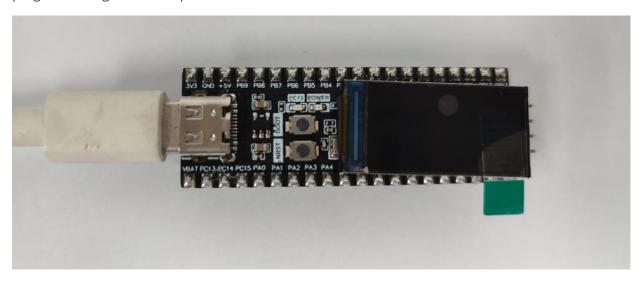
## 2.4 download program

## Method 1: Download via serial port

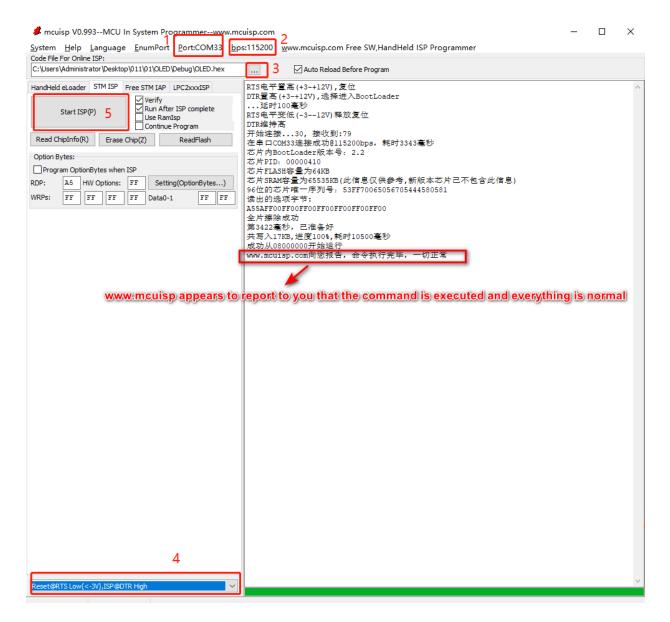
Since the core board we provide has integrated the ch340 serial port download circuit, you only need to use the usb cable to connect the motherboard to the computer, and then you can download the program through the serial port tool.



This tutorial uses the mcuisp.exe software serial port to download the program. When downloading, pay attention to the following points:

①. Select the corresponding serial port; ②.bps should not exceed 115200; ③. Click the "..." button to select the HEX format file to be downloaded; ④. Be sure to select the correct DTR and RTS setting method at the bottom left (**choose RST low Level reset**, **DTR high level into BootLoader**)

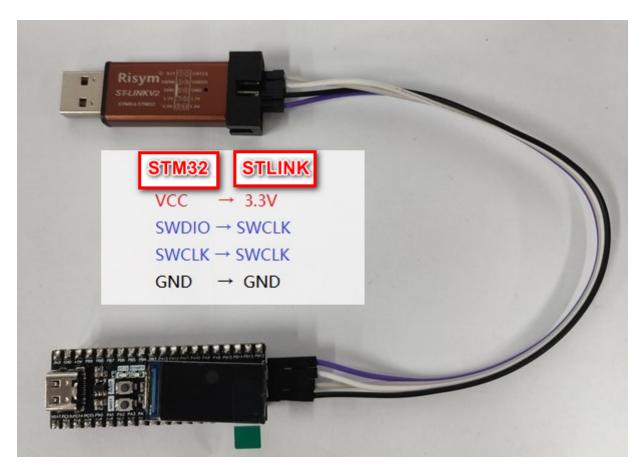
Finally click "Start Programming", press the reset button "NRST", when you see the green progress bar is full, the program download is successful!



## Method 2: Use SWD mode to burn code

Serial Debug (Serial Wire Debug), SWD only needs 4 pins to communicate with the target board, and can realize program download, single-step debugging and other functions.

Refer to the module wiring diagram for hardware connection:



Note that STLINK needs to be purchased separately, and you need to connect it according to the silkscreen instructions of the pins.

Reference courses for software configuration: 2.3 Create the first project > 2.4 Configure the magic wand tab

After the software and hardware are configured, you can start to click the download icon to download the hex file compiled before. When the download progress bar reaches 100%, it means that the program has been downloaded successfully.

