1. Overview

3 Steps：Install Arduino IDE,Reload code to EG118,Start to test.

The doc.need to download：The library file is downloaded to the specified path,others to the common folder.

Arduino IDE

Serial Drivers

Demo source code

Library file：download to the path：computer--document--Arduino--libraries

2. Arduino IDE Environment Setting

2.1 Download Arduino IDE

2.2 Install Arduino IDE

2.3 Install ESP32 development board

1> Setting Boards Manager URLs
File->Preference->Add Additional Boards Manager URLs：
https://dl.espressif.com/dl/package_esp32_index.json

2> Install ESP32 development board： Boards Manager-->Search ESP32-->Install, this will take a few minuets, please waiting.
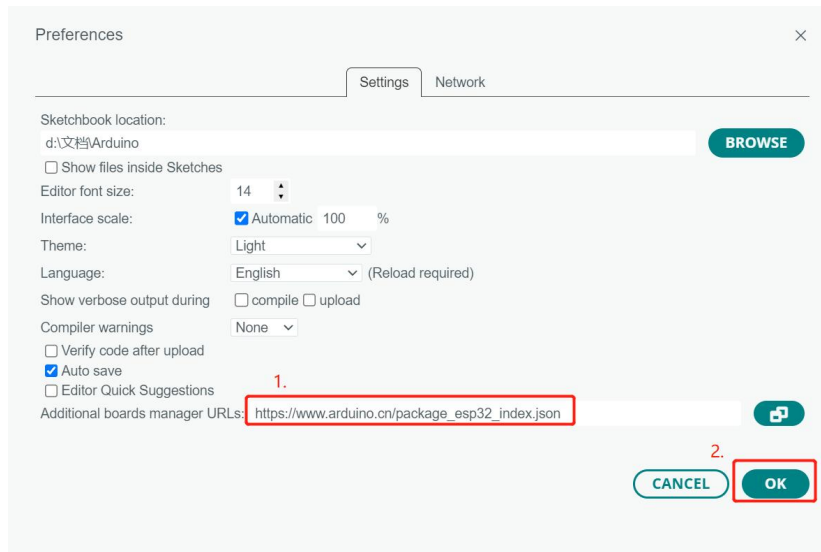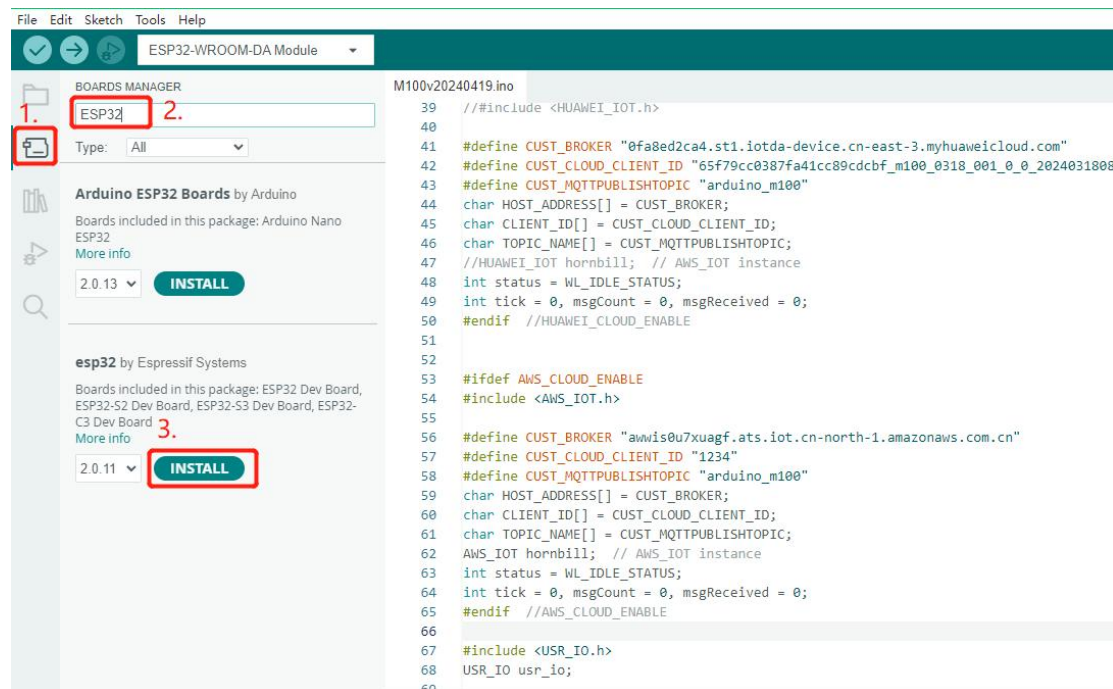

2.4 Install Library

Download Library：there need 10 library file to compile normally and load code to EG118: 3 files from PUSR's library,left 7 doc. From Arduino library：

1> PUSR library files： USR_IO、AWS_IOT、ArduinoRS485.
Download the files to the path： computer--document--Arduino--libraries.

2> There need to install all the below files in the Arduino library：
ArduinoModbus、AsyncTCP、CRC、ESPAsyncWebServer、Ethernet、OneButton、PubSubClient。

Install file：take the ArduinoModbus installing for example.
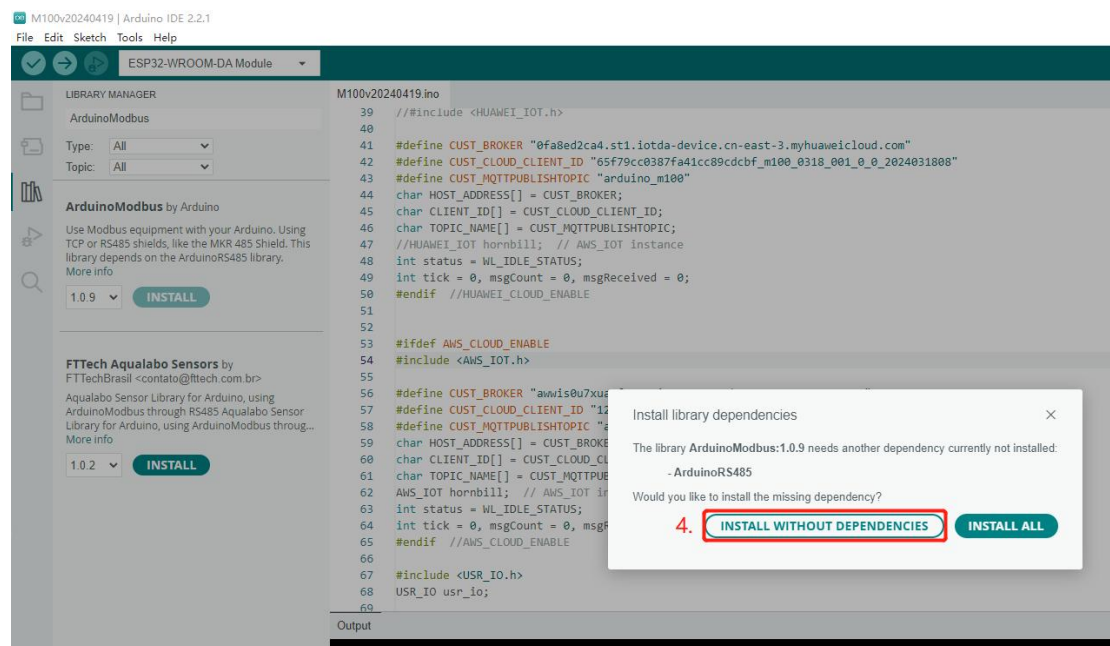
Click "Library Manager"--> Search "ArduinoModbus"--> Click "INSTALL"
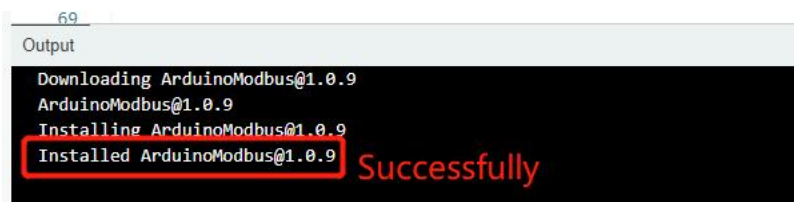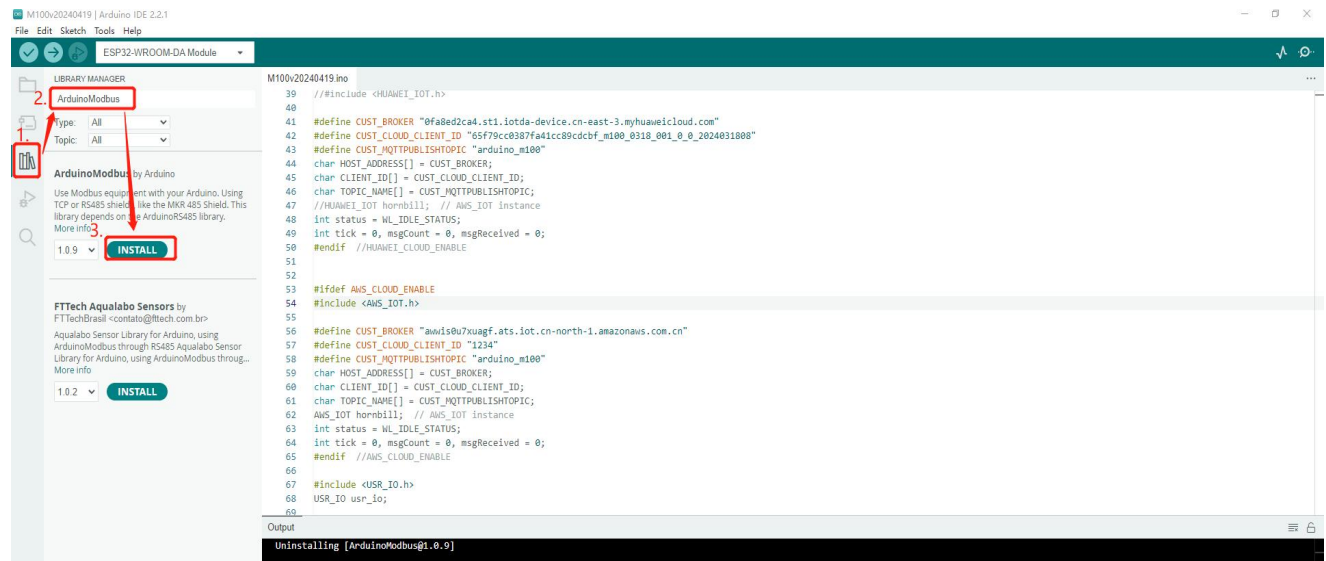
After finishing,can find the files in：Computer--Document--Arduino--libraries
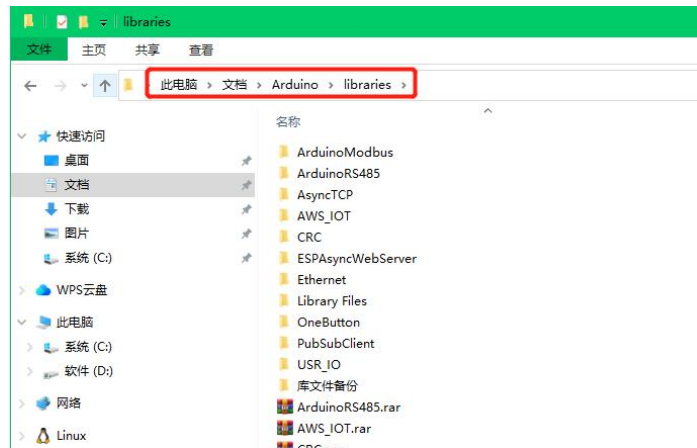
2.5 Instructions for Library Files

ArduinoModbus: query/set parameters of EG118 through modbus command

ArduinoRS485: RS485/232 communication

AsyncTCP：TCP communication

CRC：CRC verification for Modubs

ESPAsyncWebServer：webpage developement

Ethernet: ethernet port communication

OneButton: deal with button activition

PubSubClient: MQTT Client

USR_IO: test for IO expansion board

AWS_IOT：connection with Amazon platform

2.6 View Arduino Official Document

In Arduino website,view more instructions of Arduino IDE.
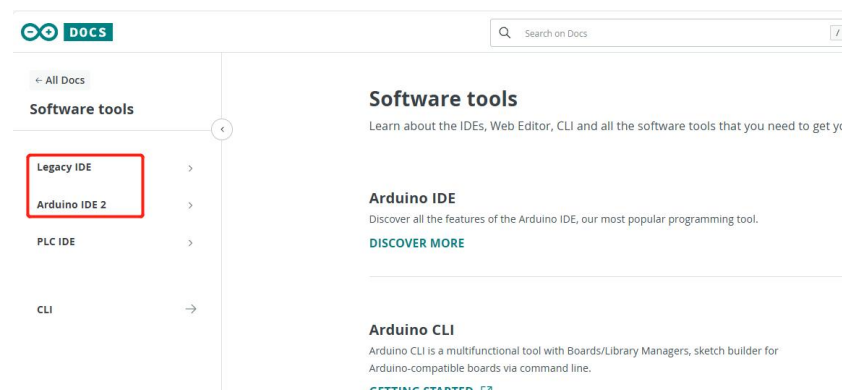
3. Load the code onto EG118

3.1 Hardware Prepare

1. 12V/1A power adaptor*1
2. USB to TTL cable*1
3. WiFi antenna*1
4. USB to 485/232 serial cable*1
5. USR-EG118*1

Ports Indicate：
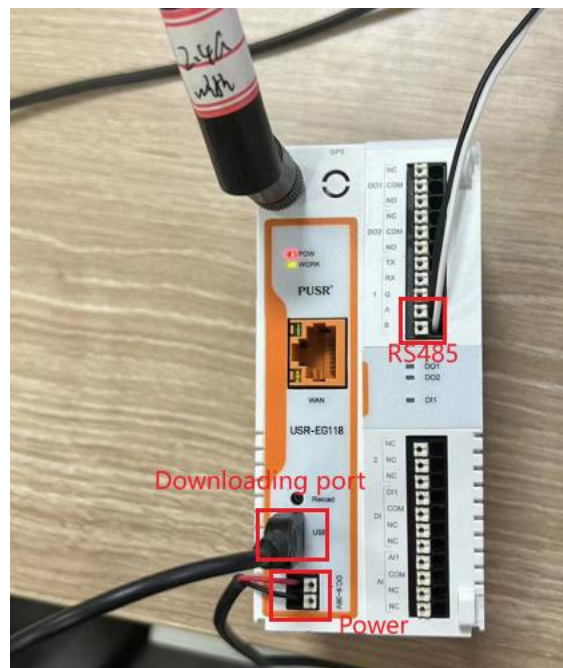
Power EG118,indicator blinking, the device successfully started
Connect EG118 and computor through USB to TTL cable,work indicator keep light.

In the device manager,you can find the COM port which will be used for the programm download.There need to install serial drive if no COM port.

3.2 Compile and Load the program

1> Open source demo code
2> Select the right ESP32 developement board: Tools-->Board-->ESP32-->ESP32-WROOM-DA Module
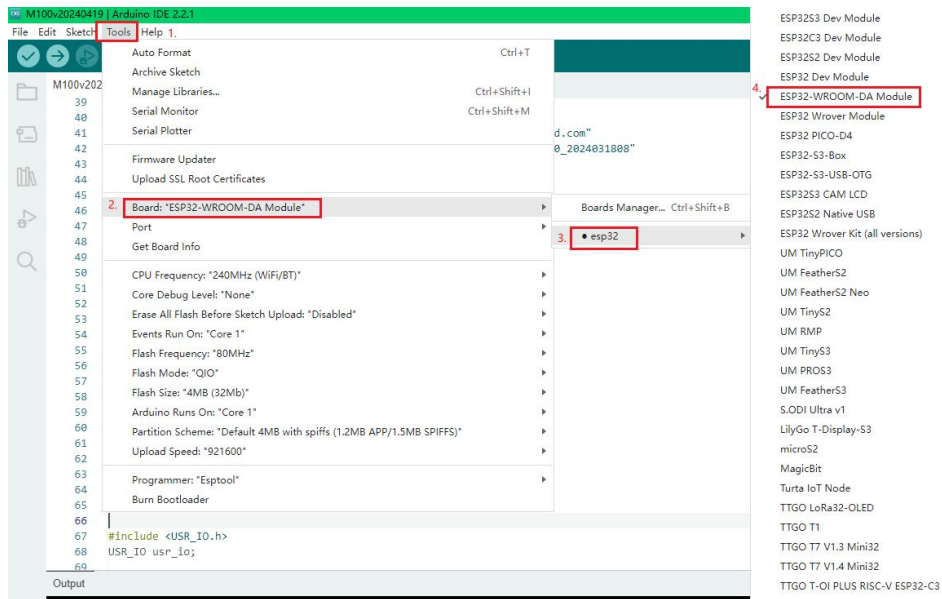
3> Select download port：Tools-->Port-->COM port

4> Click Verify：recheck the code

```
39   //#include <HUAWEI_IOT.h>
40
41   #define CUST_BROKER "0fa8ed2ca4.st1.iotda-device.cn-east-3.myhuaweicloud.com"
42   #define CUST_CLOUD_CLIENT_ID "65f79cc0387fa41cc89cdcbf_m100_0318_001_0_0_2024031808"
43   #define CUST_MQTTPUBLISHTOPIC "arduino_m100"
44   char HOST_ADDRESS[] = CUST_BROKER;
45   char CLIENT_ID[] = CUST_CLOUD_CLIENT_ID;
46   char TOPIC_NAME[] = CUST_MQTTPUBLISHTOPIC;
47   //HUAWEI_IOT hornbill;  // AWS_IOT instance
48   int status = WL_IDLE_STATUS;
49   int tick = 0, msgCount = 0, msgReceived = 0;
50   #endif //HUAWEI_CLOUD_ENABLE
51
52
53   #ifdef AWS_CLOUD_ENABLE
54   #include <AWS_IOT.h>
55
56   #define CUST_BROKER "awwis0u7xuagf.ats.iot.cn-north-1.amazonaws.com.cn"
57   #define CUST_CLOUD_CLIENT_ID "1234"
58   #define CUST_MQTTPUBLISHTOPIC "arduino_m100"
59   char HOST_ADDRESS[] = CUST_BROKER;
60   char CLIENT_ID[] = CUST_CLOUD_CLIENT_ID;
61   char TOPIC_NAME[] = CUST_MQTTPUBLISHTOPIC;
62   AWS_IOT hornbill;  // AWS_IOT instance
63   int status = WL_IDLE_STATUS;
64   int tick = 0, msgCount = 0, msgReceived = 0;
65   #endif //AWS_CLOUD_ENABLE
66
67   #include <USR_IO.h>
68   USR_IO usr_io;
```
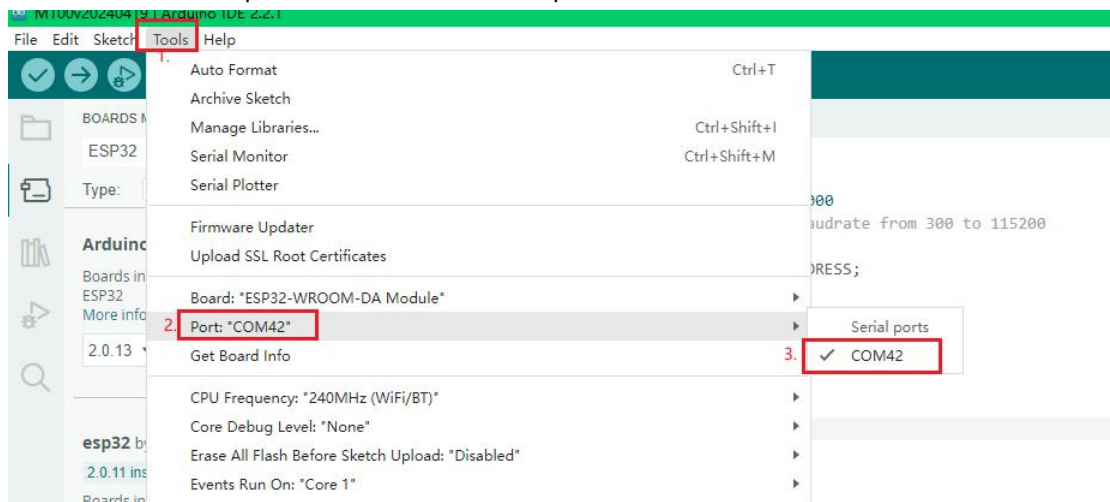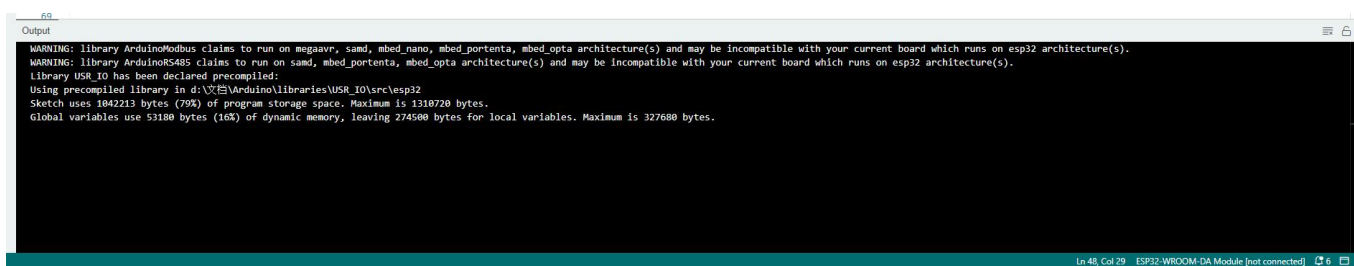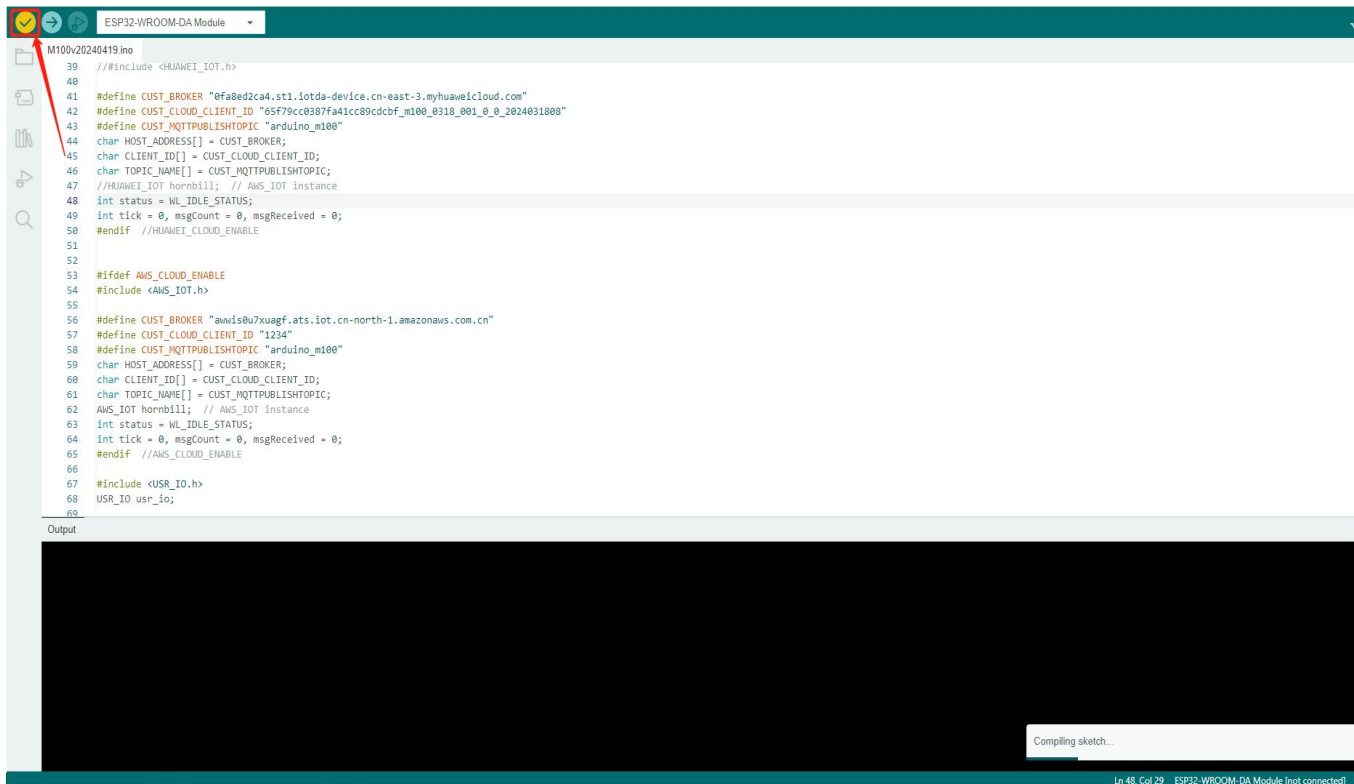
```
WARNING: library ArduinoModbus claims to run on megaavr, samd, mbed_nano, mbed_portenta, mbed_opta architecture(s) and may be incompatible with your current board which runs on esp32 architecture(s).
WARNING: library ArduinoRS485 claims to run on samd, mbed_portenta, mbed_opta architecture(s) and may be incompatible with your current board which runs on esp32 architecture(s).
Library USR_IO has been declared precompiled:
Using precompiled library in d:\文档\Arduino\libraries\USR_IO\src\esp32
Sketch uses 1042213 bytes (79%) of program storage space. Maximum is 1310720 bytes.
Global variables use 53180 bytes (16%) of dynamic memory, leaving 274500 bytes for local variables. Maximum is 327680 bytes.
```

5> Upload：Compile the code and upload to EG118 which will take about several min.
   a. Power off the EG118
   b. Click Upload button
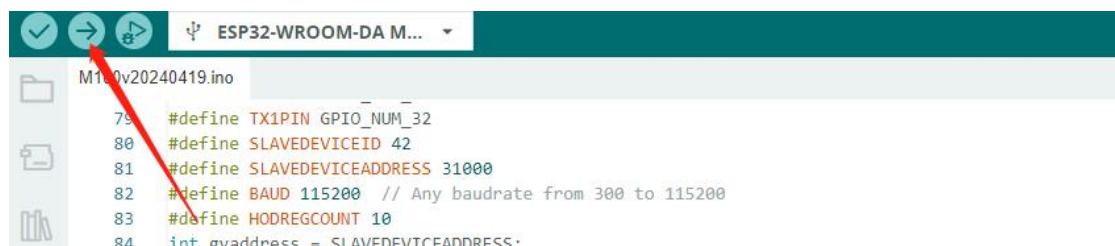
   c. While it appears the content in the red frame,holding the reload button and power on the device,then keep hold the reload button.This need to try several time unit it is workable.
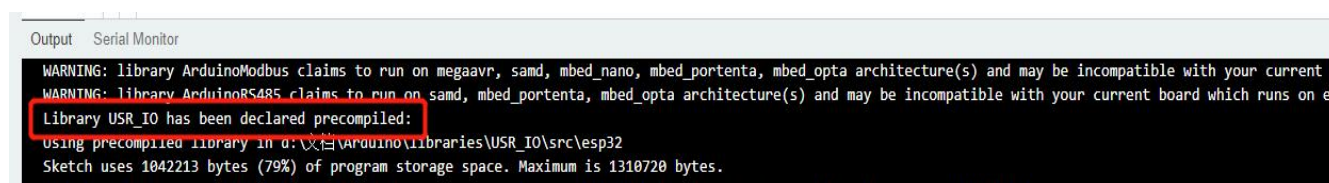
   d. Once the downloading starts normally like below,can release the reload button.

Wait until the programm is loaded.

e. Disconnect the download cable,powe on EG118.Wait until it starts successfullly.(WORK light blinking),then proceed to the functional test.

4. Demo Function Test

4.1 WiFi connection

PC connect wifi of EG118
SSID：USR-EG118_xxxx, xxxx means the last four numbers of MAC address.
Password：012345678

4.2 Login Webpage

Enter 192.168.1.1 in the browser,login webpage.

USR-EG118: config

| 1 dout config | 2 wifi_sta_mode | 3 wifi_softap_mode | 4 rs485at_mode | 5 rs485tcpdtu_mode | 6 rs485mqttdtu_mode | 7 huawei_iot_sample | 8 aws_iot_sample | 9 rs485pcmodbustools_demo | 10 0device_info | 11 connect to net | 12 rs485TH485PE_DEMO |

1 dout config：control DO on/off

2 wifi_sta_mode: set EG118 as STA mode to connect the AP

3 wifi_SOFP_AP_mode: set EG118 as AP mode

4 TCP mode：set EG118 to TCP

5 MQTT mode： set EG118 to MQTT

4.3 DO Controlling Test

Click OUT1_ON, control DO1 to on/off.

USR-EG118: 1set DOUT0 ON OFF DOUT1 ON OFF get ai current

| OUT1_ON | OUT1_OFF | OUT2_ON | OUT_2OFF | GETcurrent | return |

Check that the DO1 indicator on the EG118 is light.

4.4 STA mode

Click "wifi_sta_mode"-->"sta_wifisetting"-->set AP's ssid and password-->submit

5. Common Questions

An error as shown in the following figure occurs during the compilation process. How to solve it?

This error indicates that the corresponding library file is missing,Install the corresponding library in the following path by following instructions in 2.4 Installing a Library ：D:\Document\Arduino\libraries