

# Write firmware

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## Write firmware

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**Note:** The microROS control board has been burned with factory firmware before leaving the factory. If you have not burned other firmware before, you do not need to burn the factory firmware again.

The factory firmware of the microROS control board only provides bin files for burning, and does not provide program source code.

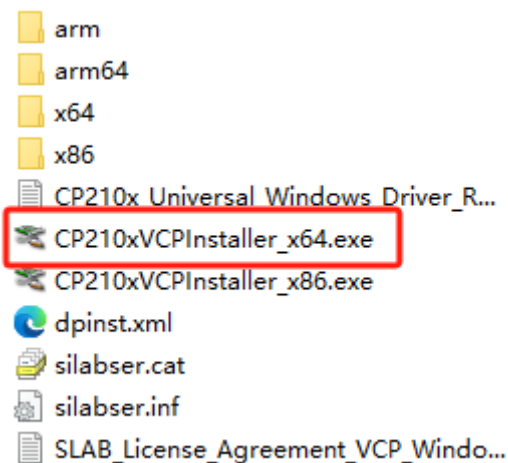
## 1. Install CP2102 serial port driver

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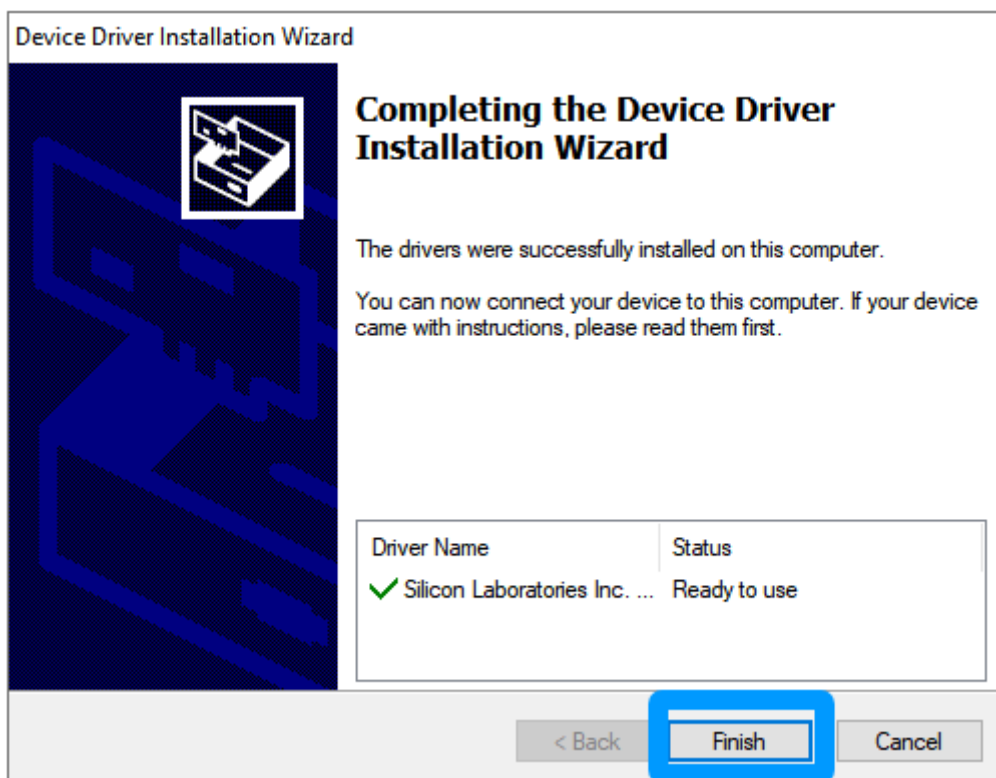
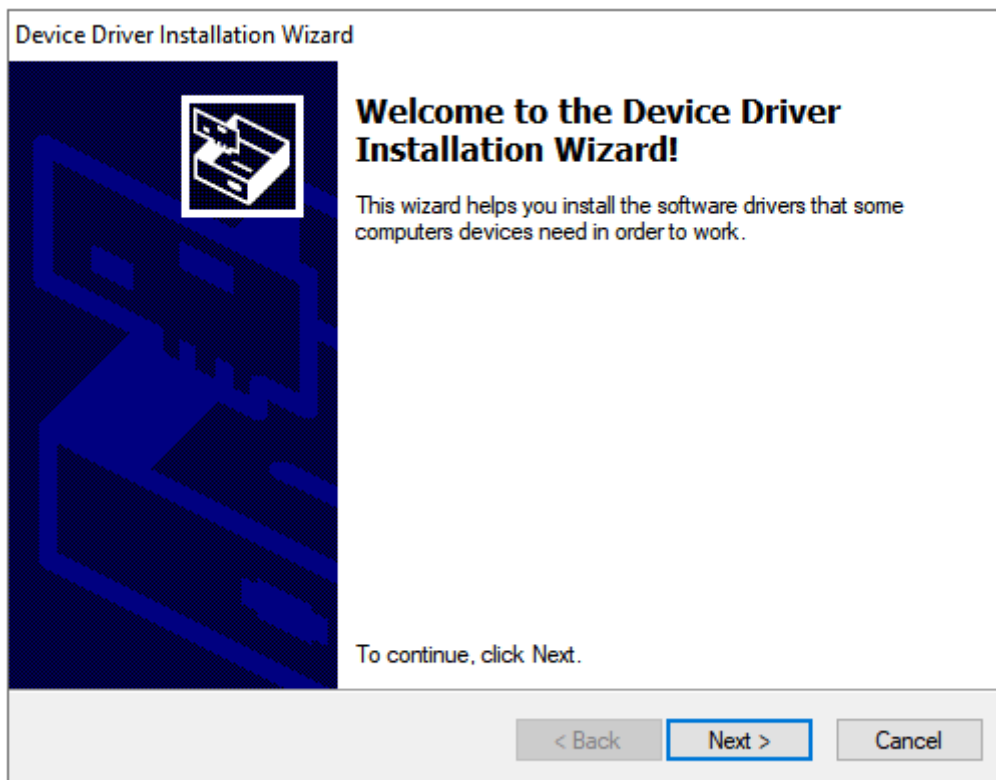
If the Windows system has already installed the CP2102 serial port driver, you can skip this step.

The path of the CP2102 serial port driver file is in [Hardware related information] -> [CP2102 serial port chip] -> [CP2102-Windows driver file.zip] in the supporting information.

After decompression, you will get the [CP2102-Windows-driver] folder. Select x64 and x86 according to the system version. Here we take 64-bit Win10 as an example. Double-click to open the [CP210xVCPInstaller\_x64.exe] file and click Next to start the installation.

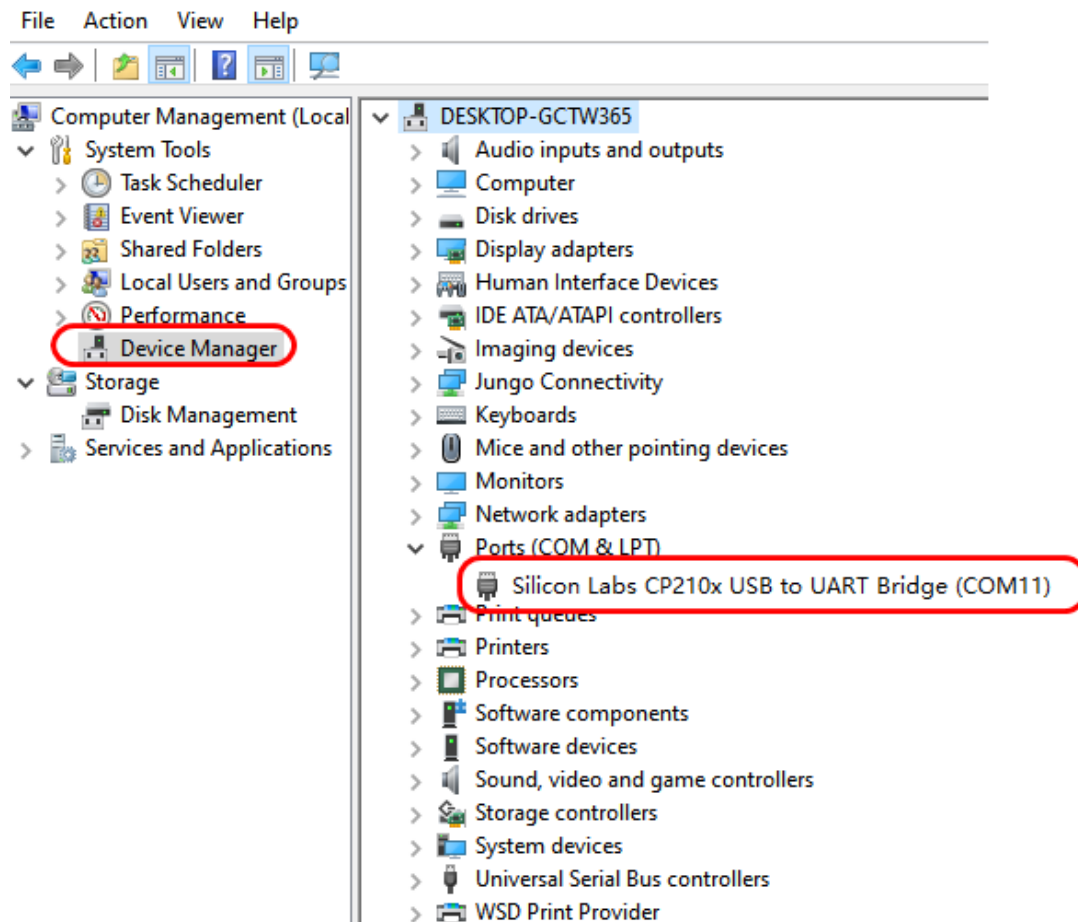


After the driver installation is completed, the prompt status is [Ready for use], click Finish.



Use a Type-C cable to connect the type-c serial port of the expansion board to the USB port of the computer

Open the **[Device Manager]** of the Windows system and see the CP210x device in **[Port]**, which means the driver installation is successful.



## 2. Download the Flash tool

Download URL:

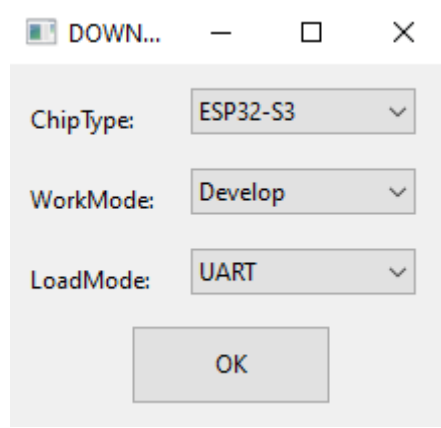
<https://www.espressif.com.cn/zh-hans/support/download/other-tools>

Flash Download Tools

<input type="checkbox"/>	Title	Platform	Version	Release Date ▾	Download
<input type="checkbox"/>	+ Flash Download Tools	Windows PC	V3.9.5	2023.06.12	↓

Unzip to get flash\_download\_tool, double-click to open it.

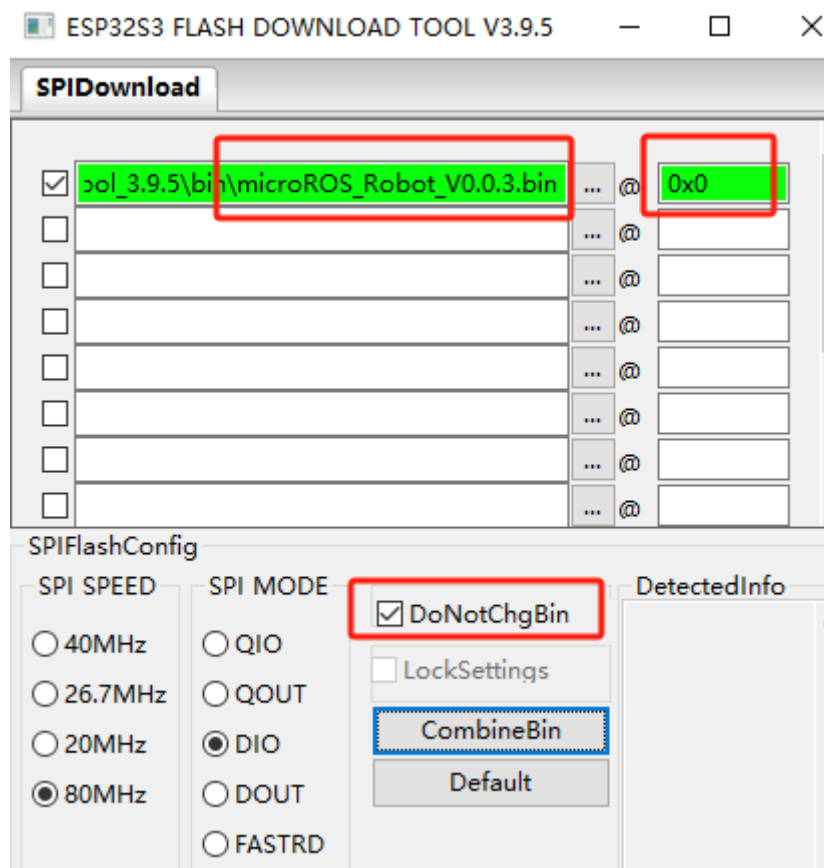
As shown in the figure below, select the serial port to burn ESP32-S3. Click OK to open the burning tool.



### 3. Configure the burning tool

In 'SPIDownload', select the firmware microROS\_Robot\_Vx.x.x.bin to be burned to ESP32S3, where Vx.x.x is the firmware version number, enter 0x0 for the firmware address, check DoNotChgBin, and then select the connected COM port. Keep other configurations as default.

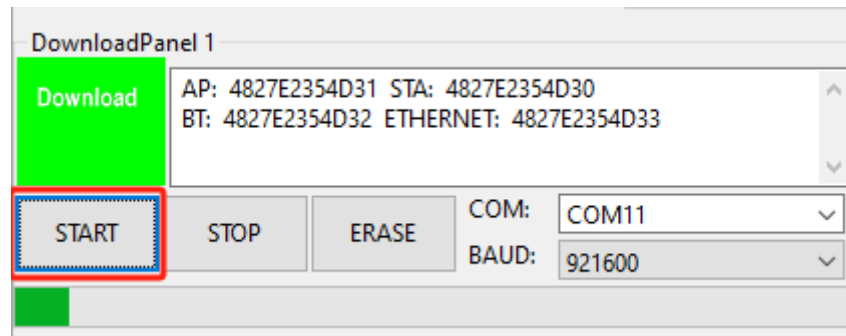
Firmware name	Firmware address	Remark
microROS_Robot_Vx.x.x.bin	0x0	Factory firmware bin file



### 4. Start writing firmware

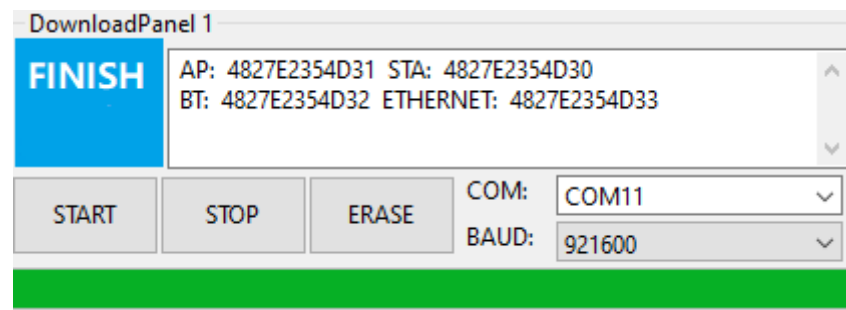
Click the Start button and the tool will automatically start burning firmware.

Note: If the firmware burning does not start automatically, please press and hold the boot0 key first, then press the reset button, release the boot0 key, and enter the burning mode manually.



## 5. Flashing completed

After the download is completed, a blue FINISH logo will appear. At this time, power off and restart the microcontroller or press the reset button to start the program.



## 6. Check the factory firmware

The storage path of the serial port assistant software is [Hardware related information]->[CP2102 serial port chip]->[UartAssist.exe] in the supporting information.

Open the serial port assistant, as shown in the figure below, select the serial port of the microROS control board, the baud rate is 115200, 8-bit data, 1-bit stop, no parity, and no flow control.

Press the reset button on the microROS control board, find the hello Yahboom prompt in the printed debugging information, and check the firmware version number in the line below. If the information is correct, it means the factory firmware has been burned successfully.

