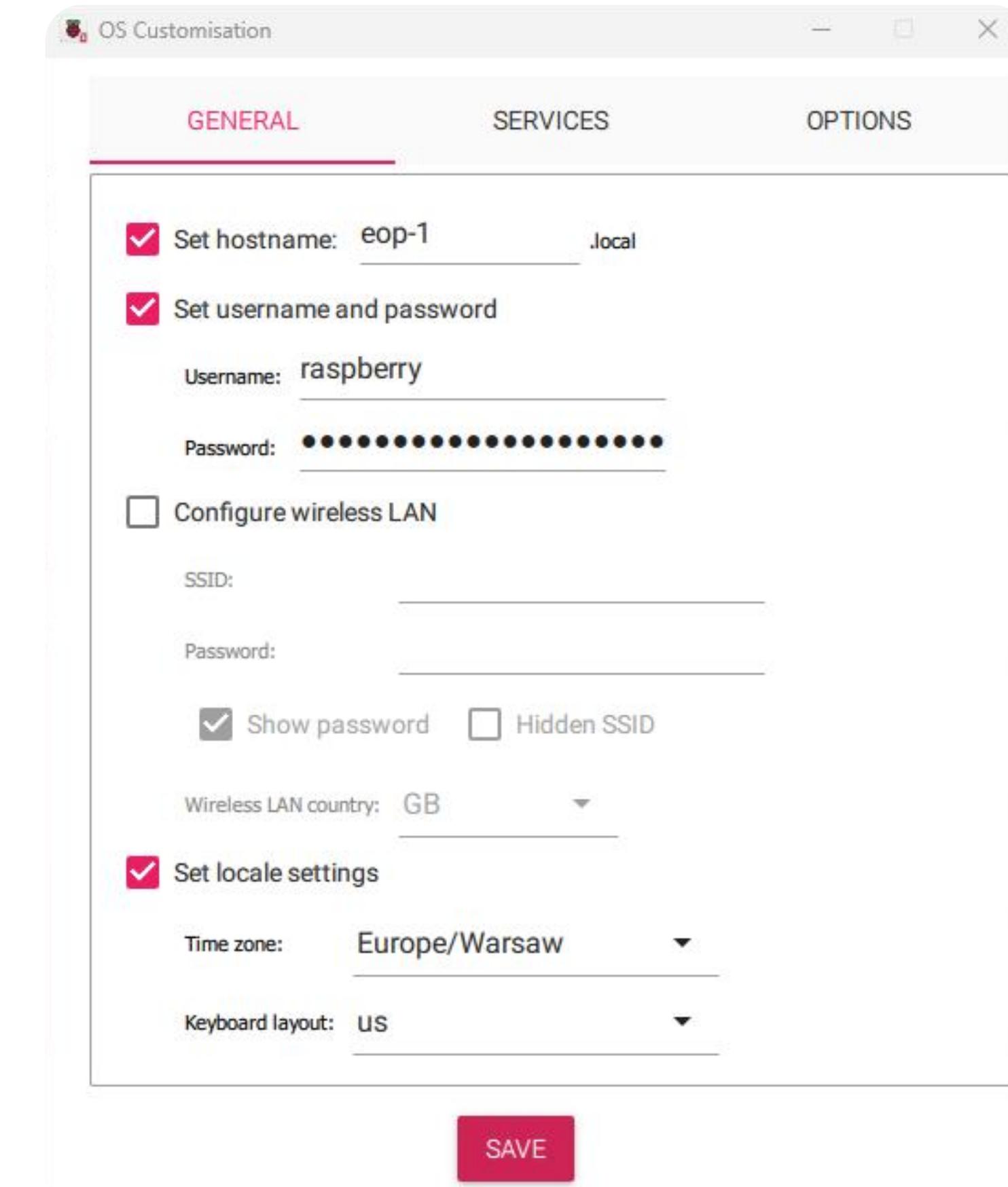
## A General Tab

- i Set **hostname** to eop-1

### Important!

During onsite workshops you will get unique name from organizers (e.g. eop-1, eop-2, eop-3 etc.)

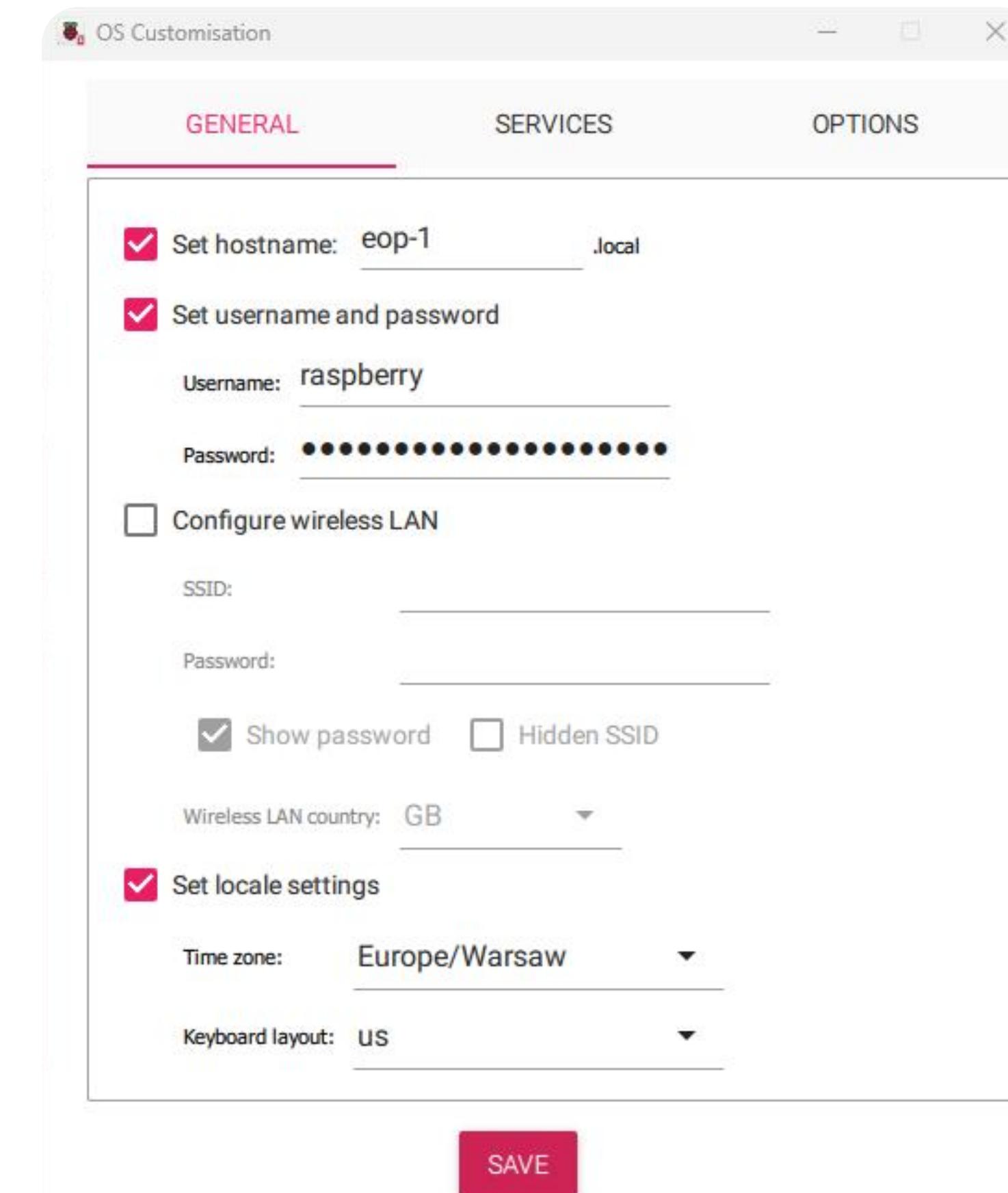
Use a unique hostname and write it down, you will need it later.



# PREPARING THE SD CARD USING RASPBERRY PI IMAGER



- ii Set username as '**raspberry**' and password as '**raspberry**' (Please, use these specific names)
- iii Set your local settings
- iv Leave "Configuration wireless LAN" unchecked.  
We use cable Ethernet connection with DHCP.

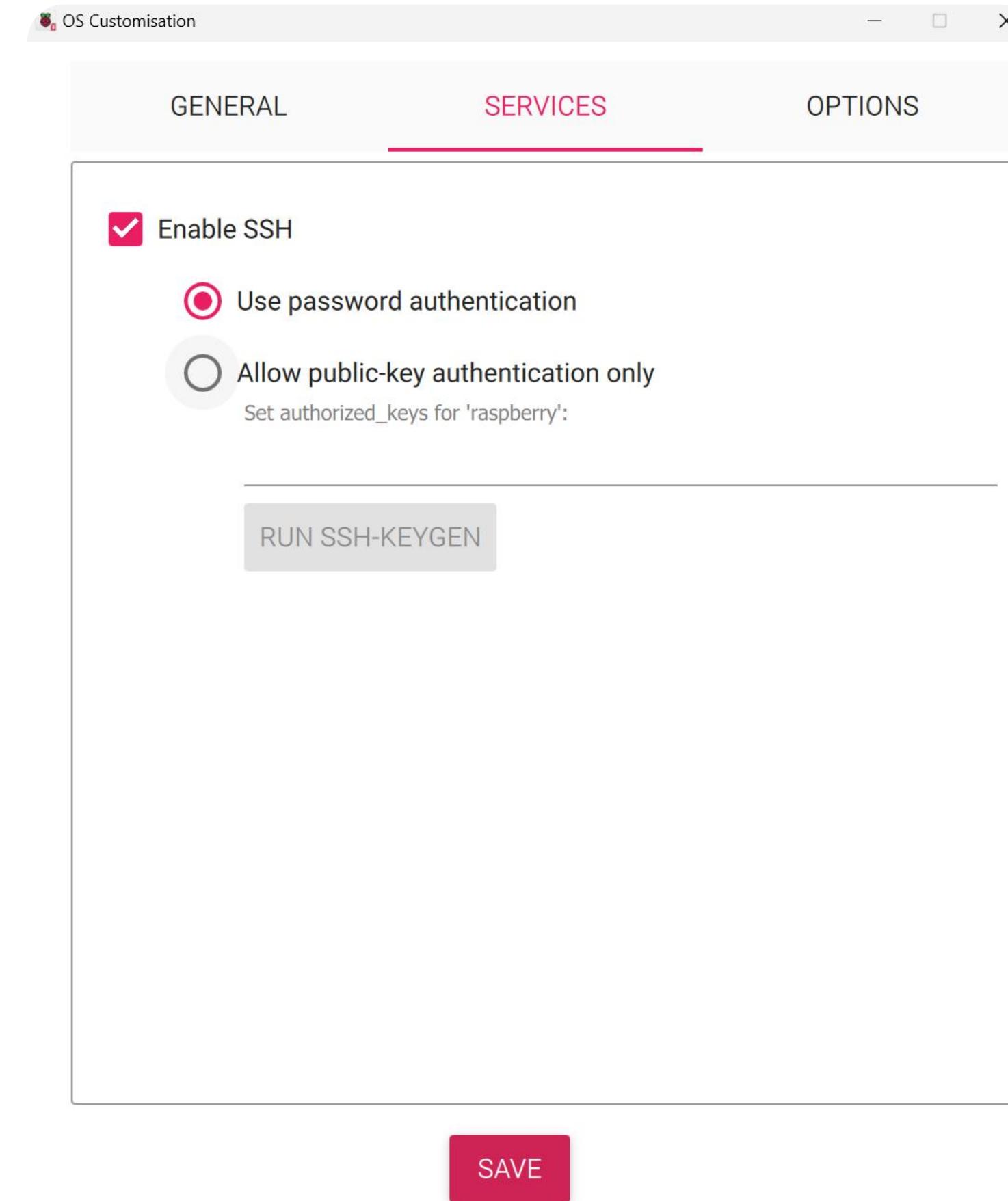


# PREPARING THE SD CARD USING RASPBERRY PI IMAGER



## B Services Tab

Enable SSH authentication



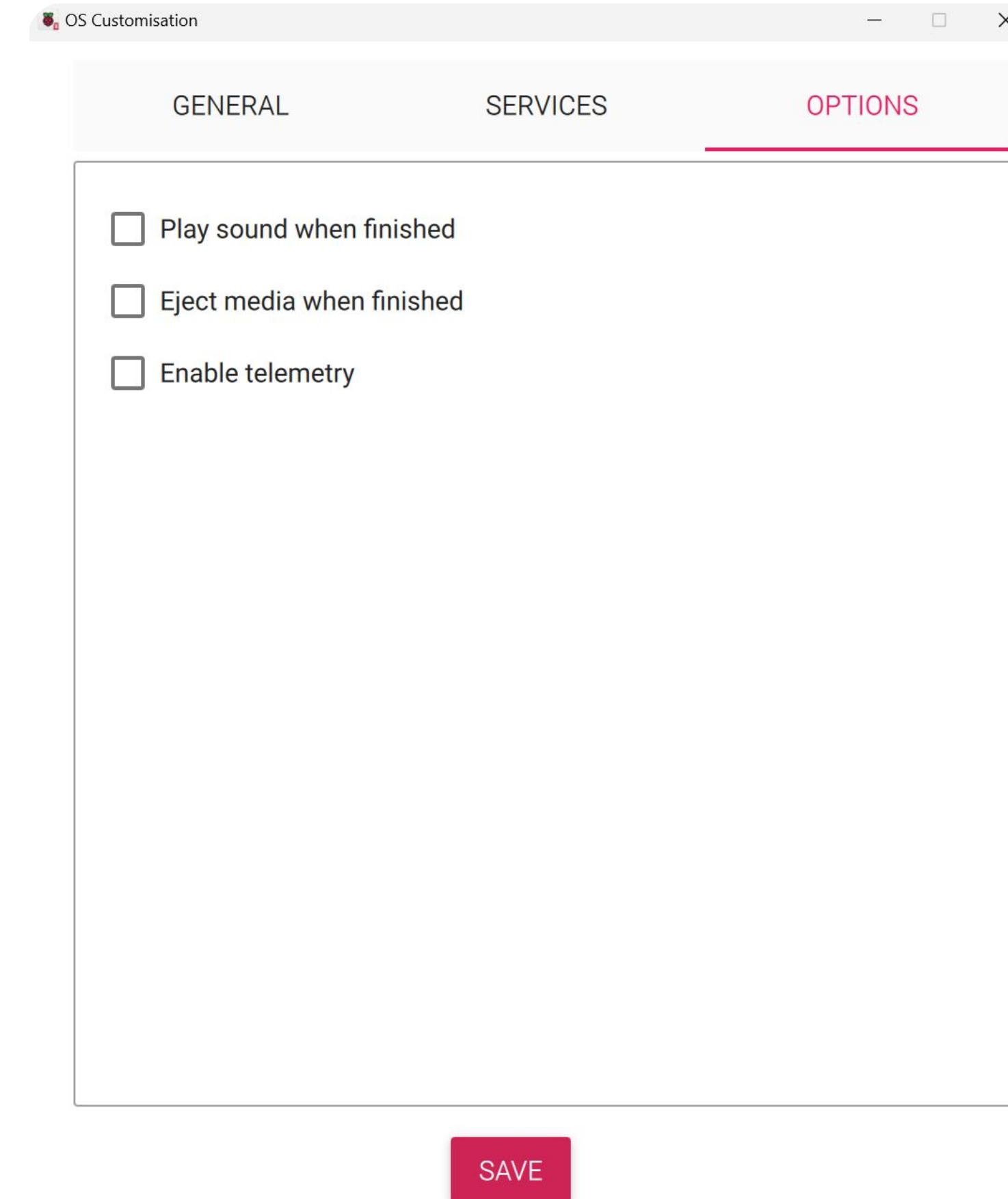
# PREPARING THE SD CARD USING RASPBERRY PI IMAGER



## C Options Tab

Make sure that "Eject media when finished" and other options are unchecked

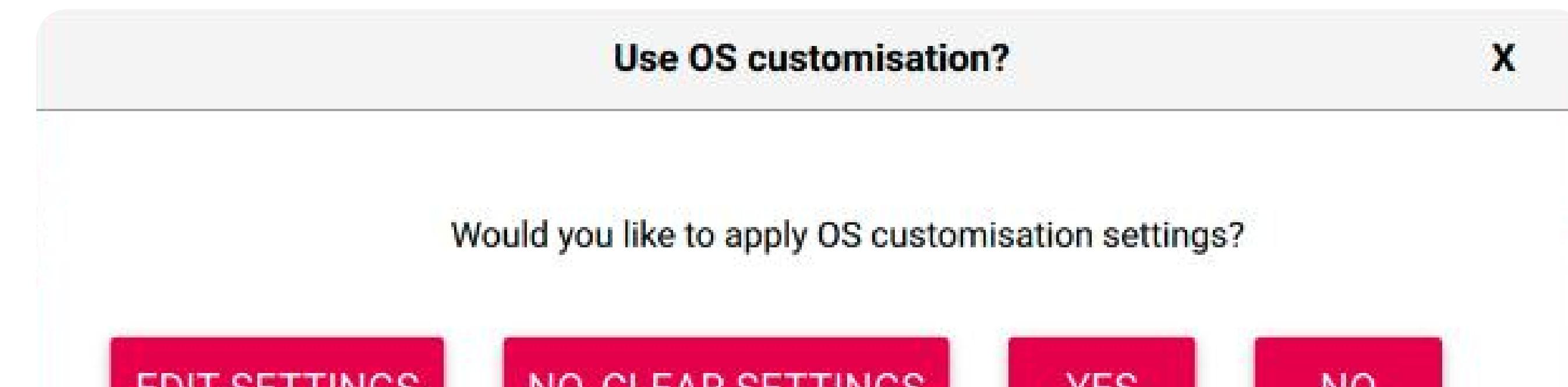
Click: **SAVE** to go to the next step



# PREPARING THE SD CARD USING RASPBERRY PI IMAGER



- 8 Select YES in both of these windows

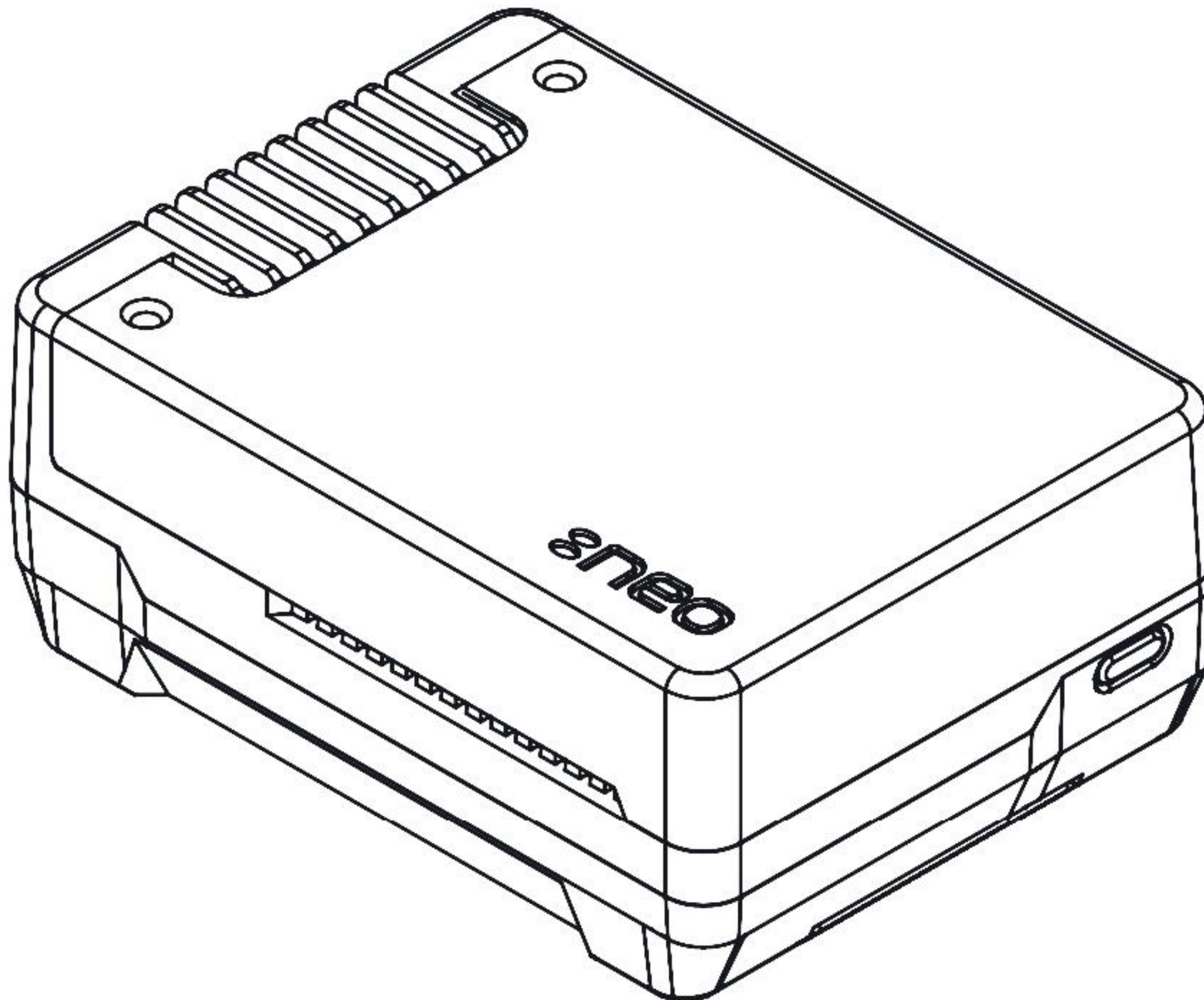


# PREPARING THE SD CARD USING RASPBERRY PI IMAGER



- 9** Wait until the image is flashed onto the SD card
- 10** Do not interrupt verification step
- 11** While waiting for SD Card to be flashed (written) and verified you can start the assembly process of the Raspberry Pi hardware
- 12** Please follow the instructions from the case manufacturer (Argon Neo 5):

# ASSEMBLY INSTRUCTIONS



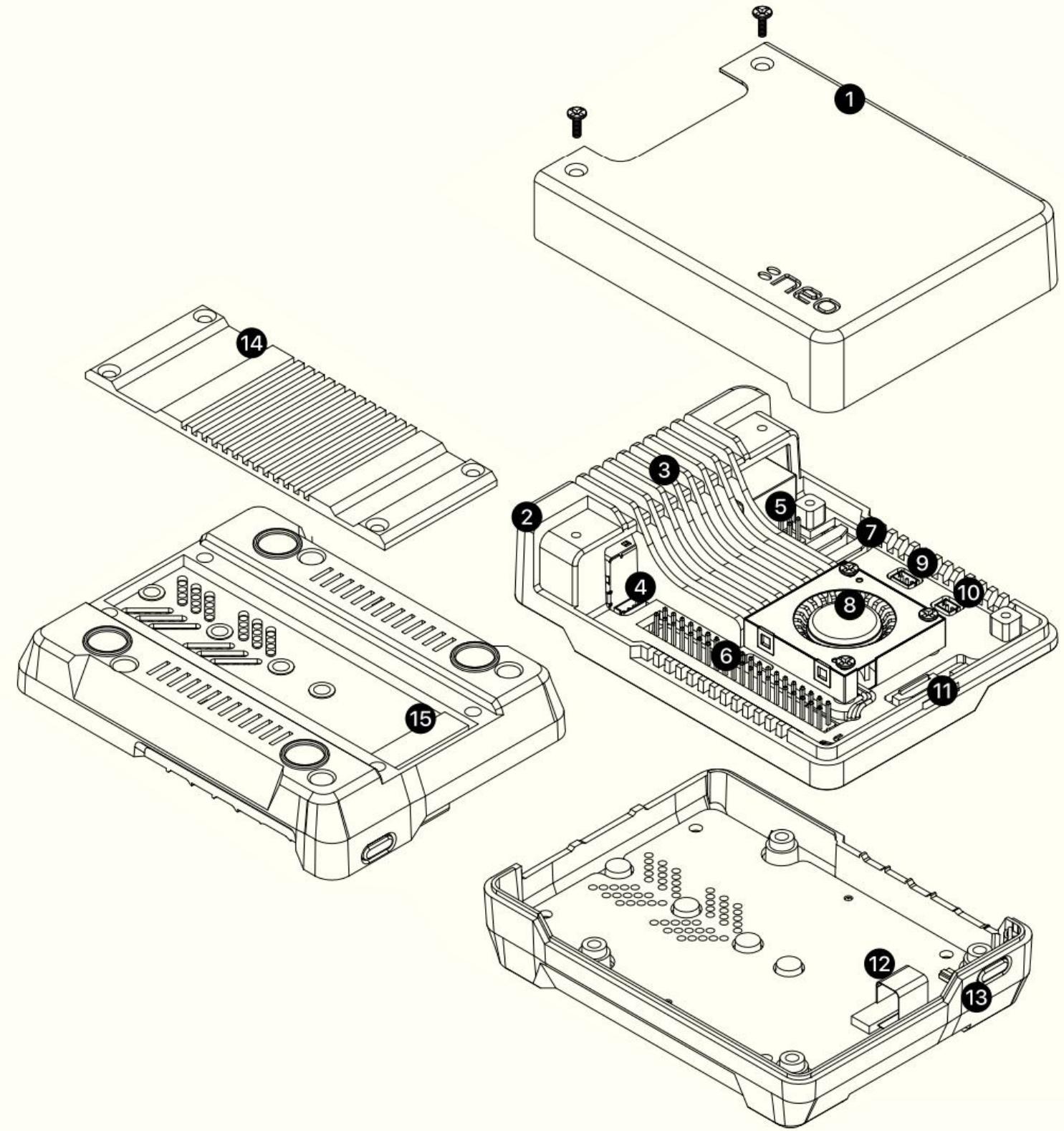
Source of case images & assembly diagrams: <https://argon40.com/>

# ASSEMBLY INSTRUCTIONS



## ARGON NEO 5 M.2 NVMe PARTS

- 1** Aluminium Top Cover with Screw Points
- 2** Aluminium Case
- 3** Cooling Fins and Exhaust Vent
- 4** Fan Port Access
- 5** POE HAT Connection
- 6** GPIO Access
- 7** MIPI Ports Access
- 8** 30mm PWM Blower-type Fan
- 9** UART Connector
- 10** RTC Battery Connector Access
- 11** PCIe Port Access
- 12** PCIE Film Strip
- 13** Power Button and LED Light
- 14** THRML M.2 Heatsink
- 15** M.2 NVMe Drive Socket



# ASSEMBLY INSTRUCTIONS



Some parts are in two zipper bags. Open them and carefully pour out the contents. You will find:

- Screws (two types)
- Rubber feet
- Two ribbon cables. You need one, the other one is a spare

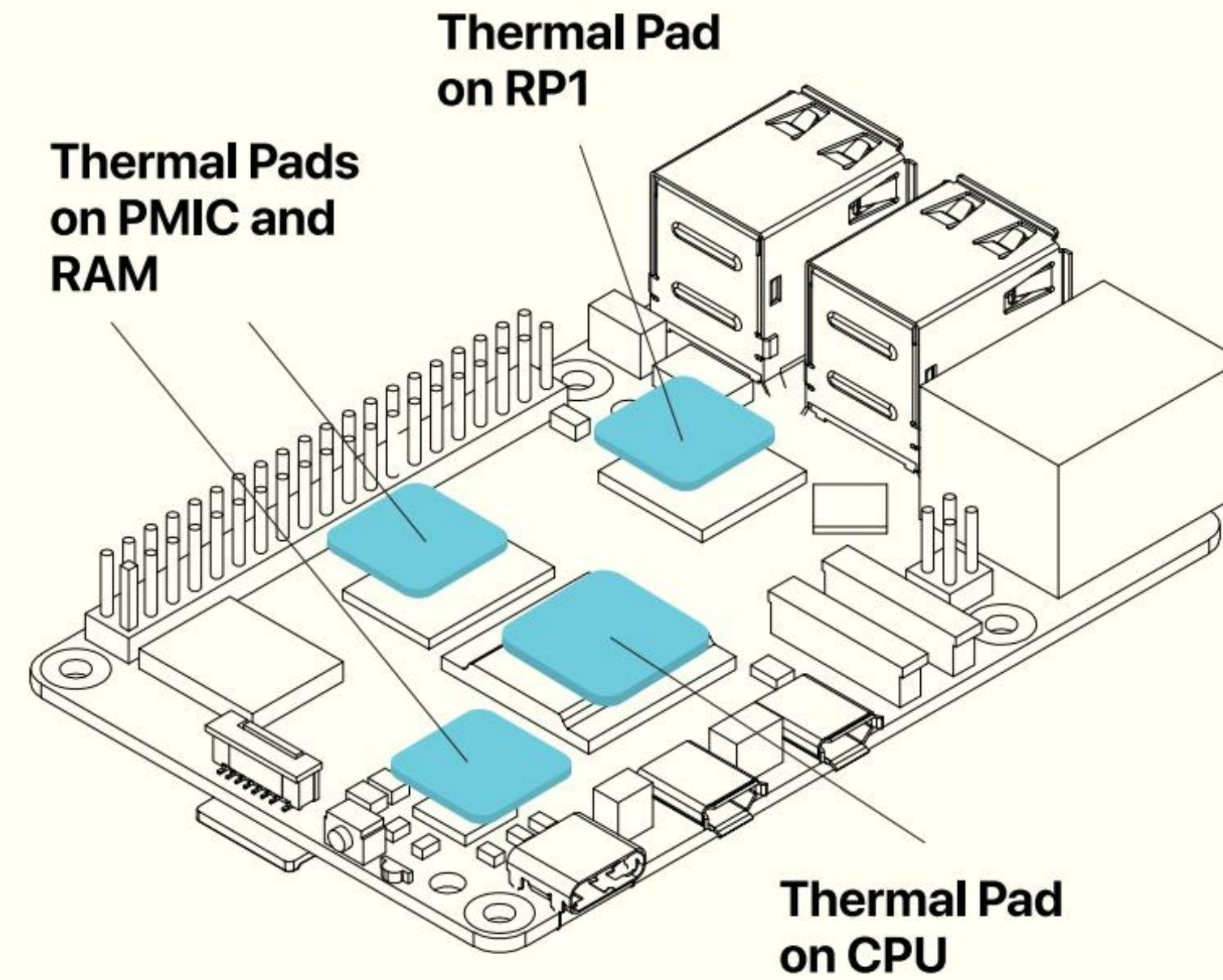
# ASSEMBLY INSTRUCTIONS



## 1 Place the thermal pads on the CPU, RP1, RAM and PMIC chip of the RPi 5

There are different versions of this case on the market:

- If you have 4 thermal pads, place them in the areas marked in blue.
- If you have 2 thermal pads in the set, place them on the CPU and PMIC (bottom left corner, near the USB-C connector).

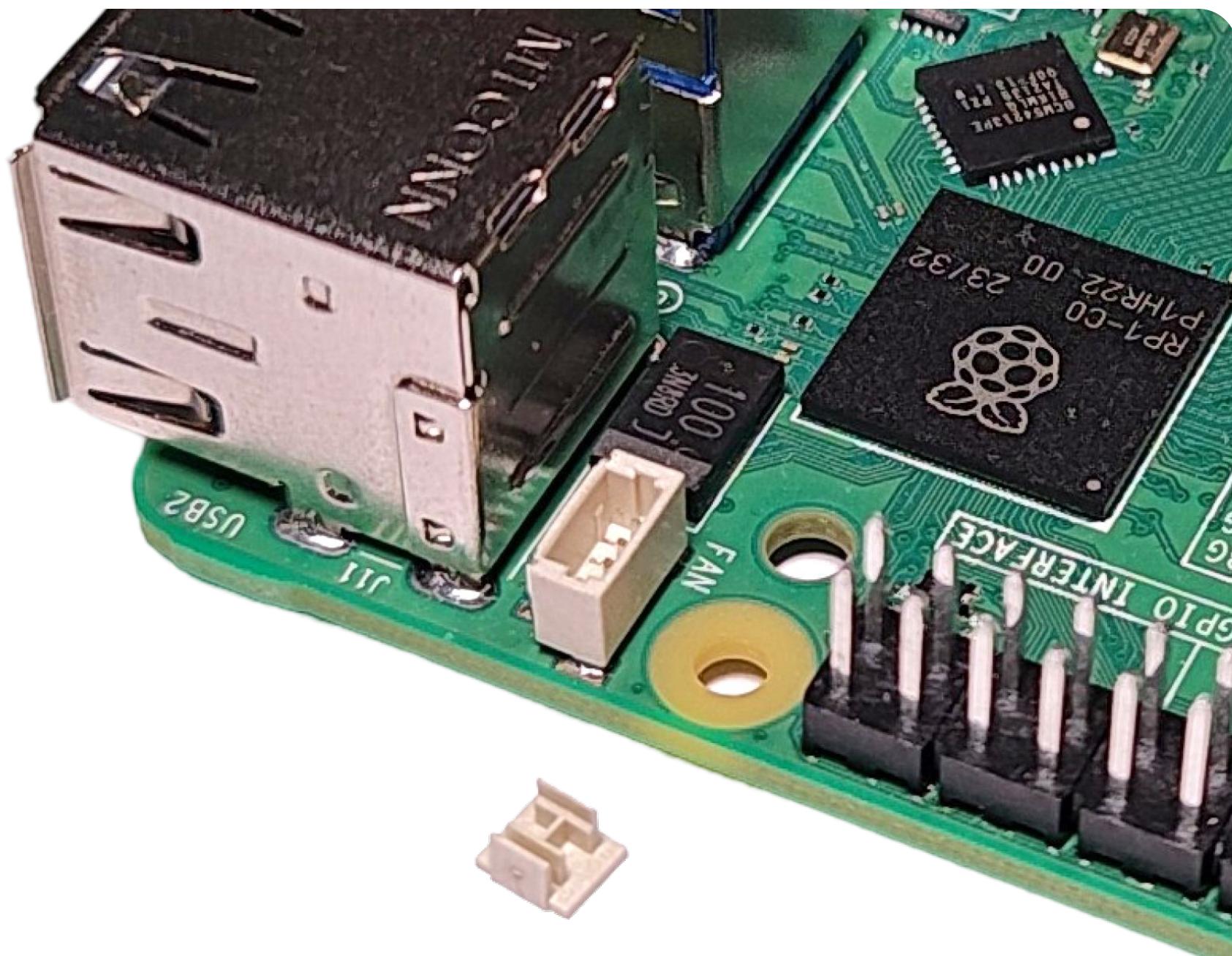


Make sure you have removed the protective film from both sides of the thermal pads.

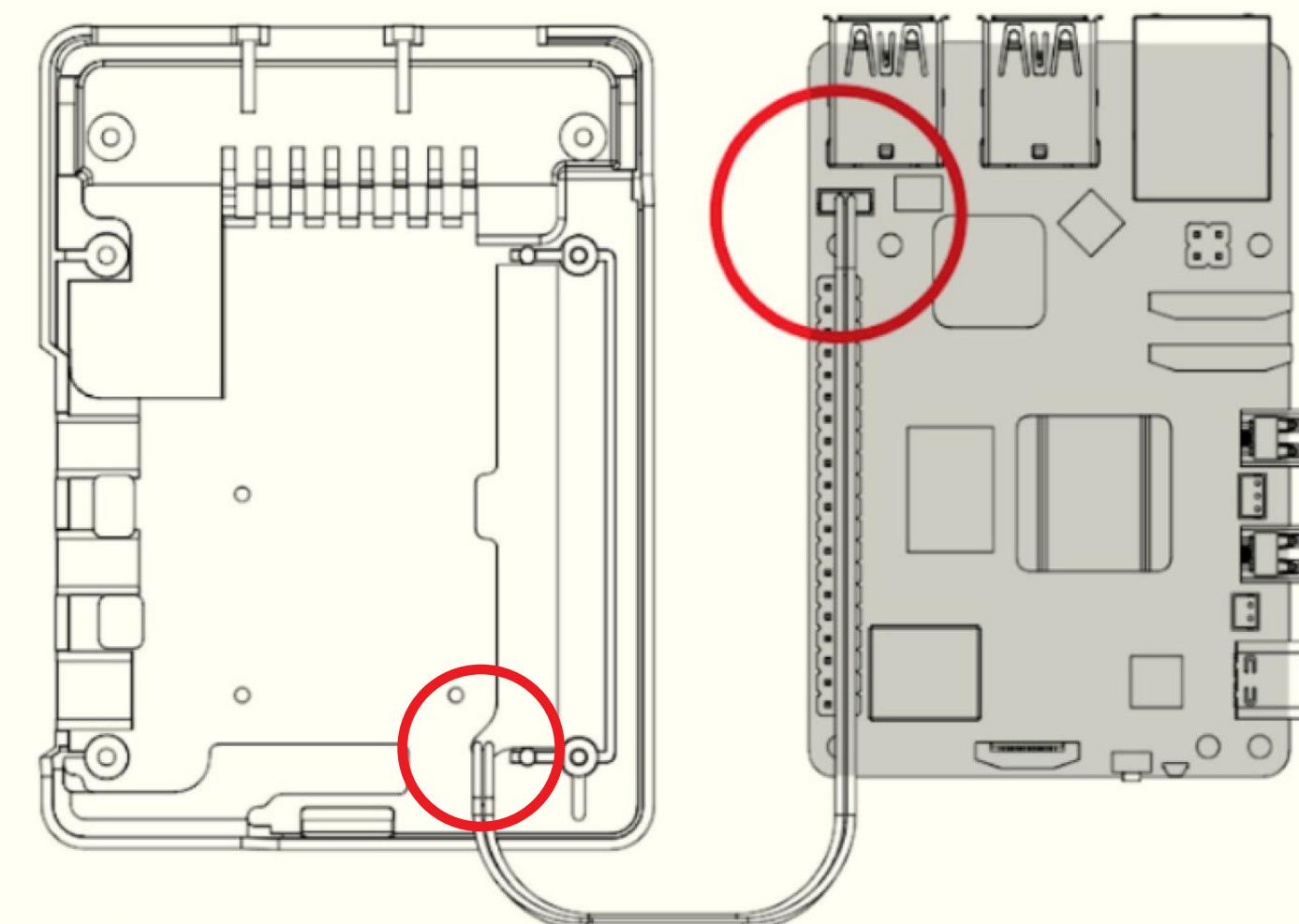


# ASSEMBLY INSTRUCTIONS

- 2 Connect the NEO 5 fan to the RPi 5 fan connector as shown in the image.  
Please pay attention to how the cable is routed.



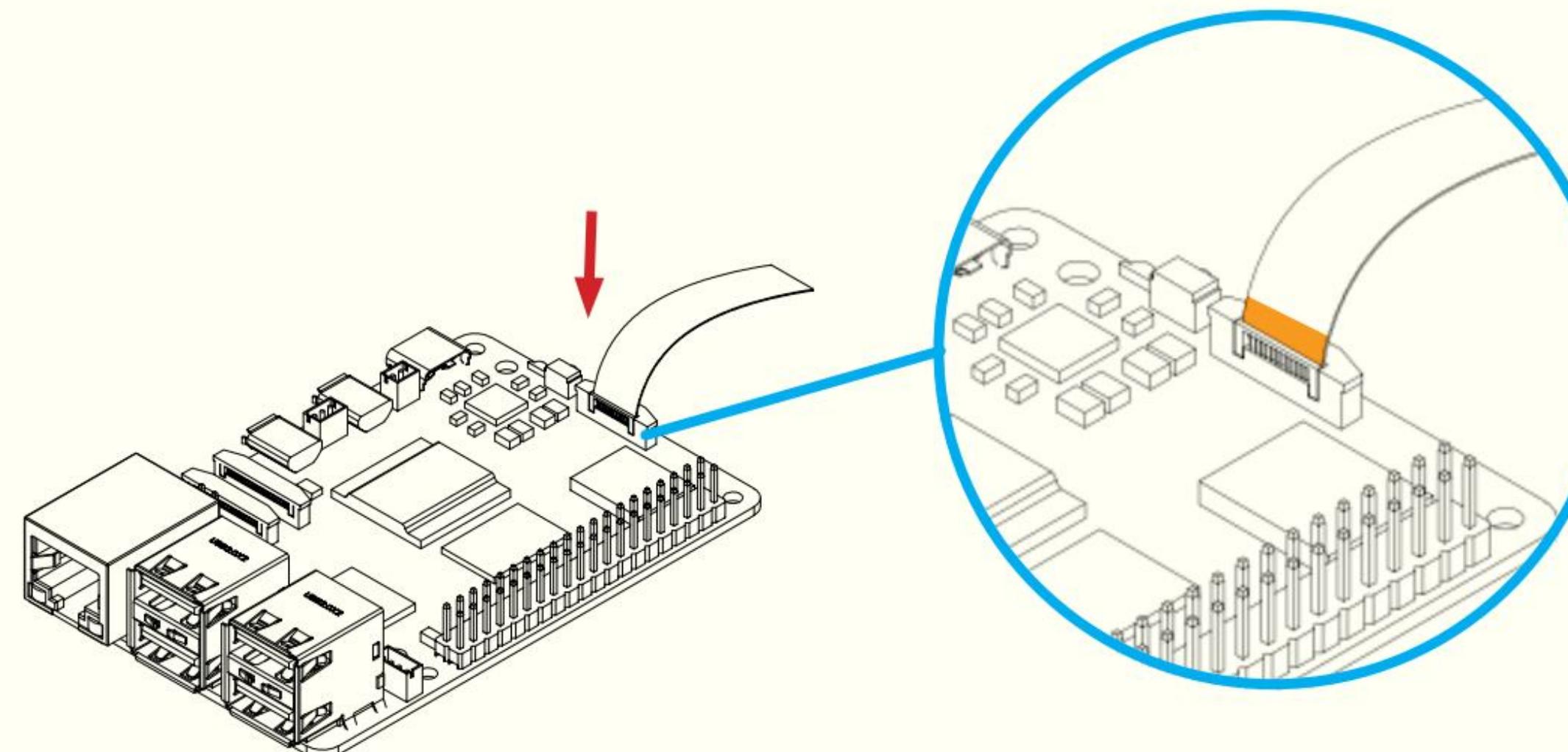
\* There may be a small plug inserted in the fan connector. Remove it.



Aluminum Case  
Bottom View

Be careful NOT to BEND the PINS  
in the RPi5 fan connector

# ASSEMBLY INSTRUCTIONS



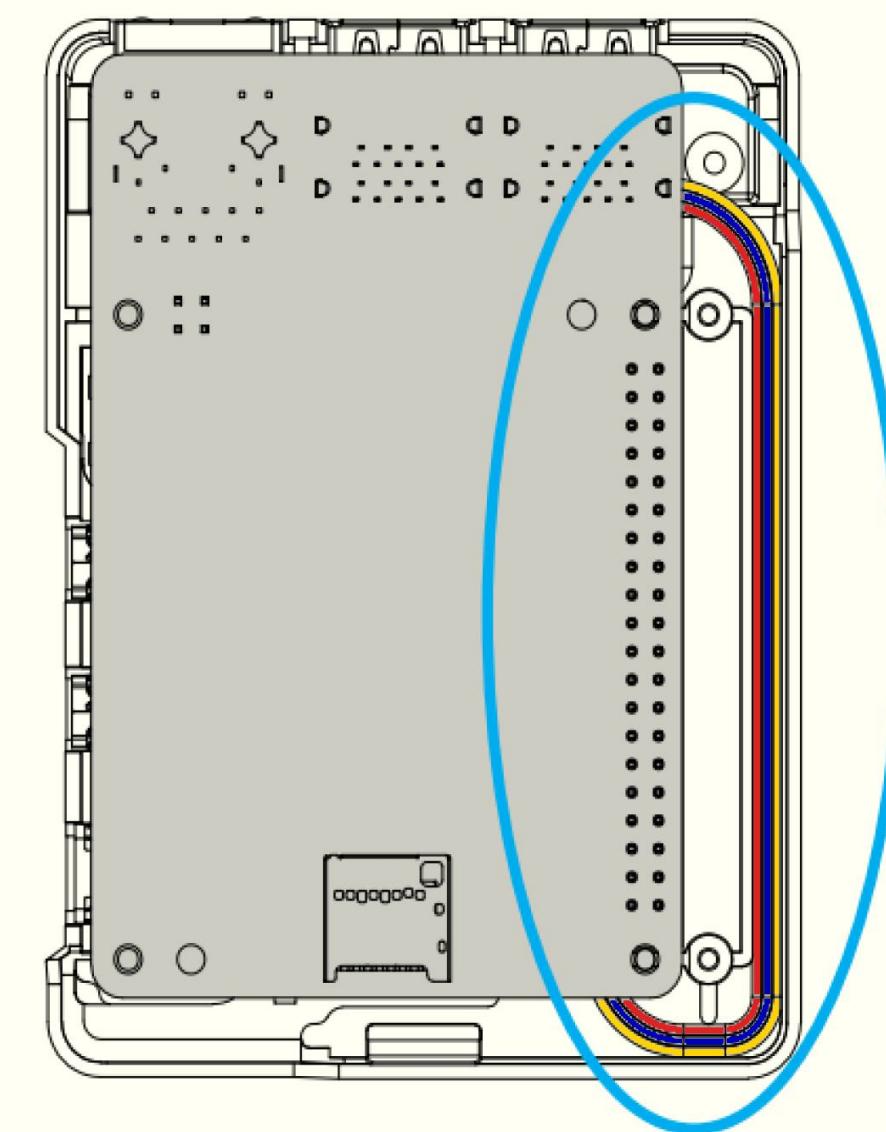
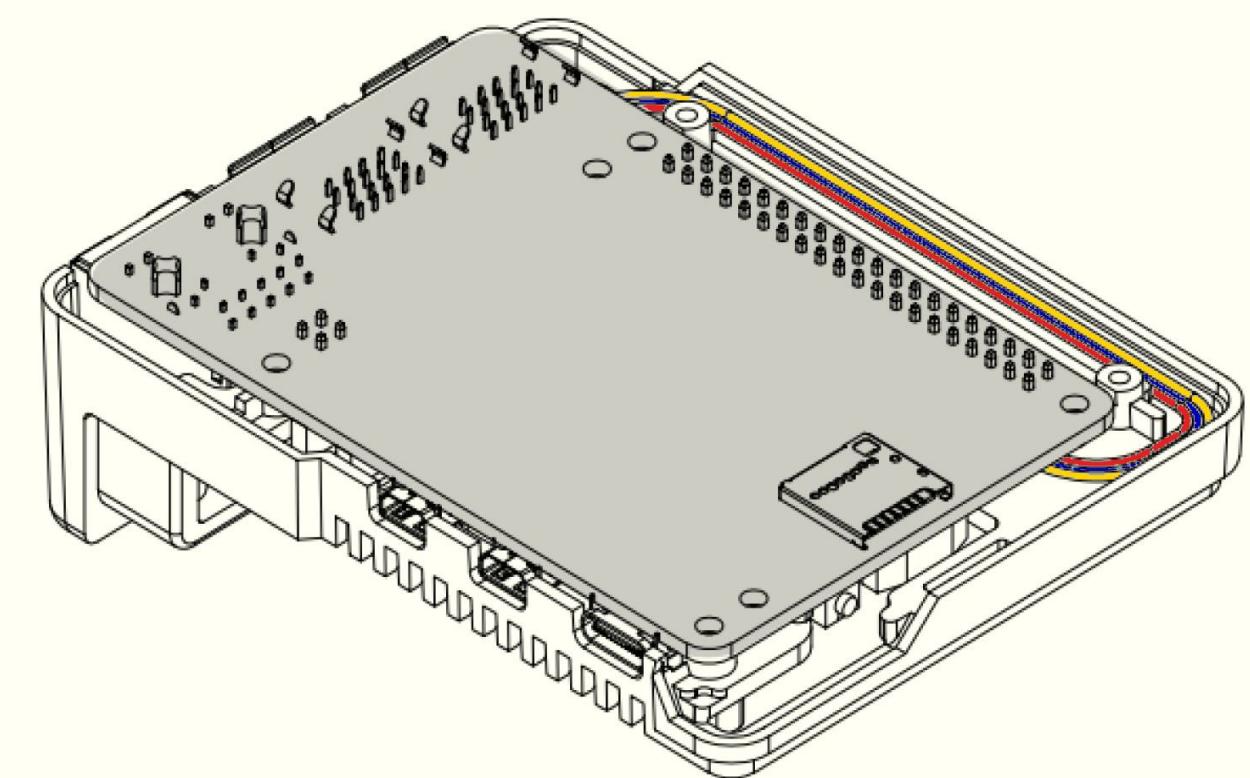
Copper side of the strip should be facing the white slide of the PCIe connector of the Raspberry Pi 5.

- 3 Connect the PCIe flat ribbon cable to the Raspberry Pi 5 PCIe port. Be careful when handling brown PCIe flip/cover. Pull up the brown flip to release the lock.

# ASSEMBLY INSTRUCTIONS



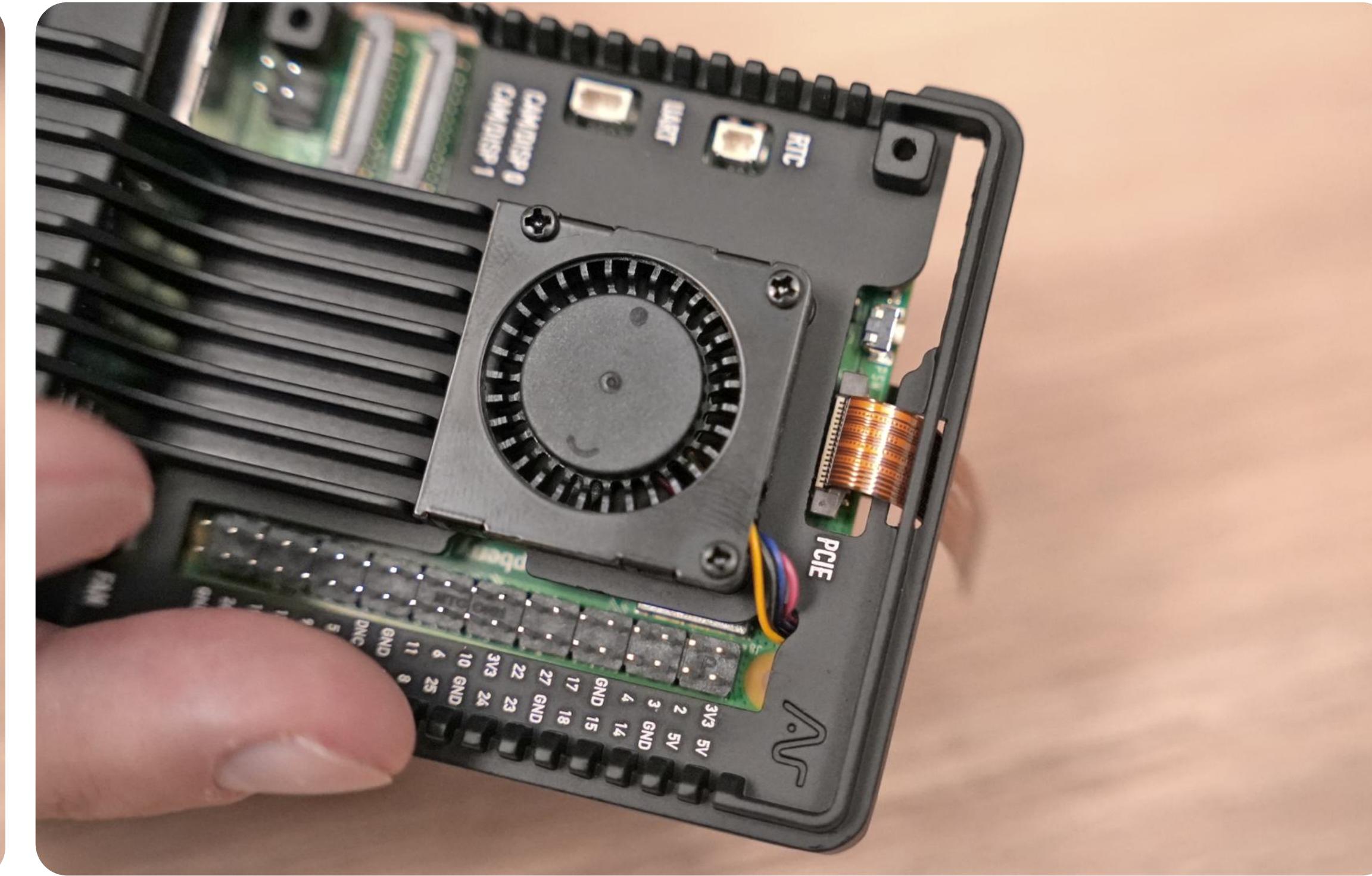
Make sure that the FAN wire is secured in the guide rail at the side of the case



- 4 Drop in the RPi 5 inside the **Argon NEO 5 M.2 NVMe Case**

\* After inserting and pressing the RPi 5 into the central part of the Argon Neo 5 case, they will adhere due to the stickiness of the thermal pads. To ensure good thermal conductivity, do this once and avoid removing the RPi 5 from this part of the case again.

# ASSEMBLY INSTRUCTIONS

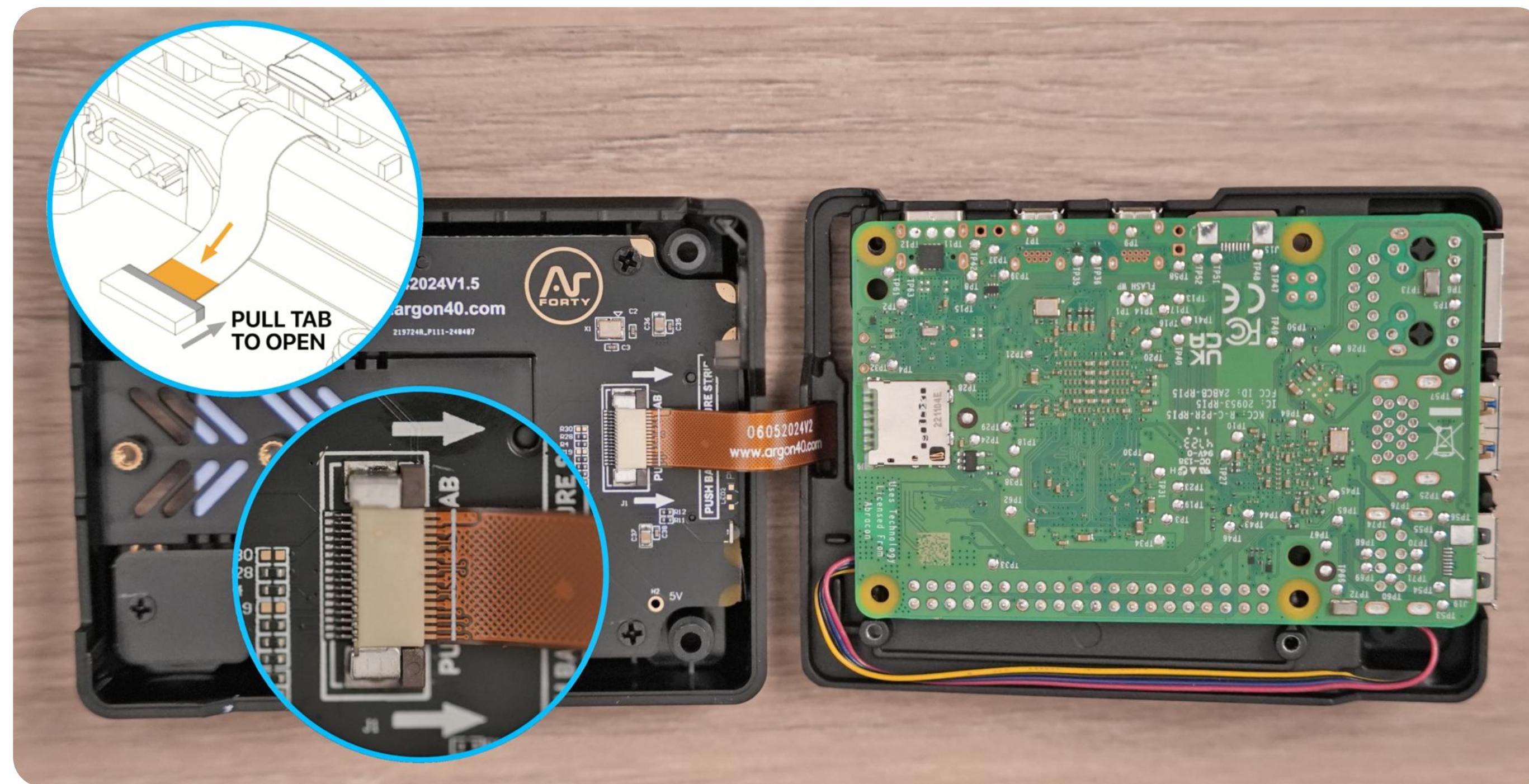


- 4.1** The PCIe flat ribbon cable should be threaded through the hole in the case, as shown in the picture

# ASSEMBLY INSTRUCTIONS



- 5 Carefully connect the Raspberry Pi 5 with the PCIe flat ribbon cable **with copper facing** up to the **Argon NEO 5 M.2 NVMe Carrier Board Case**. Flip up the cover on the M.2 NVMe Expansion Board



# ASSEMBLY INSTRUCTIONS

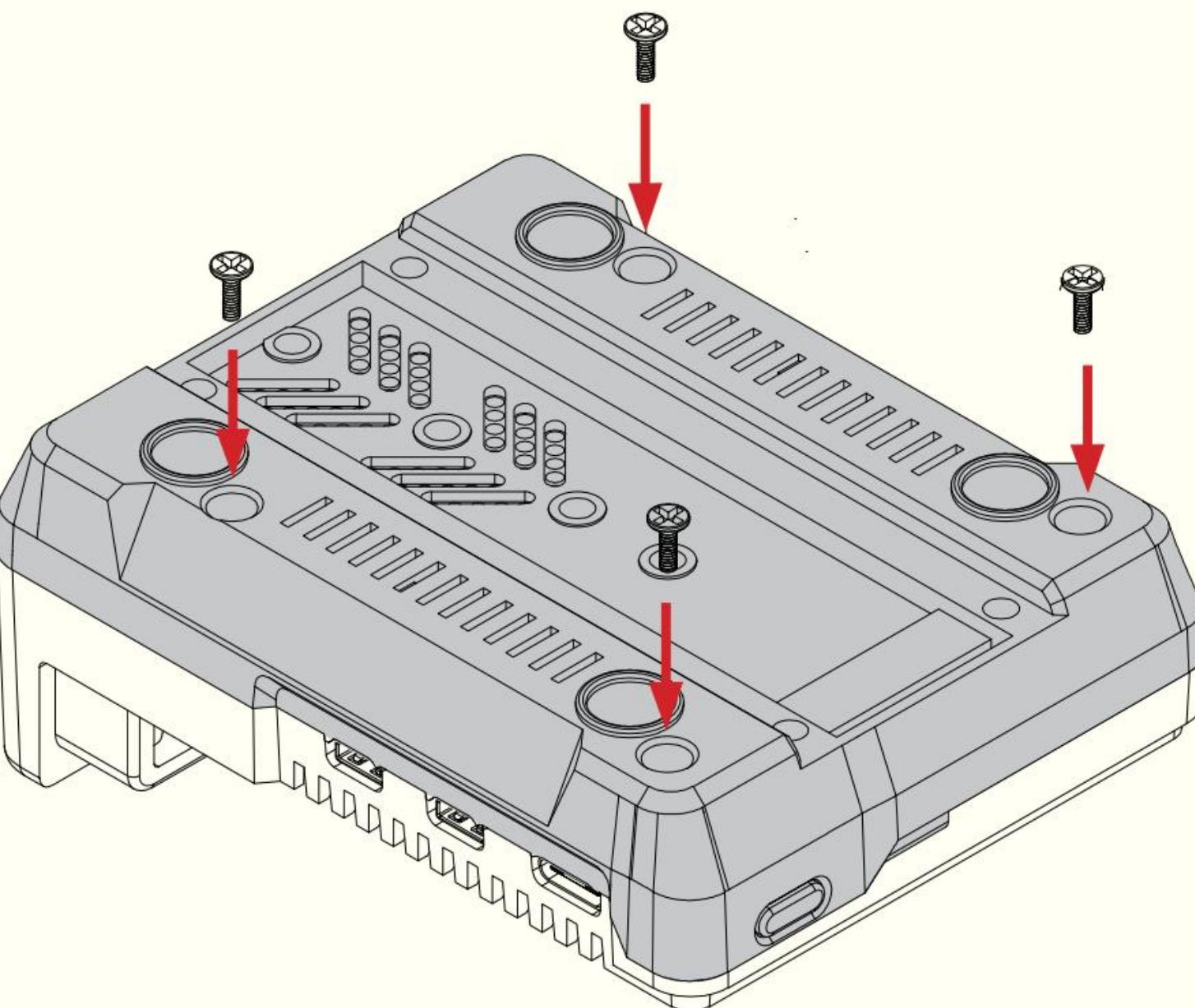


- 5.1 Here we want you to insert the PREVIOUSLY flashed microSD card with Web3 Pi image

# ASSEMBLY INSTRUCTIONS



- 7 Secure the bottom cover with 4 screws as shown in the image. Do not apply excessive force to avoid stripping or damaging the thread



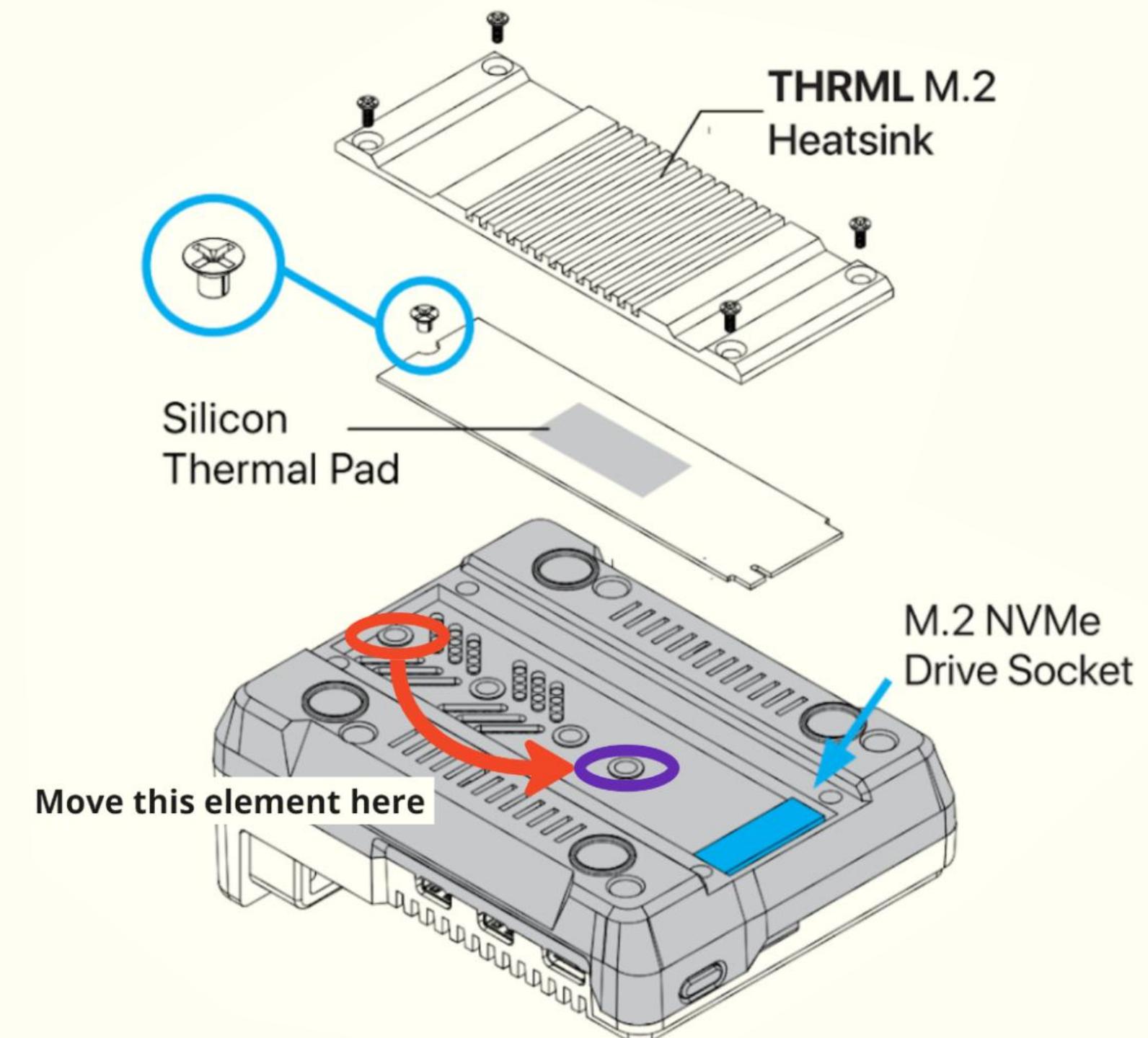
# ASSEMBLY INSTRUCTIONS



- 8 Connect your **M.2 NVMe Drive** to the **Argon NEO 5 M.2 NVMe Carrier Board**.  
Detailed instructions for this process are described in the following steps.

This Board will accept **M.2 Key M** and **M.2 Key B+M** NVMe Storage Drive.

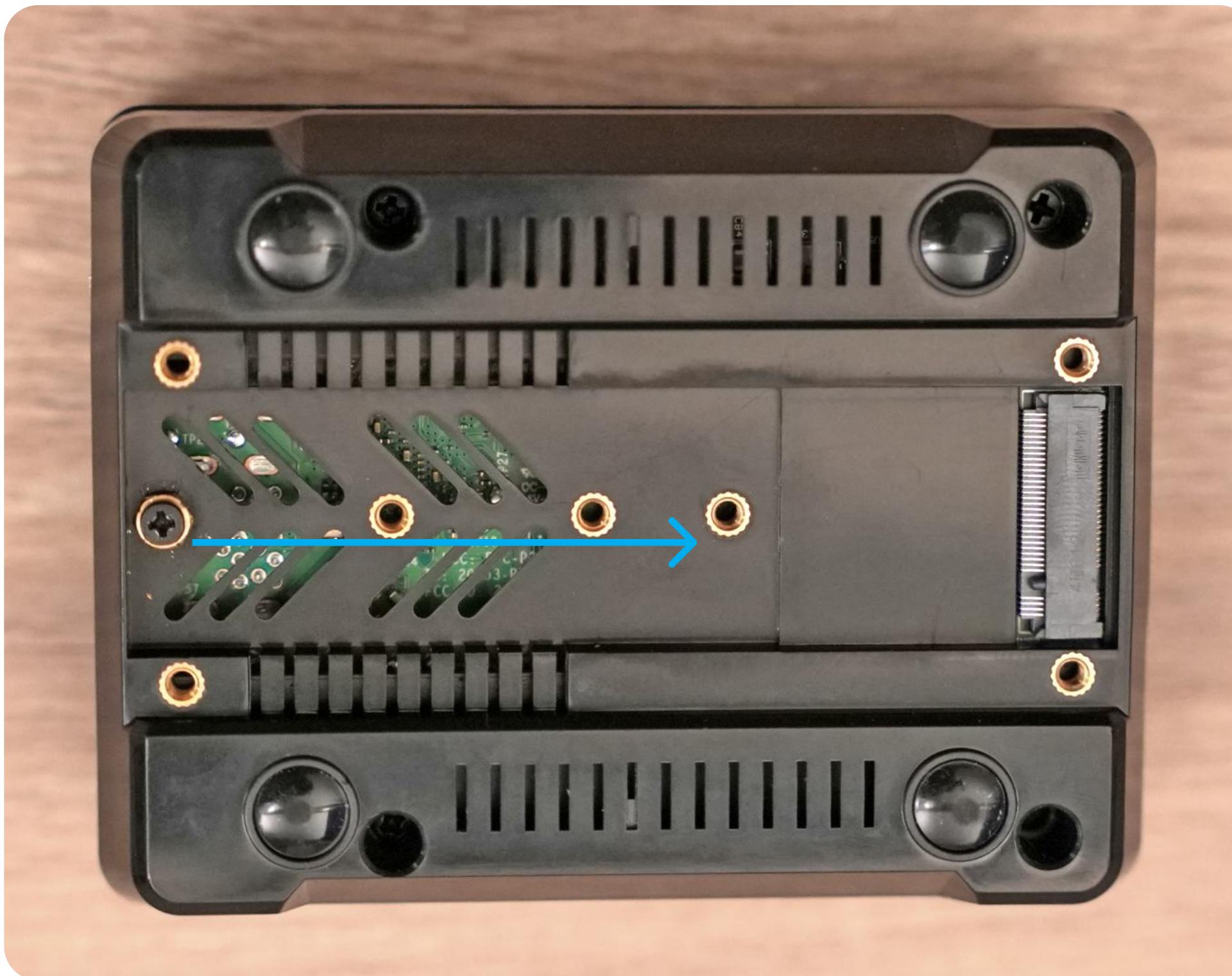
\* This Board is **NOT compatible**  
with **M.2 SATA** Storage Drives.



# ASSEMBLY INSTRUCTIONS



- 9 Remove the "THRMK M.2 Heatsink" cover by unscrewing the four screws at its corners



- 10 Move the screw point on the Board to the appropriate size of your Storage Drive



# ASSEMBLY INSTRUCTIONS



- 11 Insert the NVMe drive into the M.2 slot  
as shown in the picture



# ASSEMBLY INSTRUCTIONS



- 12 Screw in the NVMe drive as shown in the picture



# ASSEMBLY INSTRUCTIONS



- 13 Mount the thermal pad on the NVMe drive. There is no need to shorten it. Remember to remove the protective film from both sides.



# ASSEMBLY INSTRUCTIONS



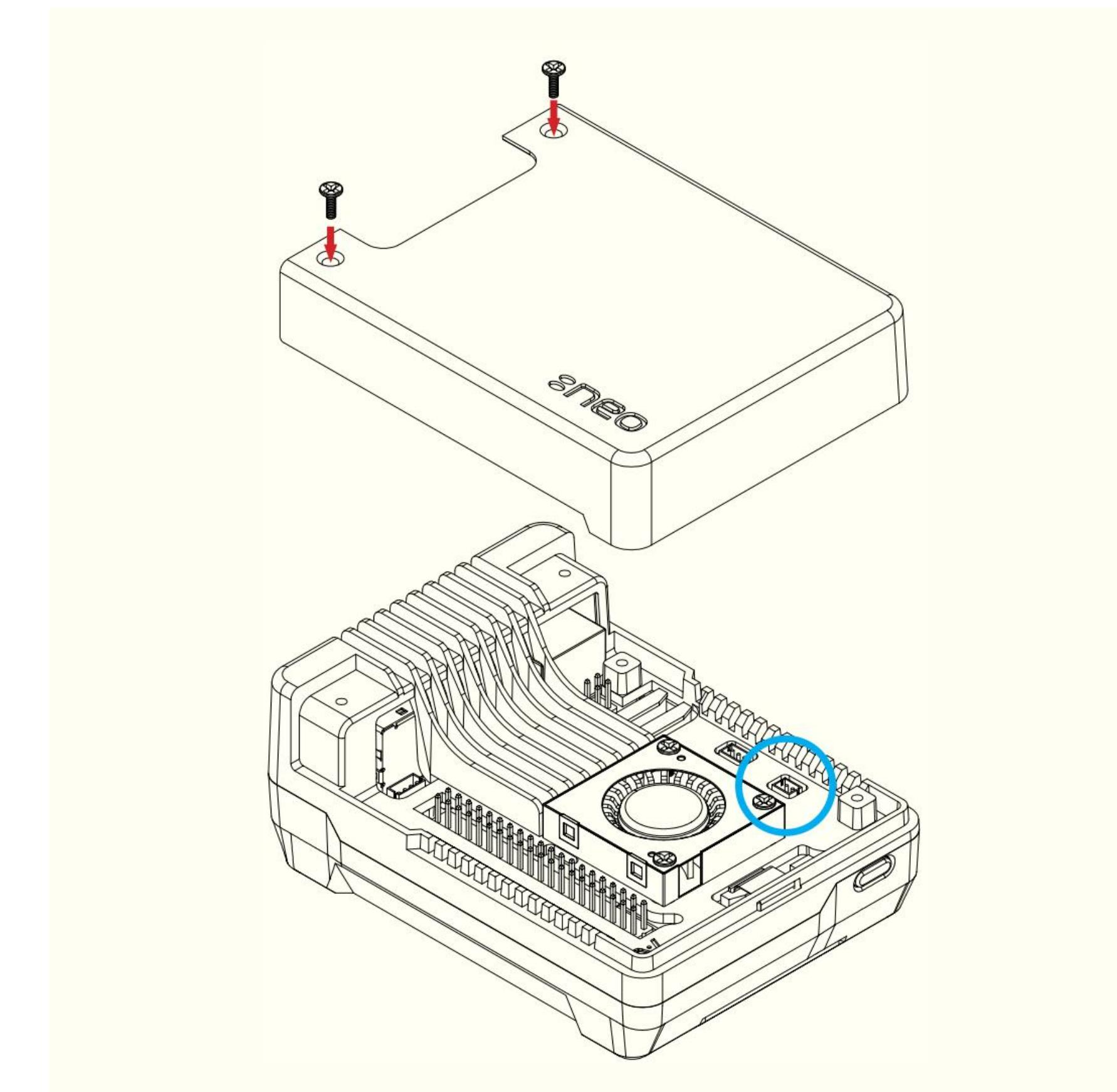
- 14 Mount the metal cover and screw it in using four screws with conical heads



# ASSEMBLY INSTRUCTIONS



- 15** Secure the Aluminium Top Cover with 2 screws



# STATE OF THE HARDWARE AFTER THE ASSEMBLY PROCESS



Before you connect power, make sure that the ethernet cable is connected with DHCP. Internet connection is required during the installation process.



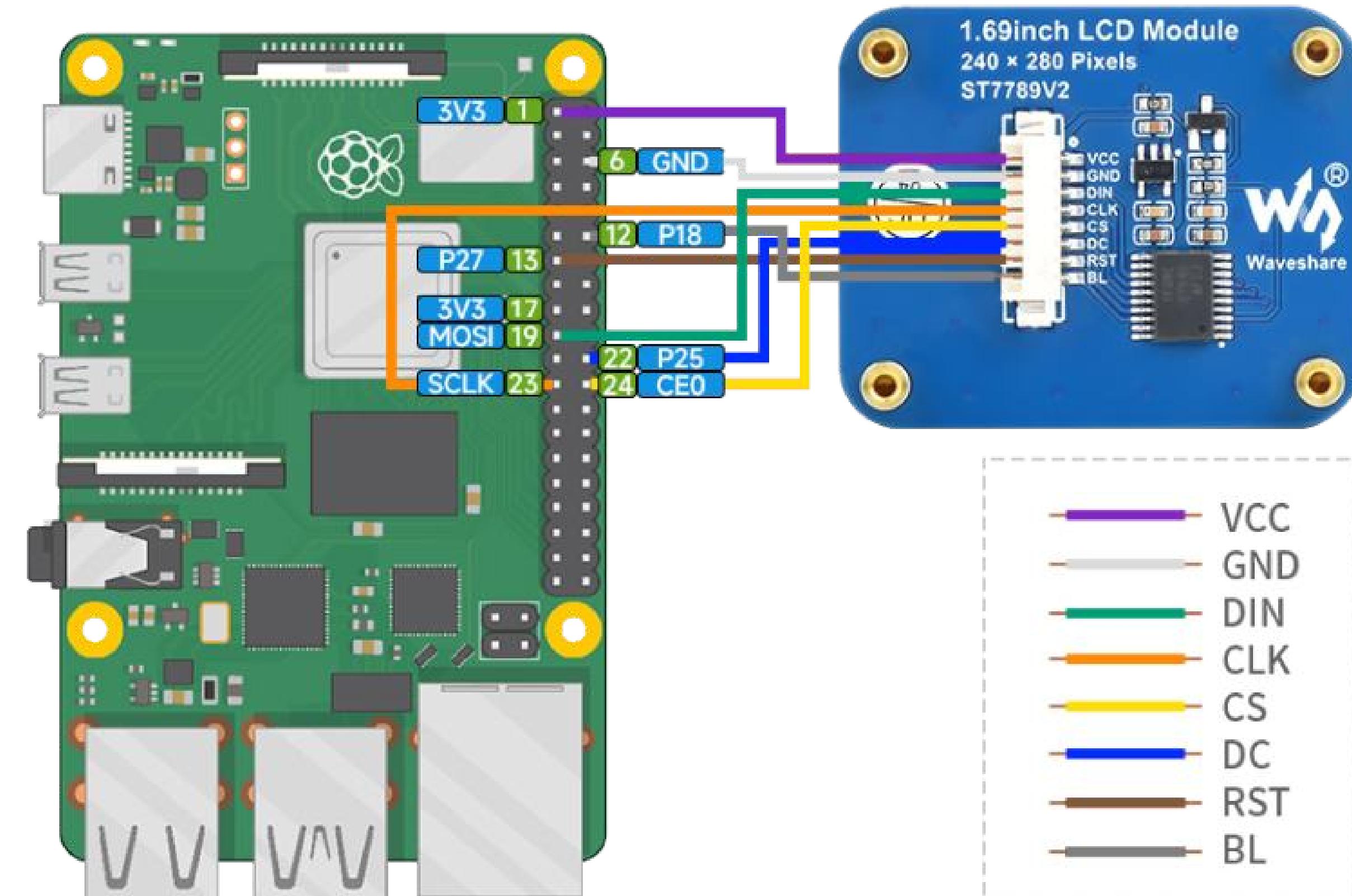
source: <https://argon40.com/>



## ASSEMBLY INSTRUCTIONS (OPTIONAL LCD)

- 16** If you have a plastic cover with an LCD display, connect it according to the diagram instead of the original metal one.

\* Pay attention to the positioning of the cables when mounting the cover to ensure they don't mechanically obstruct the fan blades.



# ASSEMBLY INSTRUCTIONS (OPTIONAL LCD)



- 17 The final result should look like this:



# ASSEMBLY INSTRUCTIONS

Before you connect power, make sure that the ethernet cable is connected with DHCP. Internet connection is required during the installation process.

Now you can plug in the power adapter. Raspberry Pi runs automatically after plugging in power.

Leave the device for about 8-15 minutes to complete the installation process.

Do not disconnect power during this time.

\* The time may vary depending on the bandwidth of the internet connection.



# MONITORING INSTALLATION STATUS



You can monitor the installation process through a dedicated website: <http://eop-1.local>

The monitoring should start working approximately three minutes after the device is first switched on.

Replace "eop-1" with your hostname that you entered during the microSD card burning process in Raspberry Pi Imager, if you used a name other than "eop-1".

After approximately 3 minutes from powering on the device for the first time, you should see a similar page.

A screenshot of a web browser window titled "Web3Pi Installation Status" with the URL "192.168.222.116". The page has a dark theme with green text. It displays the following information:

- Web3Pi installation status: STAGE 100: Installation completed**
- Node IP:** 192.168.222.116
- Hostname:** w20.local
- Uptime:** 0 hours, 32 minutes, 40 seconds
- Page generation time:** 2024-08-28 21:41:15

At the bottom, there are two buttons: "Grafana monitoring" (link: http://192.168.222.116:3000) and "JSON status" (link: http://192.168.222.116:7197/node/system/status). Below the main content, there is a large block of text labeled "Installation log file (/var/log/web3pi.log)" which shows a detailed log of the installation process from start to completion.



# MONITORING INSTALLATION STATUS

The Raspberry Pi with the Web3 Pi image on port 80 hosts an HTTP server that continuously displays the following in the web browser:

- The installation stage
- The hostname and IP address of the device
- The full installation log
- Uptime
- A link to the Grafana dashboard and a JSON status file

Since the Raspberry Pi will reboot three times during the installation process, you may need to refresh the page manually

The installation is divided into stages.

The installation is complete when you see: "STAGE 100: Installation completed."

This status is shown in the following screenshot.

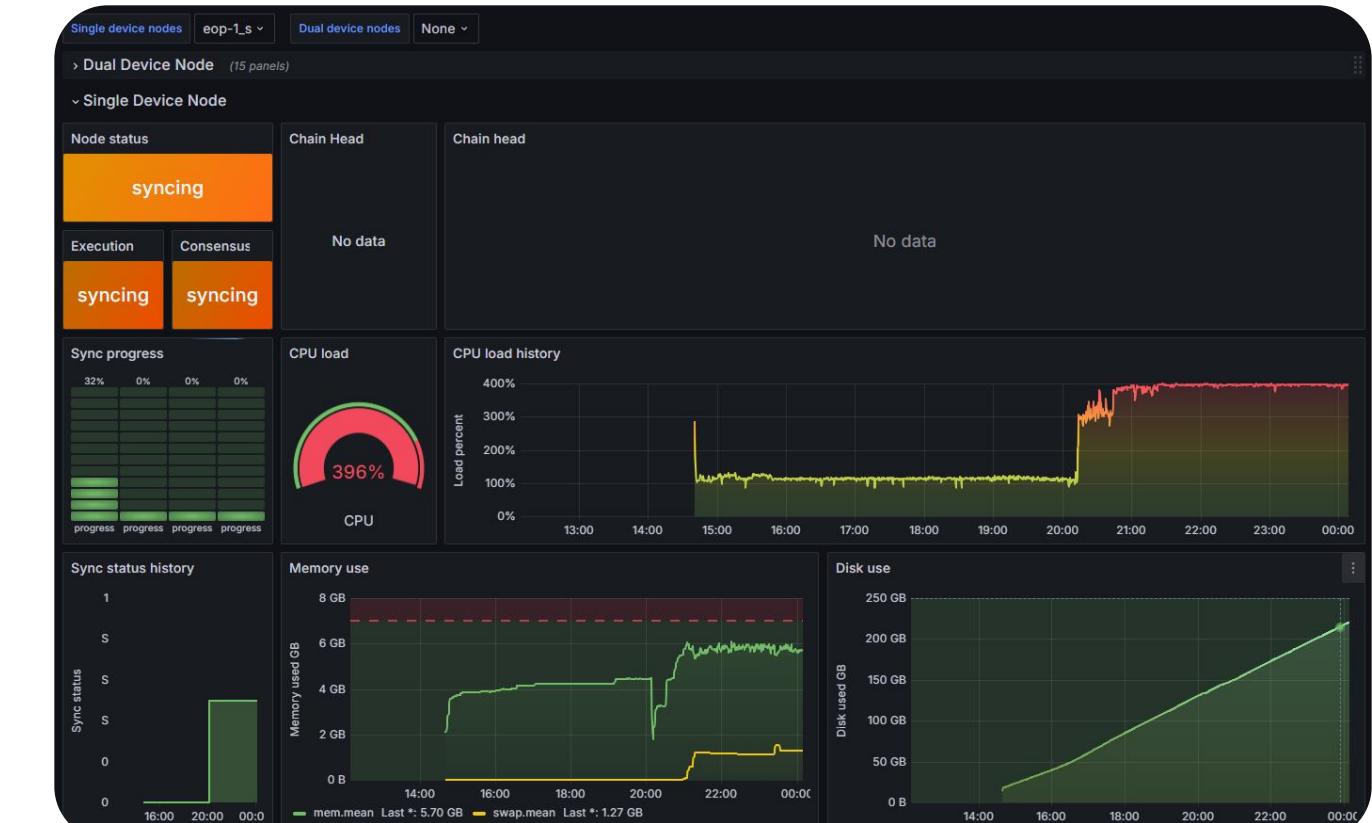
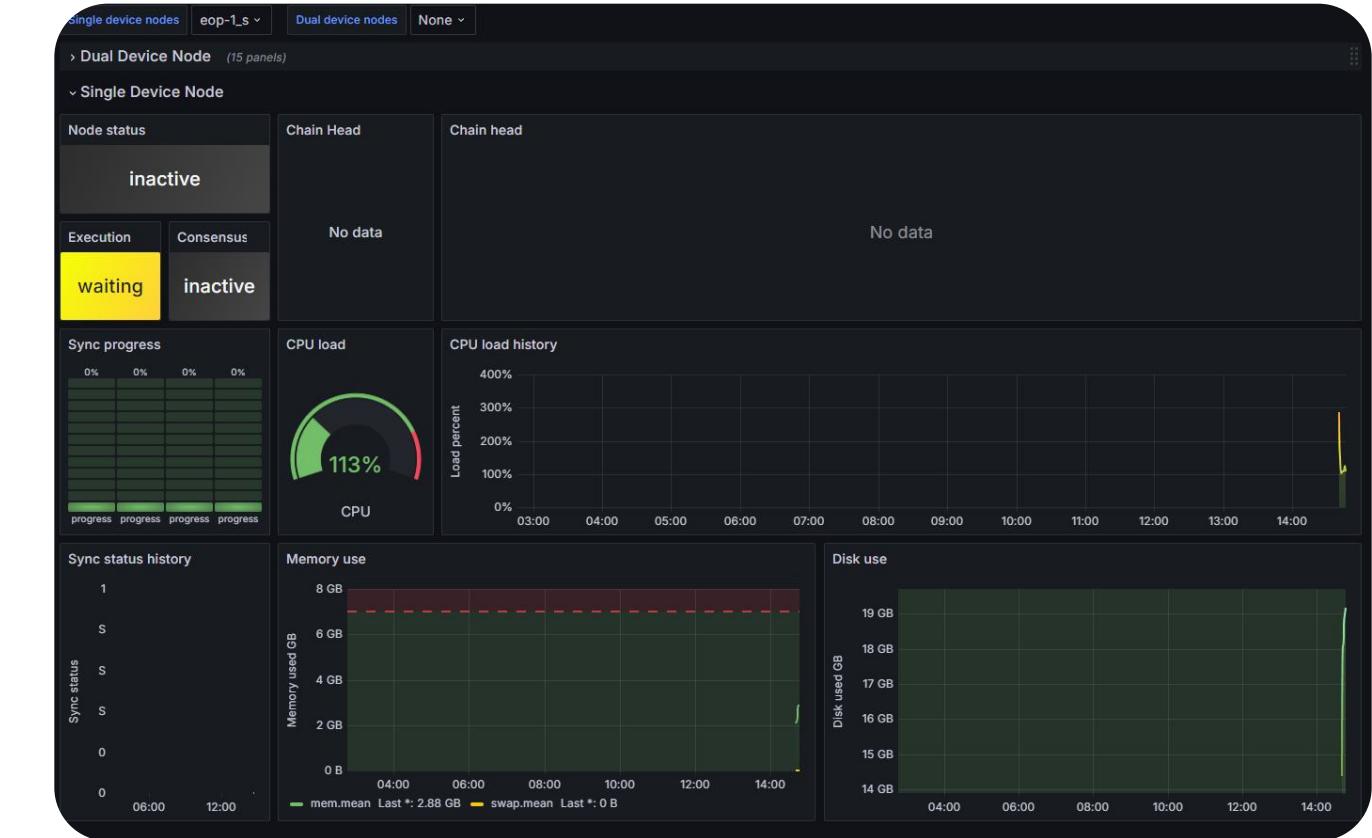
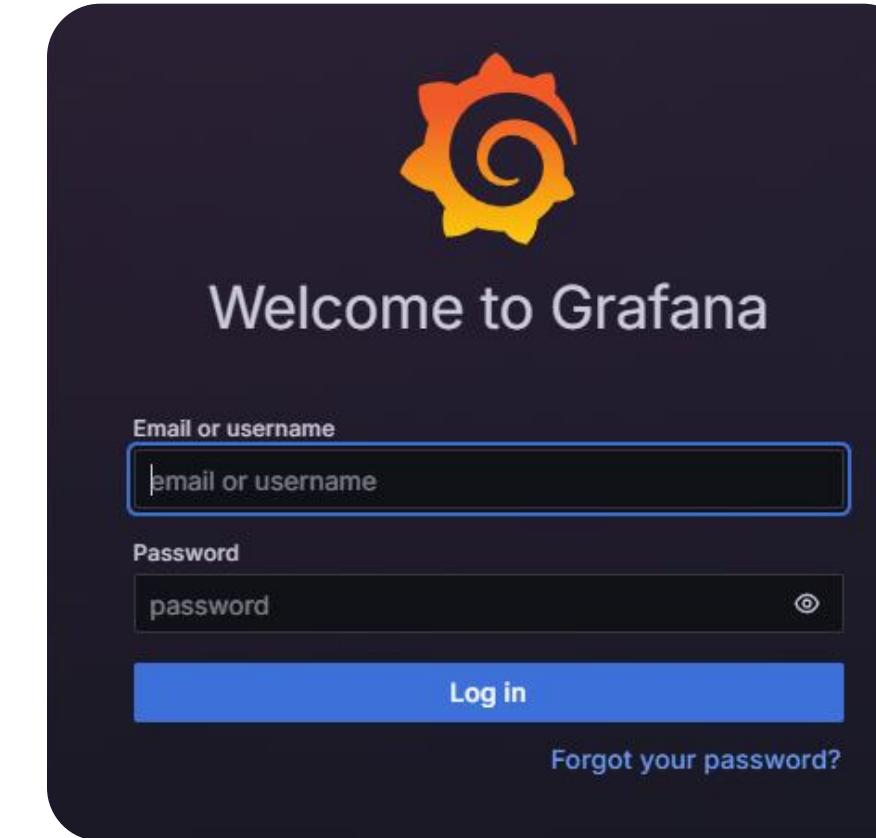


# GRAFANA MONITORING

Next, click the link to the Grafana dashboard. If everything has gone smoothly, you should see the login panel. The default username is '**admin**', and the password is '**admin**'. You will be required to change the password upon first login.

In the Grafana Panel, click on the **dashboard** named '**Ethereum Nodes Monitor**'.

Pay attention to the status of the consensus and execution clients. Initially, both will be 'inactive'



In the next step, the execution client will change to '**waiting**'.

Then both will transition to the '**syncing**' state.

Grafana URL: <http://eop-1.local:3000>

# GRAFANA MONITORING



At this point, the **blockchain synchronization process** will begin and will take approximately **19 hours**.

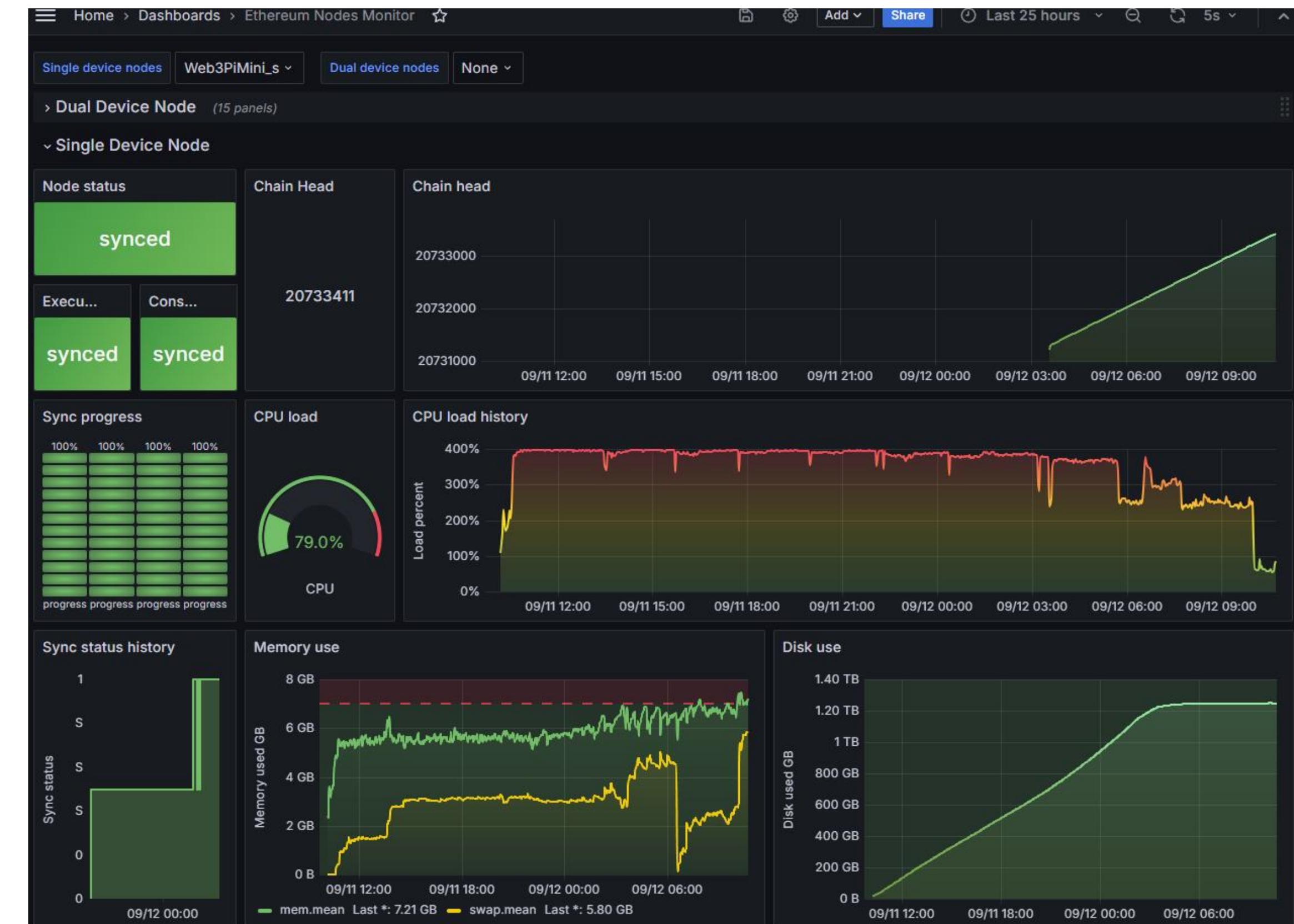
The CPU load will increase until it reaches its maximum possible value.

Disk usage will grow to around 1.2TB.

# GRAFANA MONITORING



Full synchronization will be achieved when the status of both the execution and consensus clients turns green ("synced").



# SSH ACCESS



After the installation completes successfully, you should have SSH access to the Web3 Pi node.

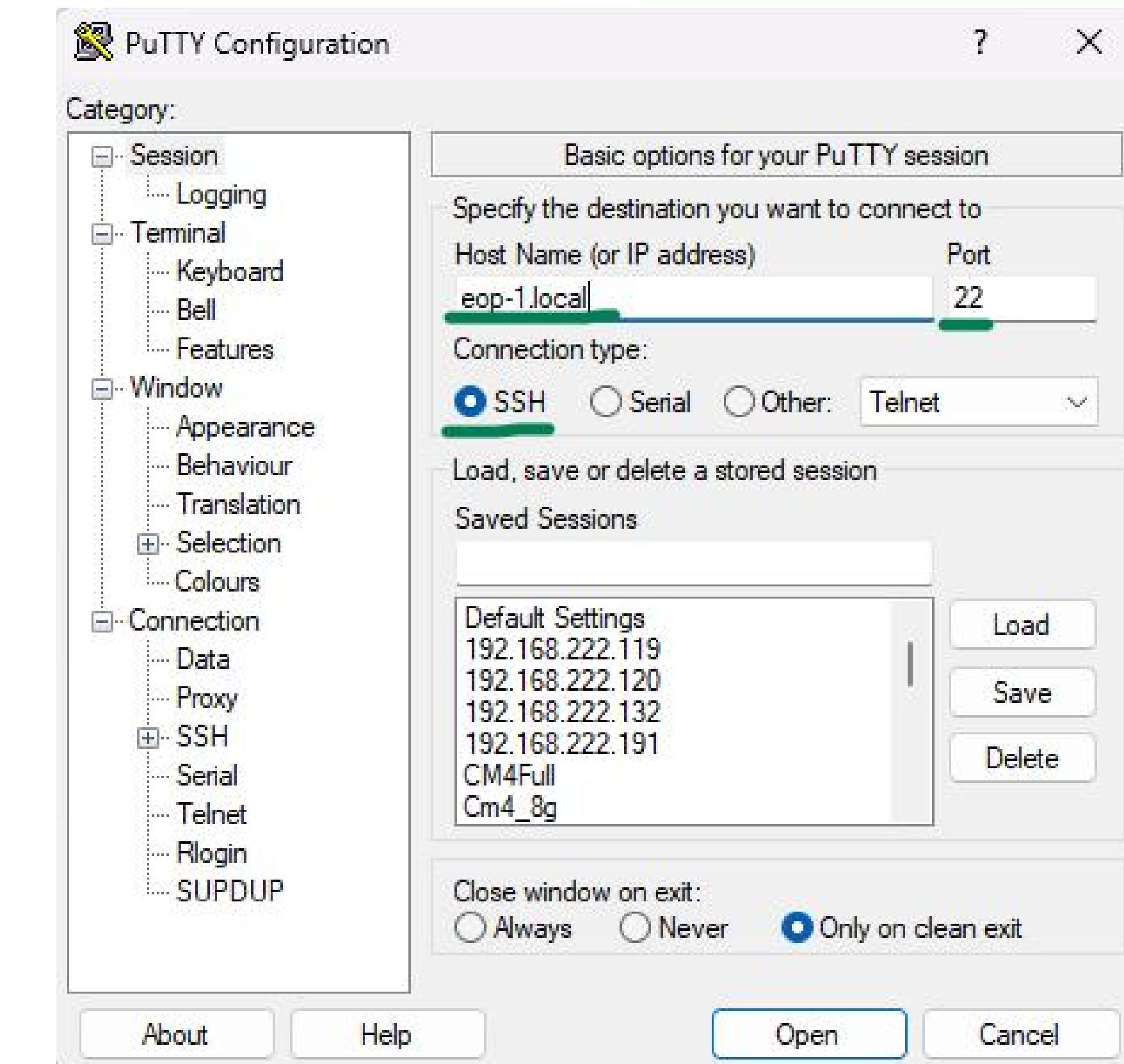
Username: **ethereum**

Password: **ethereum**

You can use **[your-hostname].local** as the SSH address or the **IP address** if you know it.

If the 'ethereum' user does not exist, it means the installation failed unexpectedly (in such case, please contact support).

By default, the 'ethereum' user is required to change the password during the first login.





## YOUR NEXT STEPS ONCE THE INSTALLATION PROCESS IS FINISHED

Now you can follow these instructions to install and run Web3 Pi Reverse Proxy

<https://docs.proxy.web3pi.io/installation/>

## FURTHER READING AND LINKS:

- Node Setup <https://setup-guide.web3pi.io/>
- Raspberry Pi Argon Neo 5 Case: [INSTRUCTION MANUAL NEO\\_5\\_M.2\\_NVMe\\_20240703.pdf](INSTRUCTION MANUAL NEO_5_M.2_NVMe_20240703.pdf)
- Ⓐ Source: <https://argon40.com/>
- Recommended Hardware: <https://setup-guide.web3pi.io/Hardware/recommendedHW/>
- More on Web3 Pi Reverse Proxy: <https://docs.proxy.web3pi.io/>

# DISCLAIMER



The Web3 Pi is a community driven project and it is currently in its early development phase (Proof of Concept) and consists of components provided by third-party manufacturers, including but not limited to Raspberry Pi, enclosures, power supplies, storage drives, microSD cards, etc. While the Web3 Pi team rigorously tests all functionalities, we cannot guarantee the performance or compatibility of individual components or solutions at this stage.

By engaging with Web3 Pi products during this early phase of development, the "Early Bird" user assumes full responsibility for any interactions with these products. The use of Web3 Pi solutions is at the user's own risk, and the team does not bear any liability for issues that may arise during this period of initial testing and experimentation.