ED-HMI2120-101C

Application Guide

EDA Technology Co., LTD

August 2023

Contact Us

Thank you very much for purchasing and using our products, and we will serve you wholeheartedly.

As one of the global design partners of Raspberry Pi, we are committed to providing hardware solutions for IOT, industrial control, automation, green energy and artificial intelligence based on Raspberry Pi technology platform.

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Foreword

Related Manuals

All kinds of product documents contained in the product are shown in the following table, and users can choose to view the corresponding documents according to their needs.

Documents	Instruction
ED-HMI2120-101C Datasheet	This document introduces the product features, software and hardware specifications, dimensions and ordering codes of ED-HMI2120-101C to help users understand the overall system parameters of the products.
ED-HMI2120-101C User Manual	This document introduces the appearance, installation, startup and configuration of ED-HMI2120-101C to help users use the product better.
ED-HMI2120-101C Application Guide	This document introduces the OS download, eMMC burning and partial configuration of ED-HMI2120-101C to help users use the product better.

Users can visit the following website for more information:

https://www.edatec.cn

Reader Scope

This manual is applicable to the following readers:

- Mechanical Engineer
- Electrical Engineer
- Software Engineer
- System Engineer

Related Agreement

Symbolic Convention

Symbolic	Instruction
	Prompt symbols, indicating important features or operations.
	Notice symbols, which may cause personal injury, system damage, or signal interruption/loss.
	May cause great harm to people.

Safety Instructions

- This product should be used in an environment that meets the requirements of design specifications, otherwise it may cause failure, and functional abnormality or component damage caused by non-compliance with relevant regulations are not within the product quality assurance scope.

- Our company will not bear any legal responsibility for personal safety accidents and property losses caused by illegal operation of products.

- Please do not modify the equipment without permission, which may cause equipment failure.

- When installing equipment, it is necessary to fix the equipment to prevent it from falling.

- If the equipment is equipped with an antenna, please keep a distance of at least 20cm from the equipment during use.

- Do not use liquid cleaning equipment, and keep away from liquids and flammable materials.

- This product is only supported for indoor use.

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1 Install OS

This chapter introduces how to download OS file and flash eMMC.

- ✓ Download OS File
- ✓ Flash eMMC

1.1 Download OS File

You can download the required official OS File of Raspberry Pi according to the actual needs. The download path is: https://www.raspberrypi.com/software/operating-systems/.

1.2 Flash eMMC

It is recommended to use the official Raspberry Pi flashing tool, and the download path is as follows:

- Raspberry Pi Imager : https://downloads.raspberrypi.org/imager/imager_latest.exe
- SD Card Formatter : https://www.sdcardformatter.com/download/
- Rpiboot : https://github.com/raspberrypi/usbboot/raw/master/win32/rpiboot_setup.exe

Preparation:

- The download and installation of the flashing tool to the computer has been completed.
- A Micro USB to USB-A cable has been prepared.
- The OS file to be flashed has been obtained.

Steps:

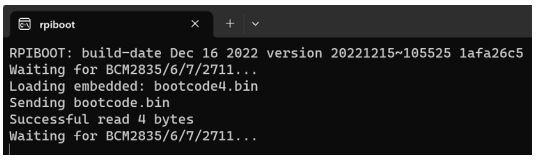
The steps are described using Windows system as an example.

1. Connect the power cord and USB flashing cable, as shown in the figure below.
   - Connecting the power cord

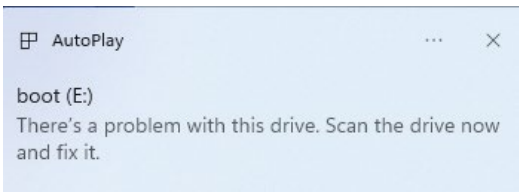
   - Connecting USB flashing cable

2. Disconnect the power supply of ED-HMI2120-101C, and then power it on again.

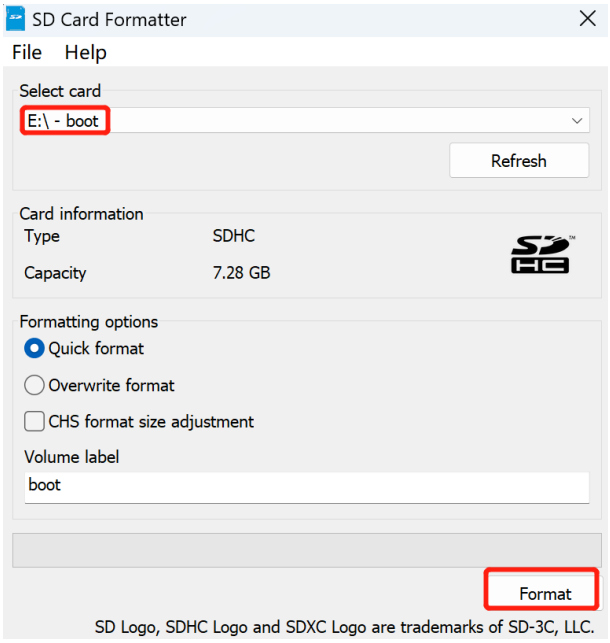
3. Open the installed **rpiboot tool** to automatically convert the drive to a letter.



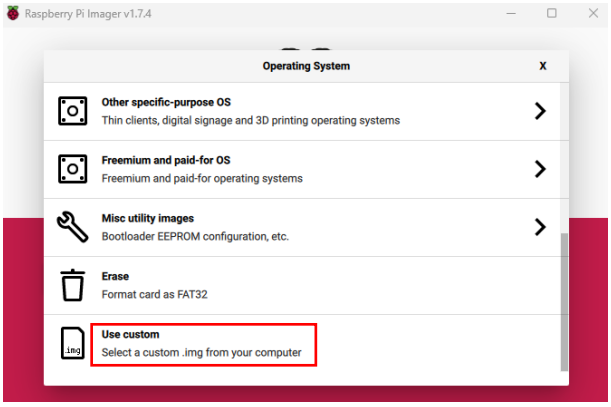
4. After the completion of the drive letter, the drive letter will pop up in the lower right corner of the computer, as shown in the figure below E drive.



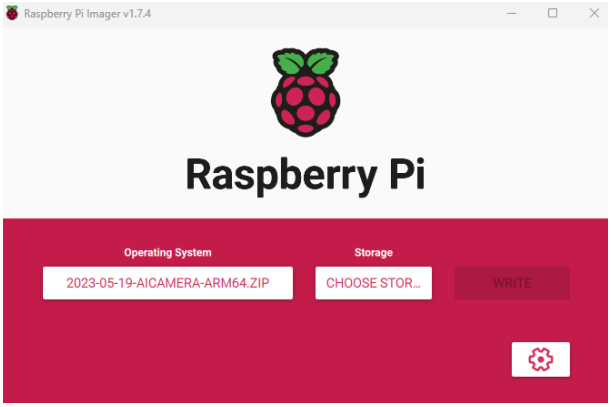
5. Open **SD Card Formatter**, select the formatted drive letter, and click "Format" at the lower right to format.



6. In the pop-up prompt box, select "Yes".
7. When the formatting is complete, click "OK" in the prompt box.
8. Close **SD Card Formatter**.
9. Open **Raspberry Pi Imager**, select "CHOOSE OS" and select "Use Custom " in the pop-up pane.



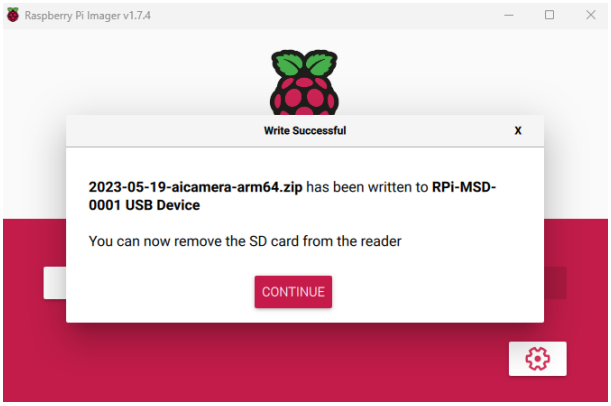
10. According to the prompt, select the downloaded OS file under the user-defined path and return to the main interface.
11. Click "CHOOSE STORAGE", select the default device in the "Storage" interface, and return to the main interface.



12. Click "WRITE" and select "Yes" in the pop-up prompt box to start writing the OS.

13. After the OS writing is completed, the file will be verified.

14. After the file verification is completed, the prompt box "Write Successful" pops up, and click "CONTINUE" to finish flashing eMMC.



15. Close **Raspberry Pi Imager**, remove USB cable and power on the device again.

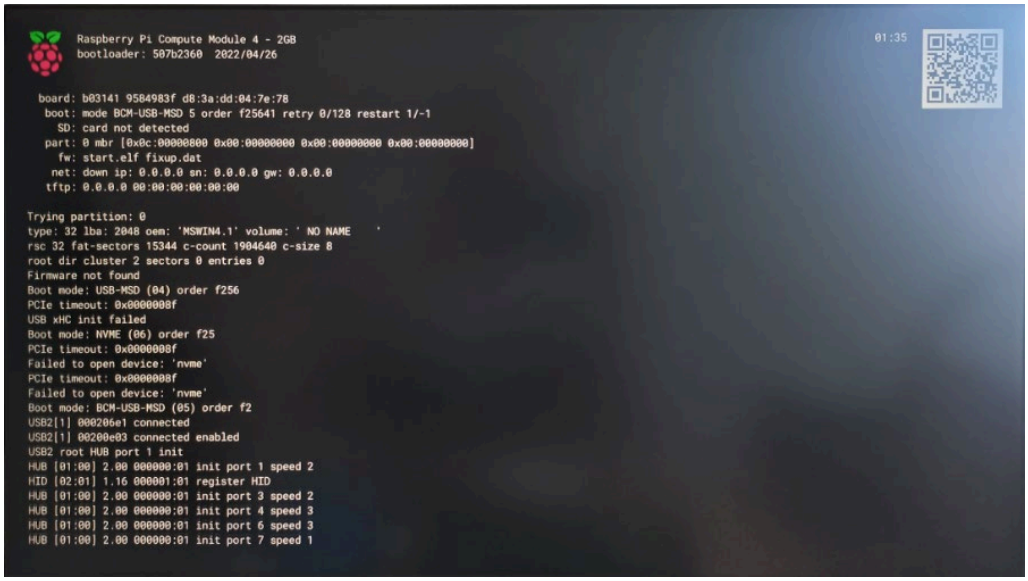
2 First Boot Up

This chapter introduces the related configuration when the user starts the system for the first time.

- ✓ No OS
- ✓ Official Raspberry Pi OS (Desktop)
- ✓ Official Raspberry Pi OS (Lite)

2.1 No OS

If the OS is not installed when ordering the product, the interface shown in the following figure will appear when starting. The operating system needs to be reinstalled. Please refer to 1 Install OS for details.

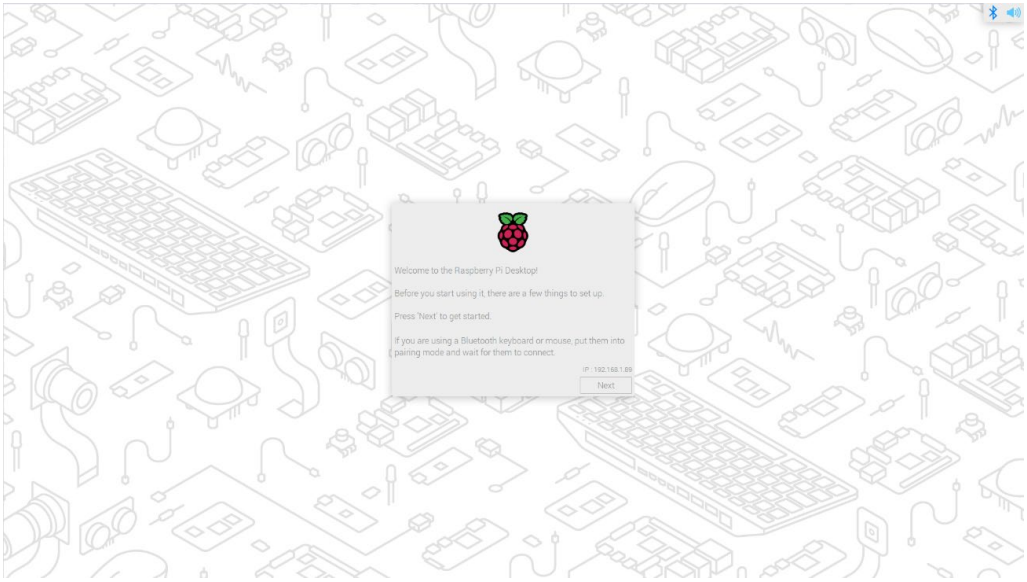


2.2 Official Raspberry Pi OS (Desktop)

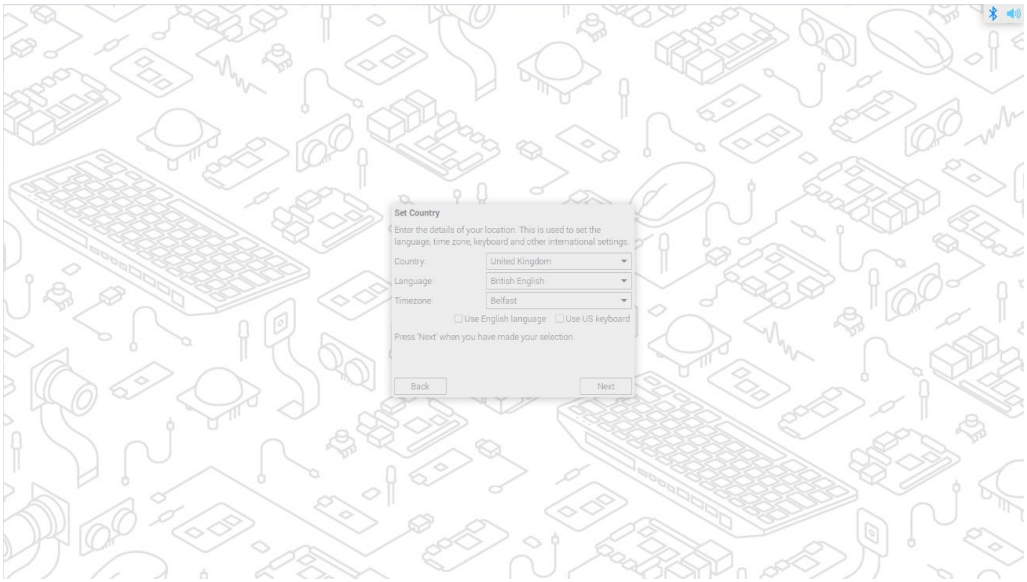
If you use the Desktop version of official Raspberry Pi OS, and the OS is not configured in the advanced settings of **Raspberry Pi Imager** before flashing eMMC. The initial configuration needs to be completed when the system is first started.

Steps:

1. After the system starts normally, the "Welcome to Raspberry Pi Desktop" interface will pop up.



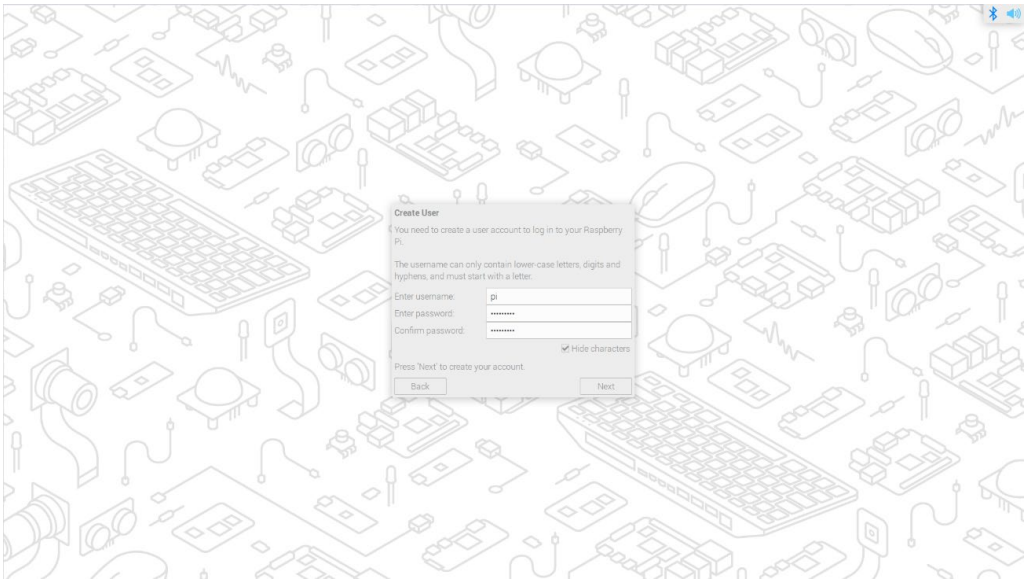
2. Click "Next" and set parameters such as "Country", "Language" and "Timezone" in the pop-up "Set Country" interface according to actual needs.



TIP:

The default keyboard layout of the system is the British keyboard layout, or you can check "Use US keyboard" as needed.

3. Click "Next" to customize and create "Enter username", "Enter password" and "Confirm username" for logging in to the system in the pop-up "Create User" interface.



4. Click "Next":

   - If you use the old version of the default username pi and default password raspberry when creating the username and password, the following prompt box will pop up and click "OK".

- The "Set Up Screen" interface pops up, and related parameters of screen are set as required.

5. (Optional) Click "Next" and select the wireless network to be connected in the pop-up "Select WiFi Network" interface.

TIP:

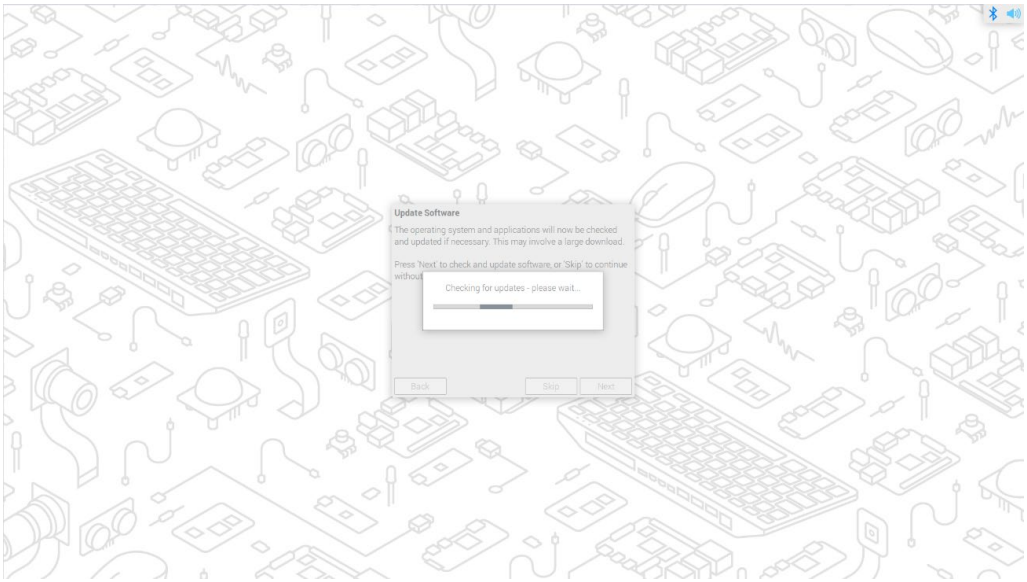
If you buy a product without Wi-Fi function, there is no such step.

6. (Optional) Click "Next" and enter the wireless network password in the pop-up "Enter WiFi Password" interface.

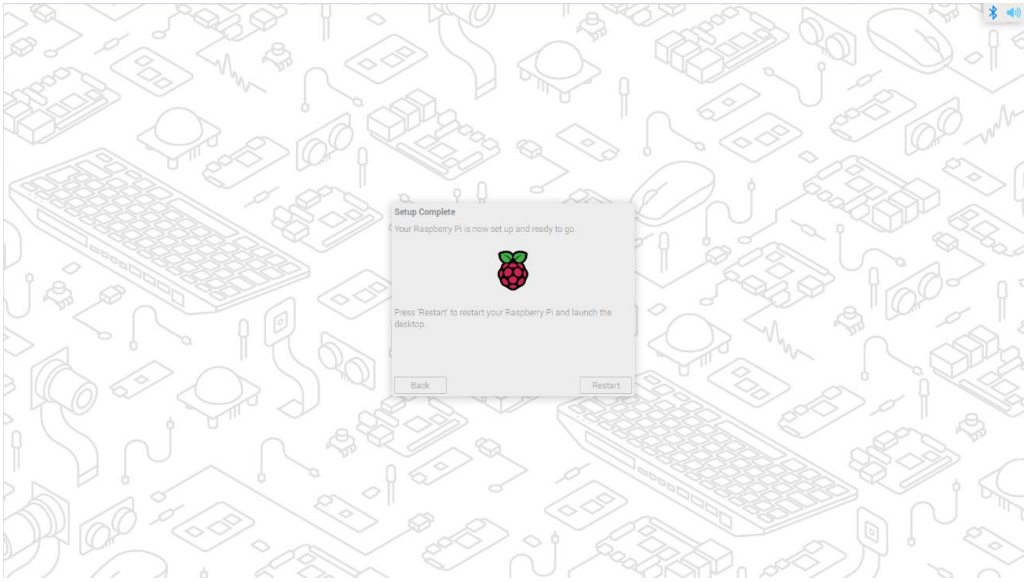
TIP:

If you buy a product without Wi-Fi function, there is no such step.

7. Click "Next" and click "Next" in the pop-up "Update Software" interface to automatically check and update the software.



8. After checking and updating the software, click "OK", and click "Restart" in the pop-up "Setup Complete" interface to complete the initial configuration and start the system.



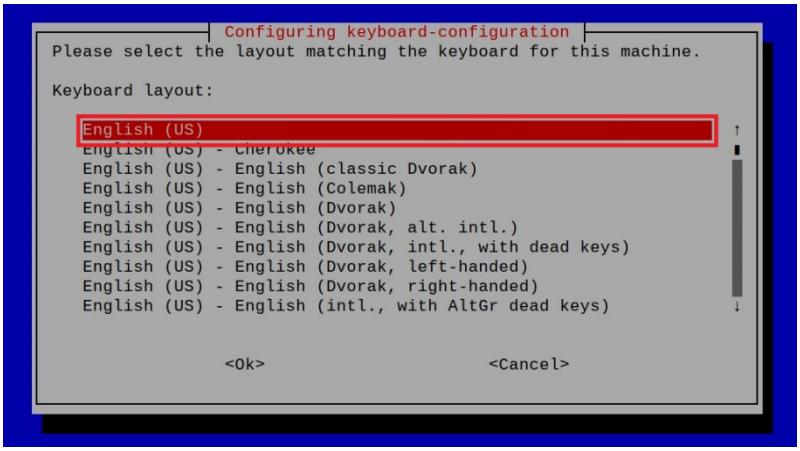
9. After startup, enter the OS desktop, as shown in the figure below.

2.3 Official Raspberry Pi OS (Lite)

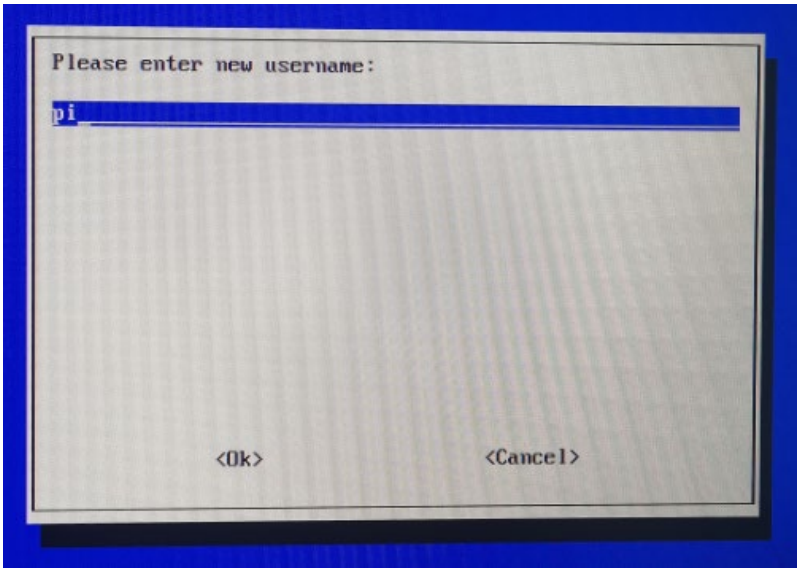
If you use the Lite version of official Raspberry Pi OS, and the OS is not configured in the advanced settings of **Raspberry Pi Imager** before flashing eMMC. The initial configuration needs to be completed when the system is first started.

Steps:

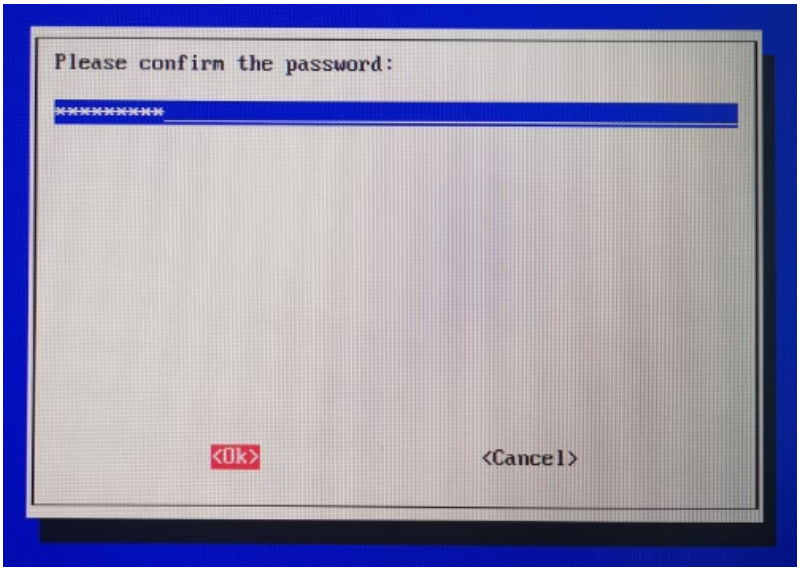
1. After the system starts normally, the "Configuring Keyboard-Configuration" interface will pop up, and the corresponding type of keyboard needs to be set according to the actual region.



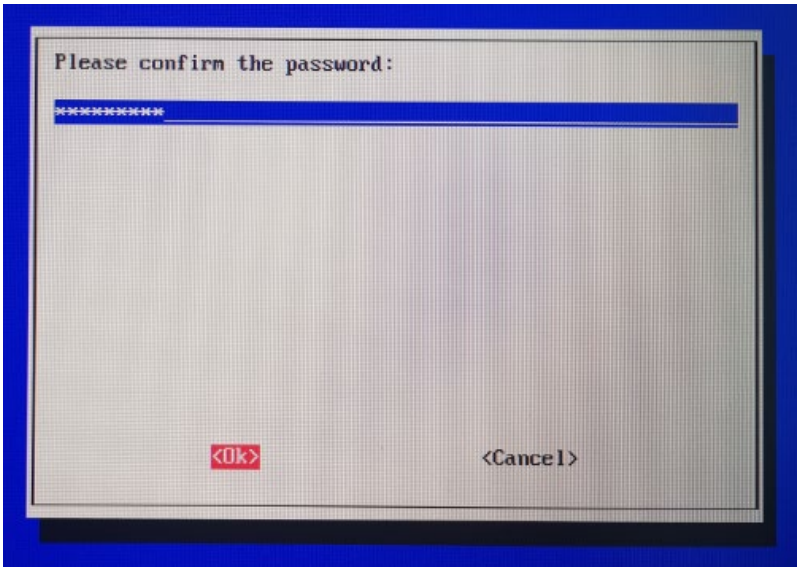
2. Click "OK" to create a new username in the next interface.



3. Click "OK" to set the login password for the newly created username in the next interface.

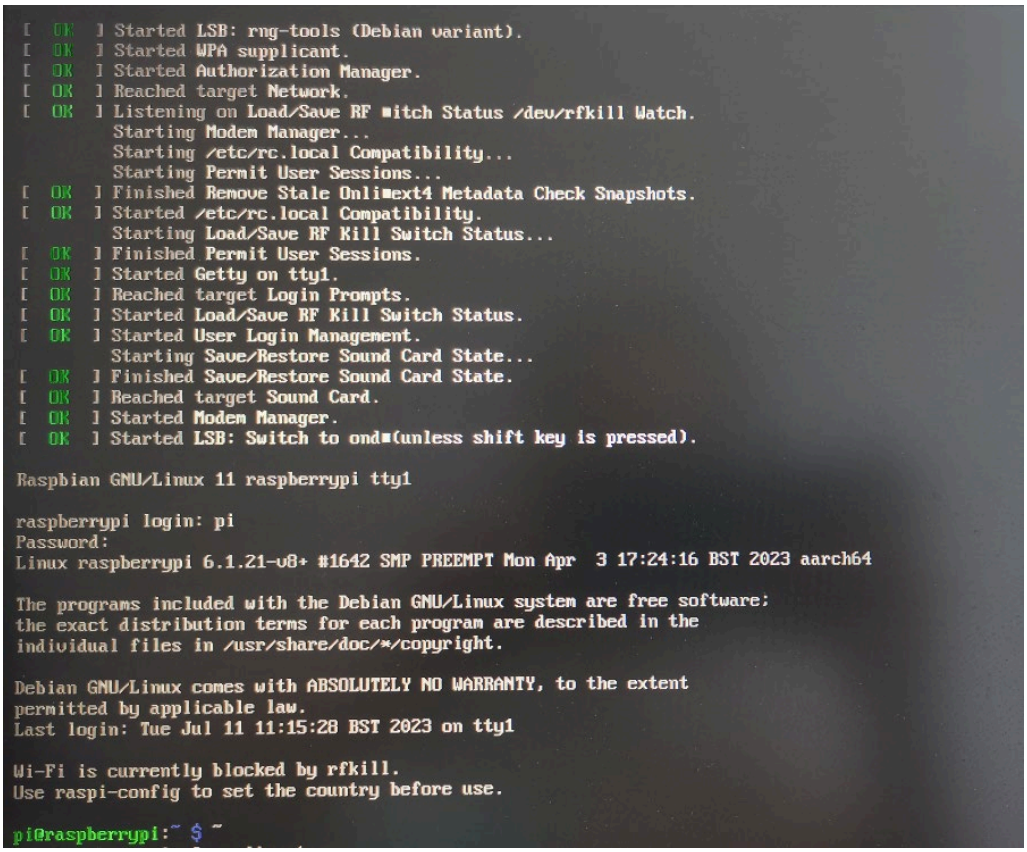


4. Click "OK" and re-enter the password in the next interface.



5. Click "OK" to complete the initial setup and enter the login interface.

6. According to the prompt, enter the username and password to log in, as shown in the figure below, indicating that the login is successful.


[OK] Started LSB: rng-tools (Debian variant).
[OK] Started WPA supplicant.
[OK] Started Authorization Manager.
[OK] Reached target Network.
[OK] Listening on Load/Save RF ■itch Status /dev/rfkill Watch.
Starting Modem Manager...
Starting /etc/rc.local Compatibility...
Starting Permit User Sessions...
[OK] Finished Remove Stale Onli■ext4 Metadata Check Snapshots.
[OK] Started /etc/rc.local Compatibility.
Starting Load/Save RF Kill Switch Status...
[OK] Finished Permit User Sessions.
[OK] Started Getty on tty1.
[OK] Reached target Login Prompts.
[OK] Started Load/Save RF Kill Switch Status.
[OK] Started User Login Management.
Starting Save/Restore Sound Card State...
[OK] Finished Save/Restore Sound Card State.
[OK] Reached target Sound Card.
[OK] Started Modem Manager.
[OK] Started LSB: Switch to ond■(unless shift key is pressed).
Raspbian GNU/Linux 11 raspberrypi tty1
raspberrypi login: pi
Password:
Linux raspberrypi 6.1.21-v8+ #1642 SMP PREEMPT Mon Apr 3 17:24:16 BST 2023 aarch64
The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Tue Jul 11 11:15:28 BST 2023 on tty1
Wi-Fi is currently blocked by rfkill.
Use raspi-config to set the country before use.
pi@raspberrypi:~ $ ~

3 Configure System

This chapter introduces the related configuration of the system application.

- ✓ Enable SSH
- ✓ NetworkManager Tool
- ✓ Add APT Library

3.1 Enable SSH

If you use the official Raspberry Pi OS, you need manually enable SSH.

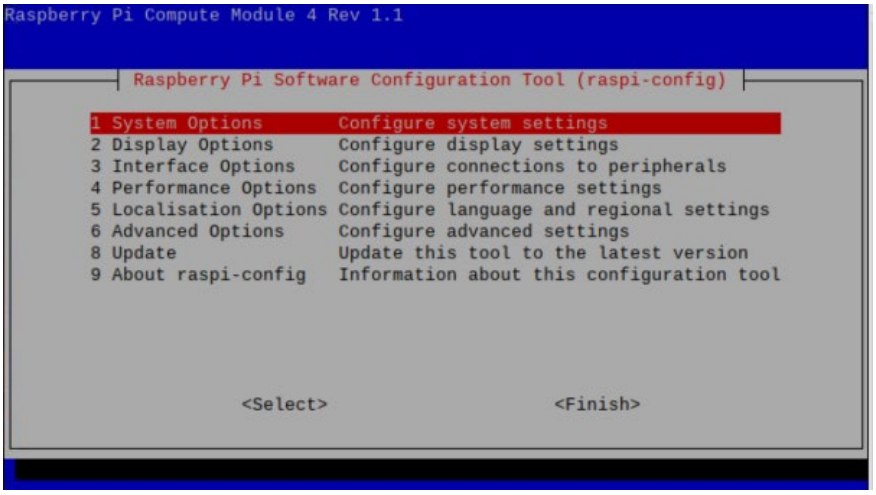
It supports enabling SSH by executing raspi-config command and adding empty SSH file.

3.1.1 Use raspi-config Command to Enable SSH

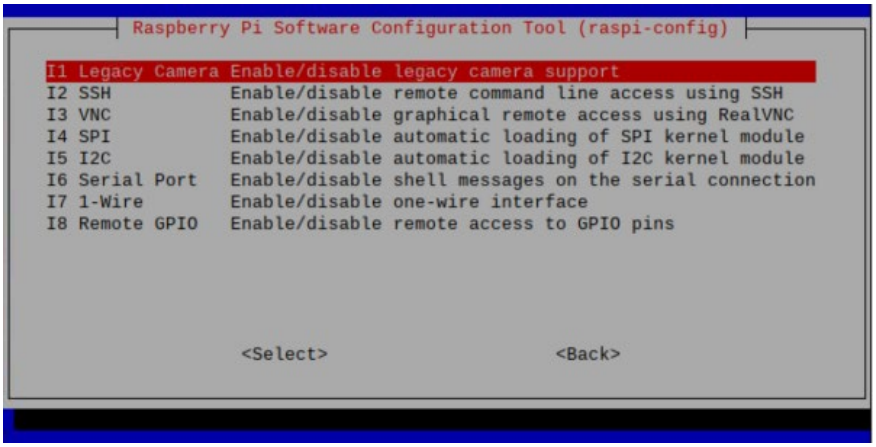
Steps:

1. Execute the following command to open raspi-config configuration interface 1.

   sudo raspi-config

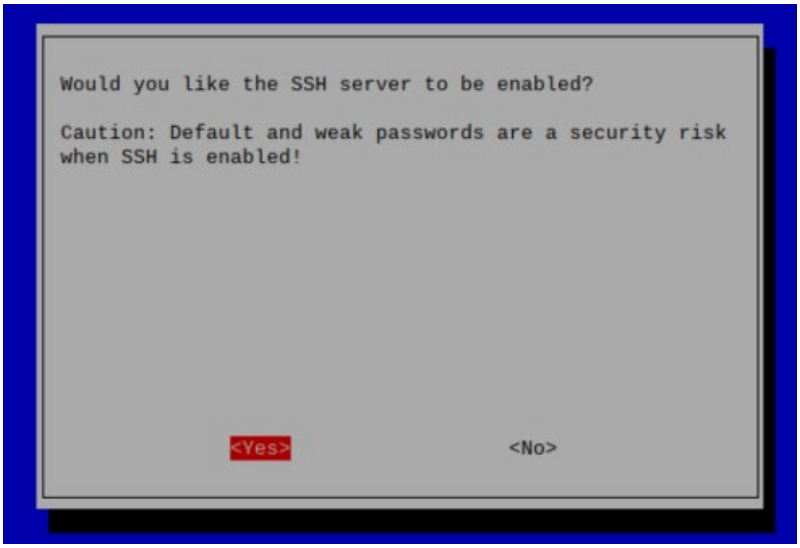


2. Choose "3 Interface Options" and press Enter, open raspi-config configuration interface 2.



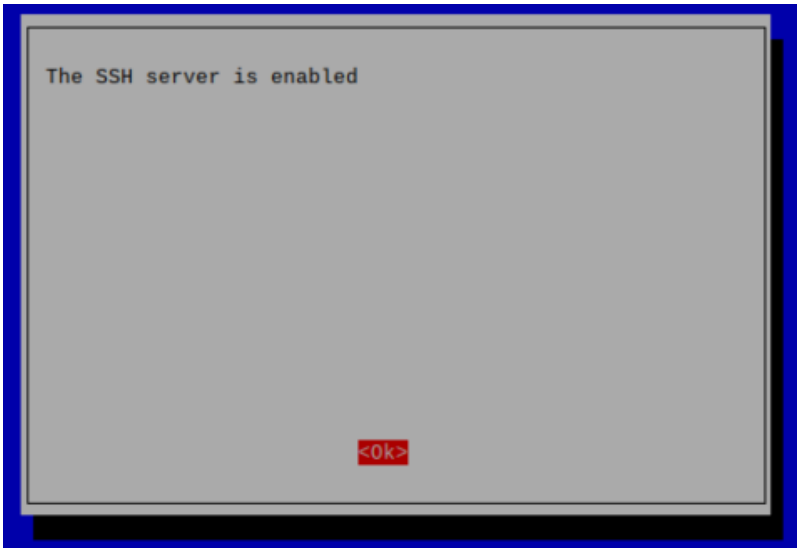
3. Choose "I2 SSH" and press Enter, open "Would you like the SSH server to be enabled? "

interface.



4. Choose "Yes" and press Enter.

5. In the "The SSH server is enabled" interface, press Enter to return to raspi-config configuration interface 1.



6. Select "Finish" in the lower right corner and press Enter to return to the command pane.

3.1.2 Add Empty SSH File To Enable SSH

Create an empty file named ssh in the /boot partition, and the SSH function will be automatically enabled after the device is powered on again.

Steps:

1. Execute the following command to create an empty file named ssh under the /boot partition.

   sudo touch /boot/ssh

2. Execute the following command to see if the /boot partition contains the newly created ssh file.

   ls /boot

   - If the /boot partition contains a file named ssh, it means that it was created successfully, and skip to step 3.
   - If no file named ssh is found under the /boot partition, it means that the creation failed and needs to be recreated.

3. Power off and power on again to restart the device.

3.2 NetworkManager Tool

This section describes how to install and enable the NetworkManager tool.

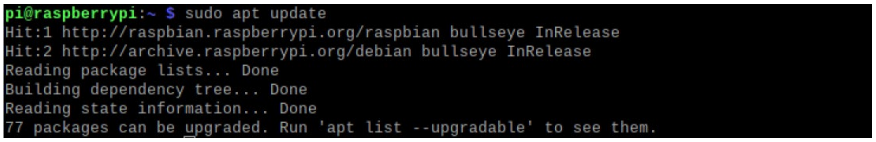
3.2.1 Install NetworkManager Tool

If you use the official Raspberry Pi OS, you need manually install the NetworkManager tool.

Steps:

1. Execute the following command to detect and update the software.

   sudo apt update

2. Execute the following command to install the NetworkManager tool.

   sudo apt install network-manager-gnome

3. Execute the following command to restart the system.

   sudo reboot

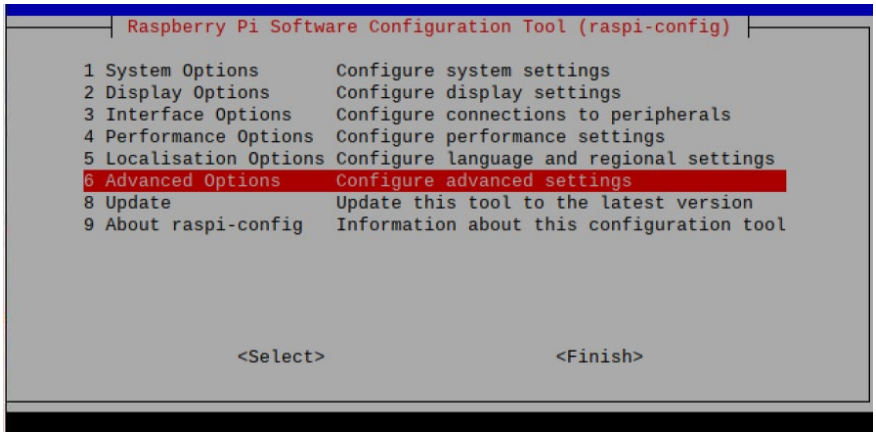
3.2.2 Enable NetworkManager

After the installation of NetworkManager, you need to enable NetworkManager before you can configure it.

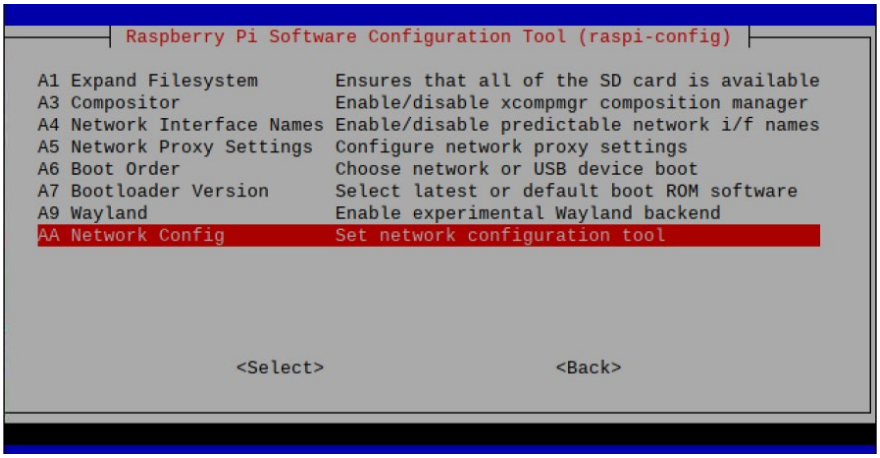
Steps:

1. Execute the following command to open raspi-config configuration interface 1.

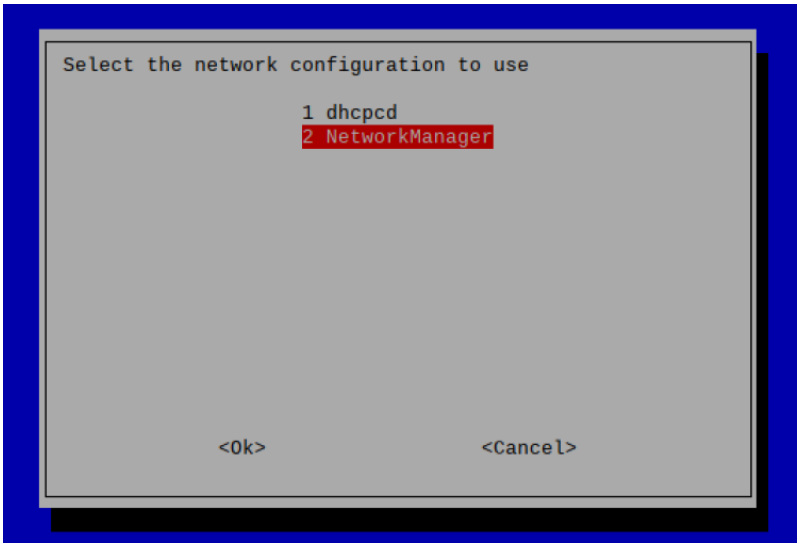
   sudo raspi-config



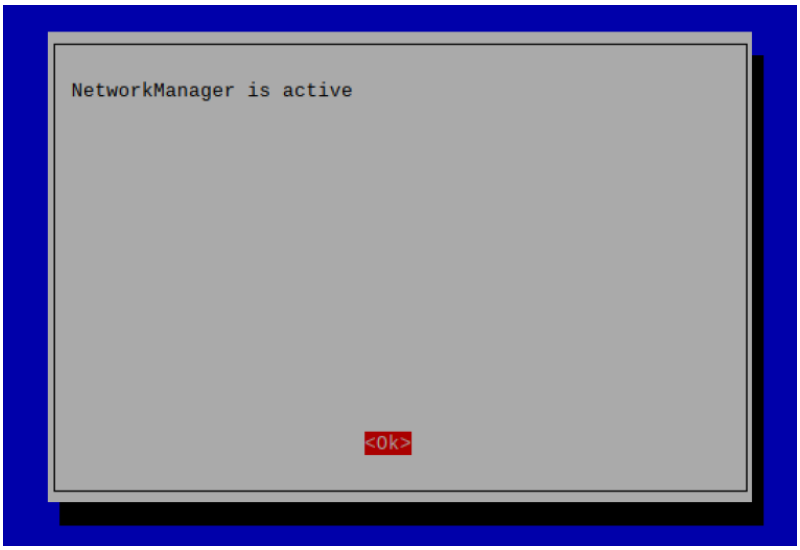
2. Choose "6 Advanced Options" and press Enter, open raspi-config interface 2.



3. Choose "AA Network config" and press Enter, open "Select the network configuration to use" interface.

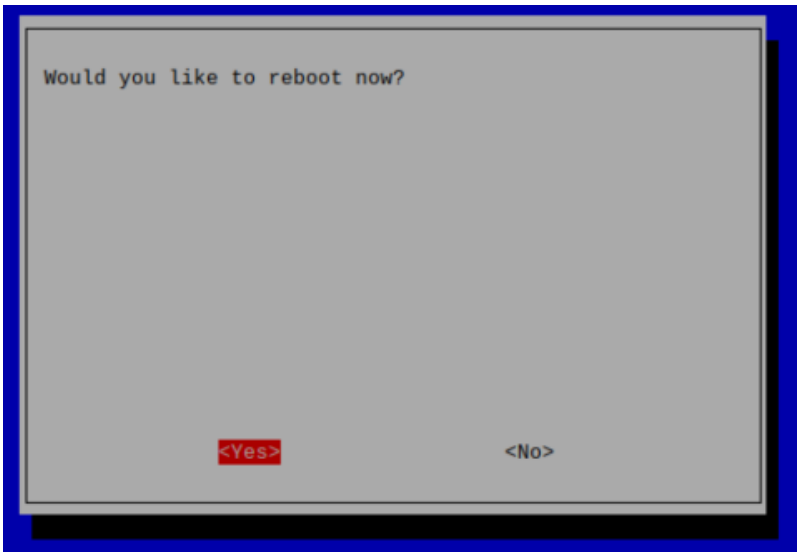


4. Choose "2 NetworkManager" and press Enter, open "NetworkManager is active" interface.



5. Press Enter return to raspi-config interface 1.

6. Select "Finish" in the lower right corner and press Enter to open "Would you like to reboot now?" interface.



7. Select "Yes" in the lower left corner and press Enter to restart the system.

3.3 Add APT Library

If you use the official Raspberry Pi OS, you need manually add our APT library before using the 4G network.

Execute the following commands to add APT library.

```
sudo apt update
sudo apt install ed-ec20-qmi
```