# Welcome to the JCZN Workshop!

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# Getting Started

## Introduction

The objective of this post is to explain how to upload an Arduino program to the ESP32-8048S070 module, from JCZN .

http://www.jczn1688.com/zlxz

The ESP32 WiFi and Bluetooth chip is the latest generation of Espressif products. It has a dual-core 32-bit MCU, which integrates WiFi HT40 and Bluetooth/BLE 4.2 technology inside.
ESP32-S3-wroom-1 has a significant performance improvement. It is equipped with a high-performance dual-core Tensilica LX7 MCU. One core handles high speed connection and the other for standalone application development. The dual-core MCU has a 240 MHz frequency and a computing power of 600 DMIPS.
In addition, it supports Wi-Fi HT40, Classic Bluetooth/BLE 4.2, and more GPIO resources.

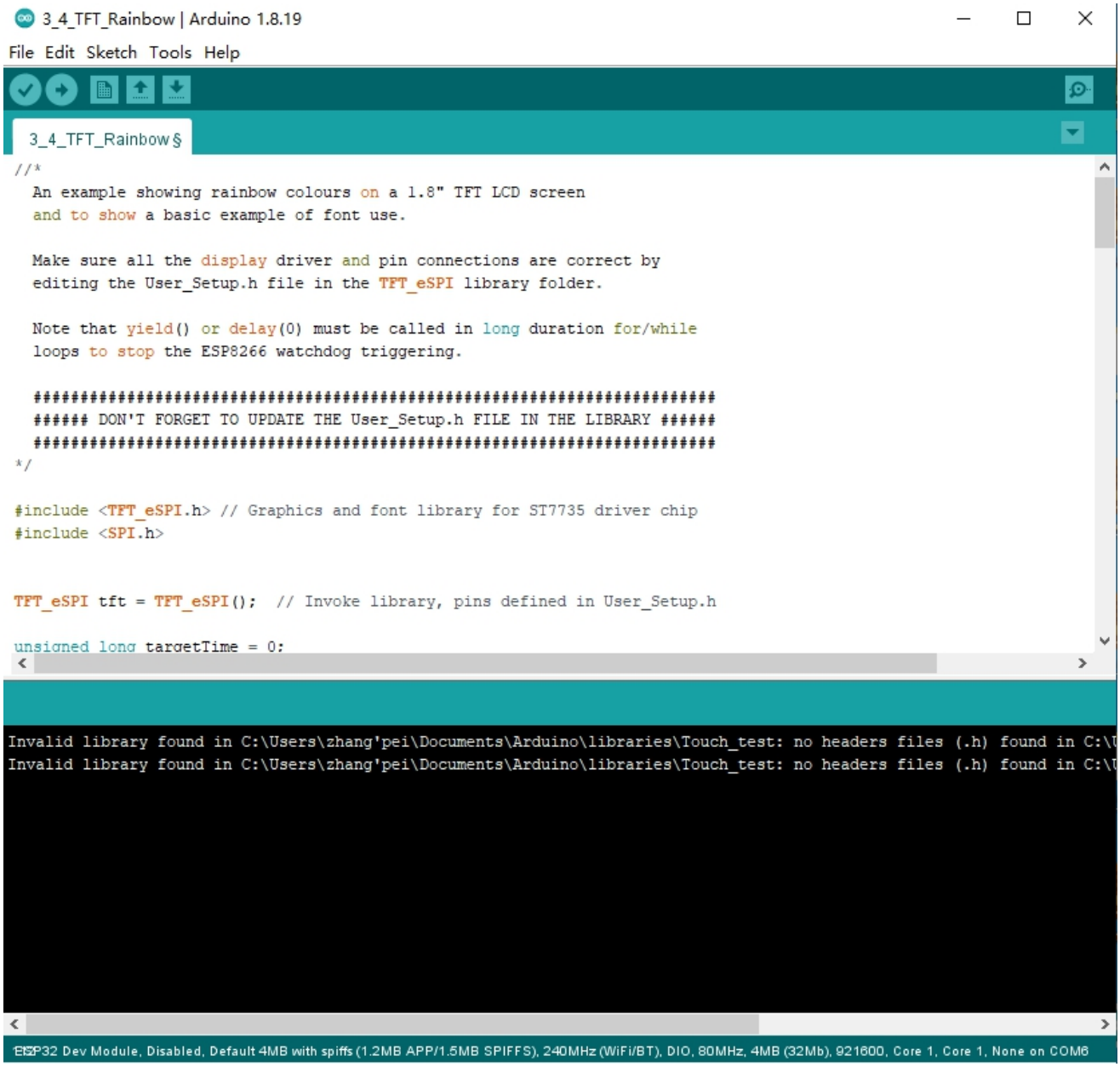
## Installing using Arduino IDE

Programming the ESP32
An easy way to get started is by using the familiar Arduino IDE. While this is not necessarily the best environment for working with the ESP32, it has the advantage of being a familiar application, so the learning curve is flattened.
We will be using the Arduino IDE for our experiments.

1, Installing using Arduino IDE
we first need to install version 1.8.19 of the Arduino IDE (or greater),for example, the Arduino installation was in “C/Programs(x86)/Arduino”.
download release link:
https://downloads.arduino.cc/arduino-1.8.19-windows.exe

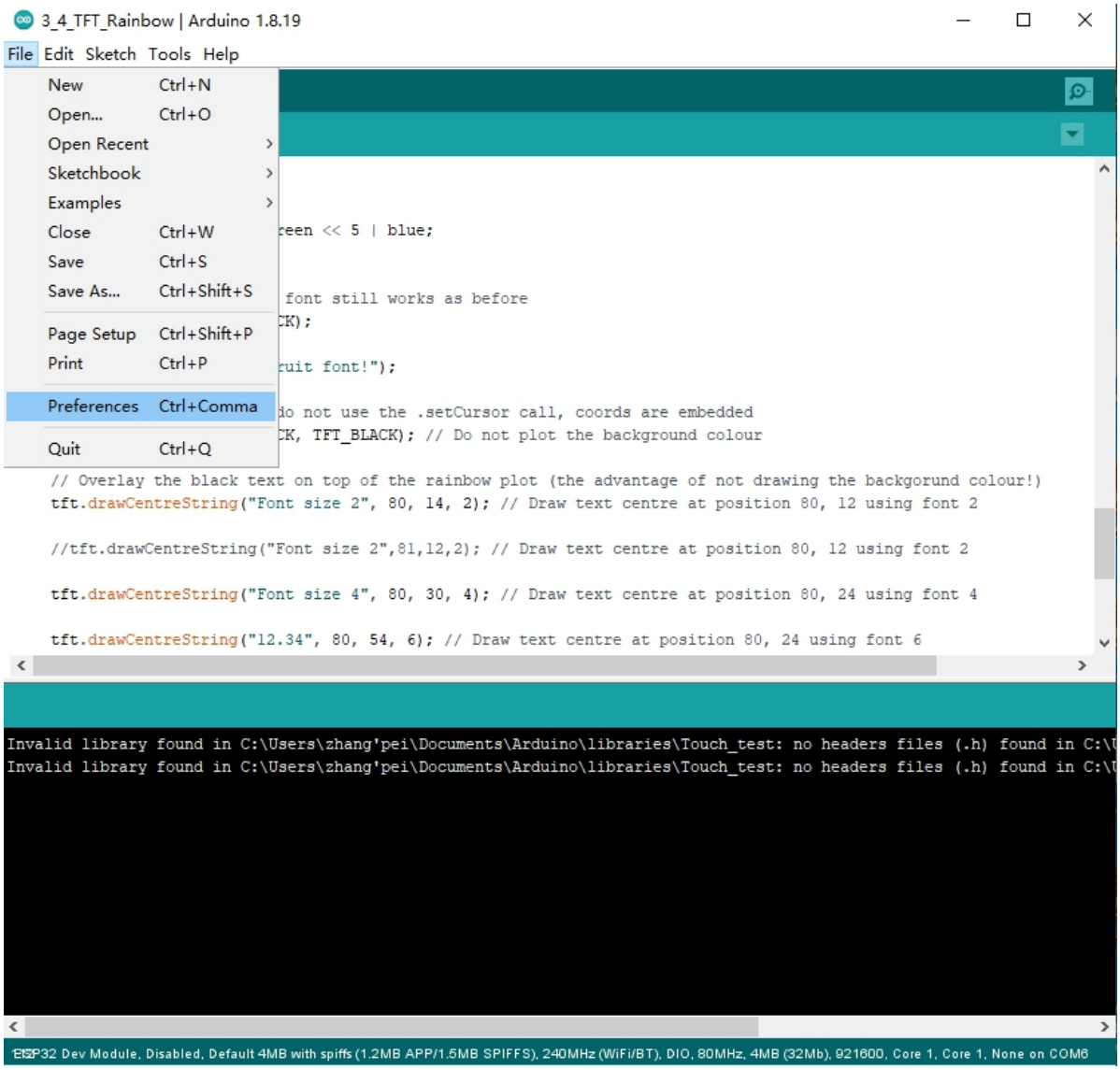
2, This is the way to install Arduino-ESP32 directly from the Arduino IDE.

Add Boards Manager Entry
Here is what you need to do to install the ESP32 boards into the Arduino IDE:
(1) Open the Arduino IDE.




(2) Click on the File menu on the top menu bar.

(3) Click on the Preferences menu item. This will open a Preferences dialog box.




（4）You should be on the Settings tab in the Preferences dialog box by default.

（5）Look for the textbox labeled “Additional Boards Manager URLs”.

（6）If there is already text in this box add a coma at the end of it, then follow the next step.

（7）Paste the following link into the text box ：

Stable release link:

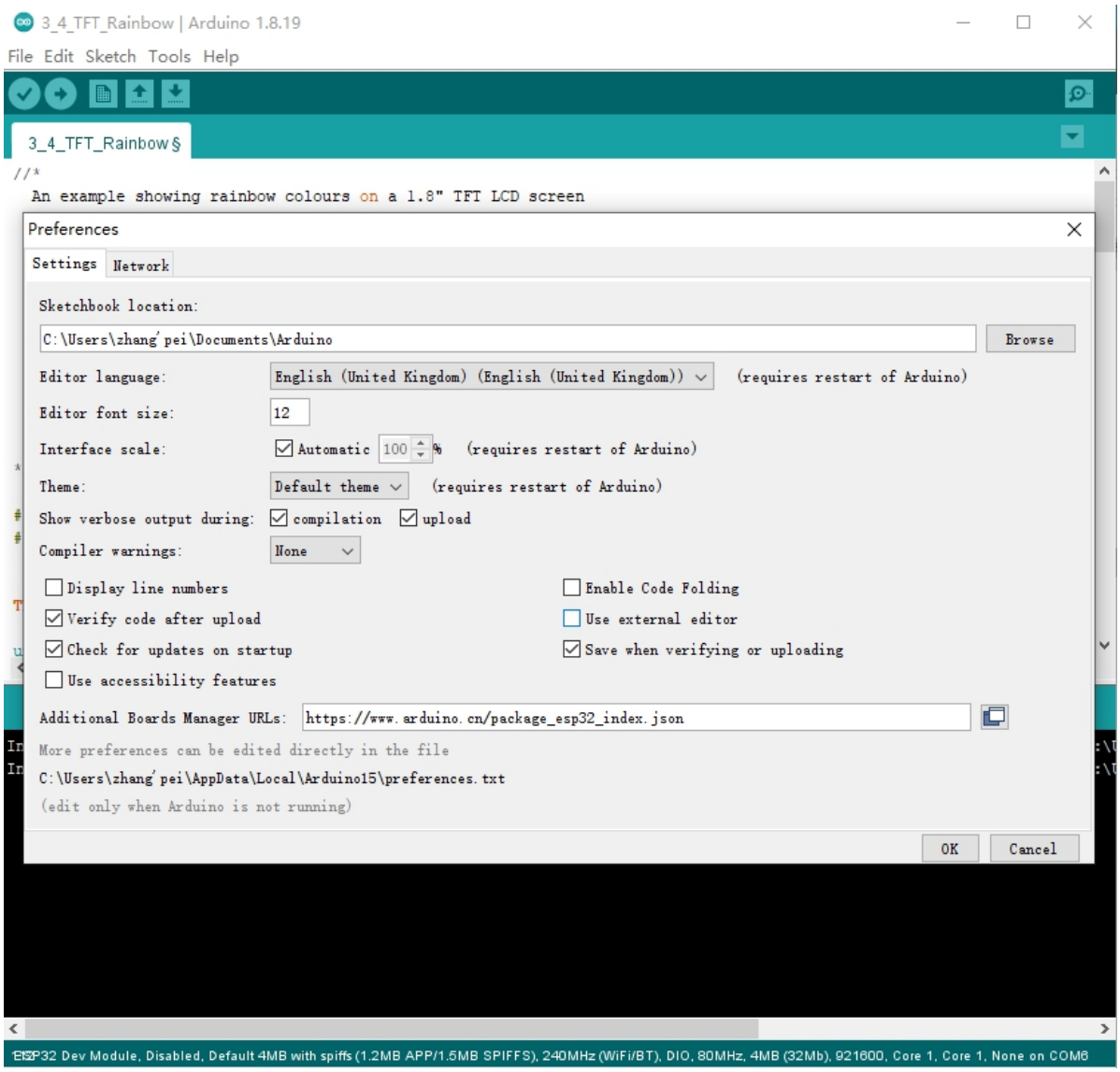
https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package_esp32_index.json

Development release link:

https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package_esp32_dev_index.json

（8）Click the OK button to save the setting.

The textbox with the JSON link in it is illustrated here:



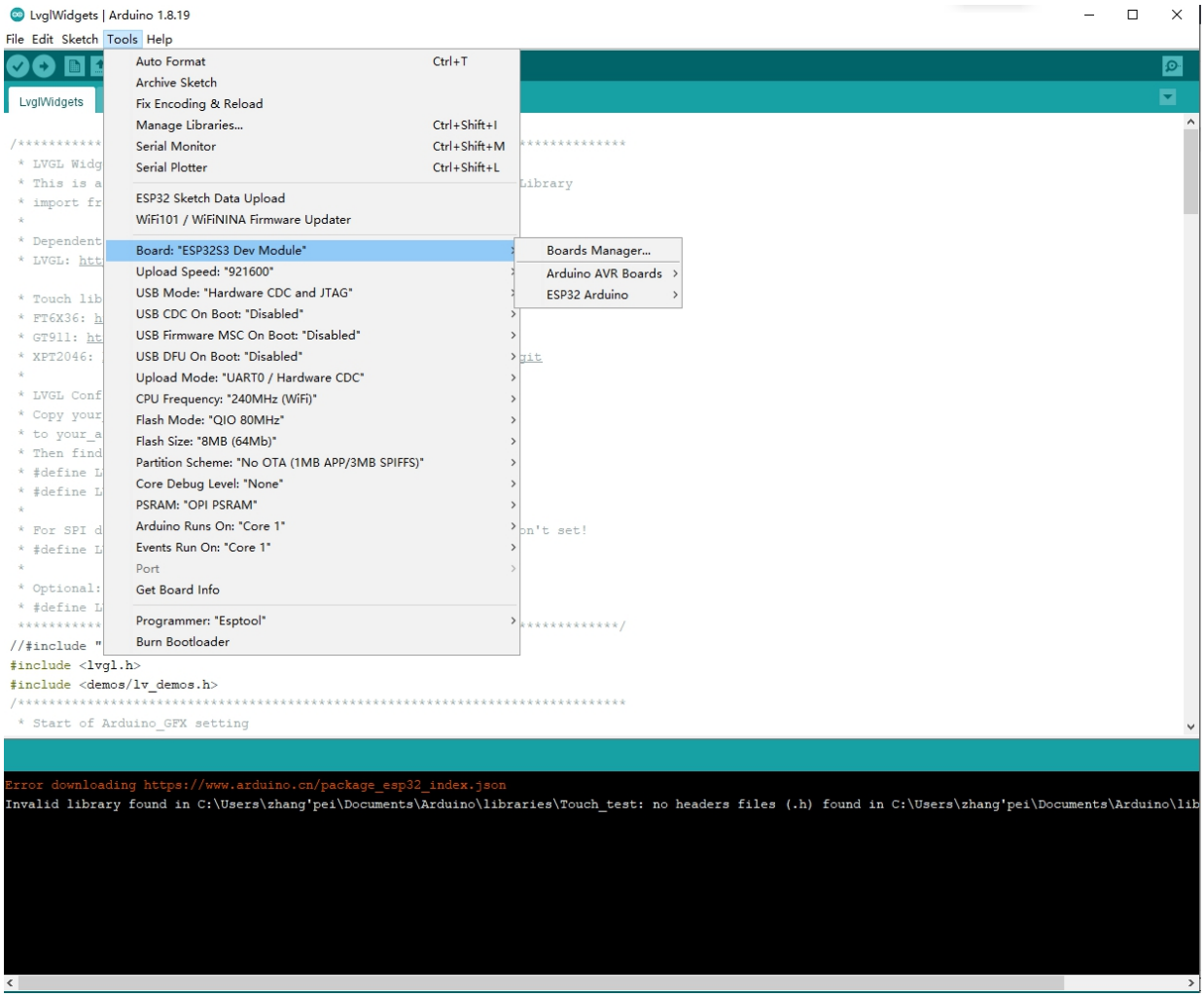

(9) In the Arduino IDE click on the Tools menu on the top menu bar.

(10) Scroll down to the Board: entry

(11) A submenu will open when you highlight the Board: entry.

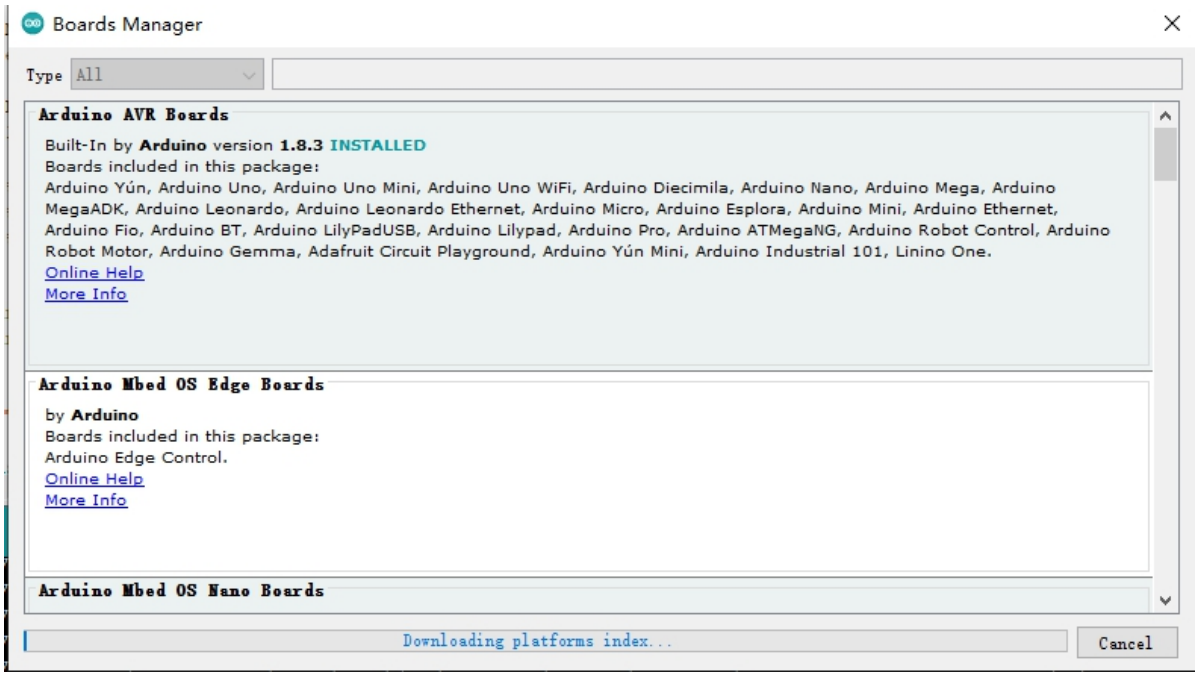
(12) At the top of the submenu is Boards Manager. Click on it to open the Boards Manager dialog box.

(13)I n the search box in the Boards Manager enter “esp32”.

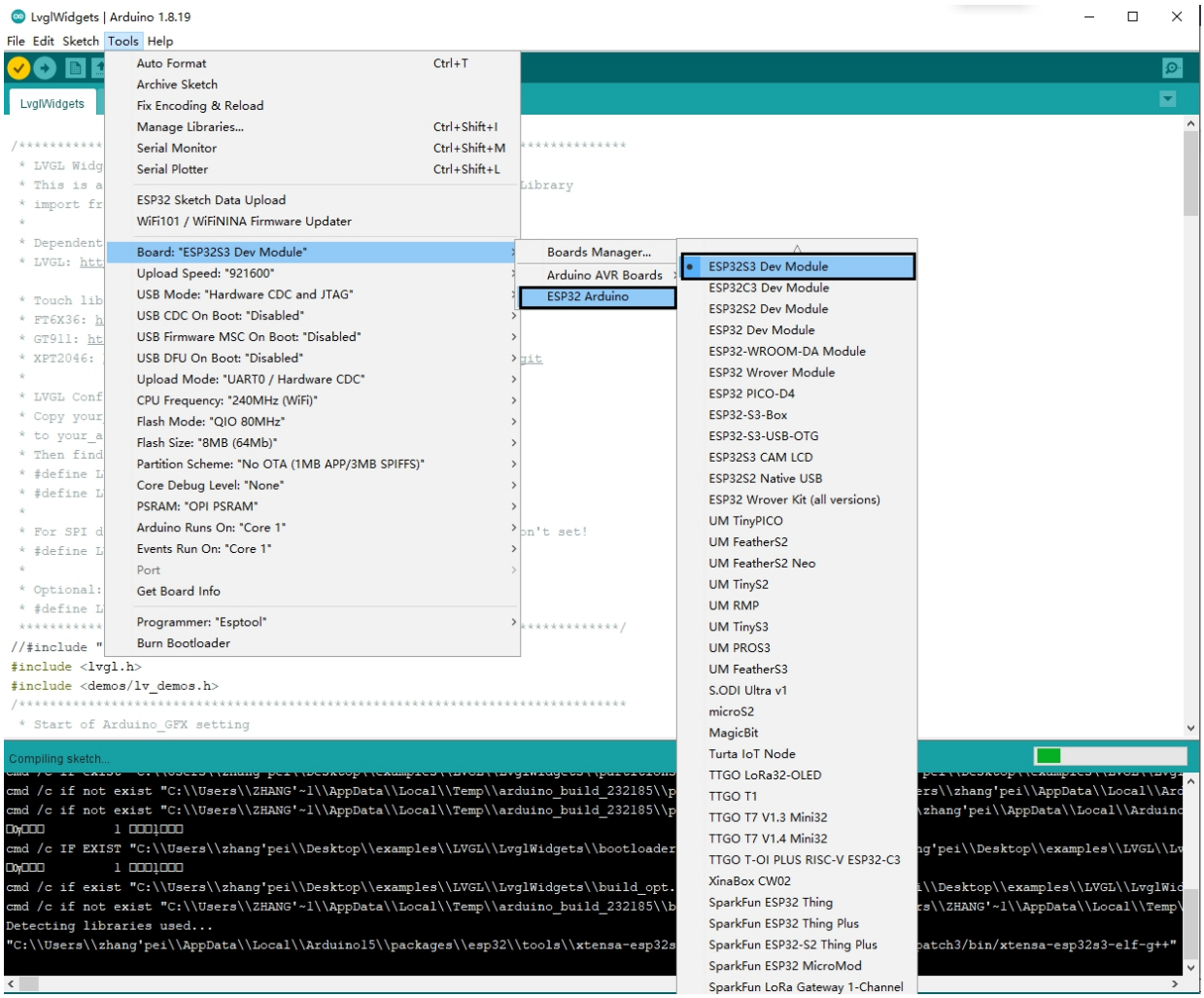


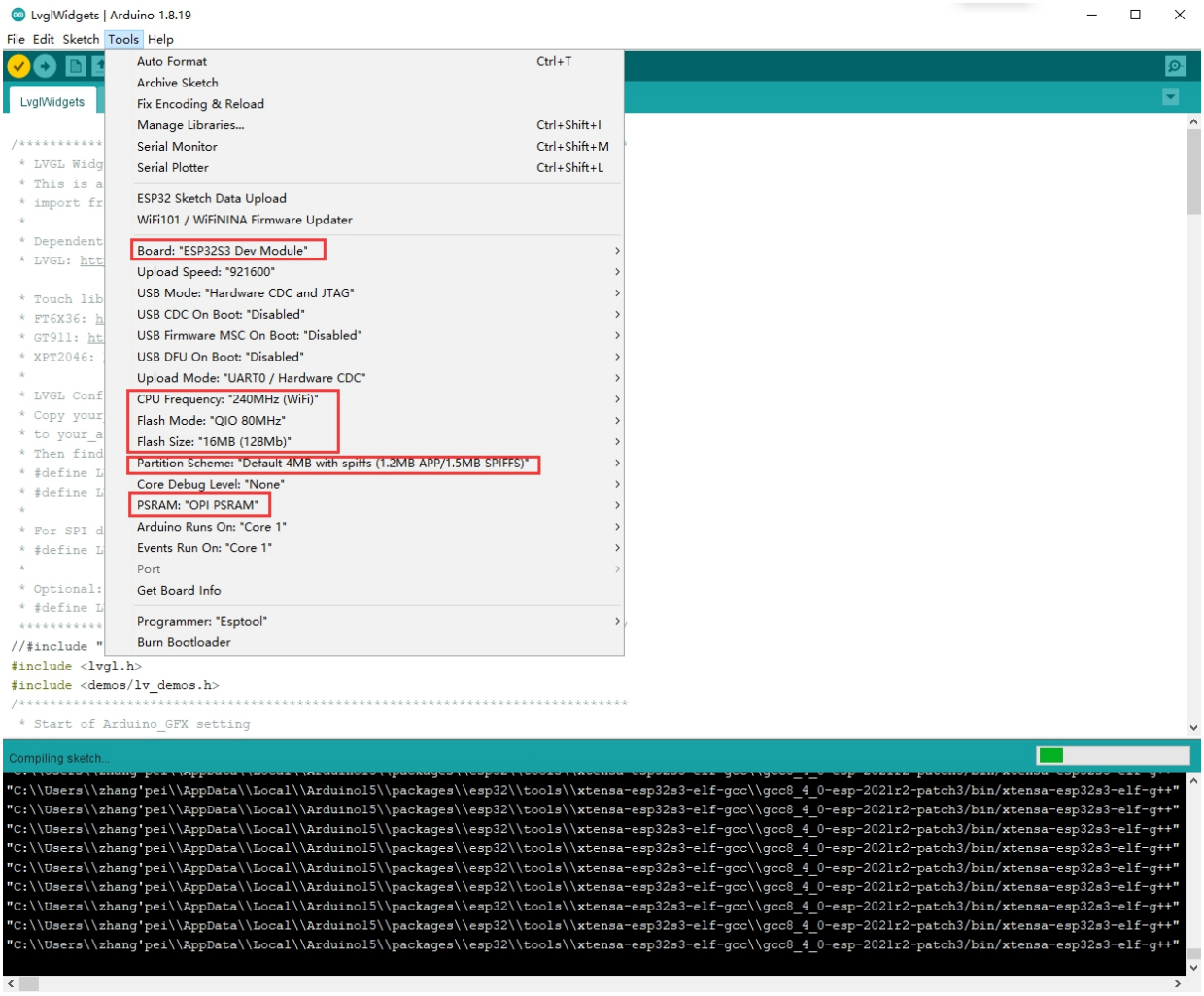

(14) You should see an entry for “esp32 by Espressif Systems”. Highlight this entry and click on the Install button.

This will install the ESP32 boards into your Arduino IDE

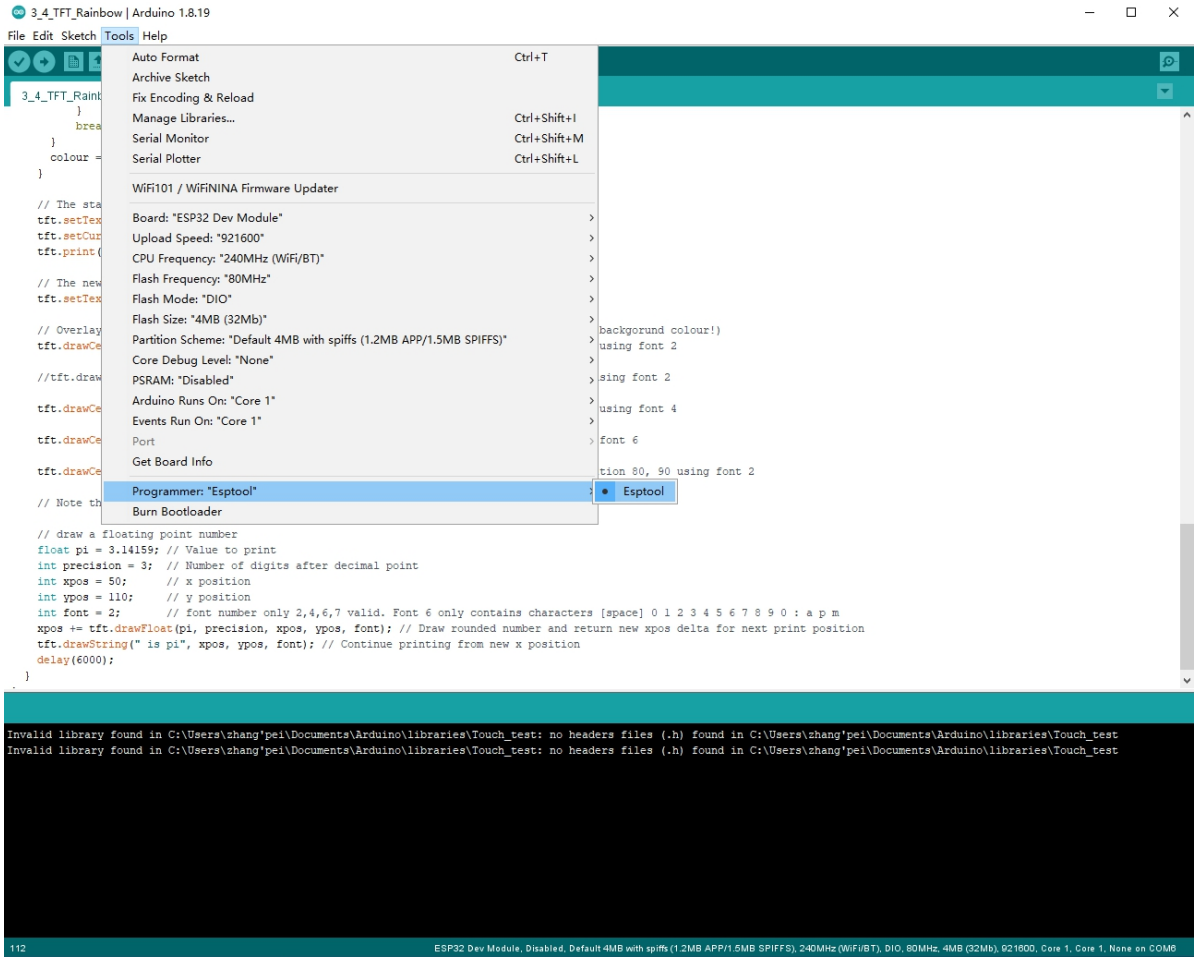



Once the installation completes, we need to select the correct board options for the "ESP32 Arduino" board. In the board type, in the tools tab, we choose “ESP32S3 Dev Module”.


LvglWidgets | Arduino 1.8.19
File Edit Sketch Tools Help
Auto Format Ctrl+T
Archive Sketch
Fix Encoding & Reload
Manage Libraries... Ctrl+Shift+I
Serial Monitor Ctrl+Shift+M
Serial Plotter Ctrl+Shift+L
ESP32 Sketch Data Upload
WiFi101 / WiFiNINA Firmware Updater
Board: "ESP32S3 Dev Module"
Upload Speed: "921600"
USB Mode: "Hardware CDC and JTAG"
USB CDC On Boot: "Disabled"
USB Firmware MSC On Boot: "Disabled"
USB DFU On Boot: "Disabled"
Upload Mode: "UART0 / Hardware CDC"
CPU Frequency: "240MHz (WiFi)"
Flash Mode: "QIO 80MHz"
Flash Size: "8MB (64Mb)"
Partition Scheme: "No OTA (1MB APP/3MB SPIFFS)"
Core Debug Level: "None"
PSRAM: "OPI PSRAM"
Arduino Runs On: "Core 1"
Events Run On: "Core 1"
Port
Get Board Info
Programmer: "Esptool"
Burn Bootloader
Boards Manager...
Arduino AVR Boards
ESP32 Arduino
ESP32S3 Dev Module
ESP32C3 Dev Module
ESP32S2 Dev Module
ESP32 Dev Module
ESP32-WROOM-DA Module
ESP32 Wrover Module
ESP32 PICO-D4
ESP32-S3-Box
ESP32-S3-USB-OTG
ESP32S3 CAM LCD
ESP32S2 Native USB
ESP32 Wrover Kit (all versions)
UM TinyPICO
UM FeatherS2
UM FeatherS2 Neo
UM TinyS2
UM RMP
UM TinyS3
UM PROS3
UM FeatherS3
S.ODI Ultra v1
microS2
MagicBit
Turta IoT Node
TTGO LoRa32-OLED
TTGO T1
TTGO T7 V1.3 Mini32
TTGO T7 V1.4 Mini32
TTGO T-OI PLUS RISC-V ESP32-C3
XinaBox CW02
SparkFun ESP32 Thing
SparkFun ESP32 Thing Plus
SparkFun ESP32-S2 Thing Plus
SparkFun ESP32 MicroMod
SparkFun LoRa Gateway 1-Channel
#include <lvgl.h>
#include <demos/lv_demos.h>
* Start of Arduino_GFX setting
Compiling sketch...
Detecting libraries used...




Set and In the programmer entry of the same tab, we choose “esptool”.




It's important to note that after the code is uploaded, the device will start to run it. So, if we want to upload a new program, wee need to reset the power of the device, in order to guarantee that it enters flashing mode again.

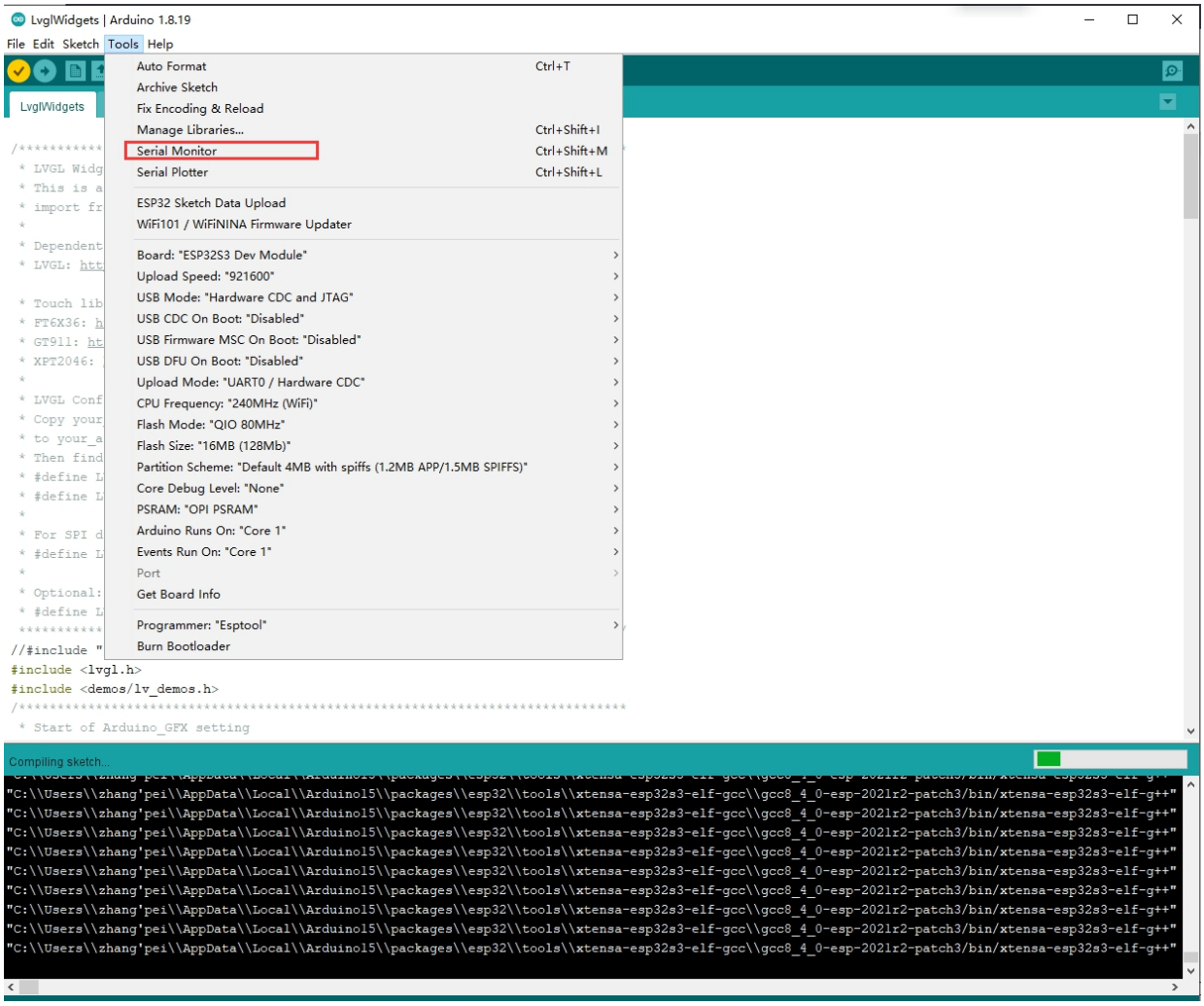
First program

Since this platform is based on Arduino, we can use many of the usual functions. As an example for the first program, the code bellow starts the Serial port and prints "hello from ESP32" every second.

```
void setup() {
  Serial.begin(115200);
}

void loop() {
  Serial.println("hello from ESP32");
  delay(1000);
}
```

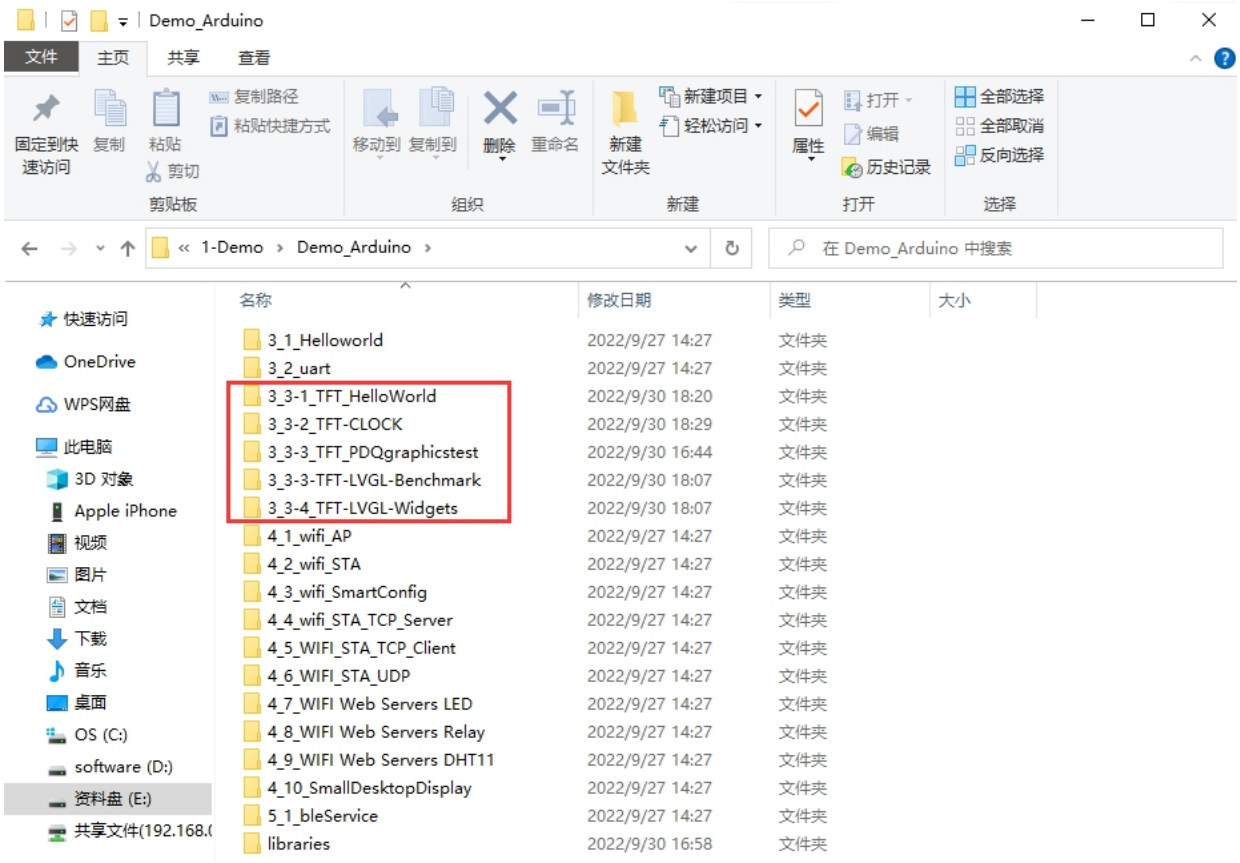
If everything is working fine, we will see the output in the serial console shown.




Again thank you for so much concern.. Hopefully, it's the beginning of a wonderful relationship!

## Sample program usage

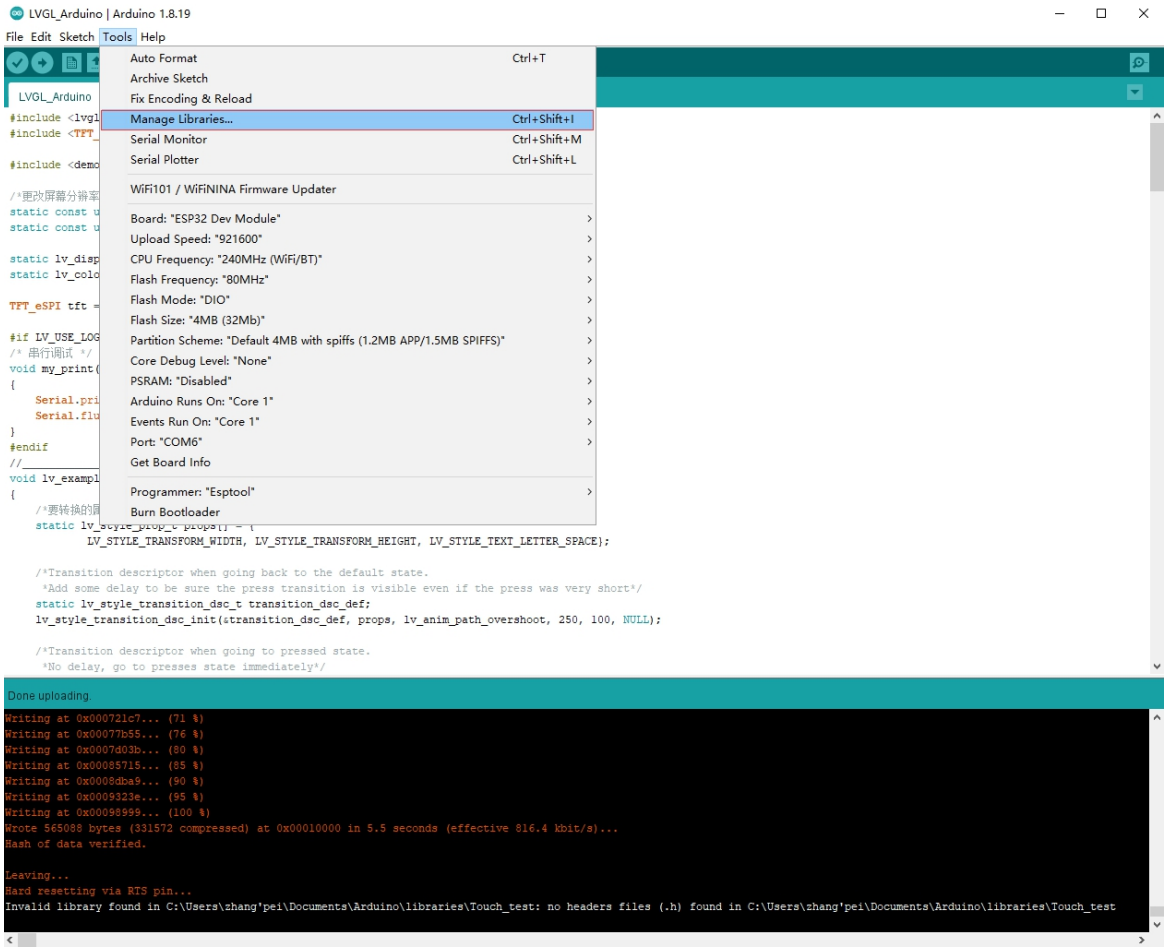
At present, only a preliminary explanation and introductory use are given to the samples displayed on the screen, and the corresponding examples in the data center are found, as shown in the figure:

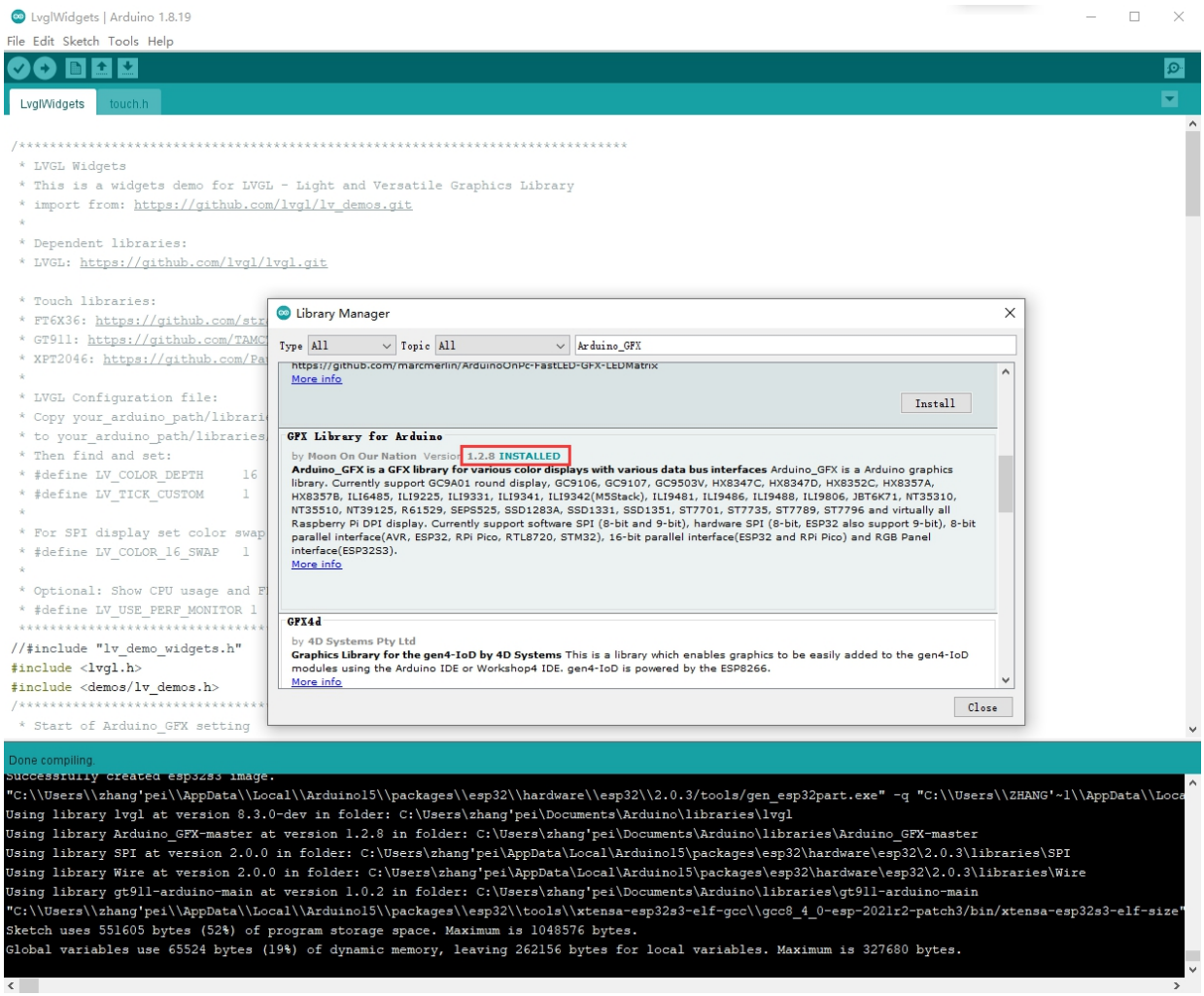



The examples in the red circle are all based on the Arduino_GFX library as the basic application. This library supports various commonly used driver chips, such as ST7735, ST7789, ILI9341, etc., and has good compatibility.

Arduino_GFX library file installation:

Open the library manager in Arduino, search for Arduino_GFX, and click instal .


LVGL_Arduino | Arduino 1.8.19
File Edit Sketch Tools Help
Auto Format Ctrl+T
Archive Sketch
Fix Encoding & Reload
Manage Libraries... Ctrl+Shift+I
Serial Monitor Ctrl+Shift+M
Serial Plotter Ctrl+Shift+L
WiFi101 / WiFiNINA Firmware Updater
Board: "ESP32 Dev Module"
Upload Speed: "921600"
CPU Frequency: "240MHz (WiFi/BT)"
Flash Frequency: "80MHz"
Flash Mode: "DIO"
Flash Size: "4MB (32Mb)"
Partition Scheme: "Default 4MB with spiffs (1.2MB APP/1.5MB SPIFFS)"
Core Debug Level: "None"
PSRAM: "Disabled"
Arduino Runs On: "Core 1"
Events Run On: "Core 1"
Port: "COM6"
Get Board Info
Programmer: "Esptool"
Burn Bootloader
LV_STYLE_TRANSFORM_WIDTH, LV_STYLE_TRANSFORM_HEIGHT, LV_STYLE_TEXT_LETTER_SPACE};
/*Transition descriptor when going back to the default state.
*Add some delay to be sure the press transition is visible even if the press was very short*/
static lv_style_transition_dsc_t transition_dsc_def;
lv_style_transition_dsc_init(&transition_dsc_def, props, lv_anim_path_overshoot, 250, 100, NULL);
/*Transition descriptor when going to pressed state.
*No delay, go to presses state immediately*/
Done uploading.
Writing at 0x000721c7... (71 %)
Writing at 0x00077b55... (76 %)
Writing at 0x0007d03b... (80 %)
Writing at 0x00085715... (85 %)
Writing at 0x0008dba9... (90 %)
Writing at 0x0009323e... (95 %)
Writing at 0x00098999... (100 %)
Wrote 565088 bytes (331572 compressed) at 0x00010000 in 5.5 seconds (effective 816.4 kbit/s)...
Hash of data verified.
Leaving...
Hard resetting via RTS pin...
Invalid library found in C:\Users\zhang'pei\Documents\Arduino\libraries\Touch_test: no headers files (.h) found in C:\Users\zhang'pei\Documents\Arduino\libraries\Touch_test

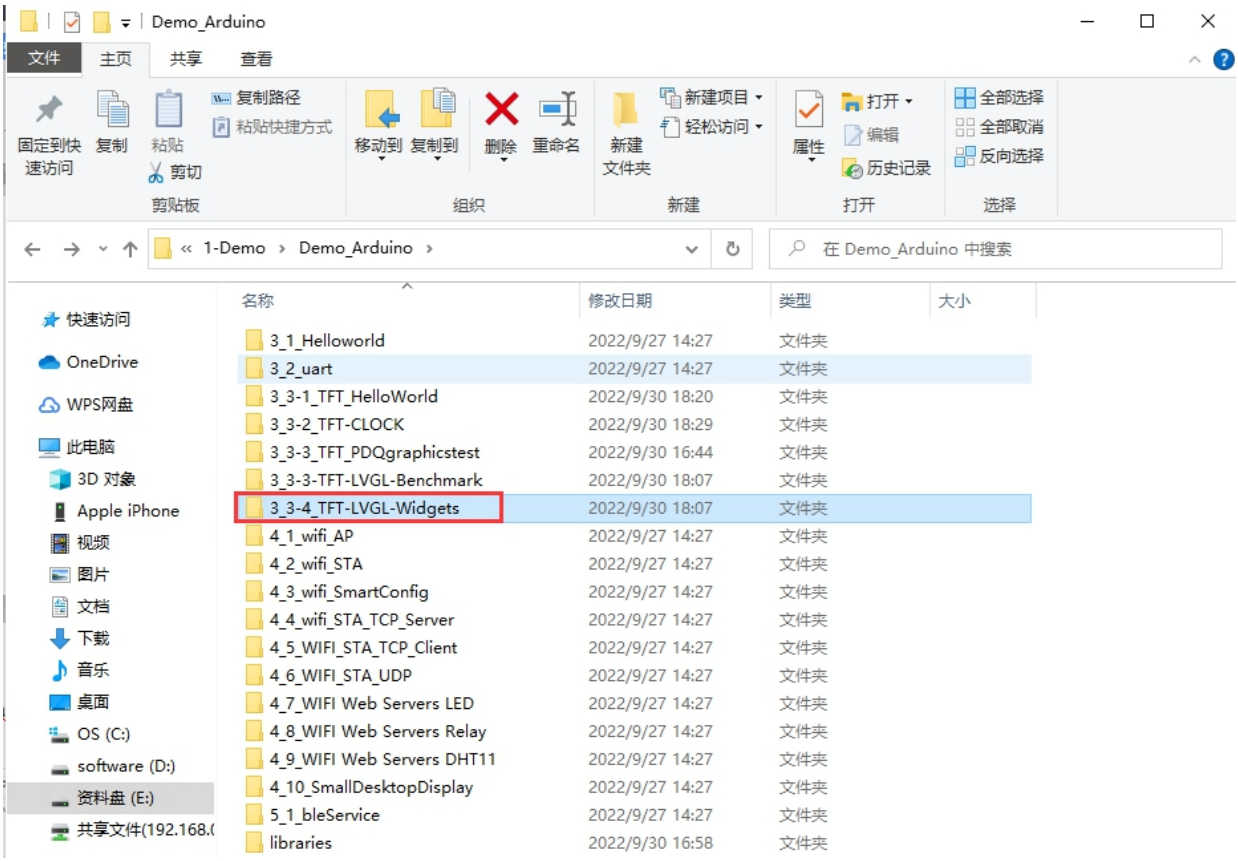



Although the Arduino_GFX library has many advantages, it may also have a troublesome place for ordinary users, that is, after the installation

**About the use of touch and LVGL:**

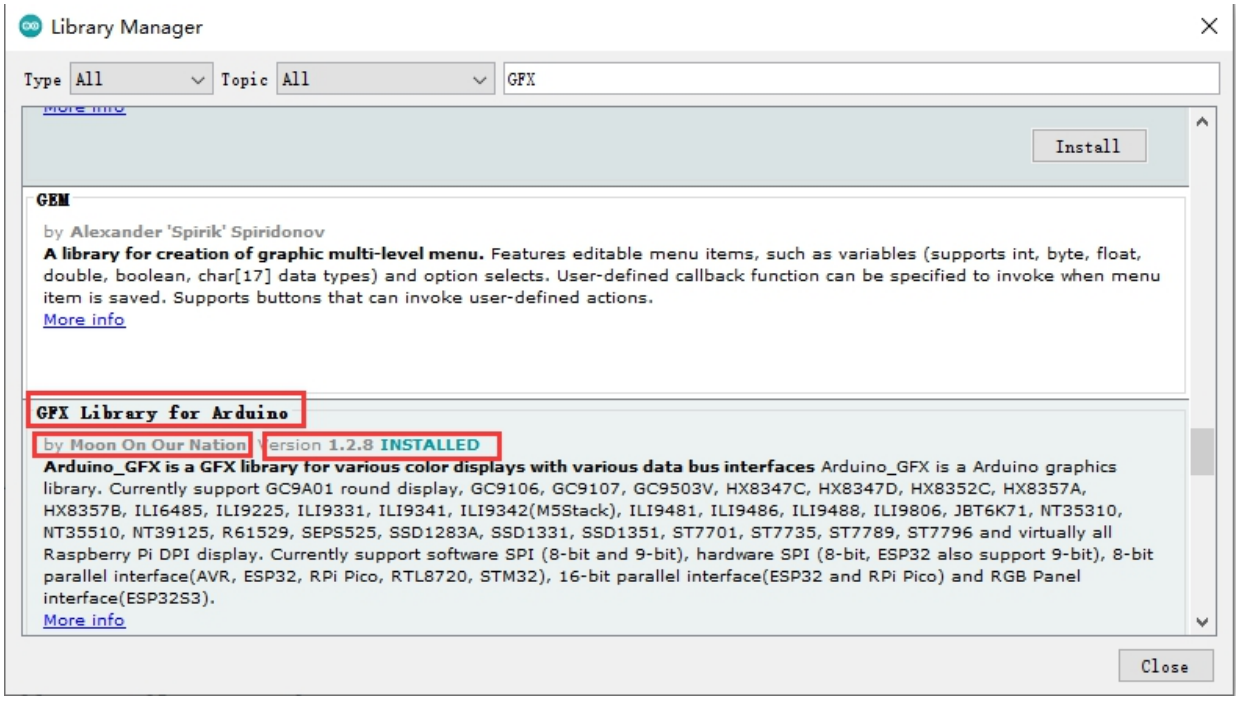
Find the data center 3_3-4_TFT-LVGL-Widgets

As shown:

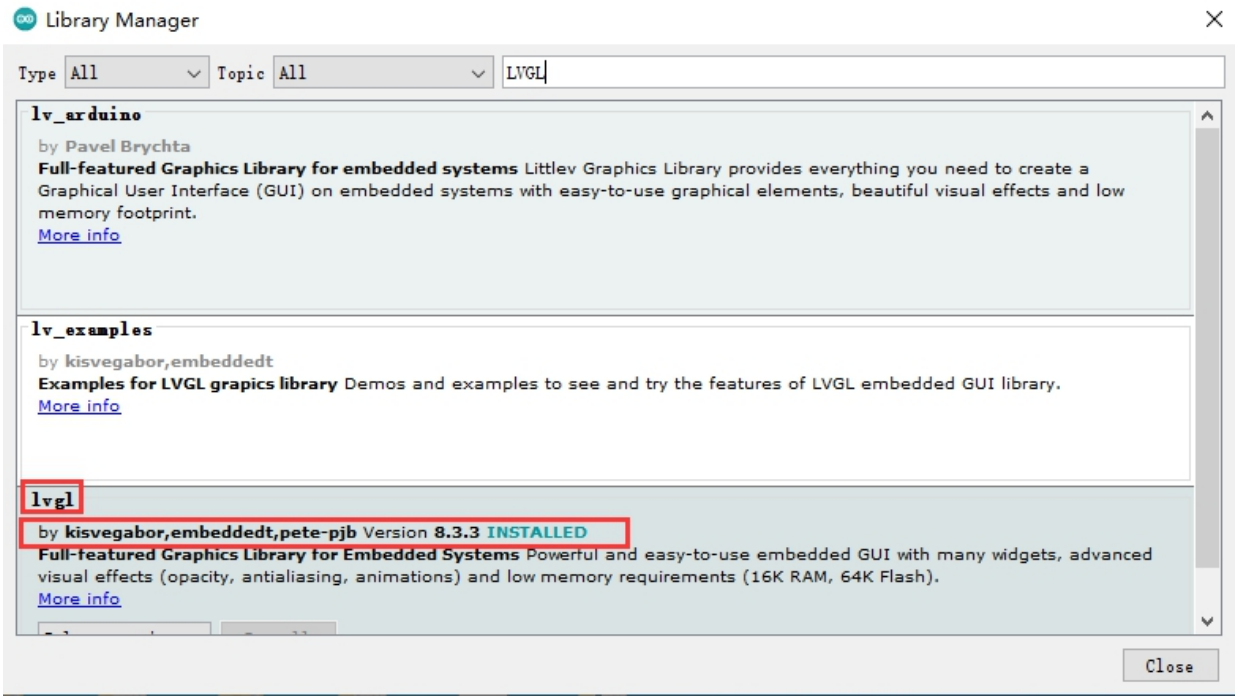



Download two library files .

One -Arduino_GFX library

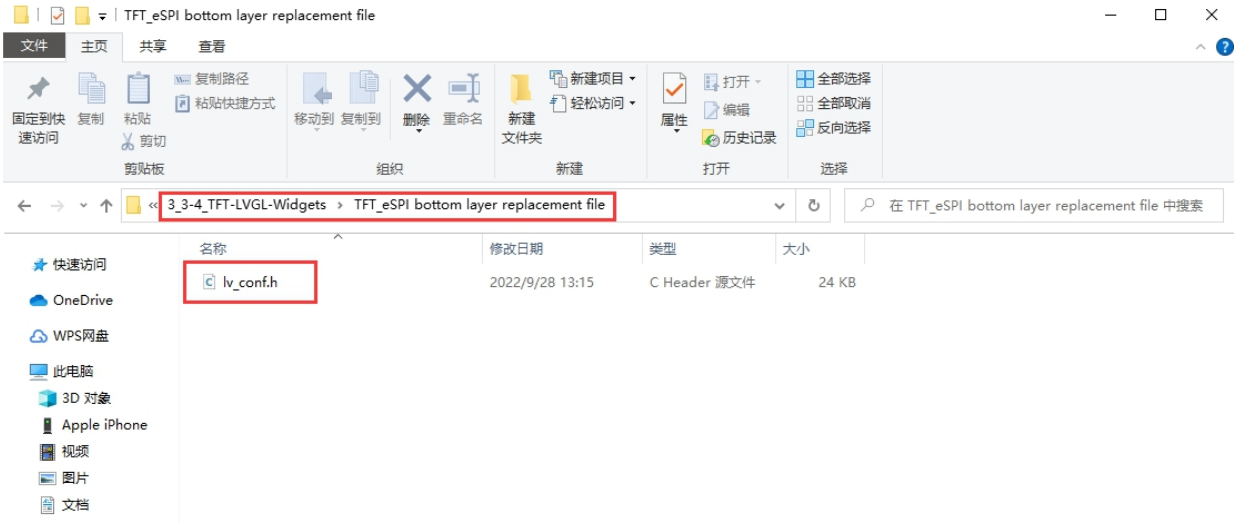



Two -Lvgl



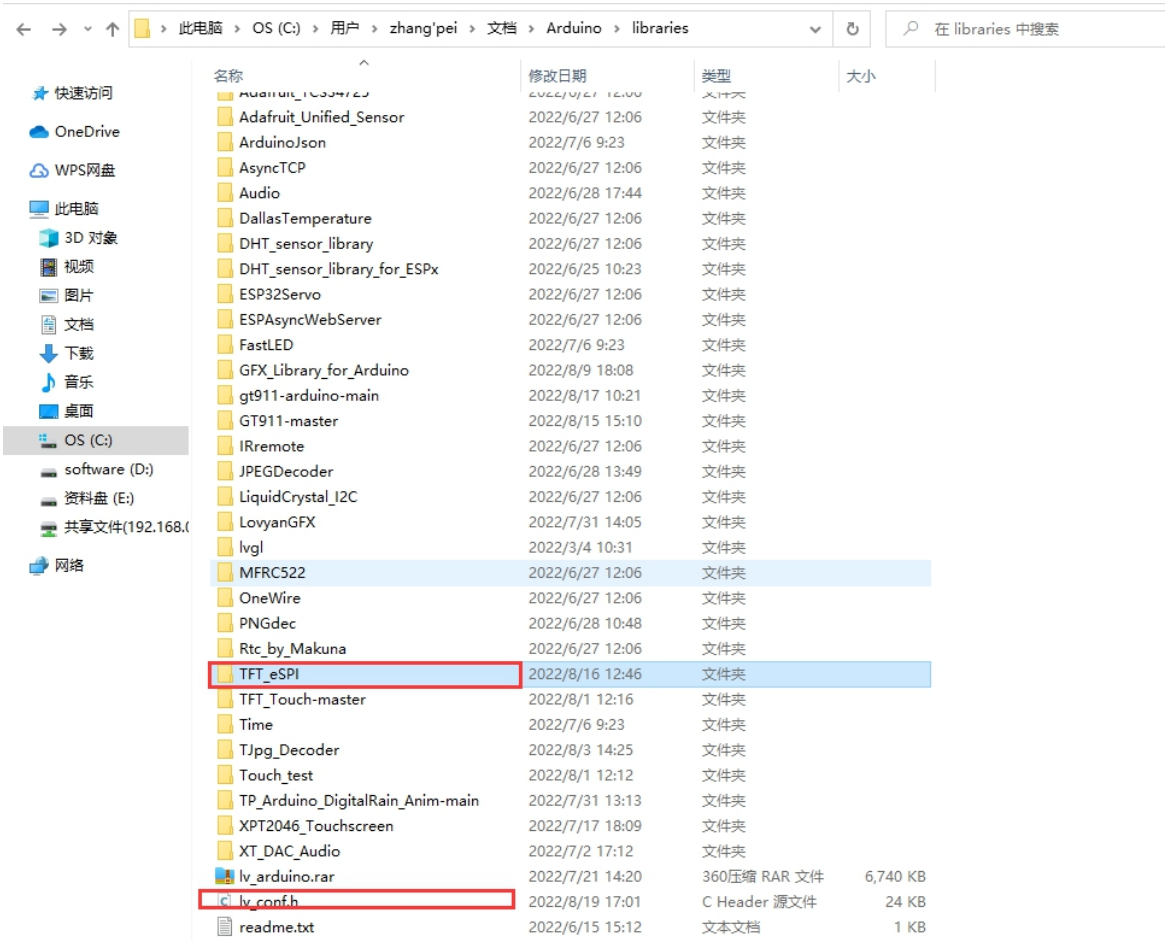

Copy the lv_conf.h of the data center .

As shown:



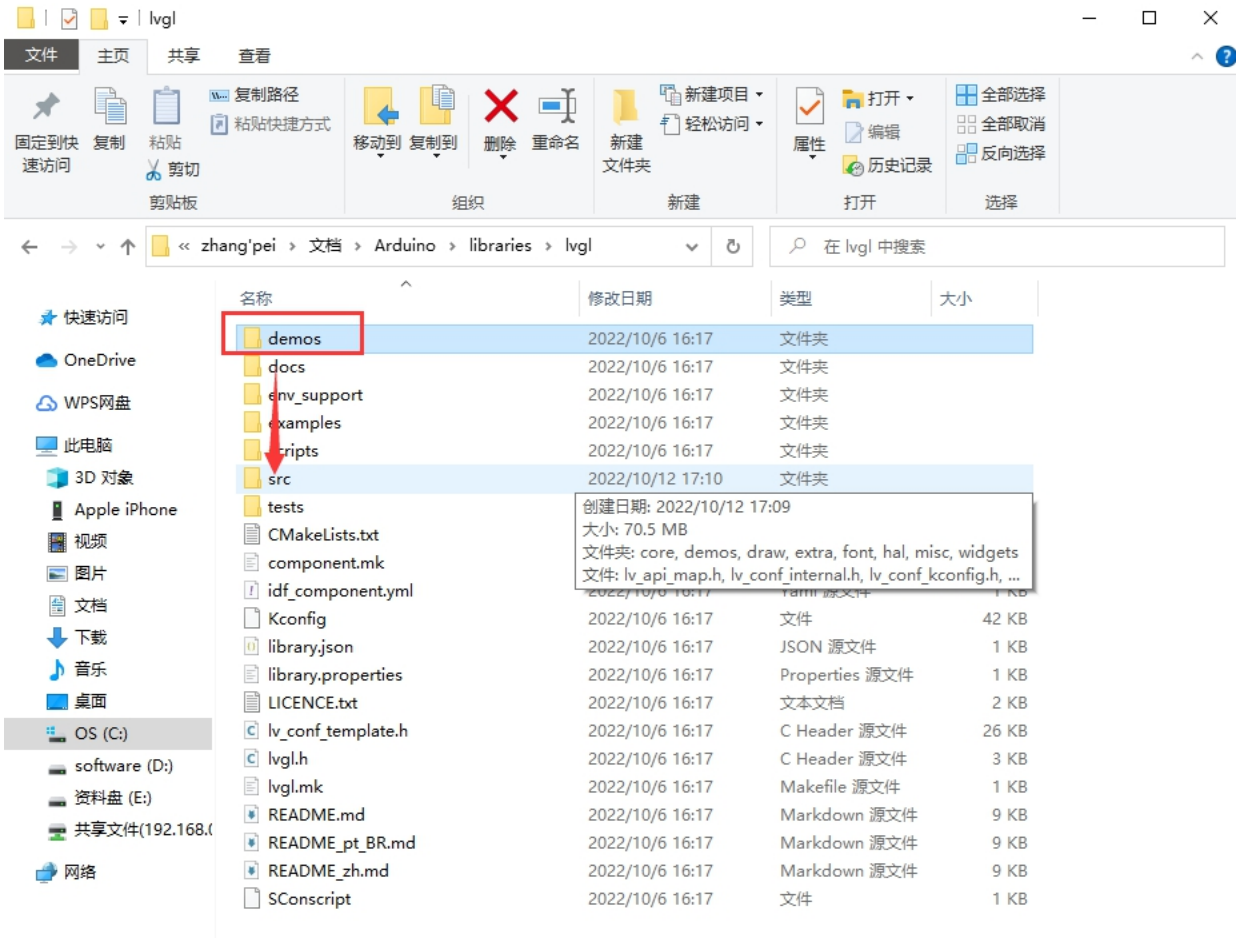

Put this file under the arduino library file, it must be in the same root directory as the library TFT_eSPI .

As shown:




Three-Lvgl demos The file is copied to the SRC folder

As shown:




After compiling, you can run LVGL and touch normally.