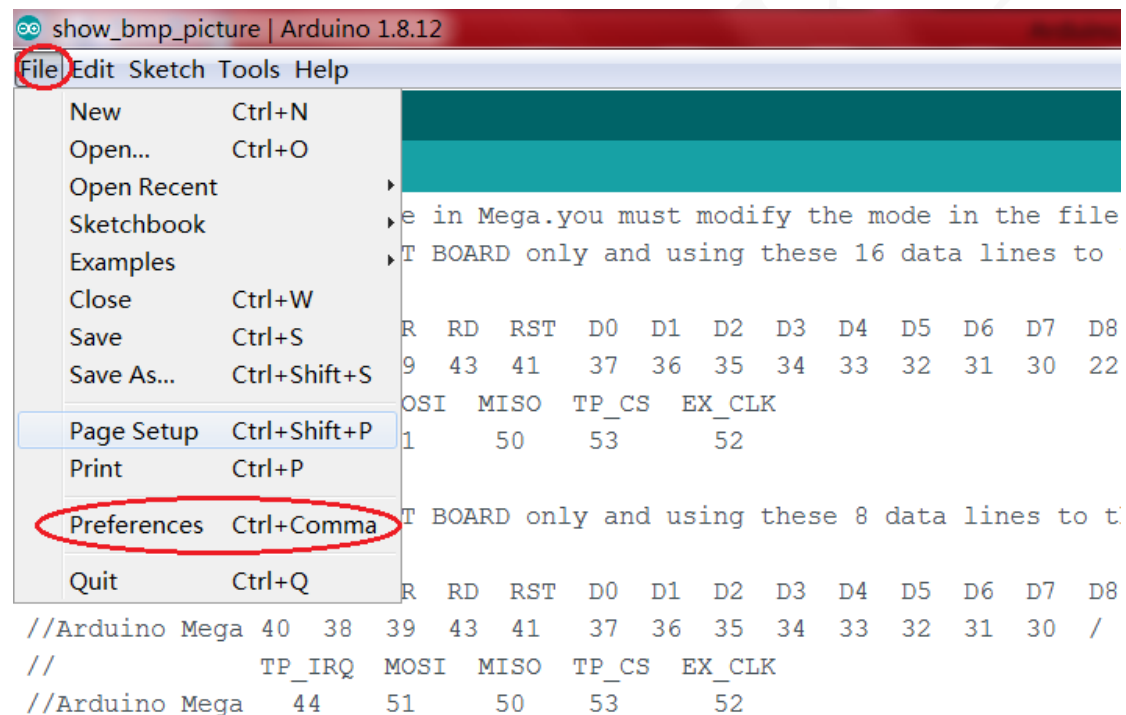When using Arduino IDE to develop esp32, it is necessary to install the development environment first. Here are two installation methods of development environment under Windows system: 1. Use Arduino IDE development board manager to install; 2. Download and install the resource package manually. Regardless of the installation method, Arduino IDE needs to be installed in advance(Arduino IDE download website https://www.arduino.cc/en/software).

1. The installation method of Arduino IDE development board manager is as follows:
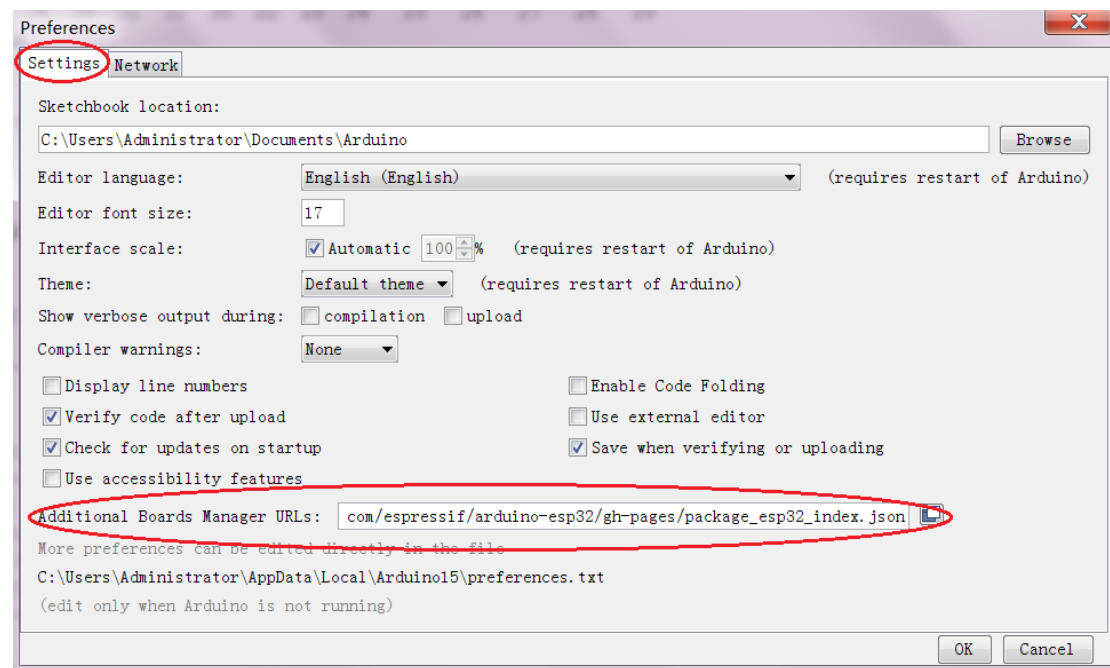
    A. Open the installed Arduino IDE tool on the computer, and click File -> Preferences, as shown in the following figure:
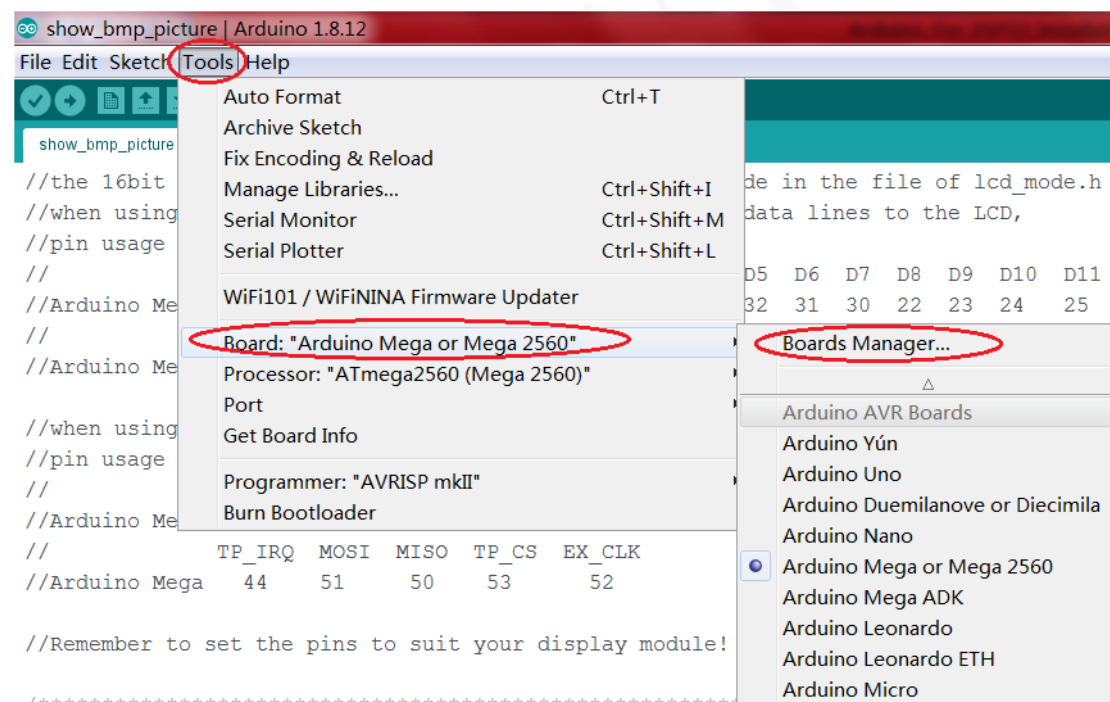

    B. Click Settings in the pop-up interface, and then add the following URL in the Additional Boards Manager URLs:

    https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package_ esp32_ index.json
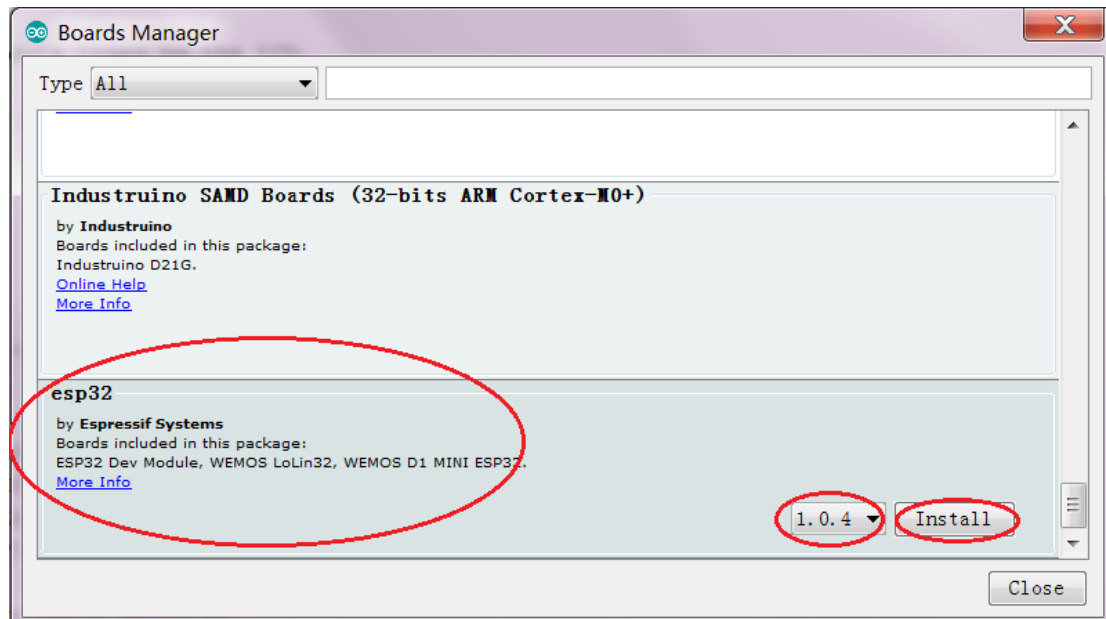
    (if you need to enter multiple web addresses, please separate them with commas), and then click OK to save to exit. As shown in the figure below:
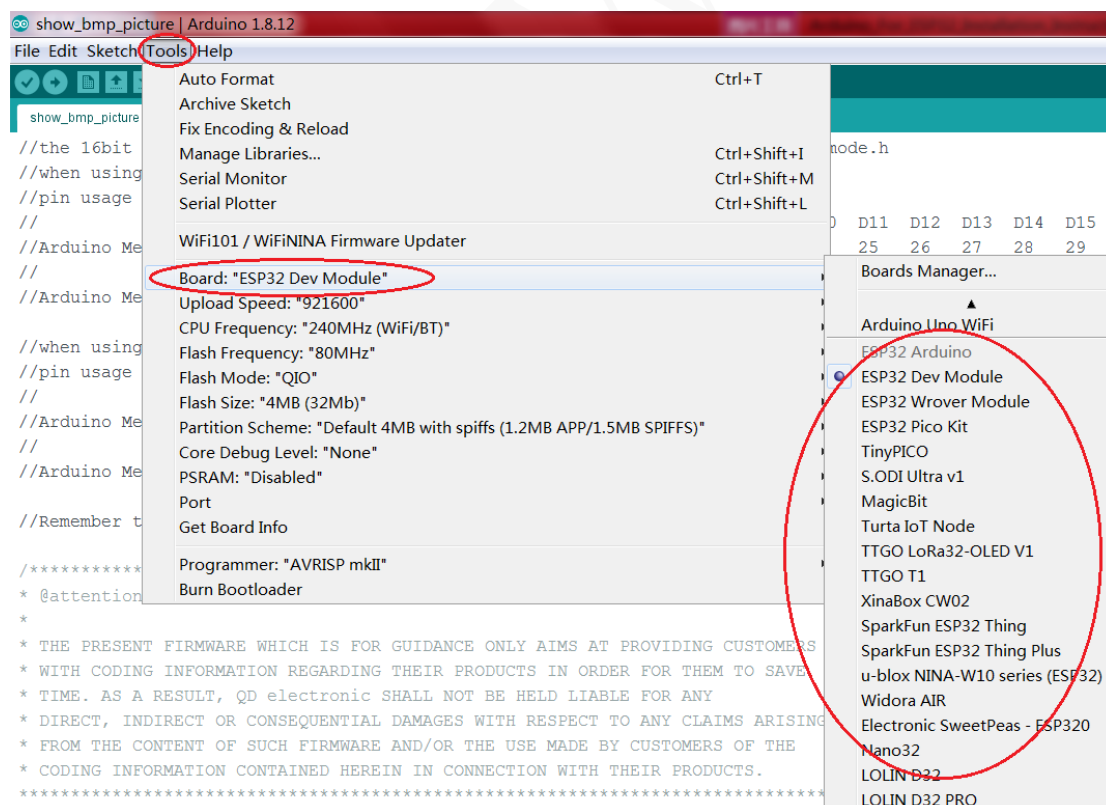
C. Click Tools -> Boards -> Boards Manager…, as shown in the following figure:

D. In the development board manager interface, find the esp32 installation item, select the installation package version number, and finally click Install (the installation process may take a long time). As shown in the figure below:
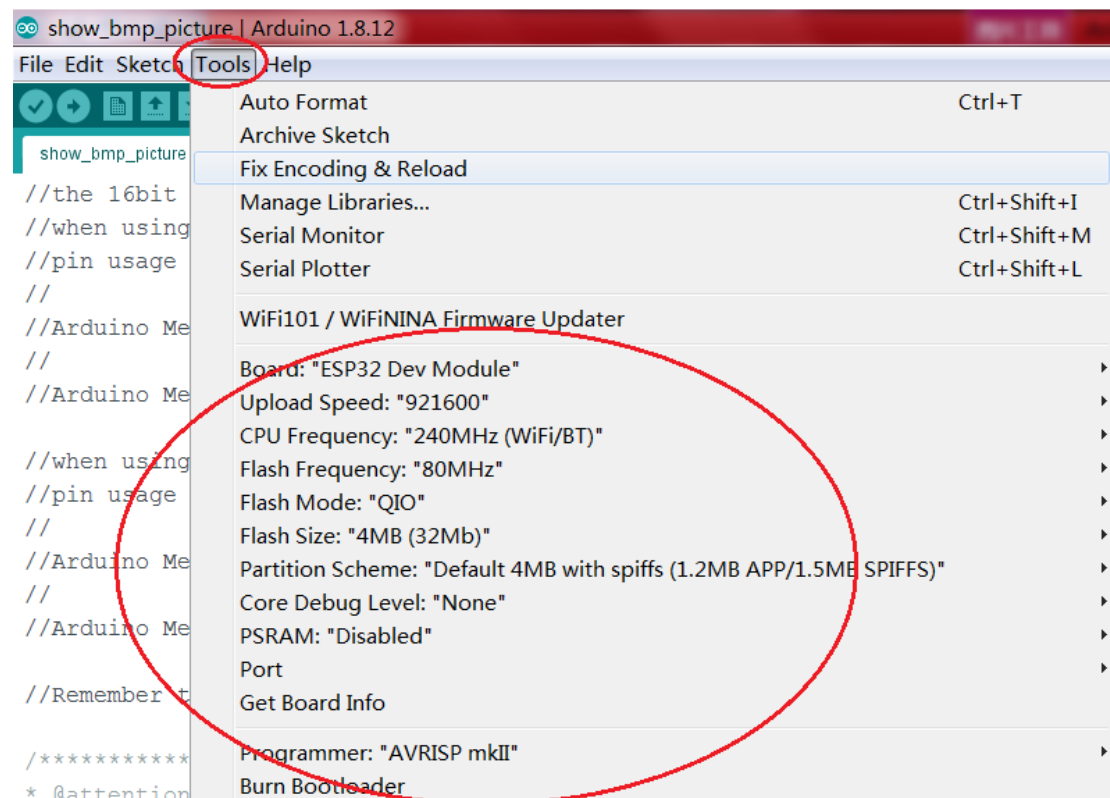
E. After the esp32 development kit is installed successfully, click Tools -> Boards to see the esp32 series development board device options in the development board manager. As shown in the figure below:

F. Select the esp32 dev module device in the development board manager, and then click Tools to see the configuration information as shown in the figure below. These configuration items need to be modified according to your own device. Generally, this default configuration can be used. Access to the device, choose the right port, you can carry out ESP development (including programming, compiling and downloading).
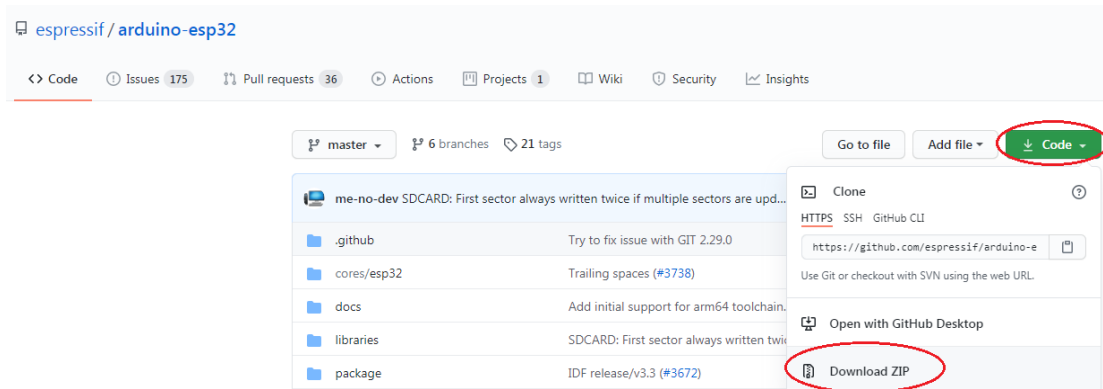
2. Download and install the resource package. The manual installation method is as follows:
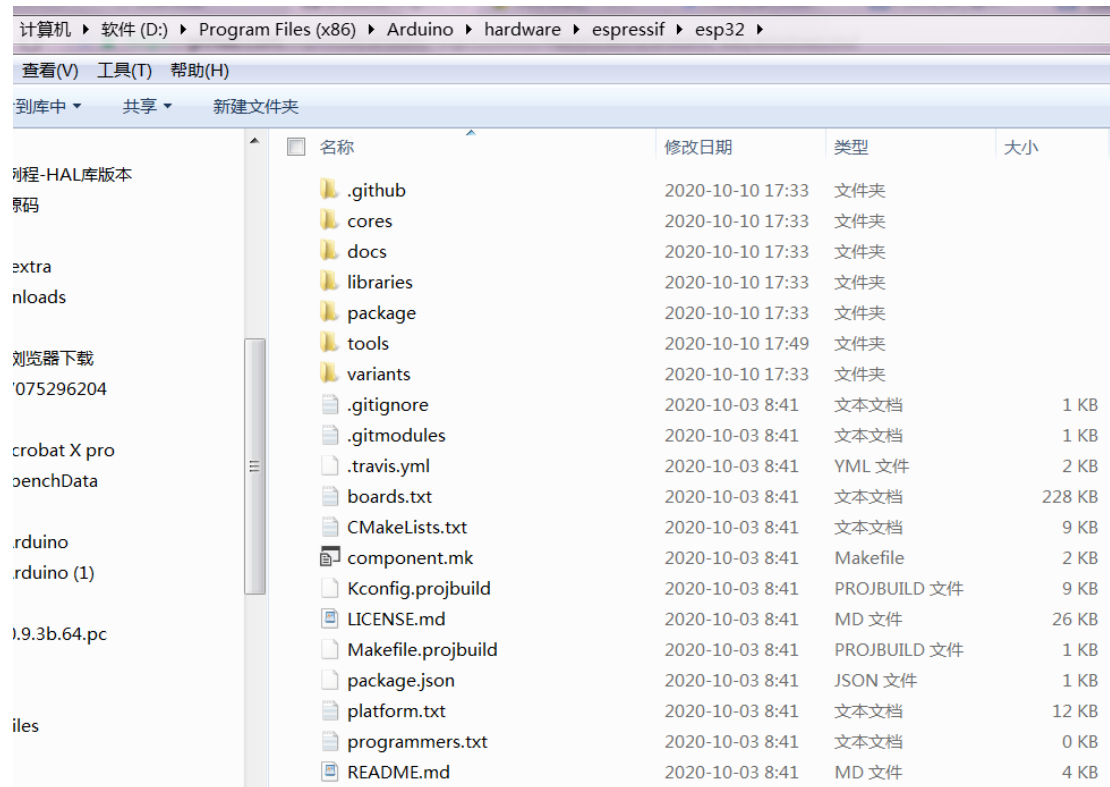
A. Download the esp32 installation package resources from GitHub at

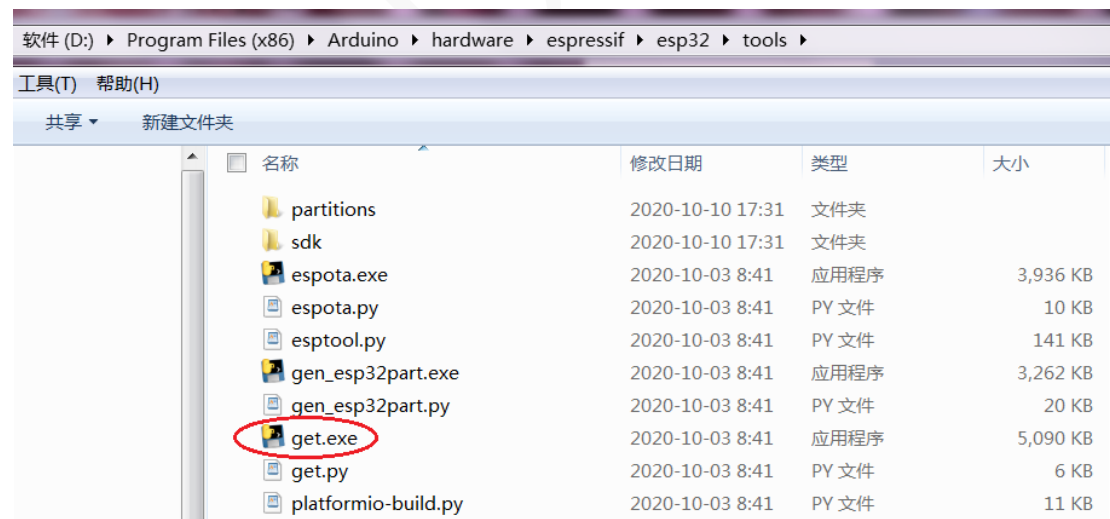**https://github.com/espressif/arduino-esp32**

After entering the website, click code -> Download zip to download, as shown in the following figure:
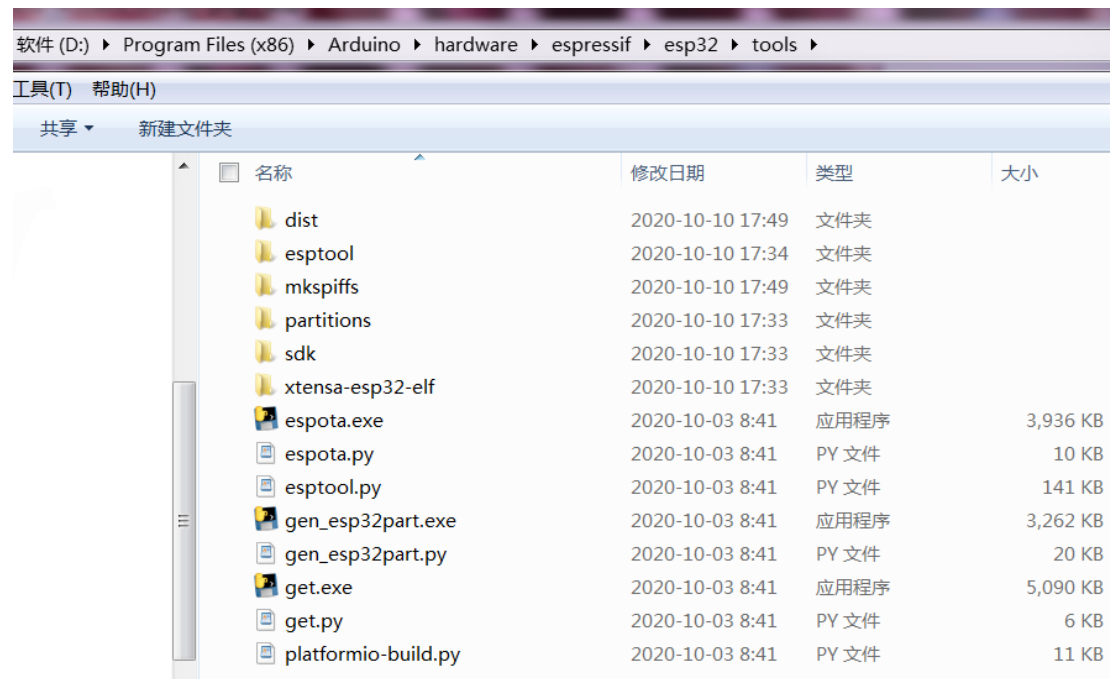

B. After the download is completed, unzip the downloaded zip package, and then find the directory where Arduino ide software is installed (for example, installed in **D: \program files (x86)\ Arduino** directory), create a new **espressif** folder under the **hardware** folder of the directory, and then create a new **esp32** folder under the **espssif** folder. Finally, copy all the contents extracted from the zip compression package to the **esp32** folder. As shown in the figure below:
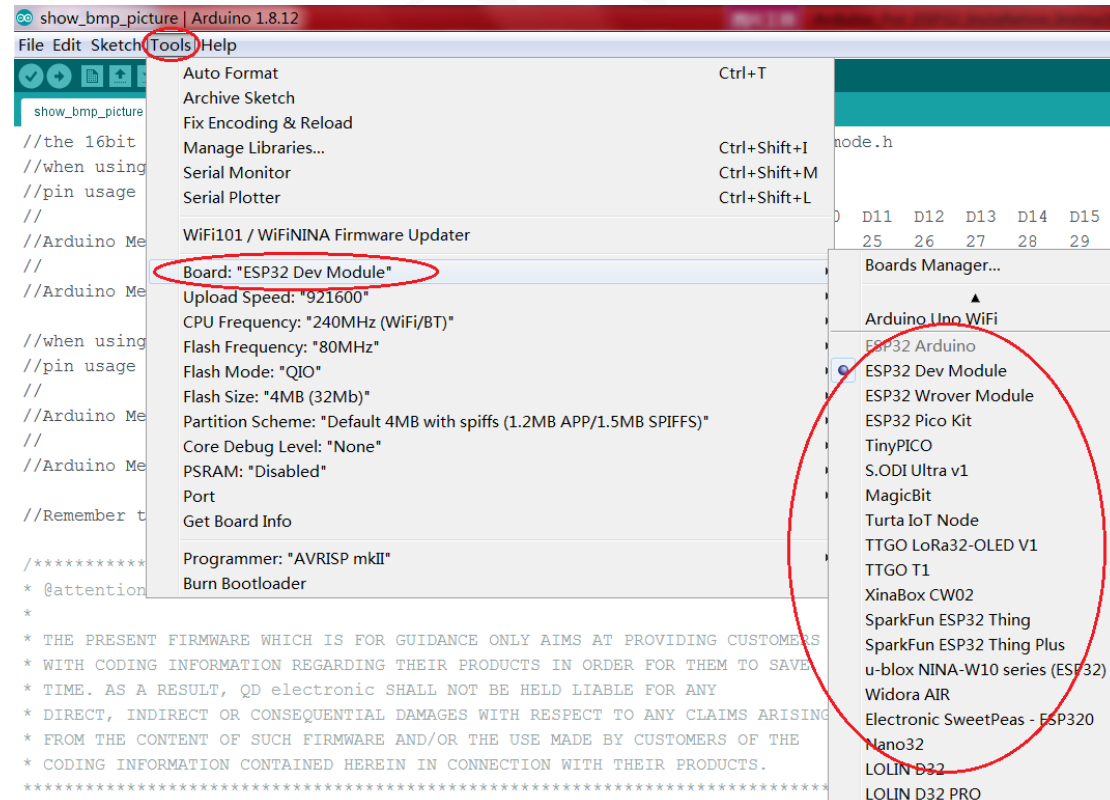
C. Open the **Arduino ide software installation directory \hardware\empressif \esp32\tools** folder and double-click **get.exe** executable program,it is shown in the following figure:

D. When **get.exe** executable program is completed, you can see the following contents in the tools folder:

E. After the esp32 development kit is installed successfully, click Tools -> Boards to see the esp32 series development board device options in the development board manager. As shown in the figure below:

F. Select the esp32 dev module device in the development board manager, and then click Tools to see the configuration information as shown in the figure below. These configuration items need to be modified according to your own device. Generally, this default configuration can be used. Access to the device, choose the right port, you can carry out ESP development (including programming, compiling and downloading).