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EDA ED-IPC3020 Series Using Standard Raspberry User Guide

Application Guide
Using Standard Raspberry Pi OS on
ED-IPC3020 Series
EDA Technology Co., LTD
February 2024

Contents

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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Copyright Statement

Disclaimer

Foreword

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.
	Warning symbols, which 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.

Overview

This chapter introduces the background information and application range of using standard Raspberry Pi OS on the ED-IPC3020 series.

1.1 Background

ED-IPC3020 series products have an operating system with BSP installed by default when leaving the factory. It has added supporting for BSP, created users, enabled SSH and supports BSP online upgrade. It is safe and reliable, and users can use the operating system.

 NOTE:

If the user has no special needs, it is recommended to use the default operating system. The download path is **ED-IPC3020/raspios**.

If the user wants to use the standard Raspberry Pi OS after receiving the product, some functions will be unavailable after changing the operating system to the standard Raspberry Pi OS. In order to solve this problem, ED-IPC3020 supports online installation for Firmware packages to make the product better compatibles with the standard Raspberry Pi OS and ensure that all functions can be used.

ED-IPC3020 supports the standard Raspberry Pi OS by installing the kernel package and firmware package online on the standard Raspberry Pi OS (bookworm).

1.2 Application Range

The products involved in this application include ED-IPC3020.

Since using a 64-bit operating system can better utilize the hardware performance of the product, it is recommended to use the 64-bit standard Raspberry Pi OS (bookworm). The details are as follows:
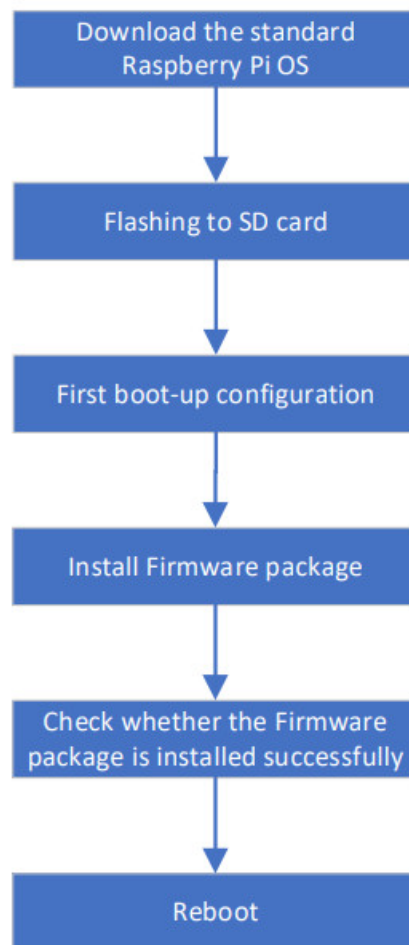
Product Model	Supported OS
ED-IPC3020	Raspberry Pi OS(Desktop) 64-bit-bookworm (Debian 12) Raspberry Pi OS(Lite) 64-bit-bookworm (Debian 12)

Application Guidance

This chapter introduces the operation steps of using standard Raspberry Pi OS on ED-IPC3020 series.
2.1 Operating Process
The main operation process of the application configuration is as shown below.

2.2 Downloading OS File
You can download the required Raspberry Pi OS file according to actual needs. The download paths are as follows:

| OS	Download Path
Raspberry Pi OS(Desktop) 64-bit-bookworm (Debian 12)	**https://downloads.raspberrypi.com/raspios_arm64/images/raspios_arm64-202312-06/2023-12-05-raspios-bookworm-arm64.img.xz**
Raspberry Pi OS(Lite) 64-bitbookworm (Debian 12)	**https://downloads.raspberrypi.com/raspios_lite_arm64/images/raspios_lite_arm64-2023-12-11/2023-12-11-raspios-bookworm-arm64-lite.img.xz**

2.3 Flashing to SD card
ED-IPC3020 starts the system from the SD card by default. If you want to use the latest OS, you need flash OS to the SD card. It is recommended to use the Raspberry Pi tool, and the download path is as follows:

Raspberry Pi Imager: **https://downloads.raspberrypi.org/imager/imager_latest.exe.**
**Preparation:**

- The downloading and installation of Raspberry Pi Imager tool to the Windows PC has been completed.
- A card reader has been prepared.
- The OS file has been obtained.
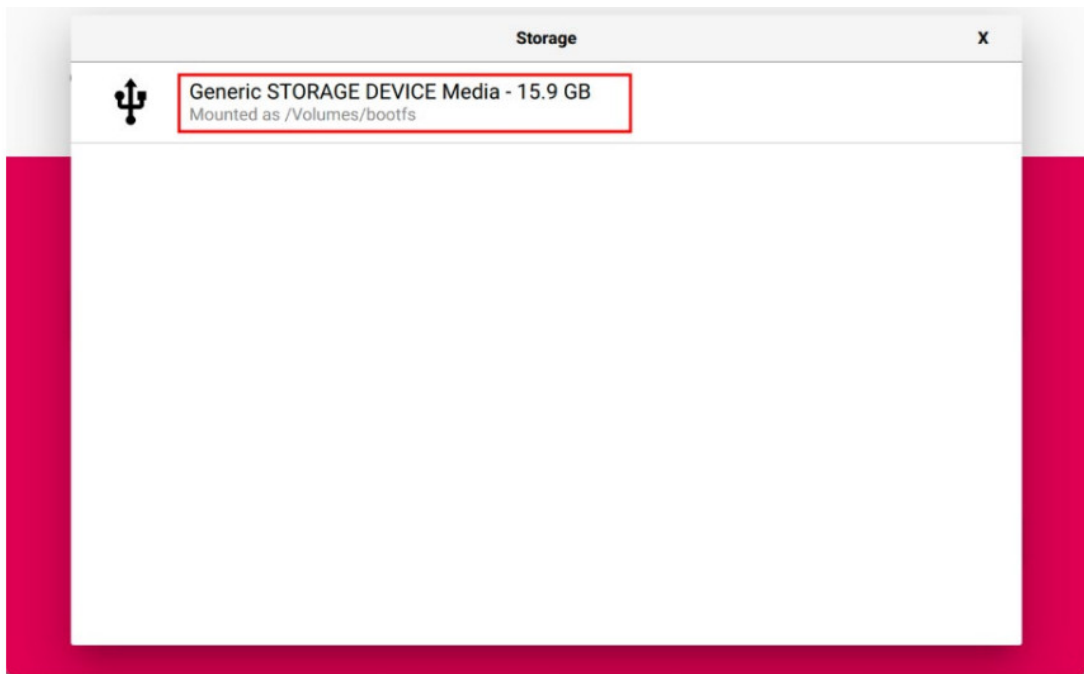- The SD card of ED-IPC3020 has been obtained.
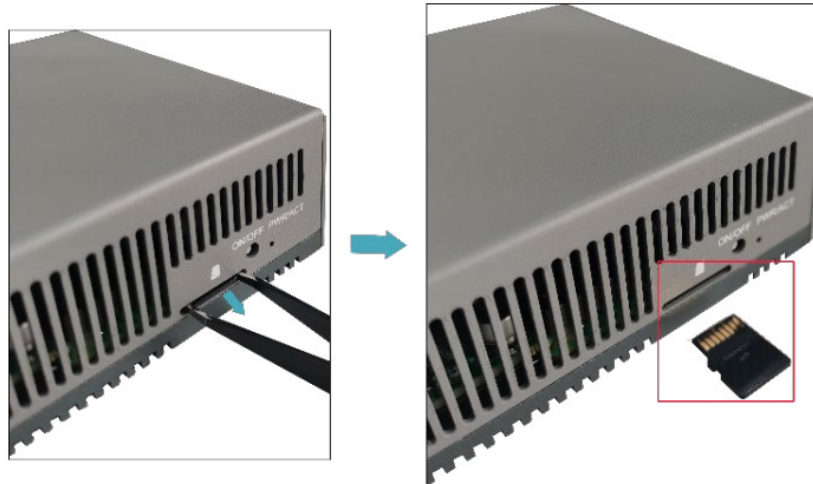
Steps:
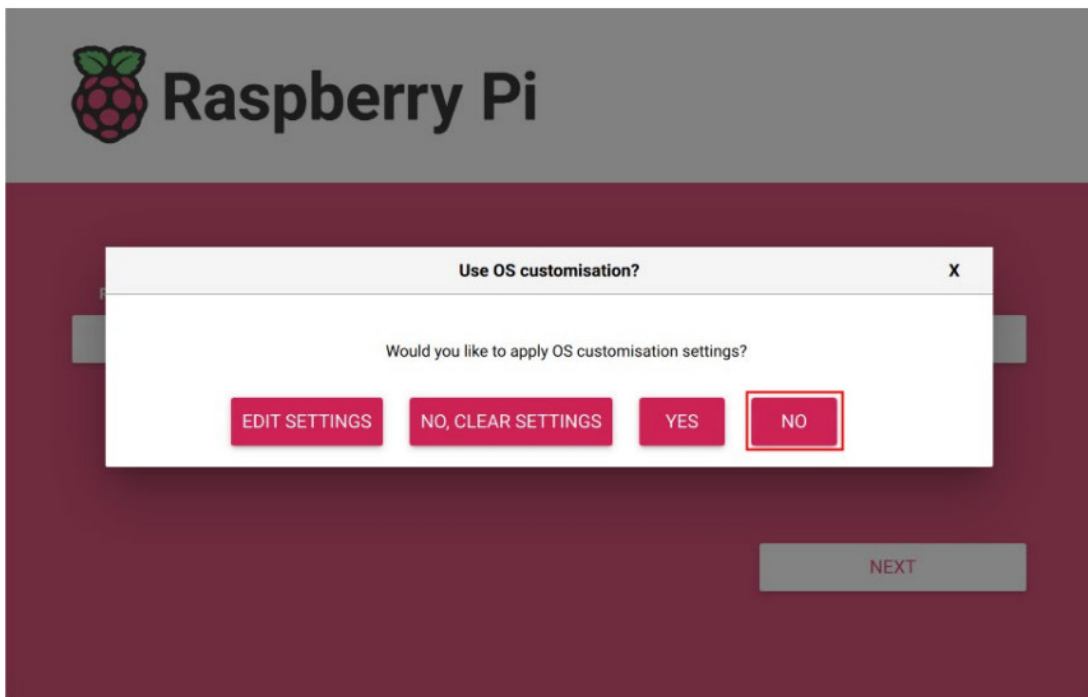The steps are described using Windows OS as an example.

1. Insert the SD card into the card reader, and then insert the card reader into the USB port of PC.
2. Open Raspberry Pi Imager, select "CHOOSE OS" and select "Use Custom " in the pop-up pane.
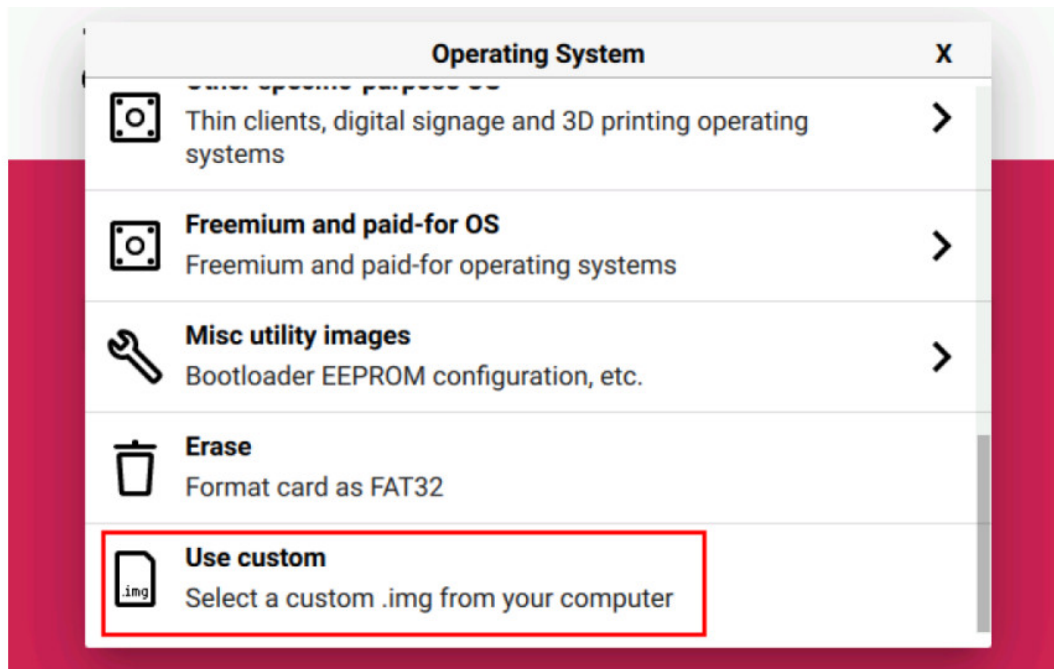
3. According to the prompt, select the downloaded OS file under the user-defined path and return to the main page.
4. Click "CHOOSE STORAGE", select the SD card of ED-IPC3020 in the "Storage" pane, and return to the main page.

Storage

Generic STORAGE DEVICE Media - 15.9 GB
Mounted as /Volumes/bootfs

5. Click "NEXT", select "NO " in the pop-up "Use OS customization?" pane.

Raspberry Pi

Use OS customisation?

Would you like to apply OS customisation settings?

EDIT SETTINGS   NO, CLEAR SETTINGS   YES   NO

NEXT

6. Select "YES" in the pop-up "Warning" pane to start writing the image.

7. After the OS writing is completed, the file will be verified.
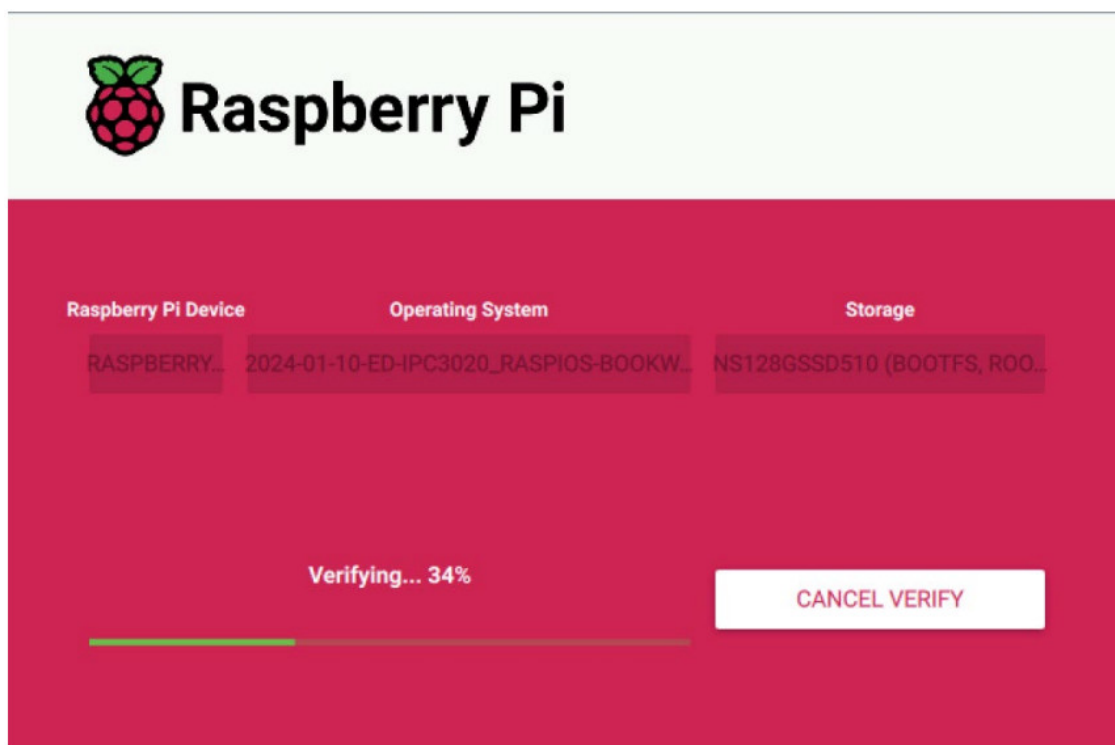
8. After the verification is completed, click "CONTINUE" in the pop-up "Write Successful" box.

9. Close Raspberry Pi Imager, then remove the card reader.

10. Insert the SD card into ED-IPC3020 and power on again.

2.4 First boot-up Configuration

This section introduces the relevant configurations when users start the system for the first time.

2.4.1 Standard Raspberry Pi OS (Desktop)

If you use the Desktop version of standard Raspberry Pi OS, and the OS is not configured in the "OS customization" of Raspberry Pi Imager before flashing to SD card. The initial configuration needs to be completed when the system is first started.

Preparation:

- Accessories such as display, mouse, keyboard and power adapter that can be used normally have been ready.
- A network that can be used normally.
- Get the HDMI cable and network cable that can be used normally.

Steps:

1. Connect the device to the network through a network cable, connect the display through an HDMI cable, and connect the mouse, keyboard, and power adapter.
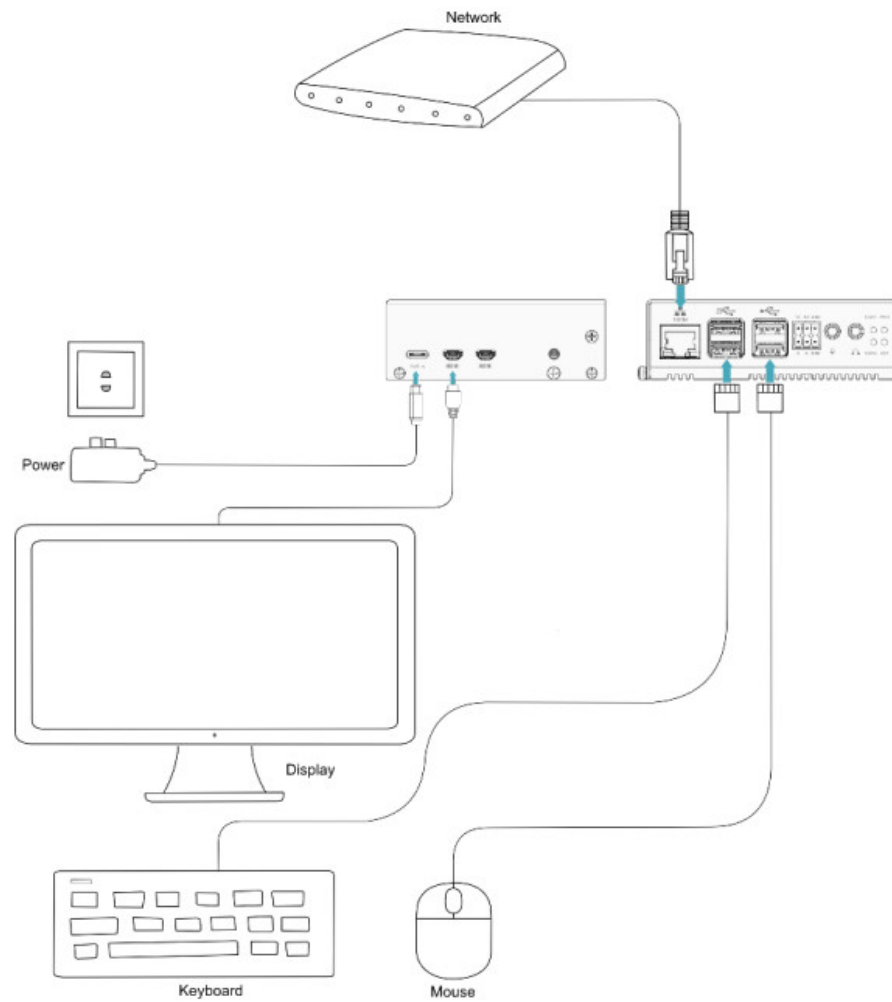
2. Power on the device and the system will start. After the system starts normally, the "Welcome to Raspberry Pi Desktop" pane will pop up.
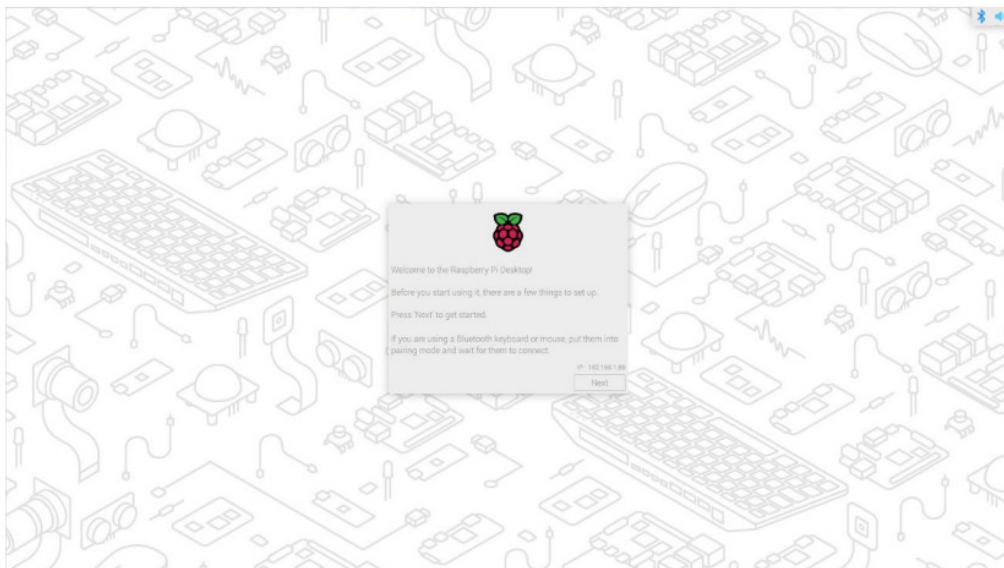

3. Click "Next" and set parameters such as "Country", "Language" and "Timezone" in the popup "Set Country" pane according to actual needs.
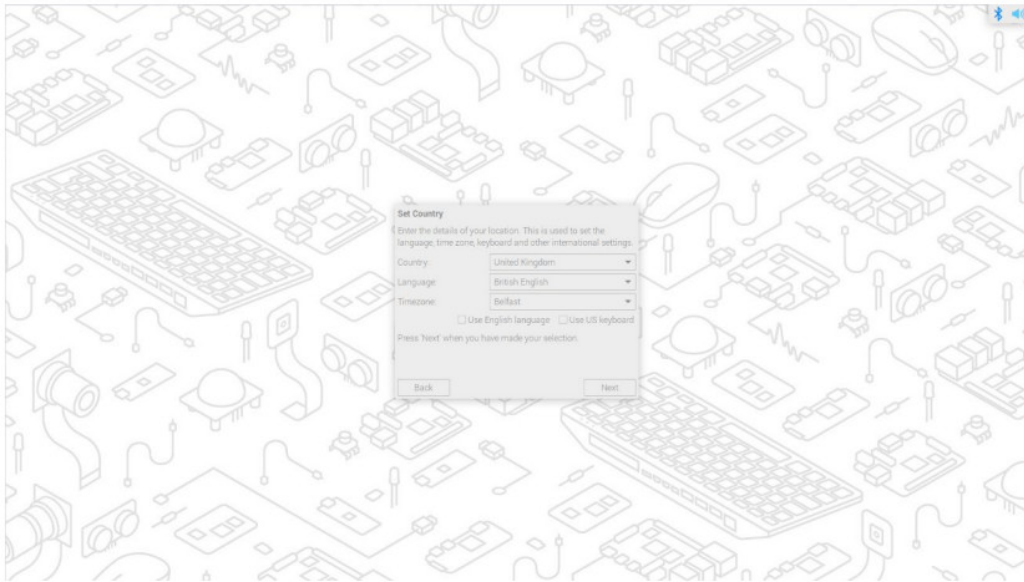
![TIP icon] **TIP:**

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

4. Click "Next" to customize and create "username" and "password" for logging in to the system in the pop-up "Create User" pane.
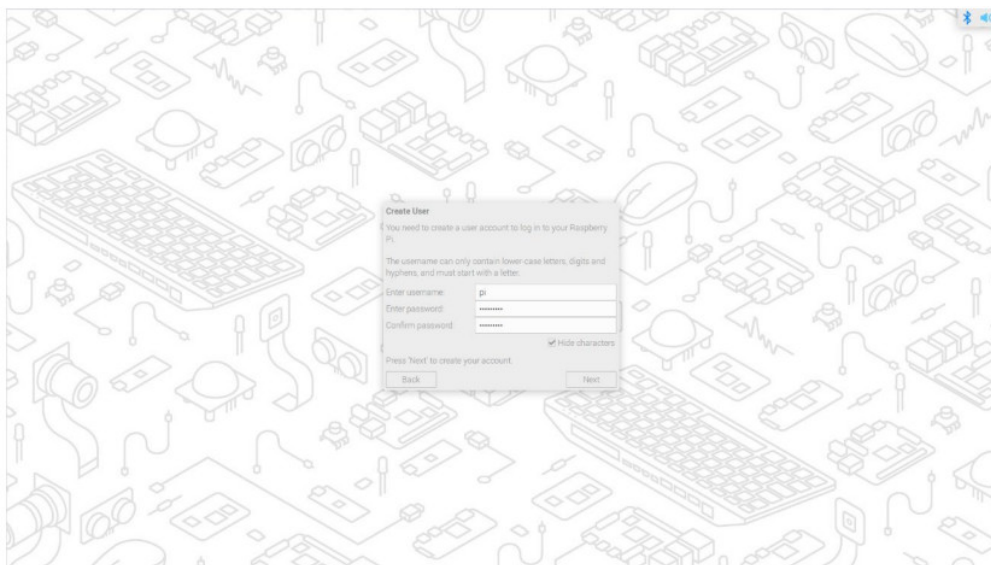
5. Click "Next":

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" pane pops up, and related parameters of screen are set as required.

6. Click "Next" and select the wireless network to be connected in the pop-up "Select WiFi Network" pane.


7. Click "Next" and enter the password of wireless network in the pop-up "Enter WiFi Password" pane.
8. Click "Next", then click "Next" in the pop-up "Update Software" interface to automatically check and update the software.
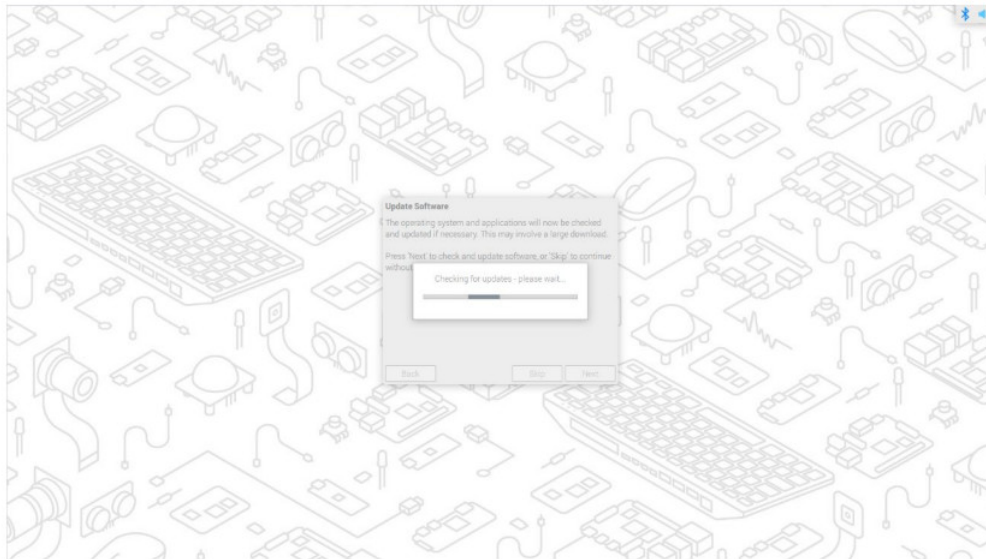
9. After checking and updating the software, click "OK", then click "Restart" in the pop-up "Setup Complete" pane to complete the initial configuration and start the system.
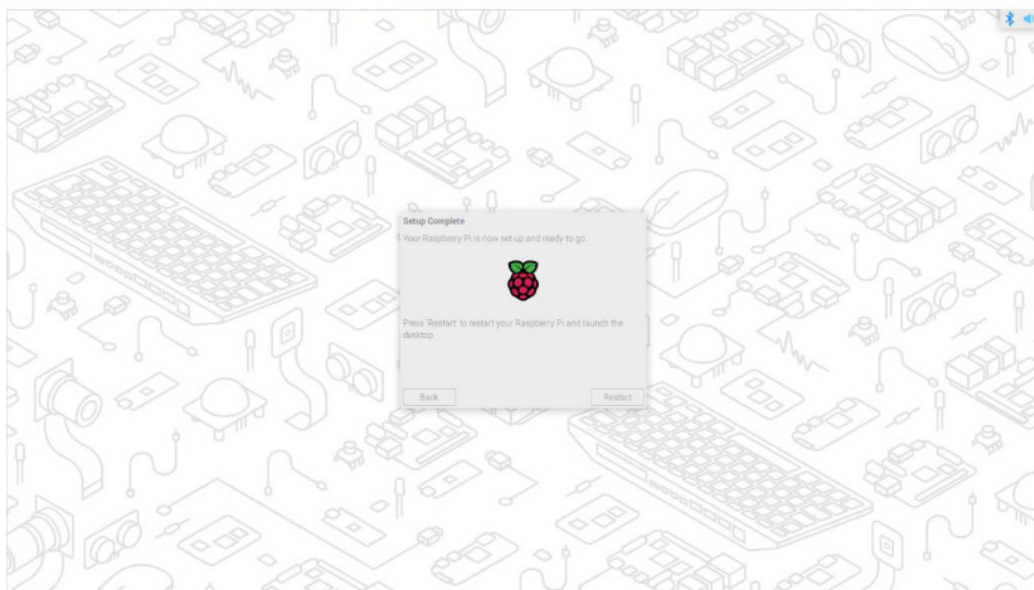
10. After startup, enter the OS desktop.

NOTE:
There may be slight differences in the initial configuration of different versions of Raspberry Pi OS, please refer to the actual interface. For related operations, please refer to **https://www.raspberrypi.com/documentation/computers/getting-started.html#getting-started-withyour-raspberry-pi.**

**4.2 Standard Raspberry Pi OS (Lite)**

If you use the Lite version of standard Raspberry Pi OS, and the OS is not configured in the "OS customization" of Raspberry Pi Imager before flashing to SD card. The initial configuration needs to be completed when the system is first started.
**Preparation:**

- Accessories such as display, mouse, keyboard and power adapter that can be used normally have been ready.
- A network that can be used normally.
- Get the HDMI cable and network cable that can be used normally.

Steps:

1. Connect the device to the network through a network cable, connect the display through an HDMI cable, and connect the mouse, keyboard, and power adapter.
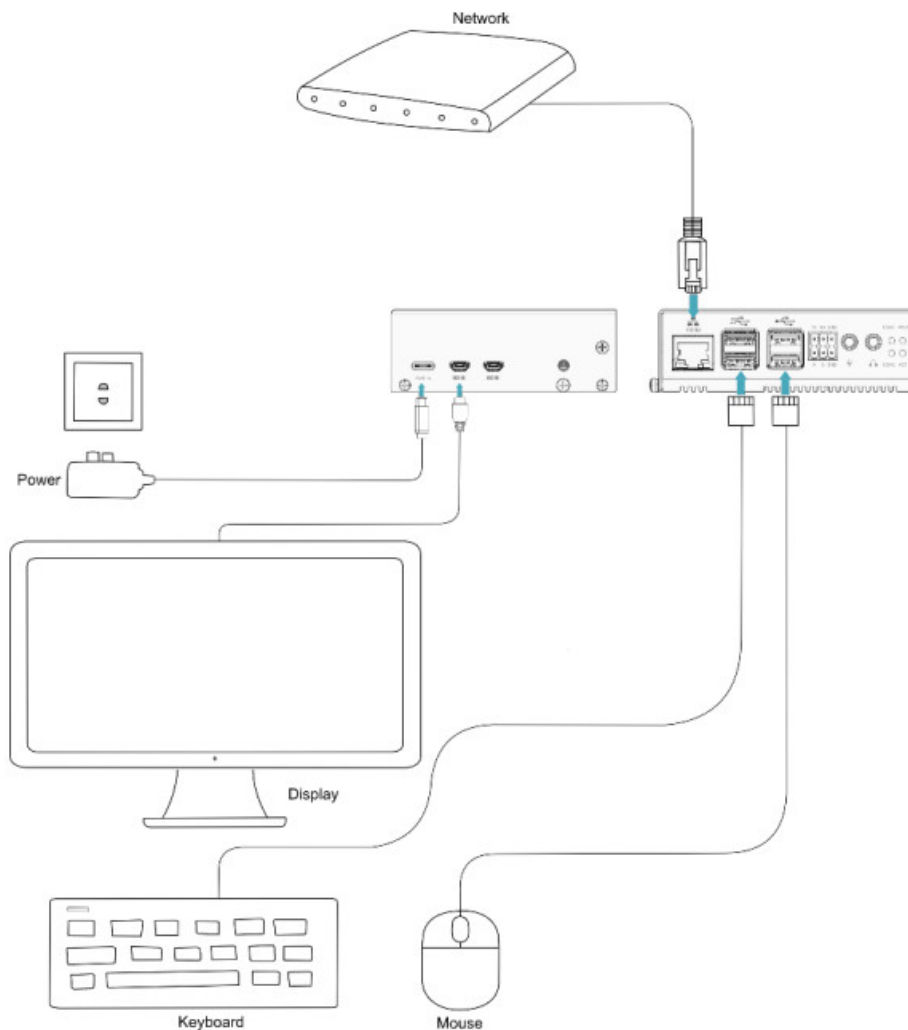

2. Power on the device and the system will start. After the system starts normally, the " Configuring keyboard-configuration " pane will pop up. You need to set up a keyboard according to the actual needs.
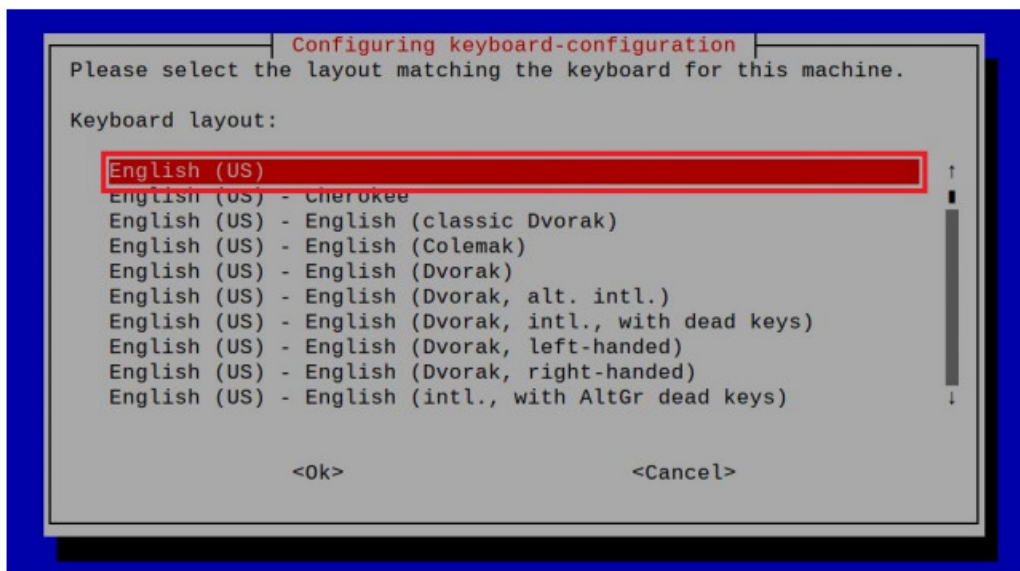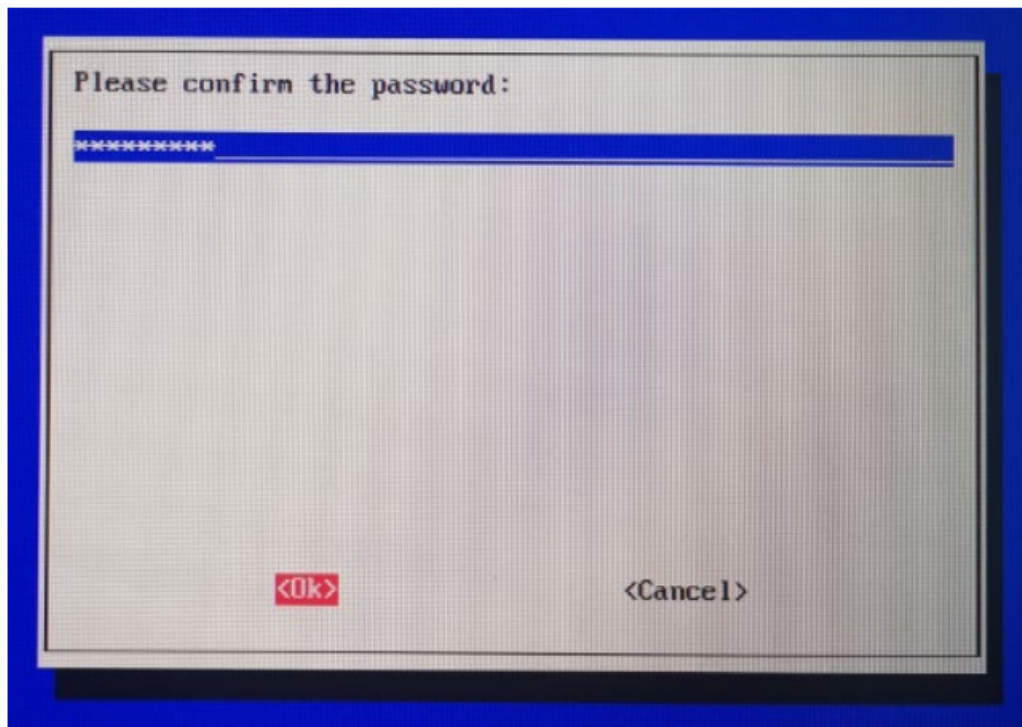

3. Select "OK", then you can start creating a new username in the pane.

```
Please enter new username:

pi

          <Ok>                        <Cancel>
```
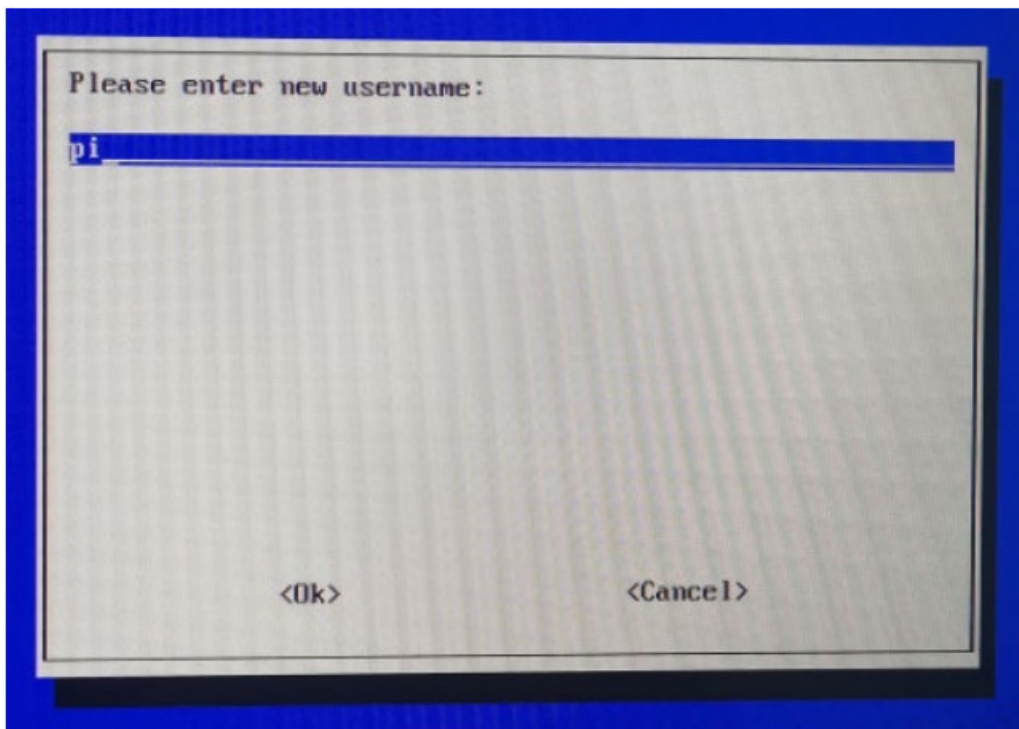
4. Select "OK", then you can start setting a password for the new user in the pane.


```
Please confirm the password:

*********

          <Ok>                        <Cancel>
```
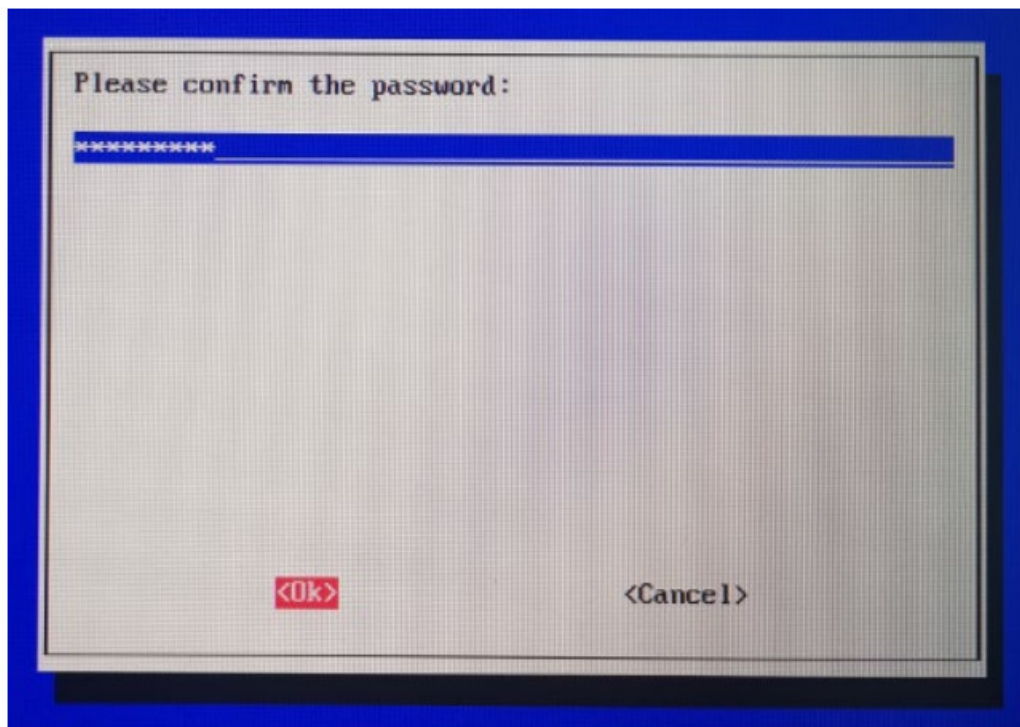
5. Select "OK", then input the password again in the pane.

6. Select "OK" to complete the initial setup and enter the login interface.

7. According to the prompt, enter the username and password to log in the system. After the startup is completed, enter the operating system.

2.5 Installing Firmware Package

This section introduces the specific operations of installing the firmware package on the standard Raspberry Pi OS. It is compatible with the standard Raspberry Pi OS (bookworm).

After flashing to SD card of the Raspberry Pi OS (bookworm) on the ED-IPC3020 series, you can configure the system by adding the edatec apt source, installing the kernel package, installing the firmware package, and disabling raspberry kernel upgrade, so that the system can be used normally.

Preparation:

The flashing to SD card and startup configuration of the Raspberry Pi standard OS (bookworm) have been completed.

Steps:

1. After the device starts normally, execute the following commands in the command pane to add the edatec apt source.

   curl -sS https://apt.edatec.cn/pubkey.gpg | sudo apt-key add –

   echo "deb https://apt.edatec.cn/raspbian stable main" | sudo tee

   /etc/apt/sources.list.d/edatec.list

   sudo apt update

2. Execute the following command to install and update the kernel package.

   sudo apt install -y ed-linux-image-6.1.58-2712

curl -s 'https://apt.edatec.cn/downloads/202403/kernel-change.sh' | sudo bash -s
6.1.58-rpi7-rpi-2712

3. Execute the following command to install the firmware package.

   sudo apt install -y ed-ipc3020-firmware

   ✎ **TIP:**

   If you have installed the wrong firmware package, you can execute "sudo apt-get –purge remove package" to delete it, where "package" is the package name.

4. Execute the following command to disable raspberry kernel upgrade.

   dpkg -l | grep linux-image | awk '{print $2}' | grep ^linux | while read line; do sudo apt-mark hold $line; done

5. After the installation is completed, execute the following command to check whether the firmware package is installed successfully.

   dpkg -l | grep ed-ipc3020-firmware

   The result in the picture below indicates that the firmware package has been installed successfully.

6. Execute the following command to restart the device.

   sudo reboot

Firmware Update (Optional)

After the system starting normally, you can execute the following commands in the command pane to upgrade the system firmware and optimize the software functions.

✎ **TIP:**

If you have a software problems when using ED-IPC3020 series products, you can try to upgrade the system Firmware.

sudo apt update
sudo apt upgrade

Documents / Resources

EDA ED-IPC3020 Series Using Standard Raspberry [pdf] User Guide
ED-IPC3020 Series Using Standard Raspberry, ED-IPC3020 Series, Using Standard Raspberry, Standard Raspberry, Raspberry

References

- 🌐 **apt.edatec.cn/downloads/202403/kernel-change.sh**
- 🌐 **apt.edatec.cn/pubkey.gpg**
- 🌐 **Index of /raspbian/**

- 🌐 **downloads.raspberrypi.org/imager/imager_latest.exe**
- **E____**
- **User Manual**