

# NEPTUNE 4

## firmware update instructions

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## Updated content and usage guidelines(Must read)

The contents of this update include: the fix pack, main control board firmware update package, and screen firmware update package. After all updates, you need to perform automatic leveling and set Z-offset again.

### 1. Do I need to use the fix pack?

If your current firmware version of NEPTUNE 4 is earlier than 1.1.2.51, it is recommended to update the fix pack first to avoid errors due to compatibility issues.

### 2. Do I need to update the touchscreen firmware?

If the touchscreen firmware version is compatible with this updated firmware version, there is no need to update again. How to judge whether it is compatible: Operate the touchscreen in

【Settings-About Machine】 and check whether the current touchscreen firmware version is: 1.2.11. If so, you don't need to update the touchscreen firmware.



## Need to use

### 1. USB flash drive (for updating the fix pack and main control board firmware package)

It is recommended to choose the USB flash drive that comes with the machine. If you choose another USB flash drive, please confirm that it is **USB2.0** specification. Some USB3.0 USB flash drives may not be read normally.

### 2. TF card (for updating screen firmware)

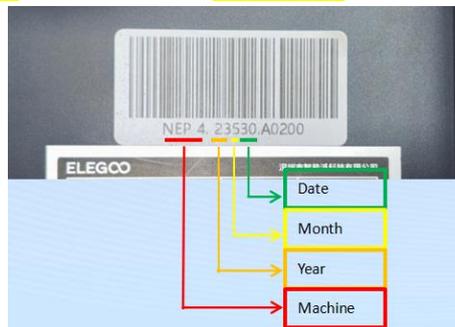
It is recommended to choose the TF card that comes with the machine. **Format it as:**  
File system (F): FAT32 Allocation unit size (A): 4096 bytes



### 3. Select the file corresponding to the traceability code:

There are two folders (0.8A and 1.2A) in the zip package, and you need to select the corresponding folder based on the traceability encoding date.

In the lower left corner of the machine, check the machine's serial number and batch date. For NEPTUNE 4 models, please select the **0.8A folder** for machines before **July 2023 (excluding July)**; for machines in **July 2023 and later**, please select the **1.2A folder**.



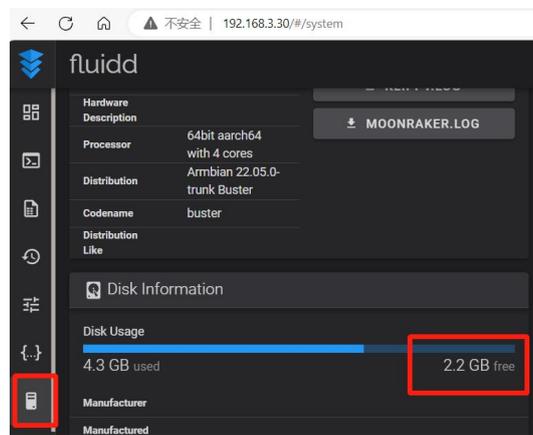
## Please confirm before installation:

### 1. Confirm that the main control board system can start normally

The fix pack and firmware package are only available on machines where the armbian system on the main control board can start normally. If there is any abnormality in the printing, please check the first FAQ to determine whether the armbian system starts normally.

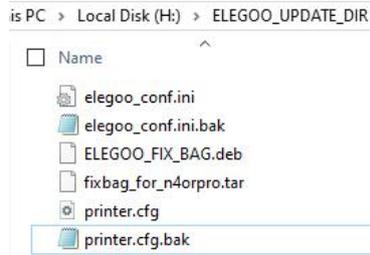
### 2. Make sure the printer disk memory is greater than 500MB

If you are used to uploading print files on the web for printing, you need to ensure that the remaining disk memory is greater than 500MB.

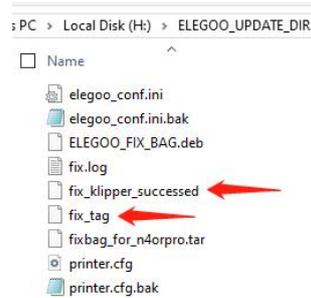


## How to use the fix pack:

1. Copy the "ELEGOO\_UPDATE\_DIR" folder under the fix pack to the root directory of the USB flash drive, and check the contents of the folder as shown below.



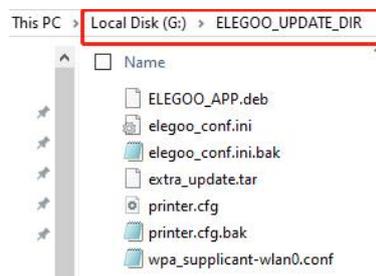
2. Insert the USB flash drive into the printer
3. Turn off the printer and wait 30 seconds. Let the machine shut down completely.
4. Turn on the computer and wait for the automatic reboot to complete.
5. **How to confirm that the fix pack is updated successfully:** When the fix is successful, files like 'fix\_klipper\_succssed' and 'fix\_tag' can be seen in the USB flash drive update directory.



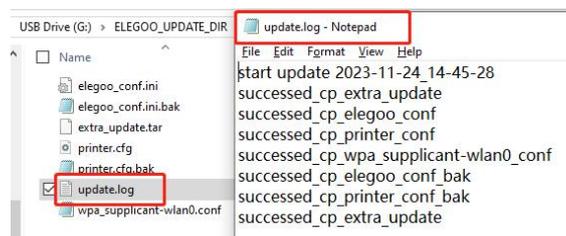
## Main control board firmware update steps:

This product does not support updating the official Klipper, Moonraker, fluidd, and other servers, otherwise, the machine will not work properly. If you consider installing more official Klipper plug-ins on your own and expanding more functions, before that, it is recommended that you get your own EMMC ADAPTER to avoid reinstallation of the system image to restore the machine when an error occurs.

1. Make sure the printer is **powered on** normally (or you can enter the **【About Machine】** interface)
2. Copy the **"ELEGOO\_UPDATE\_DIR"** folder under the firmware pack to **the root directory of the USB flash drive.**

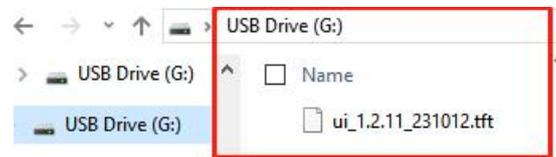


3. Insert the USB flash drive into the printer.
4. Control the touch screen **【Settings】** - **【About Machine】** , click the arrow below, and follow the instructions to confirm the update.
5. After the update is completed, wait for the automatic reboot.
6. **How to confirm whether the main control board firmware is updated successfully:**
7. If you can see a file named **'update.log'** in the update directory of the USB flash drive, the update is successful.

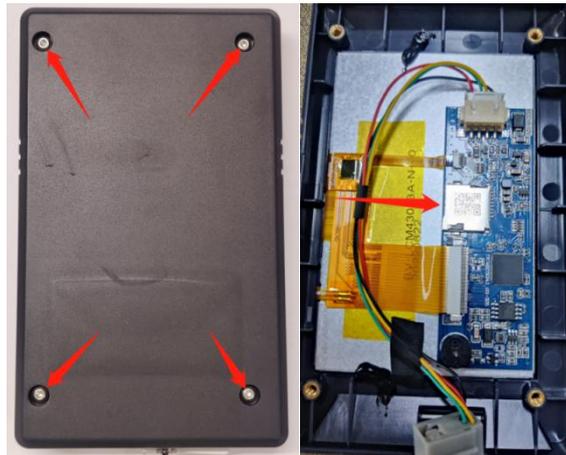


## Touchscreen firmware update steps:

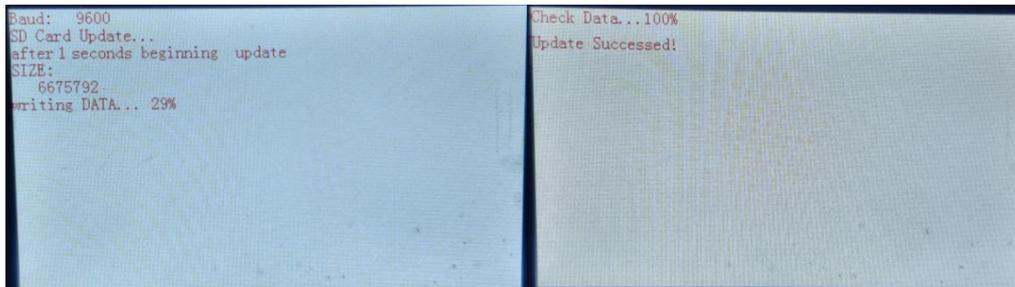
1. Copy the files in the touchscreen firmware folder to **the root directory of the formatted TF card**, as shown in the picture.



2. Loosen the screws and remove the screen back cover; pay attention to the card insertion direction and insert the TF card.



3. After unplugging it, plug it back into the screen (or restart the power supply) and wait for the firmware to be loaded. The firmware loading process and the completed interface display are as shown in the picture (the touchscreen firmware update takes time: about 90 seconds).



After loading is complete, you **must remove the TF card** and then restart the machine.

## FAQ:

### 1、 **The method to determine whether the armbian system starts normally is as follows:**

- a) Log in and access through the debugging serial port. If you can log in successfully, the system can start normally. If you do not have serial port debugging conditions, you can check whether the onboard indicator light of the main control board keeps flashing (green light on and yellow light flashing) after power-on 30 seconds. Generally, if the indicator light keeps flashing, it means the system is running.
- b) If only the yellow light on the main control board flashes (the green light does not light on) after powering on for 1 minute, the reason may be that the EMMC is not plugged in tightly, or the system in the EMMC has been damaged. In this case, you need to re-burn the system image. For the method, please refer to the "Image Installation Method" at the bottom.

### 2、 **"Update failed..." is displayed after following the steps?**

- a) Some USB 3.0 flash drives may not be read properly. Please use the USB 2.0 flash drive that comes with the machine or replace it with another USB flash drive.

### 3、 **After updating the firmware, some interfaces cannot jump normally or display the PASS page when operating the screen?**

- a) The main control board firmware needs to match the touchscreen firmware. Otherwise, similar compatibility issues will occur. Please update the touchscreen firmware.

### 4、 **Does this product support users to update to the official Klipper?**

This product uses the open source solution Klipper to optimize and improve. Some functions are incompatible with the official open source klipper and do not support updating to the official Klipper. If you have updated the official open source klipper through serial port debugging tools or SSH/modified some configurations in the firmware/expanded some functions by yourself, some abnormal errors may occur after updating the firmware. Please describe this situation. The specific operation process is provided so that we can solve the problem for you after reproducing the problem.

### 5、 **Do I need to re-level after updating the firmware/fix package?**

We need to re-auto level the machine and set the Z-offset manually.

### 6、 **How to flash the firmware if it cannot boot normally?**

- a) Check to ensure that the system can operate normally: Check whether the onboard indicator light of the main control board keeps flashing (green light on and yellow light flashing) after powering on for 30 seconds. Generally, the indicator light keeps flashing, indicating that the system is running.
- b) After ensuring that the system can run normally, fix the firmware according to the instructions of the fix pack; otherwise, the EMMC system disk may be damaged, and you need to purchase an EMMC adapter to install the system image. For details, please refer to the "Image Installation Method" at the bottom.

**7、 After updating the new version of firmware, there is a longer preparation time before leveling and printing?**

Based on user feedback, we have added a series of internal detection actions. In the future, we will optimize the action flow and time of this part again according to the feedback results.

**8、 After updating the firmware, will a section of filament be extruded when the printing process is paused and selected to resume?**

This is normal. To maintain the extrusion pressure at the nozzle after resuming printing and avoid missing too many printed segments during printing.

**9、 After updating the firmware, does the nozzle temperature decrease after triggering the filament breakage detection pause?**

This is normal. The default setting is to lower the nozzle temperature after 10 minutes (to maintain the hot bed temperature and XYZ stepper motor). After clicking resume, it will automatically heat up to the printing temperature before the pause. This will prevent the nozzle from being carbonized due to high temperature for a long time, which may even lead to nozzle clogging.

**10、 After updating the new firmware, after manually pausing or triggering the filament breakage detection to pause the printer, the printer does not respond after clicking to resume printing?**

After triggering filament breakage detection or manual pause, if no operation is performed for ten minutes, the temperature of the nozzle will be reduced. At this time, click to resume printing, the machine will first heat to the temperature before printing and then start printing. This process takes about 3 minutes.

## NEPTUNE 4 & 4 Pro Image Installation Method

### Prepare the tools:



EMMC ADAPTER (Self-purchase)

Remove the EMMC module from the motherboard

Raspberry Pi Imager : <https://www.raspberrypi.com/software/>

Image Download Site : [https://github.com/NARUTOfzr/neptune4\\_4pro\\_klipper\\_images/releases](https://github.com/NARUTOfzr/neptune4_4pro_klipper_images/releases)

### Overall operation process:

1. Remove the EMMC module on the main control board
2. Burn the image (follow the steps of "Burning the Image Steps" below)
3. Reinsert the EMMC module into the main control board
4. According to the "How to use the fix pack", update the firmware fix pack of the corresponding model.

### Image installation steps:

Install the Raspberry Pi Imager

Decompress the downloaded Image compressed package, and get the system Image file with .img suffix.

Connect the EMMC module to the computer and make sure it can be read normally.

Open the installed Raspberry Pi Imager.

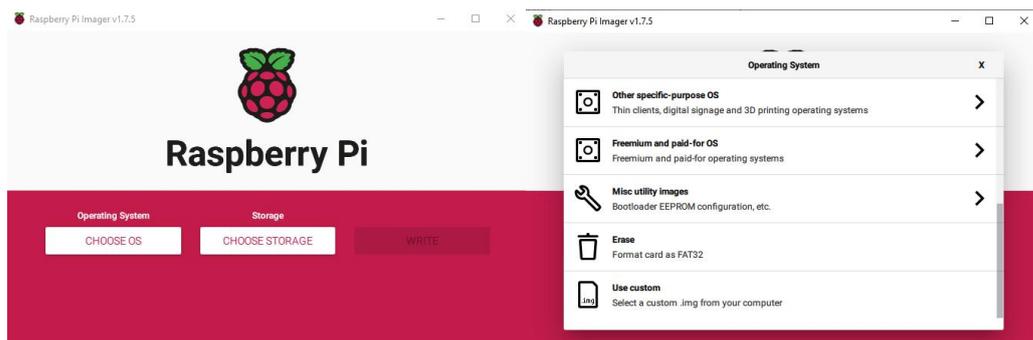
Click [CHOOSE OS], select [Use custom], and choose the system Image file.

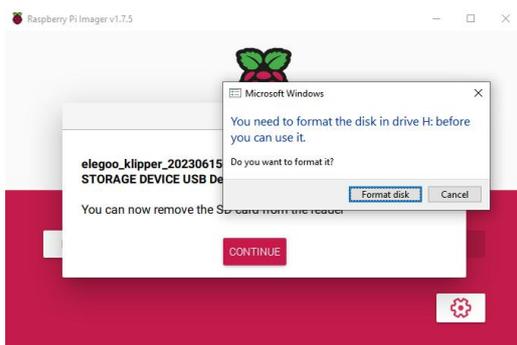
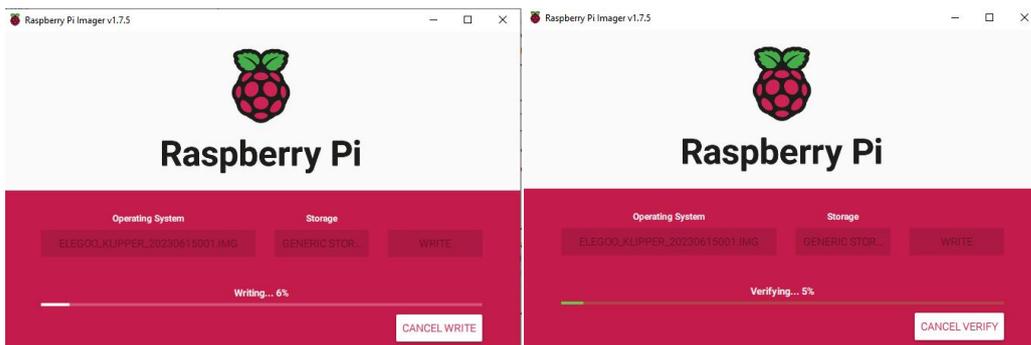
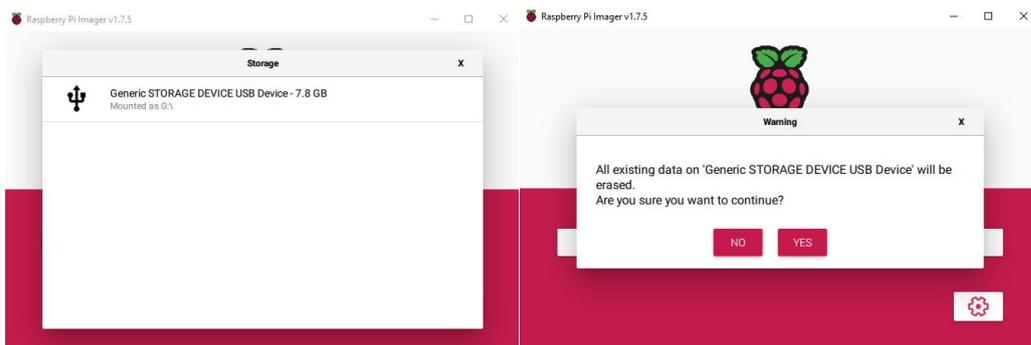
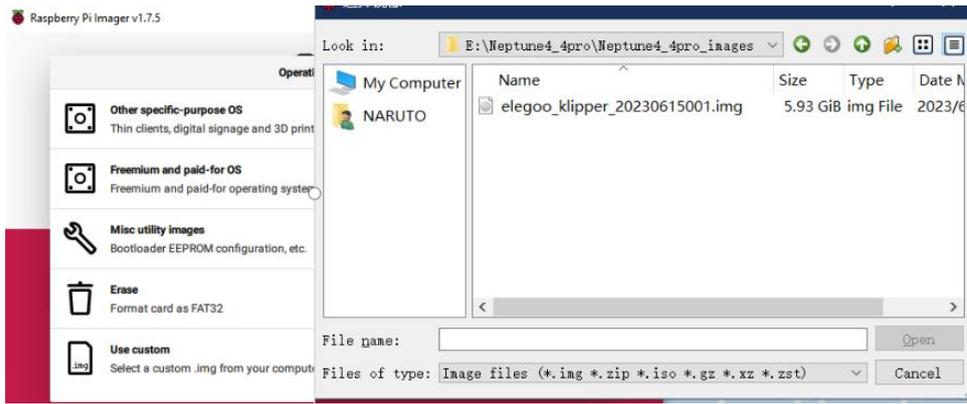
Click [CHOOSE STORAGE], and select the USB storage device you just inserted

Click [WRITE]

Wait for the writing and verification is complete.

Tip: After the completion of the verification may prompt the error in the figure, or prompt the formatting of the disk is normal, remove the EMMC module can be. Note that there are steps below.





**NOTE:**

If using Raspberry Pi Imager on Windows 10 with controlled folder access enabled, you will need to explicitly allow Raspberry Pi Imager permission to write the SD card. If this is not done, the imaging process will fail with a "failed to write" error.