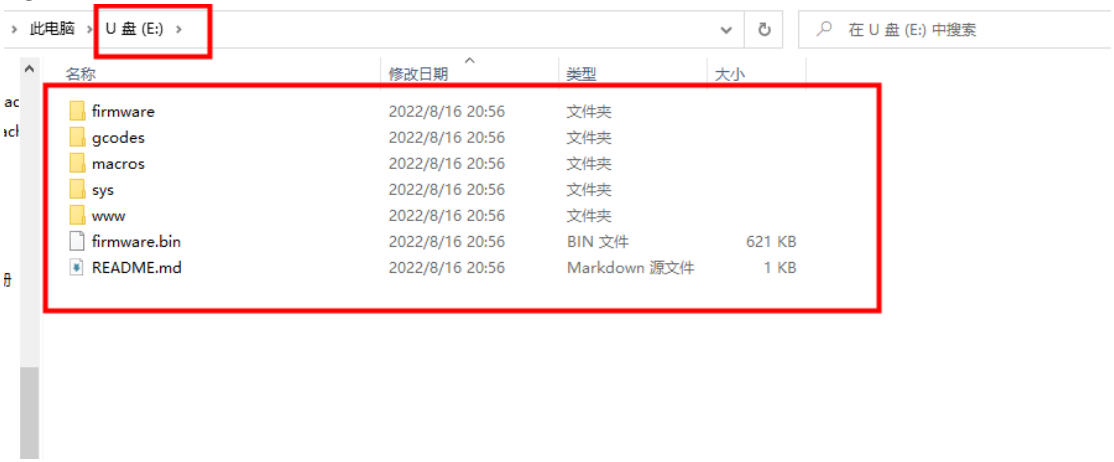
ESP32 & ESP8266

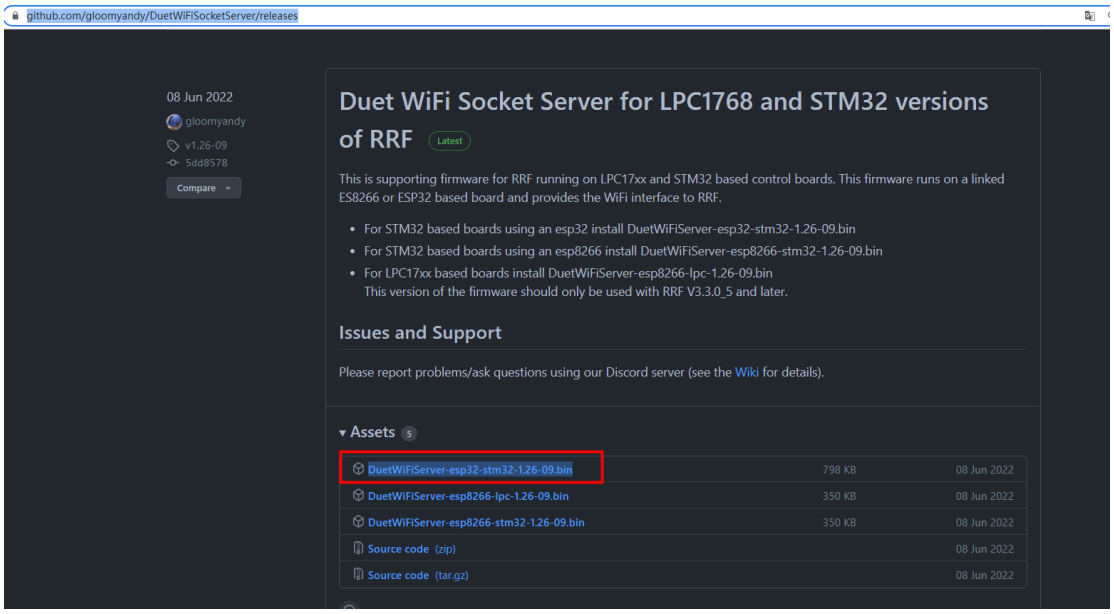
This instruction is about ESP32 & ESP8266 firmware(Marlin&RRF) updates and usage. Here is an example using an ESP32 module and SKR 3 motherboard:

RRF

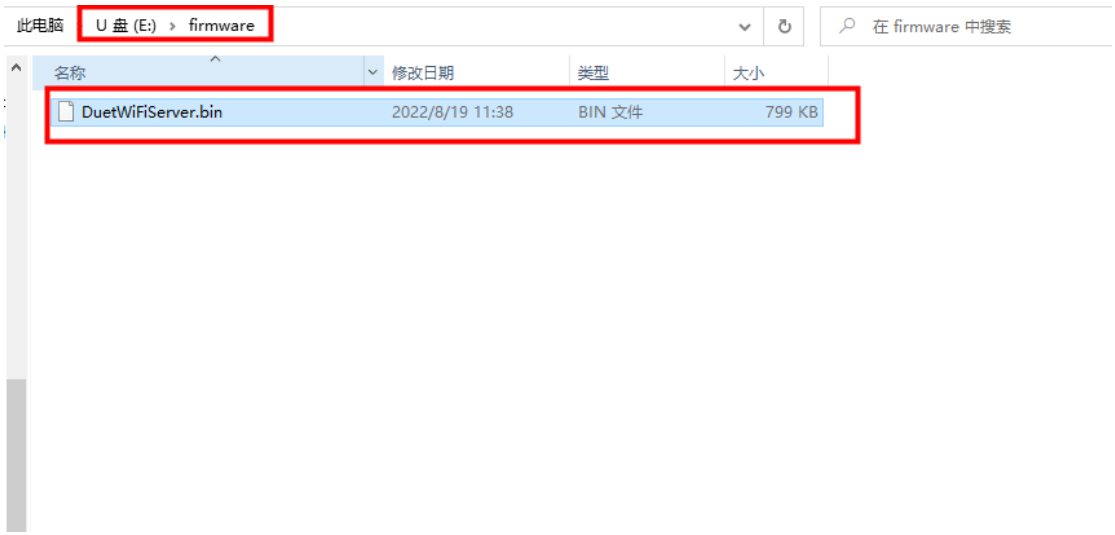
Step 1, download the RRF firmware of the corresponding motherboard. Here we use SKR3 as an example and this is its firmware download link: https://github.com/bigtreetech/SKR-3
After downloading is finished, you can find the RRF firmware in the Firmware folder, and then copy its contents to a standard microSD card, as shown in the figure below:



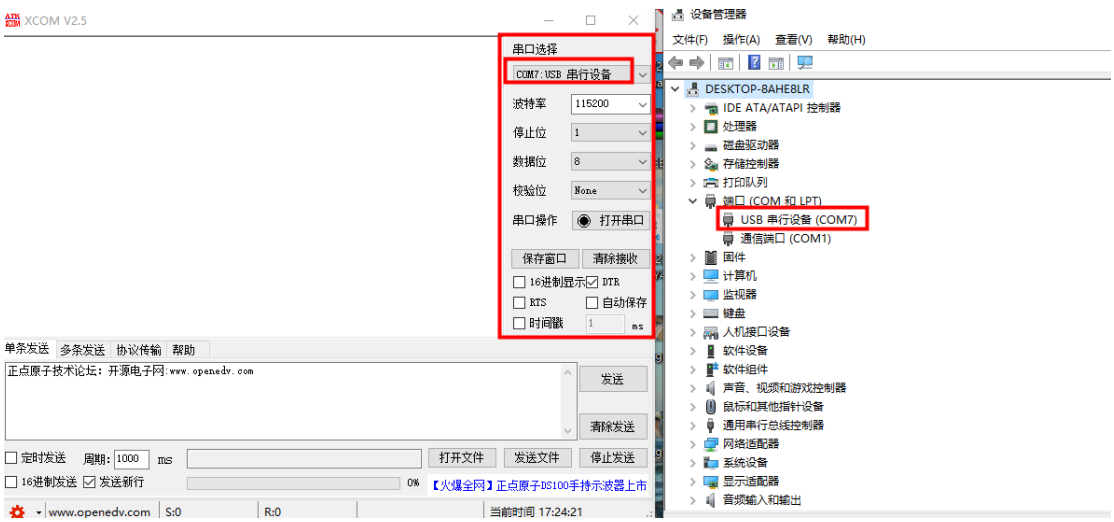
Step 2, download the corresponding DuetWiFiSocketServer:
https://github.com/gloomyandy/DuetWiFiSocketServer/releases
The module used this time is ESP32, and the main control chip of the motherboard is STM32,
so we download: DuetWiFiServer-esp32-stm32-1.26-09.bin, as shown in the figure:



Then copy the DuetWiFiServer-esp32-stm32-1.26-09.bin to the firmware folder of the microSD card. Delete the original DuetWiFiServer.bin in the firmware folder,
and rename DuetWiFiServer-esp32-stm32-1.26-09.bin to DuetWiFiServer.bin, as shown in the figure (so far, the microSD card settings have been completed):



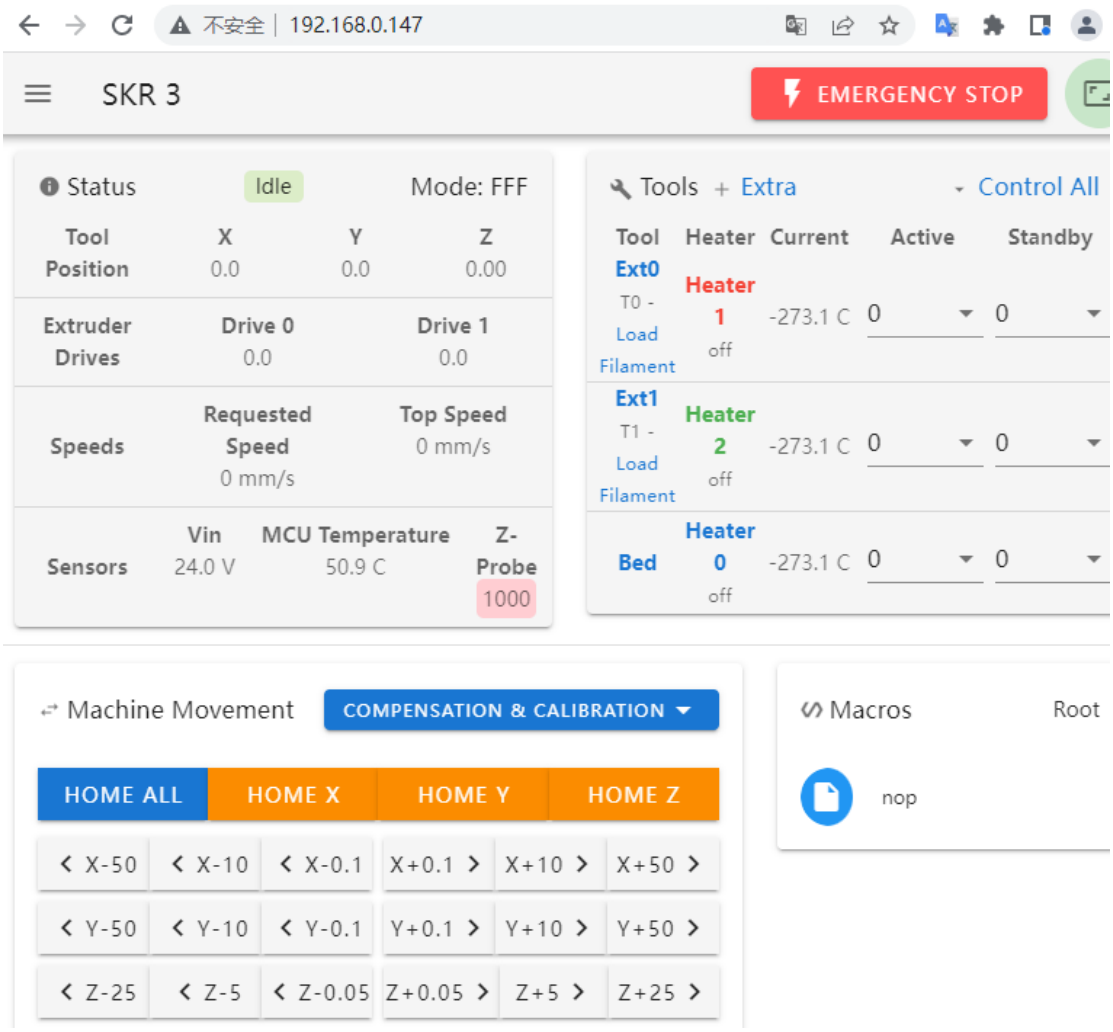
Step 3, insert the MicroSD card into the card slot of the motherboard, then connect the motherboard to a computer via the USB cable (the motherboard needs to be powered), open a serial debugging tool, and then select the USB communication serial port of the motherboard, as shown in the figure:



Then open the serial port and send the "M997 S1" command to update the firmware in the ESP32.

Step 4, after completing the above steps, send "M552 S0" to put the ESP32 into idle mode, then send "M587 S"SSID" P"Password" " to set the name and password of the WiFi to be connected (for example, the WiFi name is biqu, the password is 123456, the command sent should be M587 S "biqu" P "123456"), send "M552 S1" to enable network control, ESP32 will return an IP address after connecting to WiFi, send "M552" command to query the WiFi status and IP address, as the picture shown below:

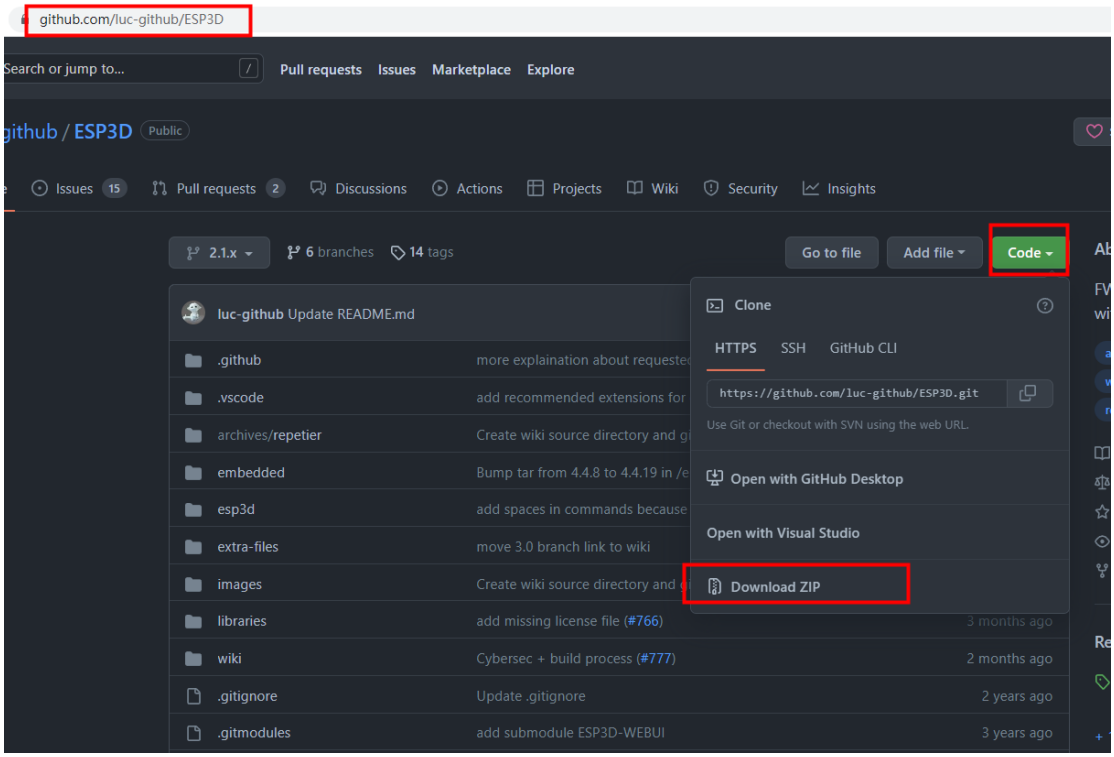
Step 5, finally, other devices under the same LAN can directly enter this IP address in the browser to access the DWC interface, as shown in the figure:



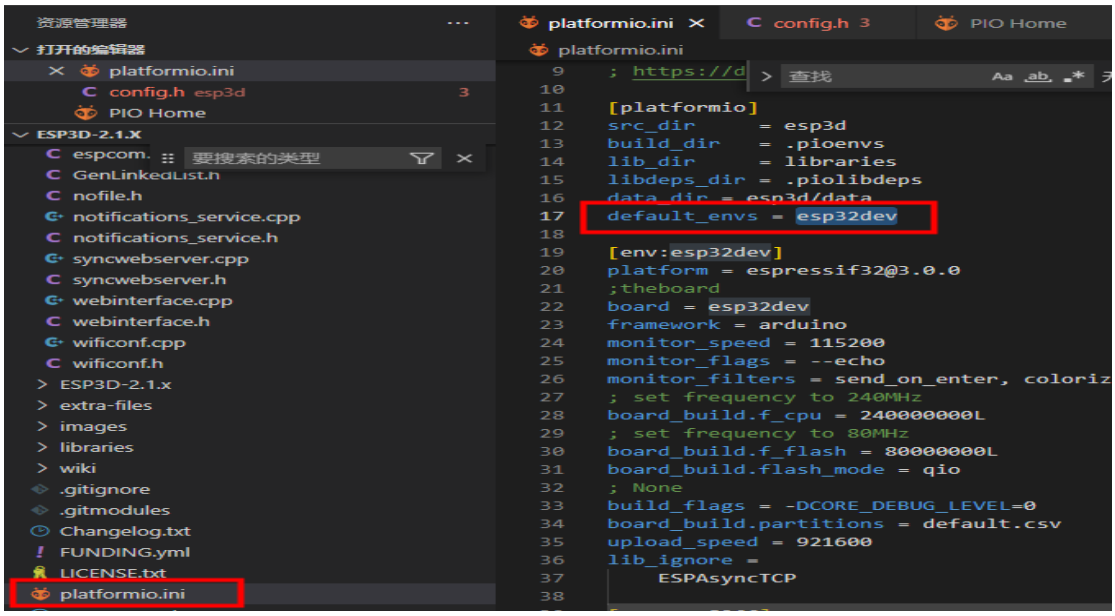
Note: If you want to replace the new network, you need to send the M552 S0 command to make the WiFi module enter idle mode, and then send the M588 S"TP-LINK_C9B8" to forget the saved network. S"TP-LINK_C9B8" represents your own WiFi name. For example, if the WiFi name is 123, send M588 S"123" to forget this network. Then back to step 4 to set up a new WiFi.

Marlin

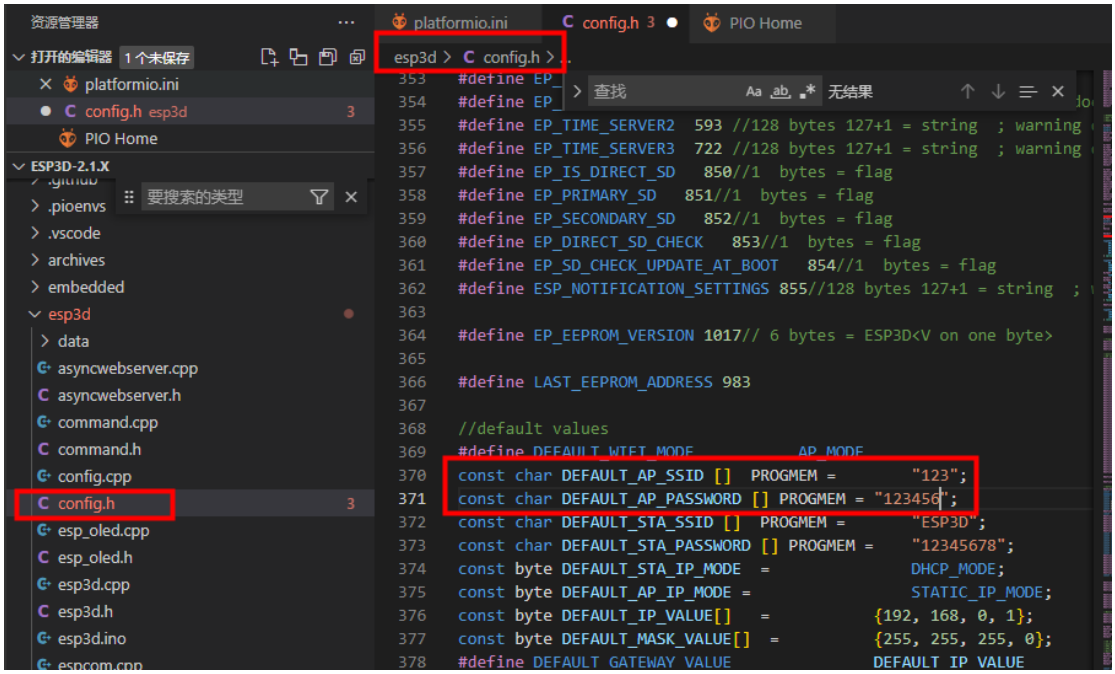
Step 1, download the firmware of the ESP WiFi module:
https://github.com/luc-github/ESP3D



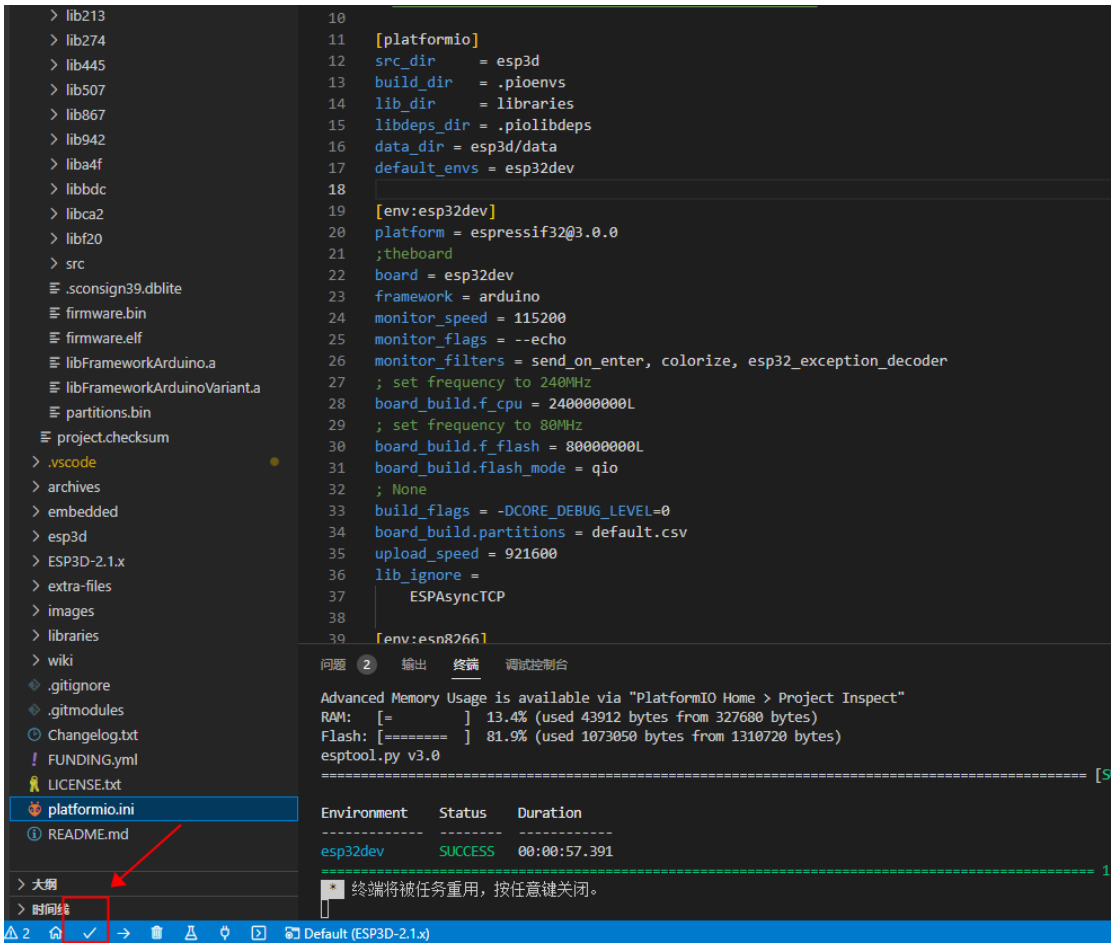
Step 2, unzip, then open it with Visual Studio Code, and then modify the default_envs parameter according to the model of the ESP module used. Here we use the ESP32 module, so it needs to be changed to esp32dev, as shown in the figure:



Note: If you want to change the default name and password of the WiFi transmitted by the ESP32 module, you can change it following the picture below (it is generally not recommended to change it). For example, if the WiFi name used is 123 and the WiFi password is 123456, you can change it as shown in the figure:
Here we use the default WiFi name and password.

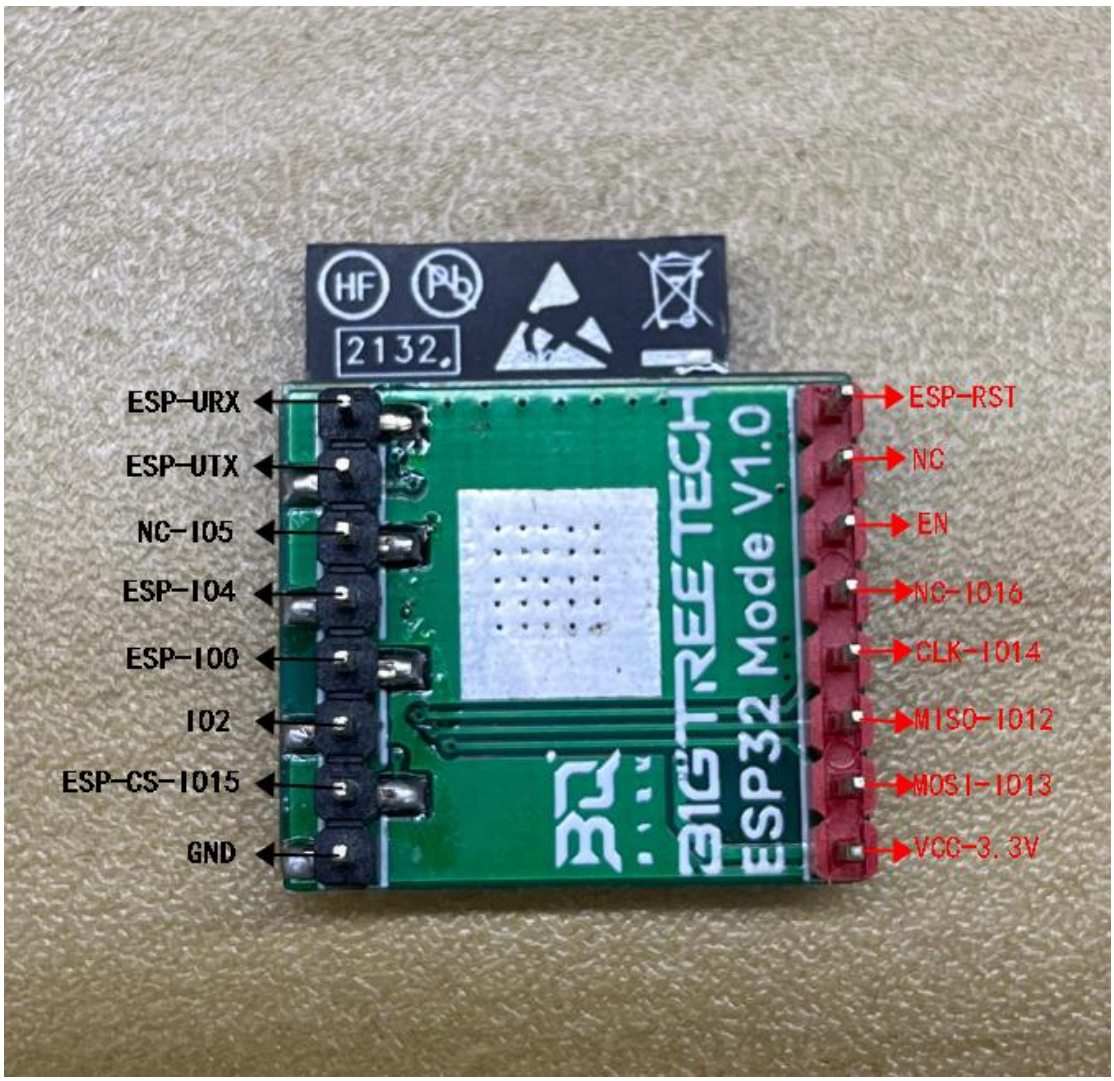


Step 3, after step 2 is finished, we can start to compile the firmware, as shown in the image below:



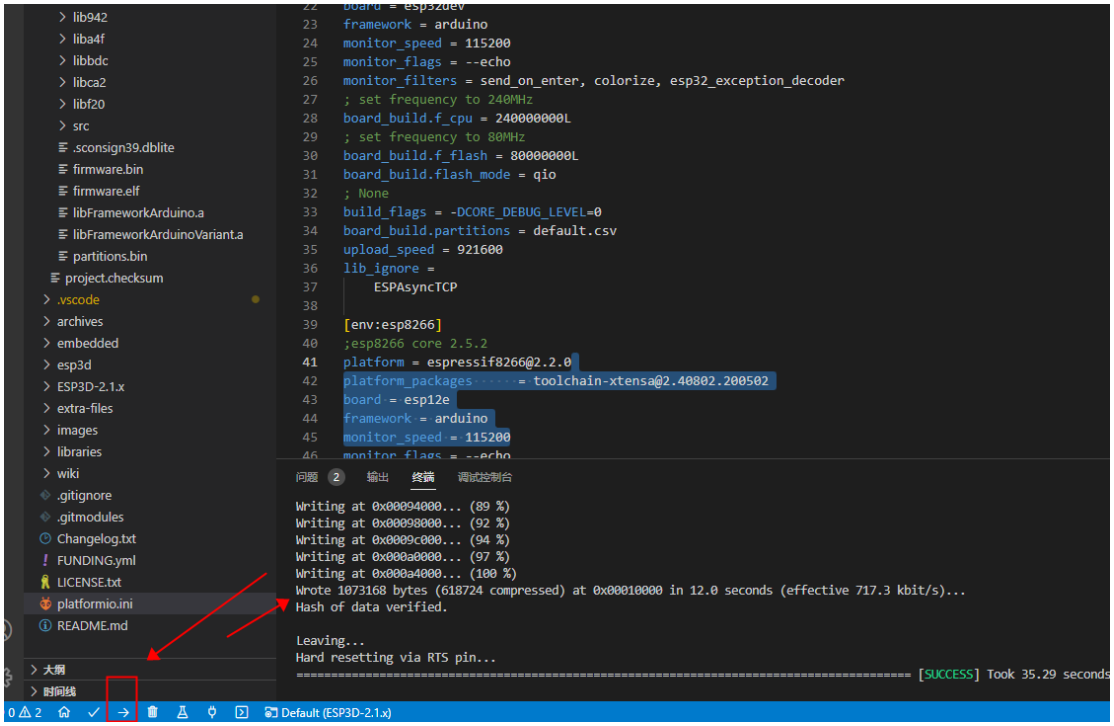
Step 4, when the compilation is completed, you need to update the firmware to the ESP32 module, first, you need to use a CH340 module to connect with the ESP module, this is the wiring sequence:

CH340	ESP32
3.3V	3.3V
GND	GND
RX	TX
TX	RX
GND	IO0(Boot)

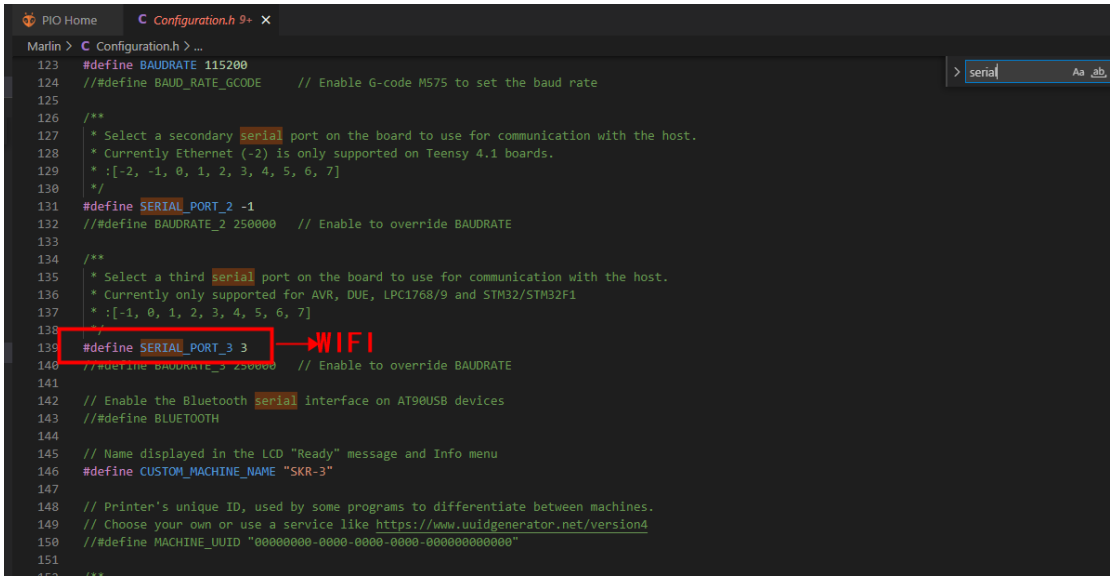


Pinout Diagram of ESP32

After the wiring is completed, connect the CH340 module to the USB port of the computer, and then upload the ESP32 firmware to the ESP32 module through Visual Studio Code, click this icon, as shown in the figure:

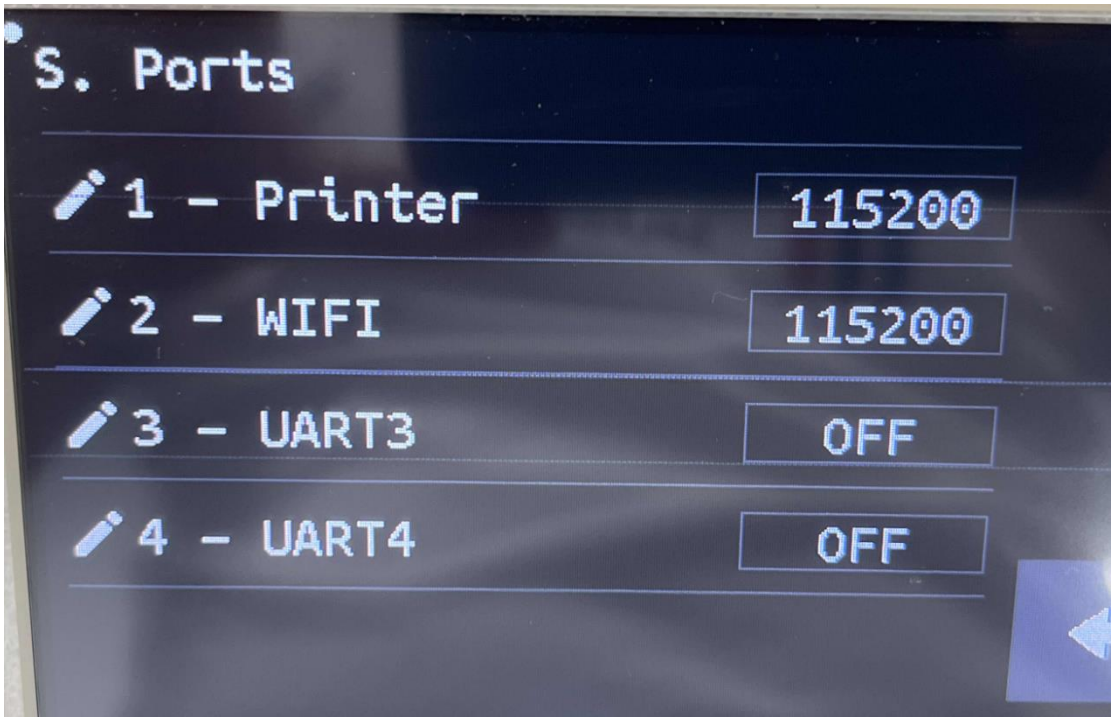


Step 5, after the firmware upload is complete, insert the ESP32 module into the WiFi module slot of the SKR 3 motherboard.
You also need to set the firmware of the corresponding motherboard: open the WiFi serial port in the motherboard firmware. This time, we use the SKR 3 motherboard and here is the firmware download link:
https://github.com/bigtreetech/SKR-3
Then compile the firmware. After the compilation is complete, use a standard FAT32 microSD card to update the firmware to the motherboard, as shown in the figure:

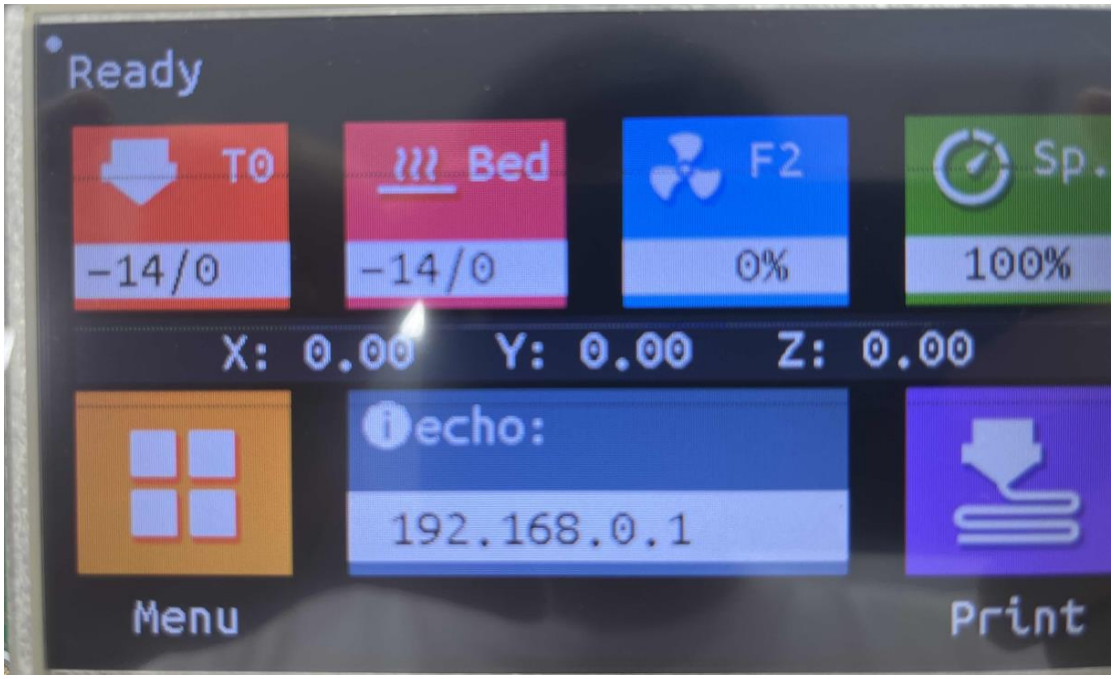


Step 6, after completing the above steps, connect a Marlin12864 or Marlin2004 display, and then power on the motherboard, the display will show an IP address, as shown in the figure:

If you use our TFT series display, and the touch mode, you need to open the WiFi serial port, and the baud rate parameters need to be consistent with the parameters in the motherboard firmware. The baud rate set by the SKR3 motherboard firmware is 115200, so the baud rate of the WiFi serial port of the display also needs to be set to 115200, as shown in the figure:

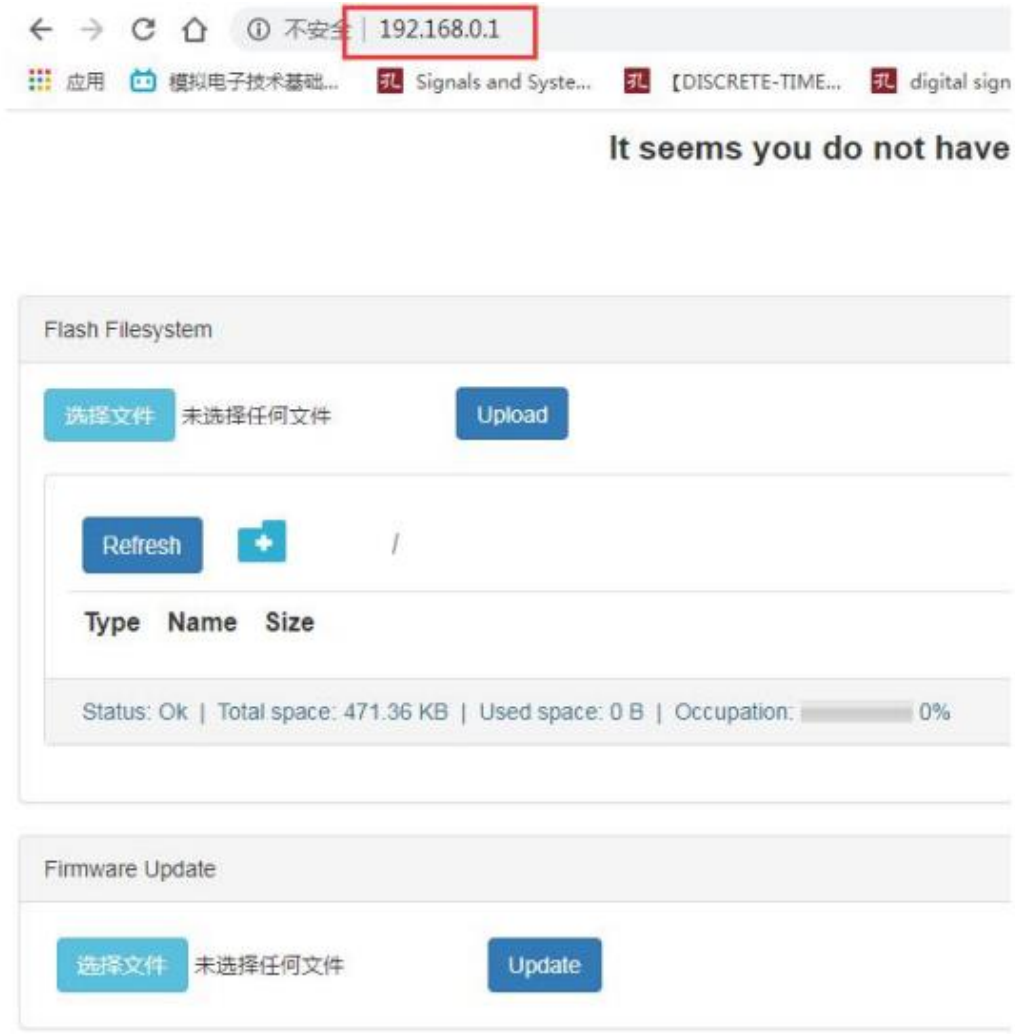


Then, the touch screen will also show an IP address, as shown in the figure:



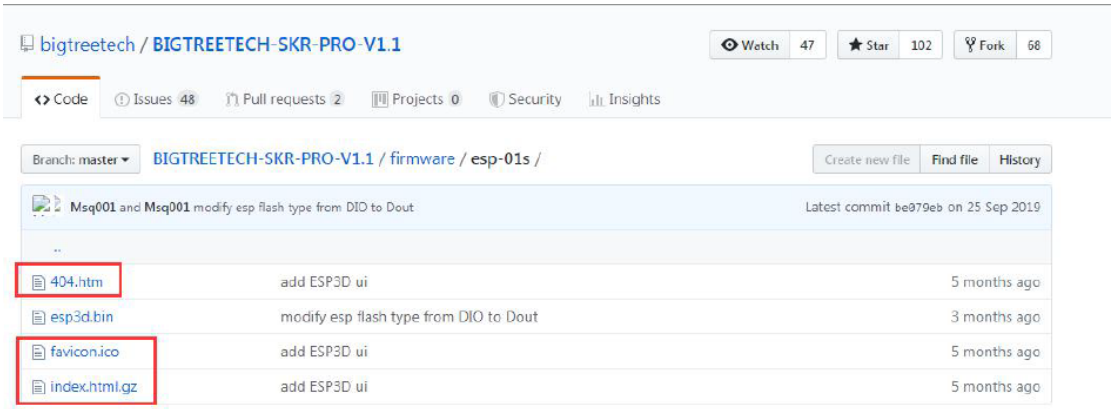
Step 7, after the IP address is displayed, connect to the WiFi transmitted by the ESPwifi module (setting in step 2), the initial name is: ESP3D, and the initial password is: 12345678, as shown in the figure:

Step 8, after connecting to the WiFi, access the IP displayed on the screen through the browser, and you will enter this interface, as shown in the figure:

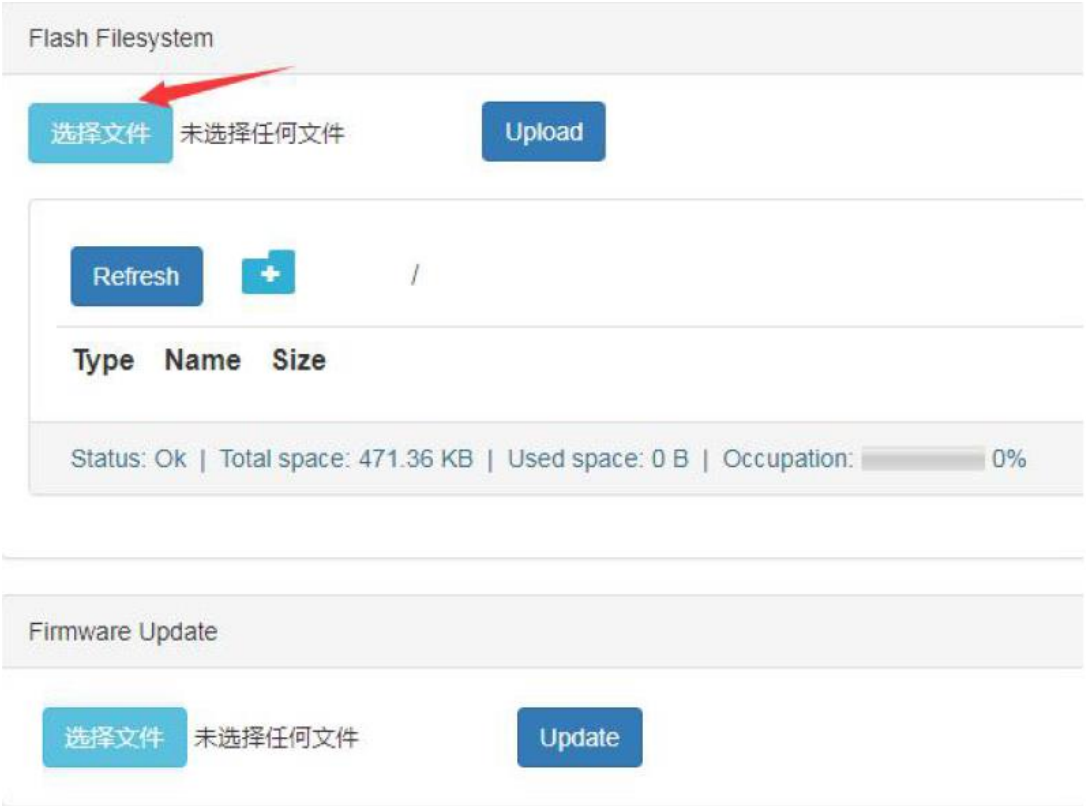


Step 9, after entering this interface, you need to upload three plugins. Here is the plugin download link:
https://github.com/bigtreetech/BIGTREETECH-SKR-PRO-V1.1/tree/master/firmware/esp-01s

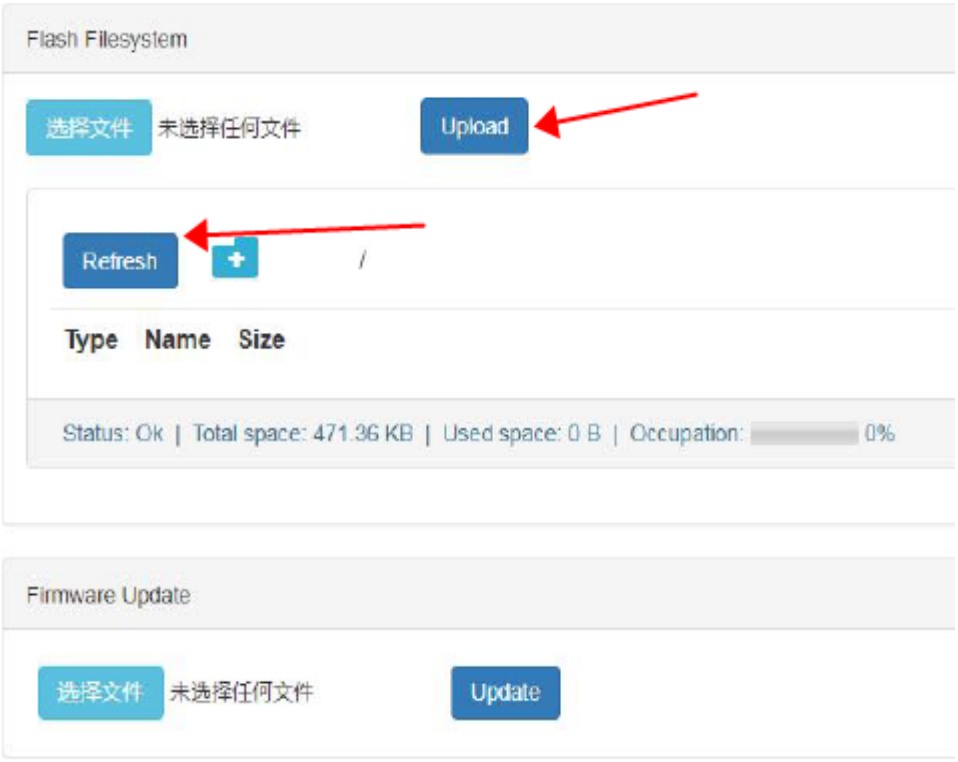
Here are the three plugins needed, as shown in the figure:



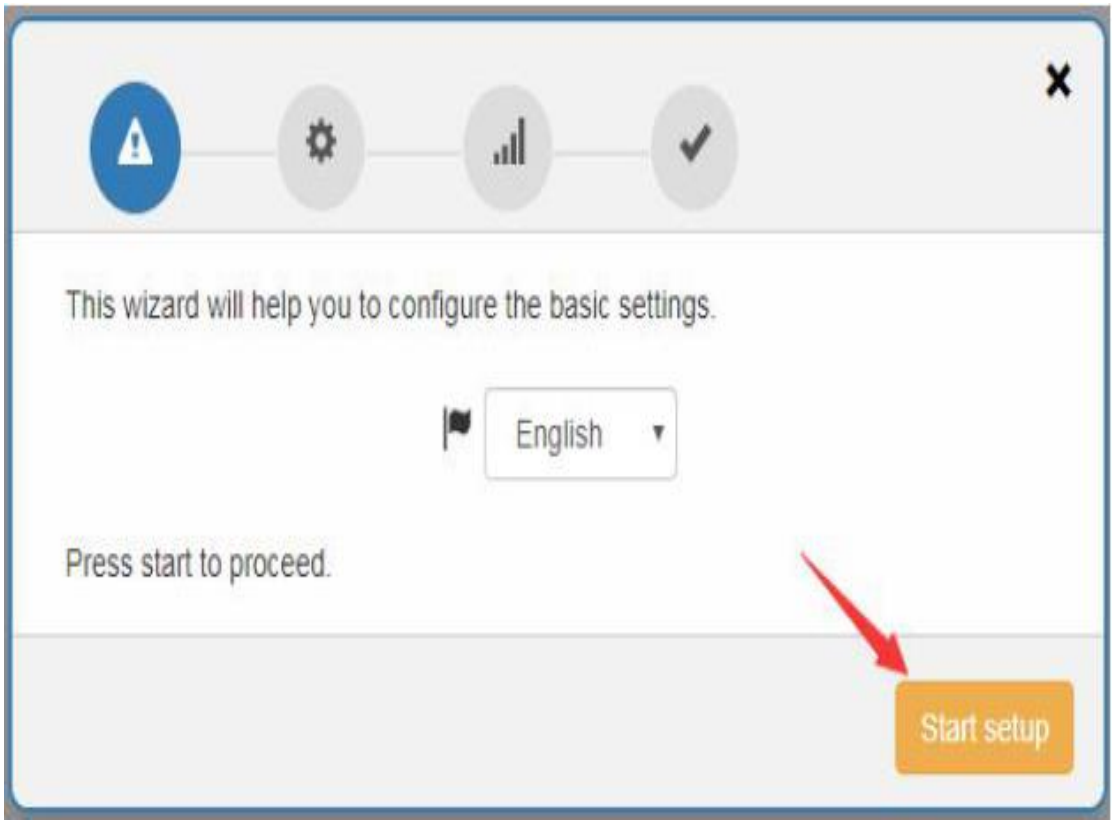
Step 10, after the download is complete, click this icon to select the three plug-ins in step 9, as shown in the figure:



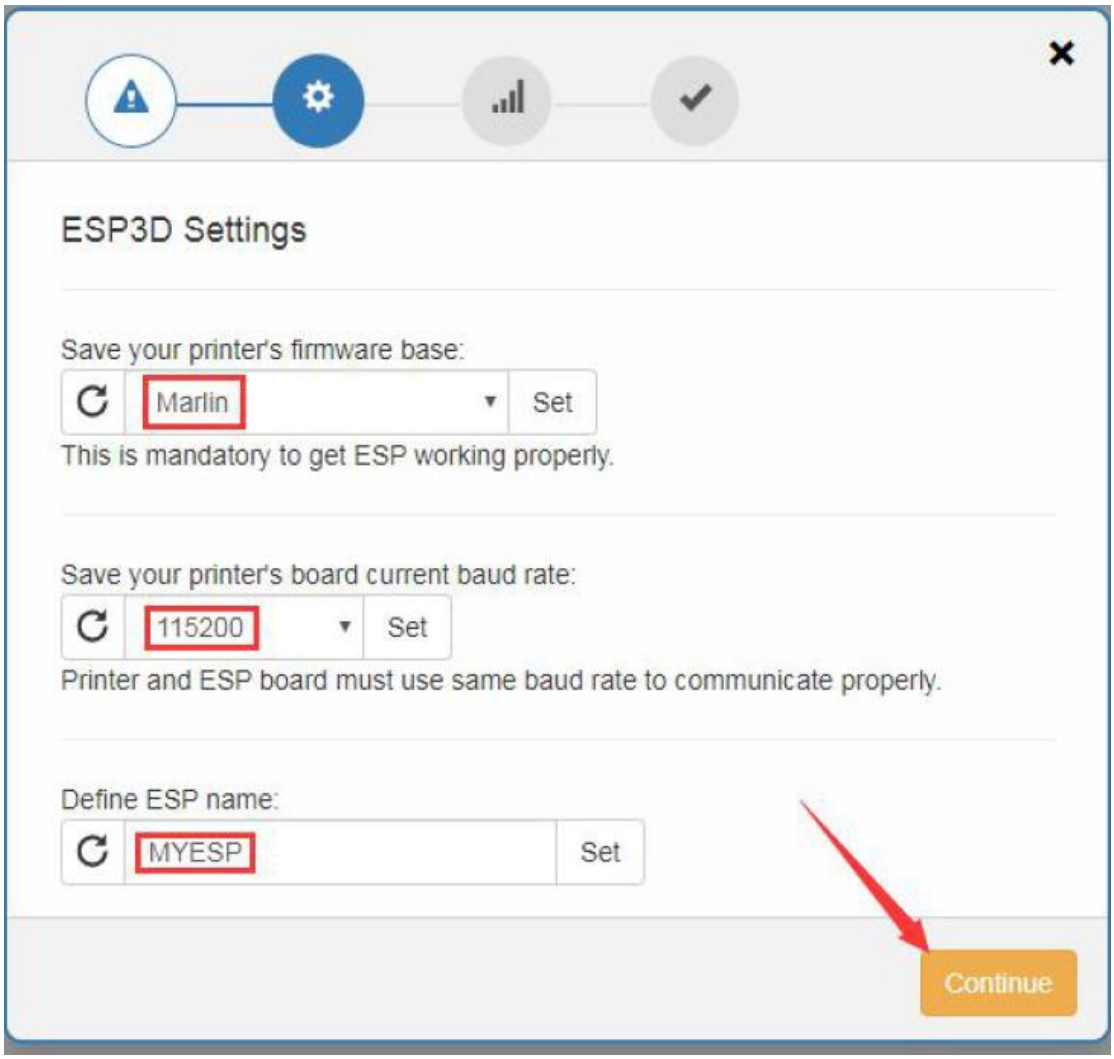
Click Upload, then click refresh



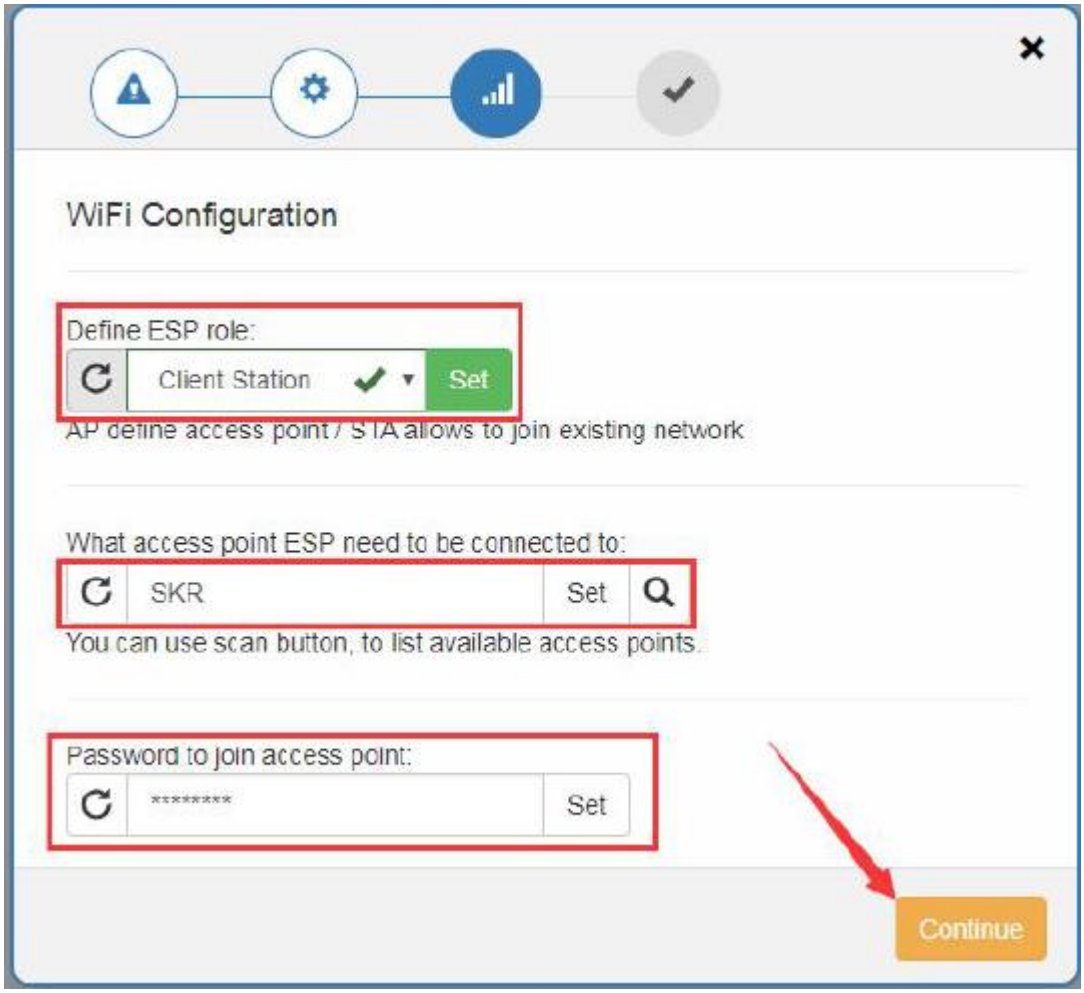
Step 11, after completing step 10, the browser will enter this wizard. After setting the language, click to Start setup, as shown in the figure:



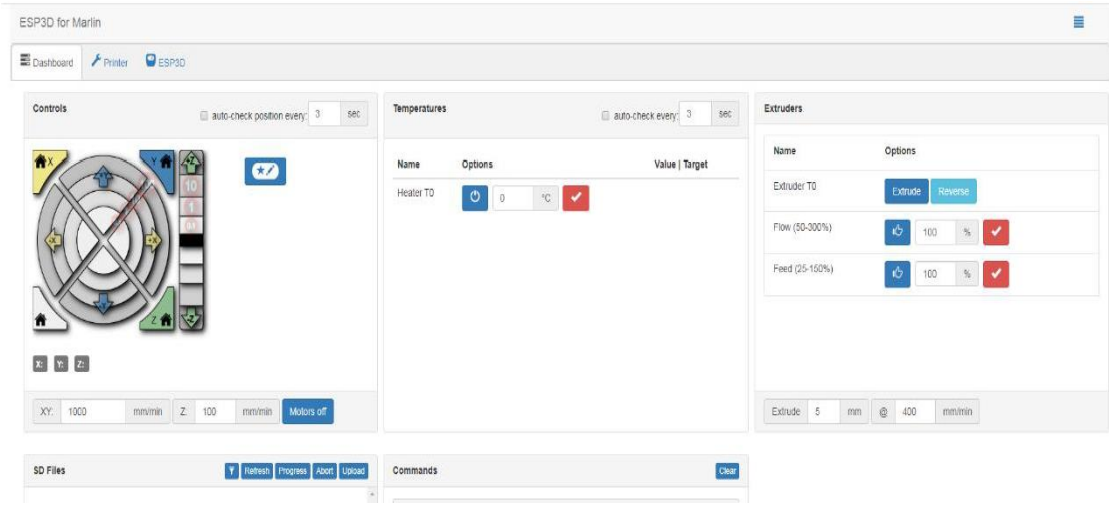
Step 12, ESP3D Settings: make sure the firmware is Marlin, the baud rate is 115200, and define ESP name, then click Continue.



Step 13, WIFI Configuration: define ESP role as Client Station, and enter the internet-accessible WiFi name and password, then click Continue.



Step 14, after completing all the above steps, you can control the motherboard through WiFi and then control the printer. Enter the control interface, you can directly refresh the web page, or access the IP displayed on the screen: 192.168.0.1, the WIFI-ESP3D sent by the ESP32 module, and you will enter the control interface, as shown in the figure:



Note:
1. The ESP module should be plugged and unplugged in a power-off state;
2. Pay attention to the pins of the ESP module when used on the motherboard to ensure the right connection.