Thonny

Thonny is a free and open-source software with simple operations but various functions, which is perfect for Python IDE beginners. In this tutorial, we adopt Thonny to integrate ESP32 development board. Thonny is also compatible with operating systems like Windows, Mac OS and Linux.

Ⅰ. Thonny Download

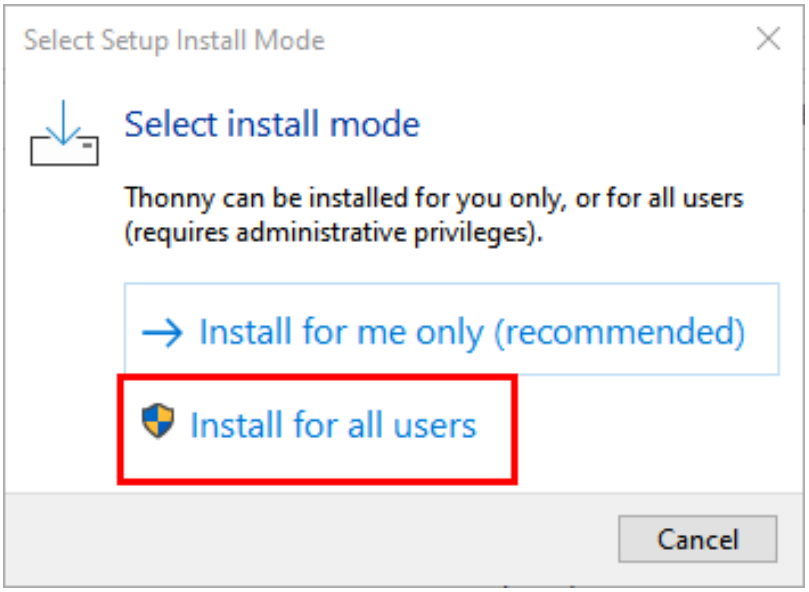
Thonny open-source code library: https://github.com/thonny/thonny

Thonny download: https://thonny.org

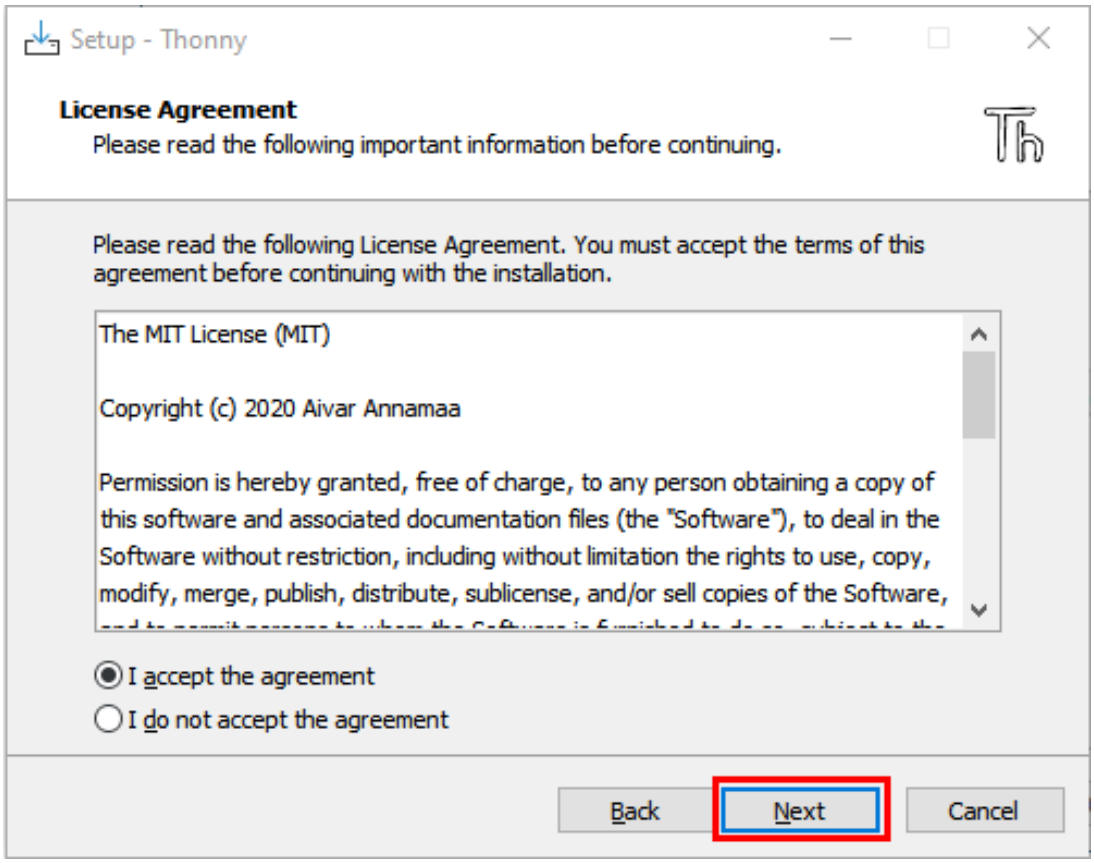
OS	DOWNLOAD
MAC OS:	https://github.com/thonny/thonny/releases/download/v3.2.7/thonny-3.2.7.pkg
Windows:	https://github.com/thonny/thonny/releases/download/v3.2.7/thonny-3.2.7.exe
Linux:	LATEST VERTION: **Binary bundle for PC (Thonny+Python):** bash <(wget -O - https://thonny.org/installer-for-linux) **With pip:** pip3 install thonny **Distro packages (may not be the latest version):** **Debian, Rasbian, Ubuntu, Mint and others:** sudo apt install thonny **Fedora:** sudo dnf install thonny

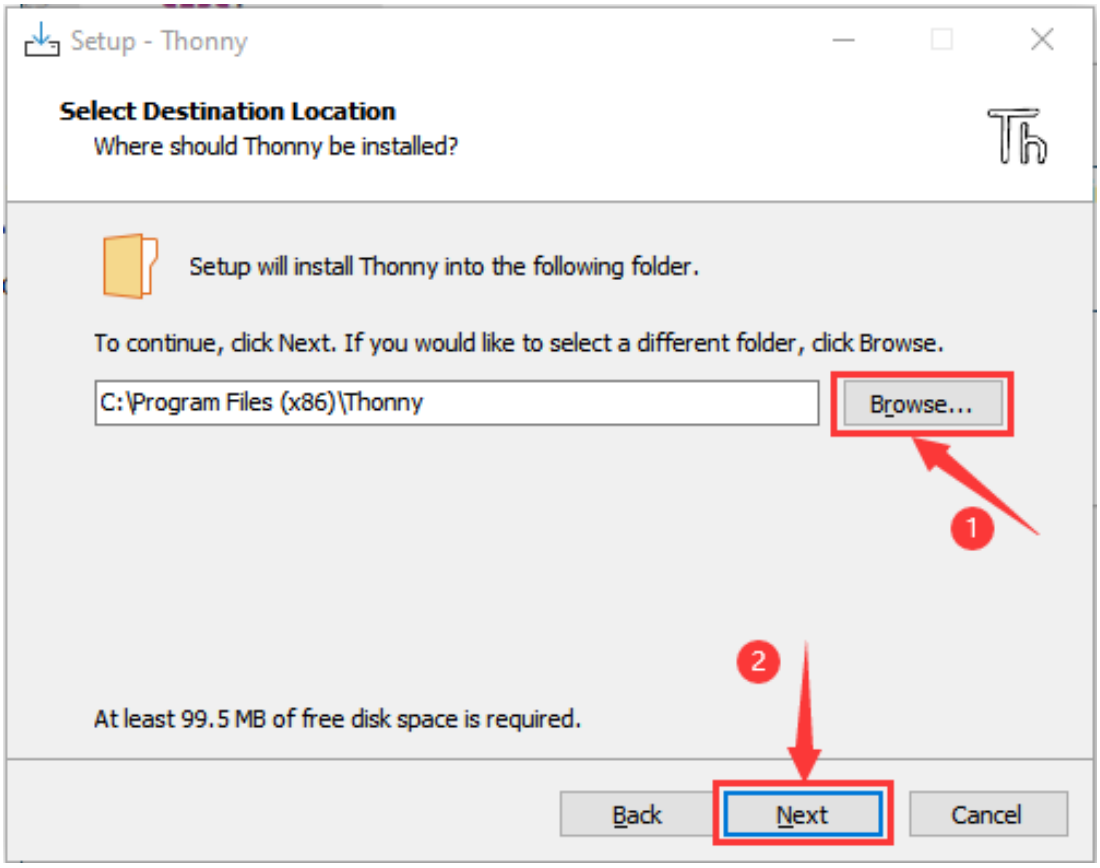
Here we demonstrate on Windows.

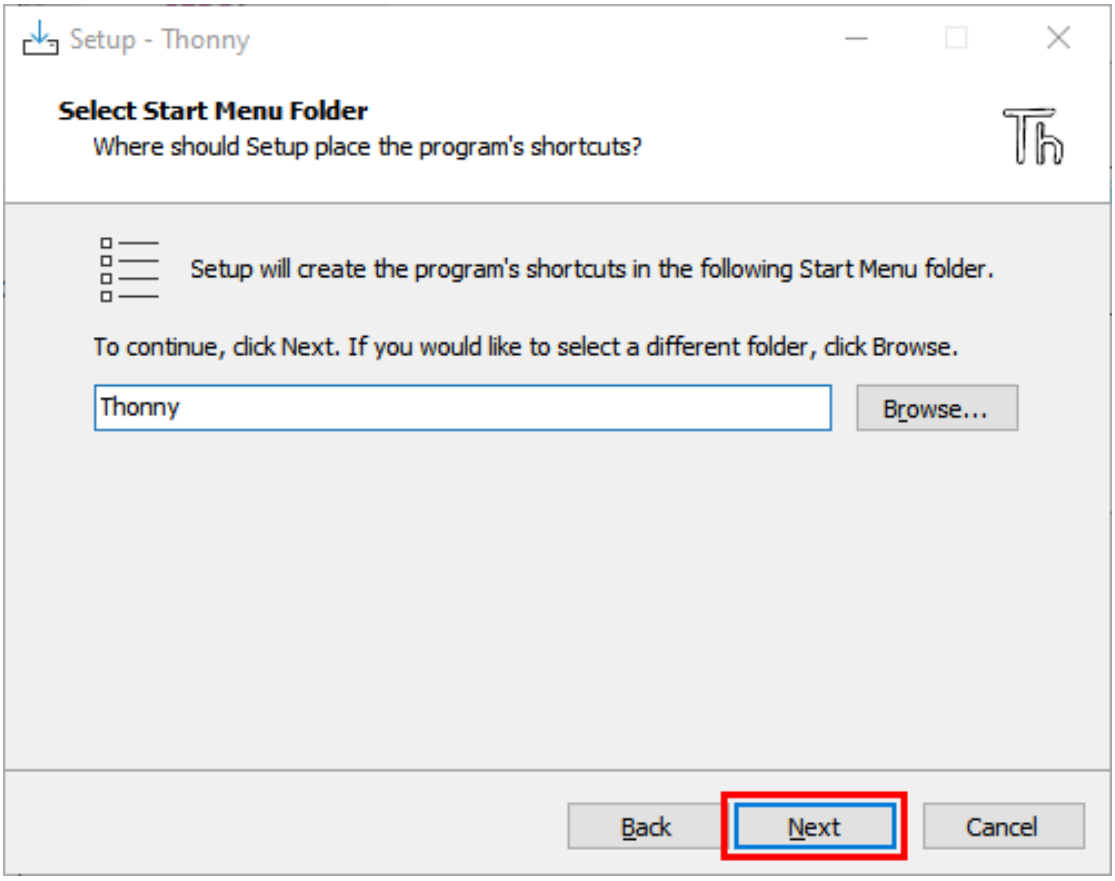
Click "thonny-3.3.13.exe" and choose Install for all users to download Thonny (or cloose → Install for me only (recommended)).



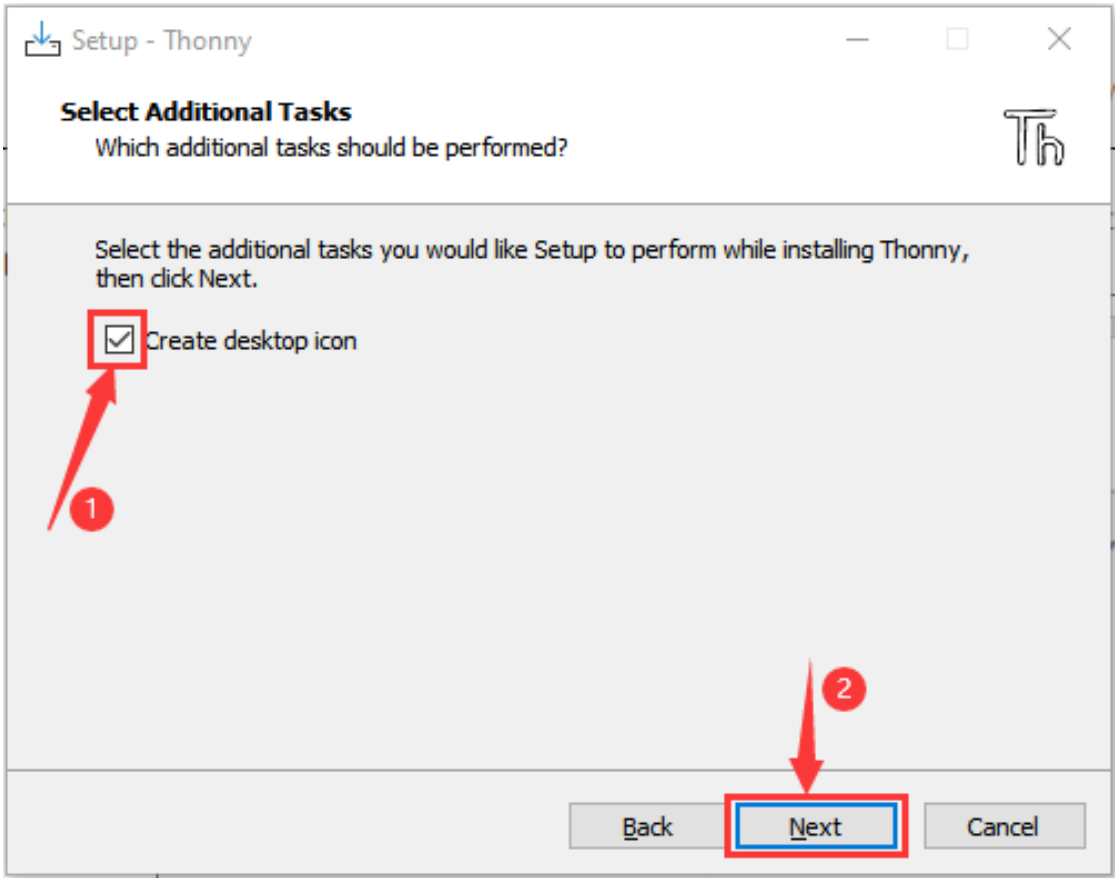
Keep "**Next**".


Setup - Thonny
License Agreement
Please read the following important information before continuing.
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.
The MIT License (MIT)
Copyright (c) 2020 Aivar Annamaa
Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software,
I accept the agreement
I do not accept the agreement
Back
Next
Cancel

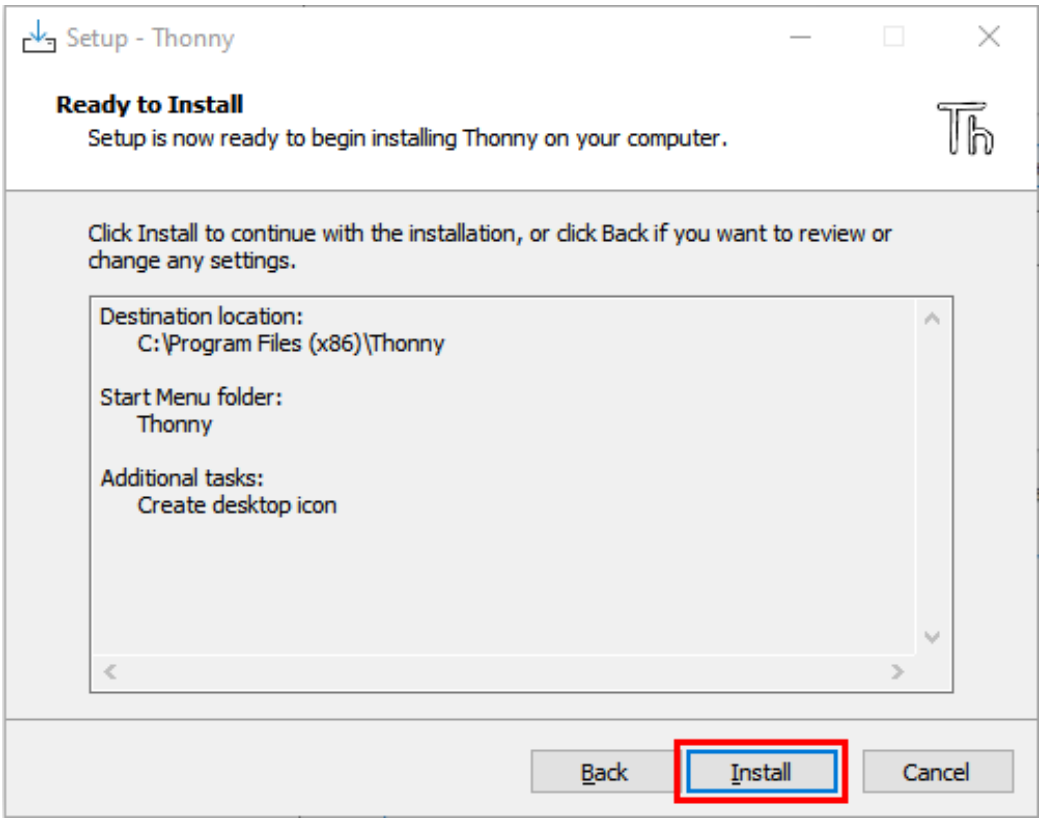

Setup - Thonny
Select Destination Location
Where should Thonny be installed?
Setup will install Thonny into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Program Files (x86)\Thonny
Browse...
1
2
At least 99.5 MB of free disk space is required.
Back
Next
Cancel



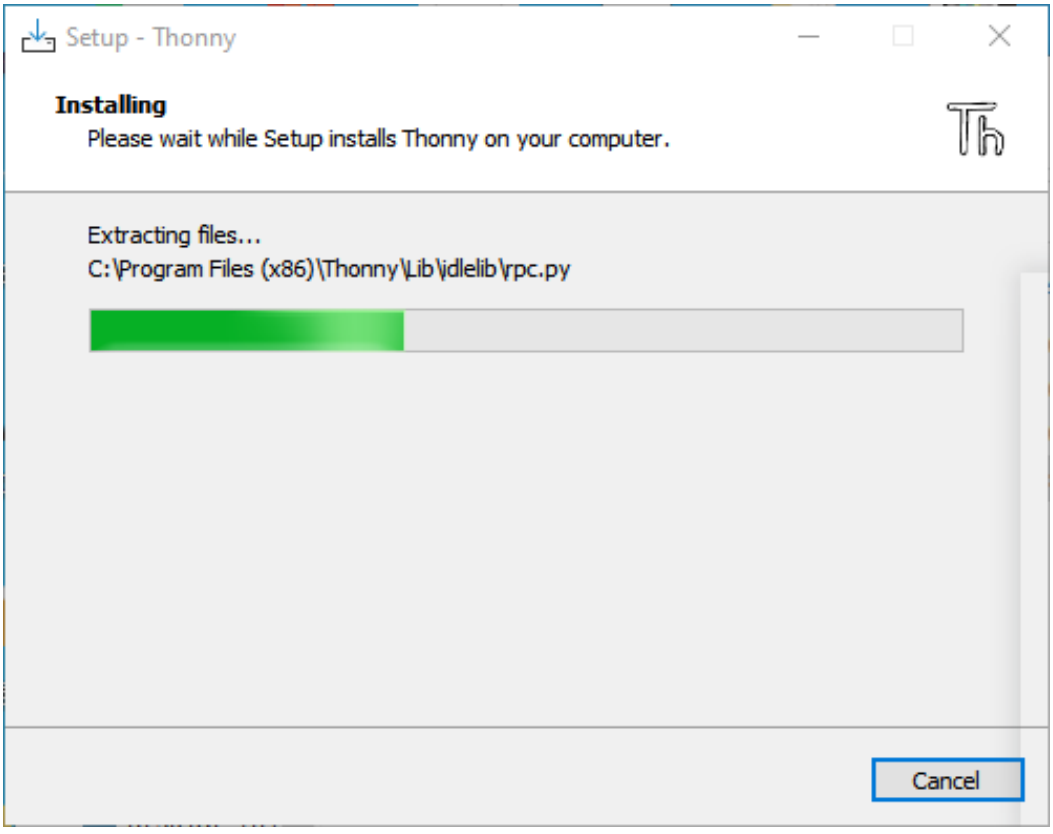
Tick "**Create desktop icon**".



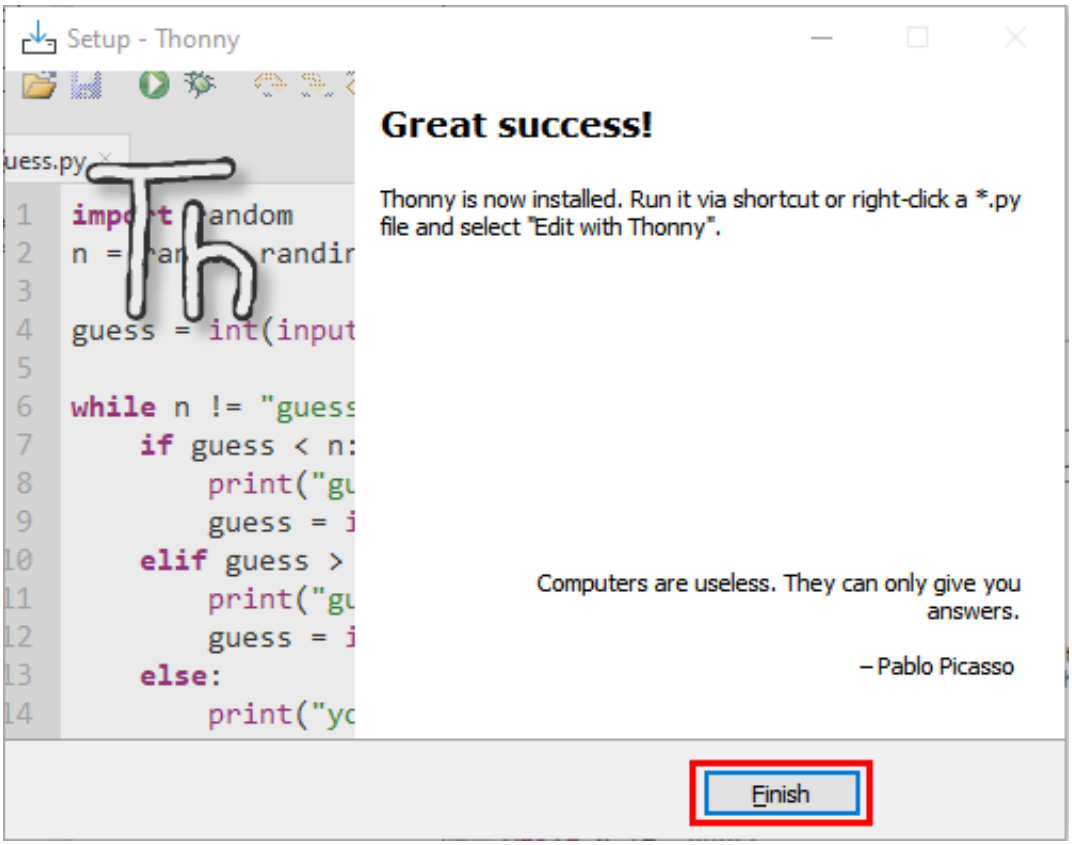
Click “**Install**” .



Wait.

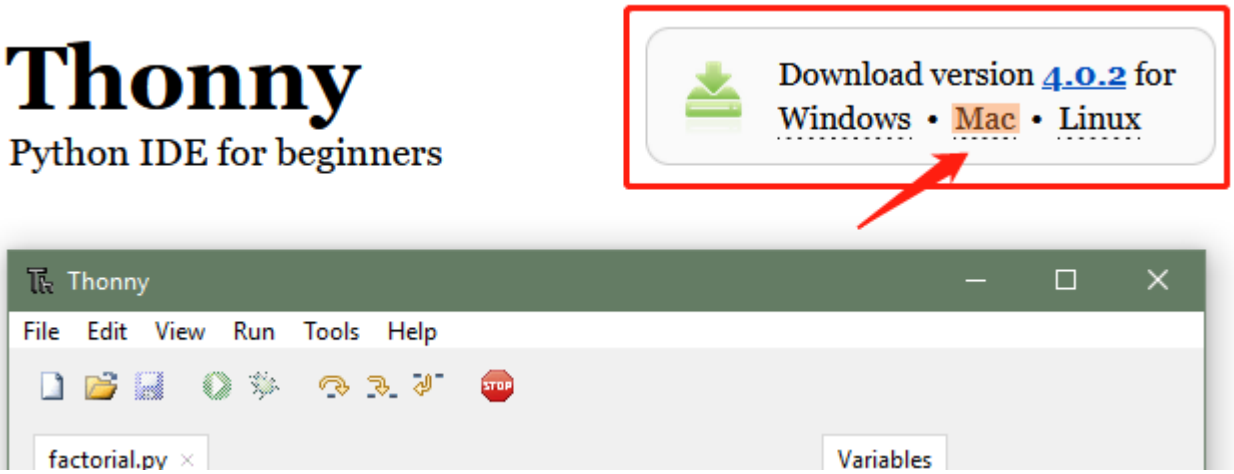


Click “**Finish**” .



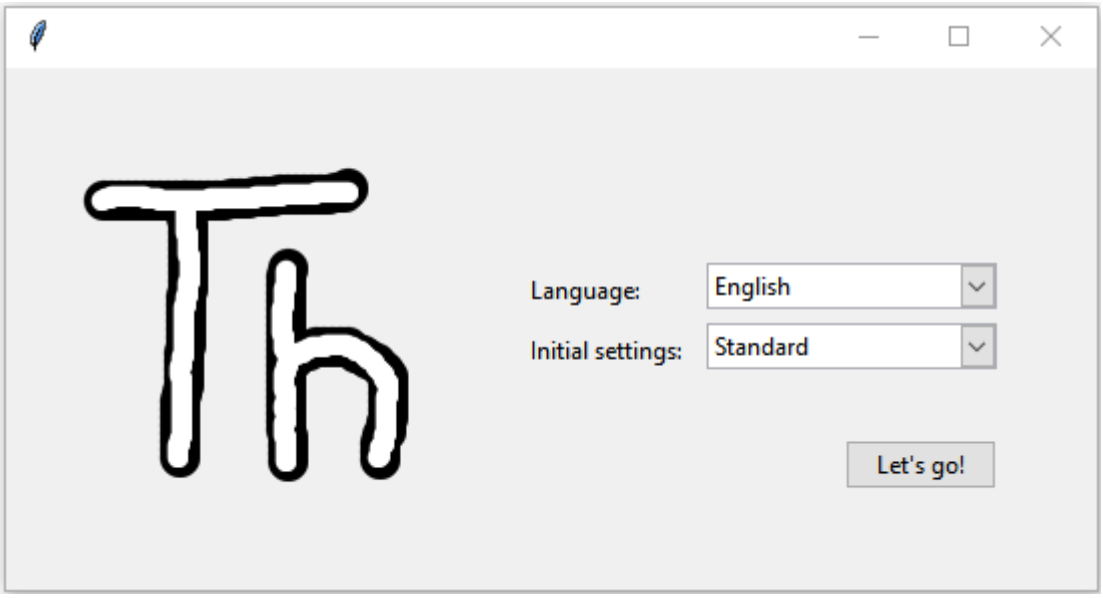
And you will see: 

Mac System: Please refer to Windows.

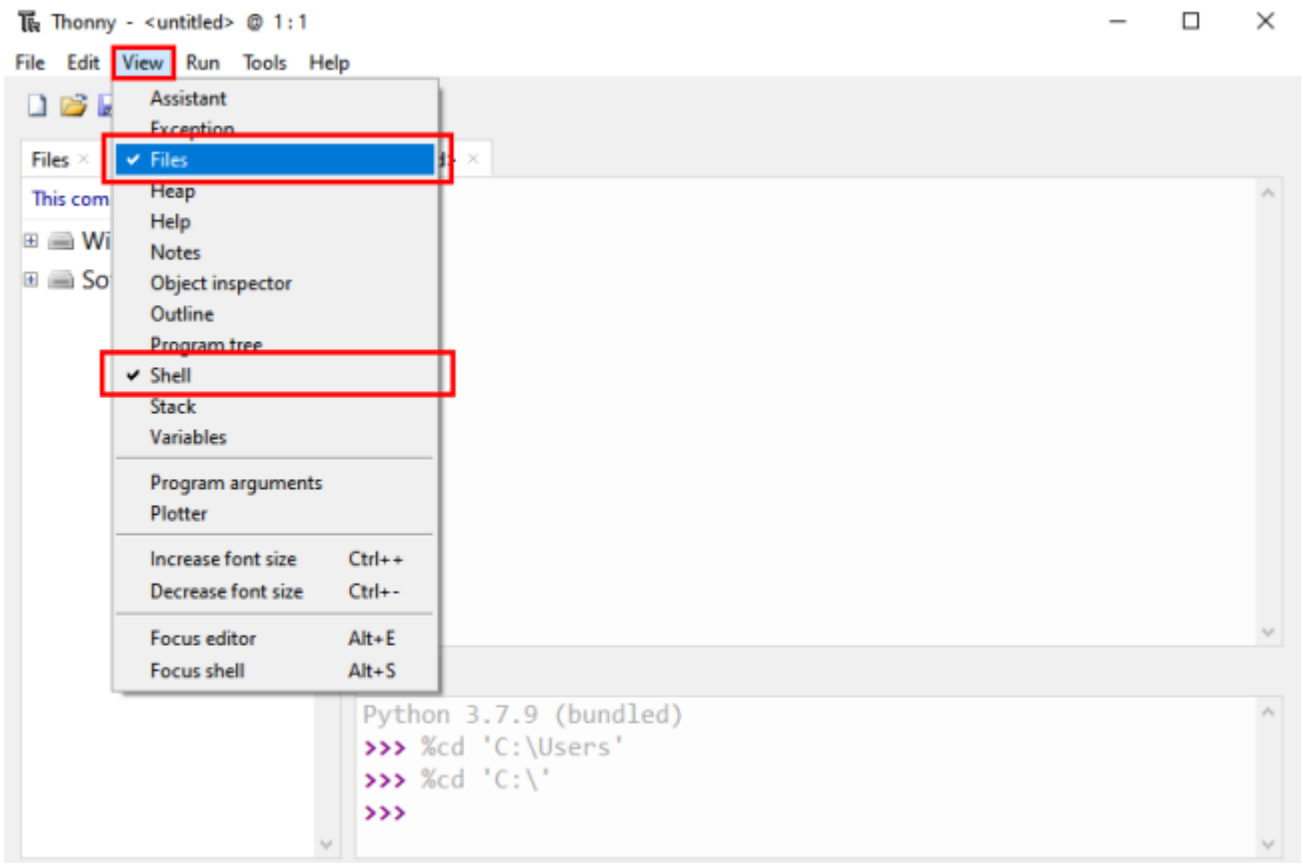


II. Thonny Basic Setting

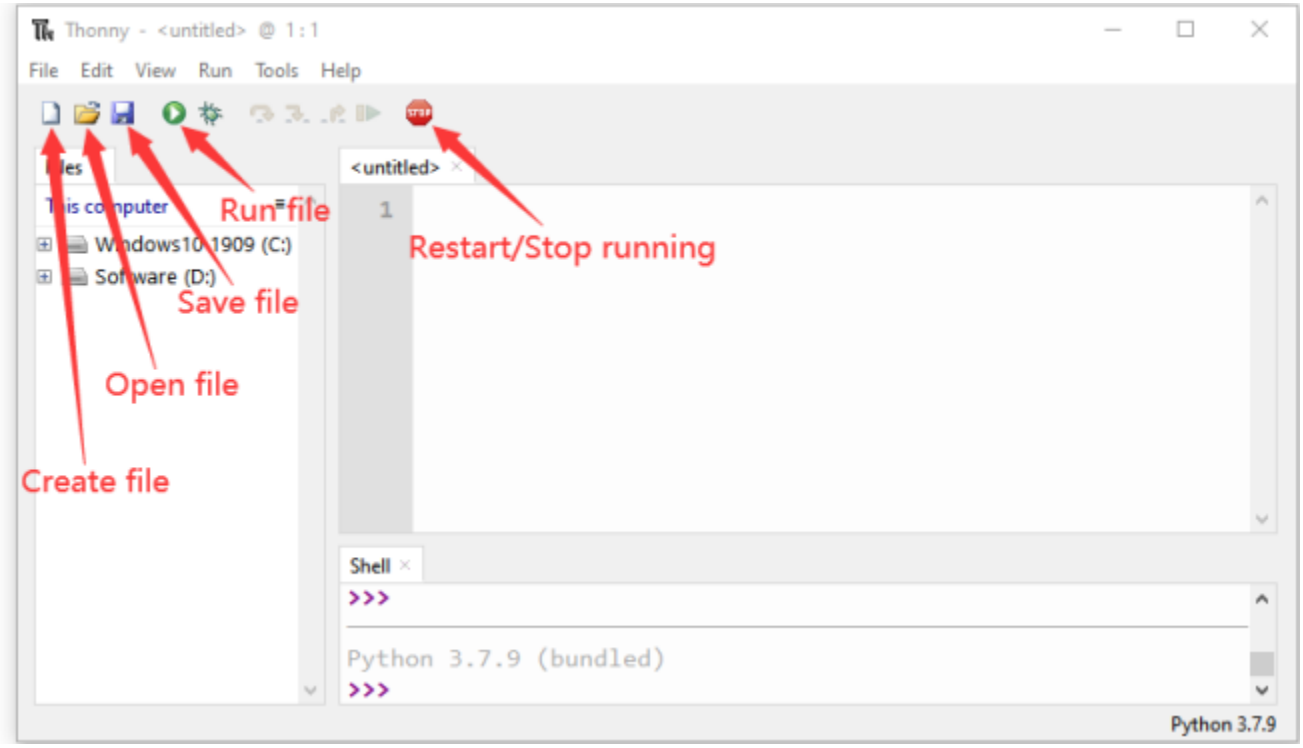
Open Thonny and choose English as the language, "**Let's go!**" to enter the software.

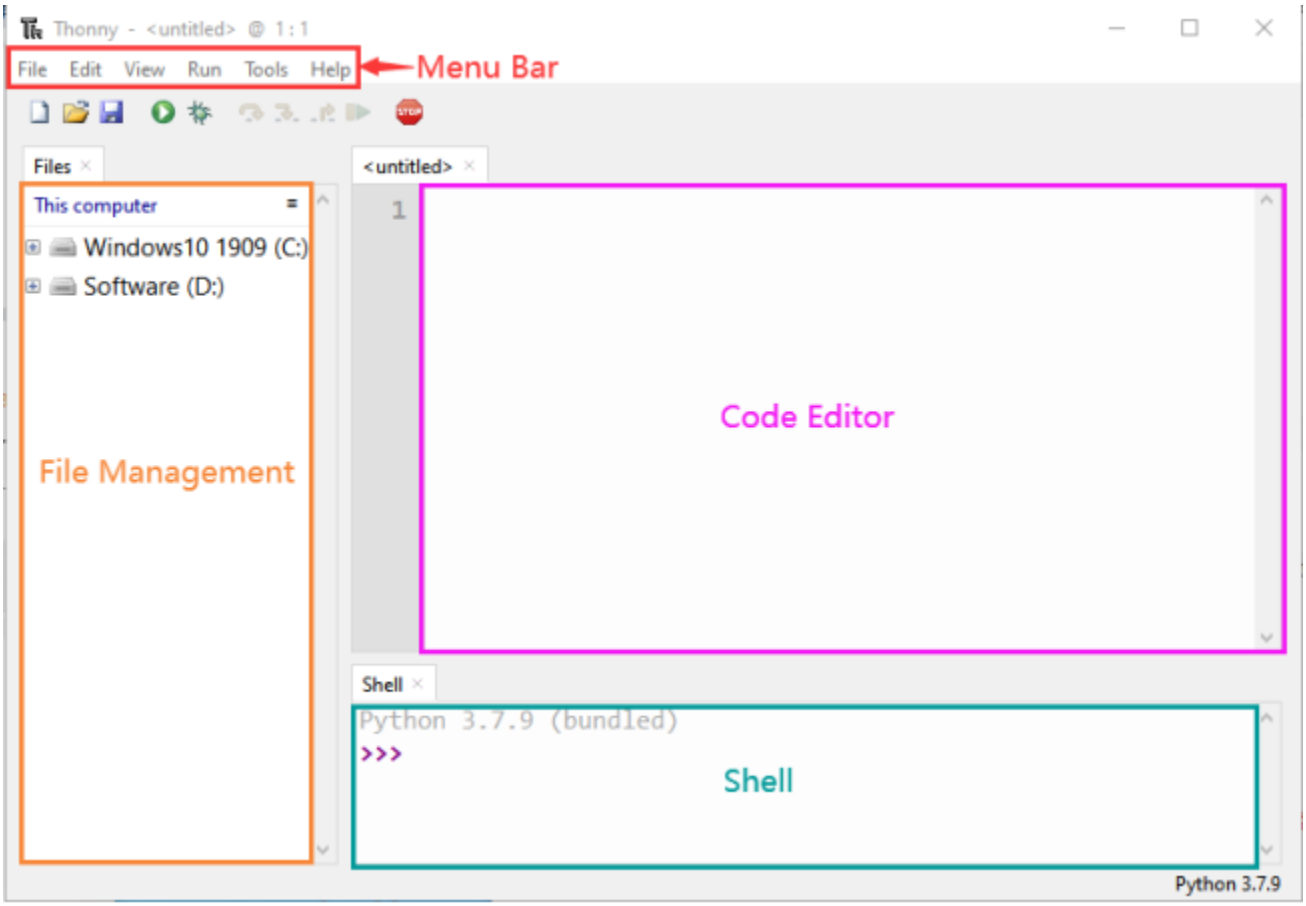


Click "View" → "File" and "Shell"



Ⅲ. Thonny Functions

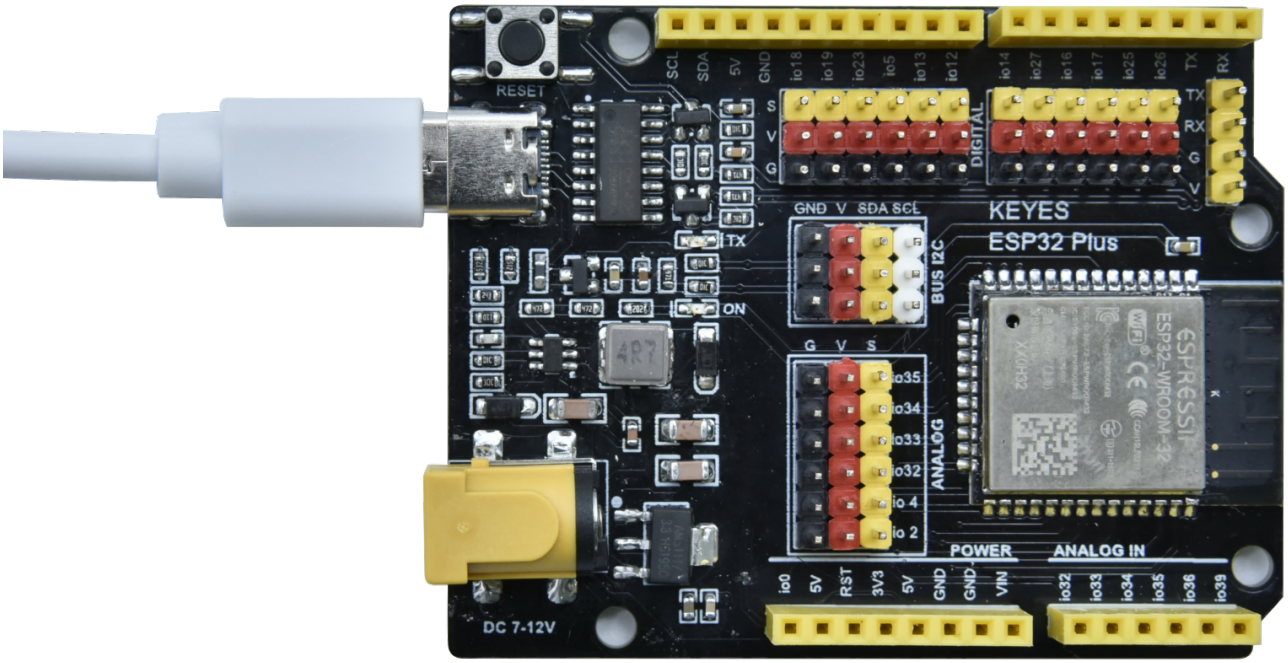




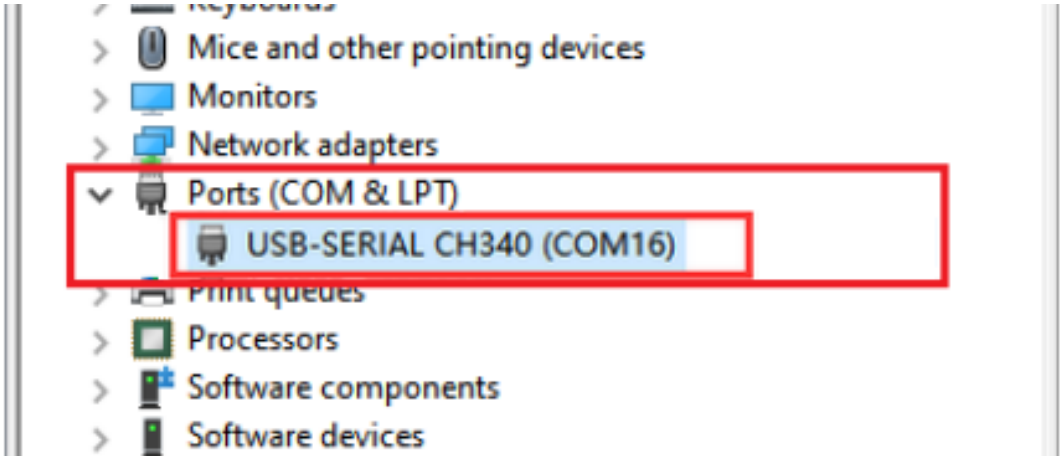
CH340 Driver

Before using the Thonny, we need to install the driver in the computer. The driver of CH340C chip is as follows: usb_ch341_3.1.2009.06.

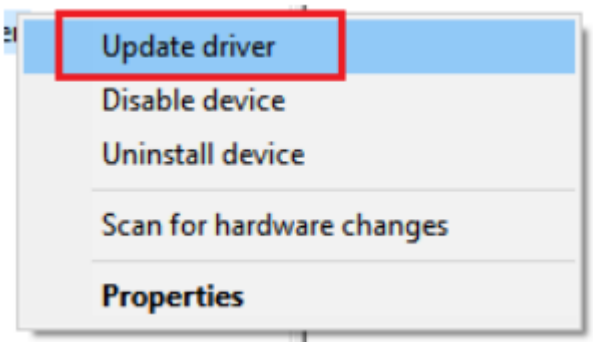
Here we introduce how to install driver on Windows. Connect ESP32 Plus board to your computer via USB cable.



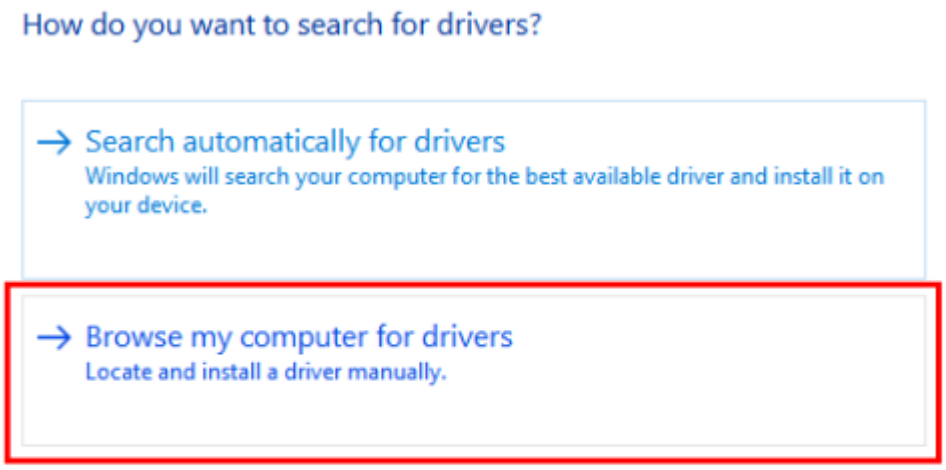
And you may see "USB SERIAL CH340 (COMx)" in device manager. That means there is already a driver on your computer.

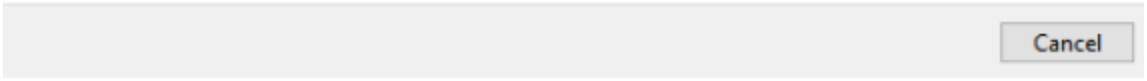


If there is not a driver, please click "**USB Serial**" to update driver.



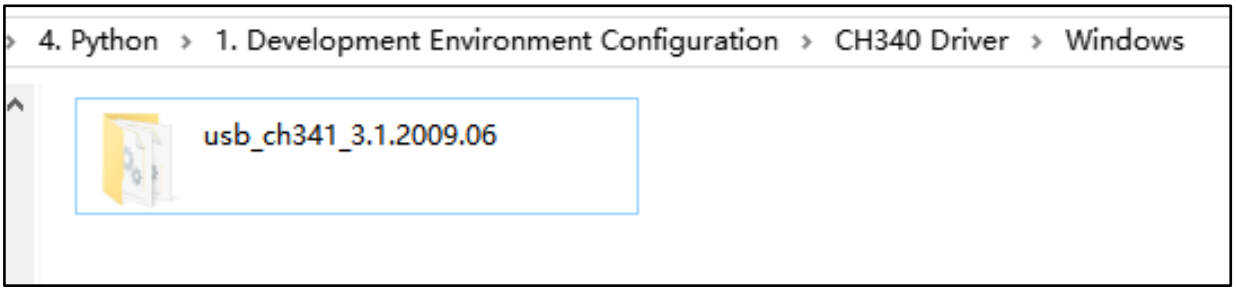
Click "Browse my computer for drivers" .

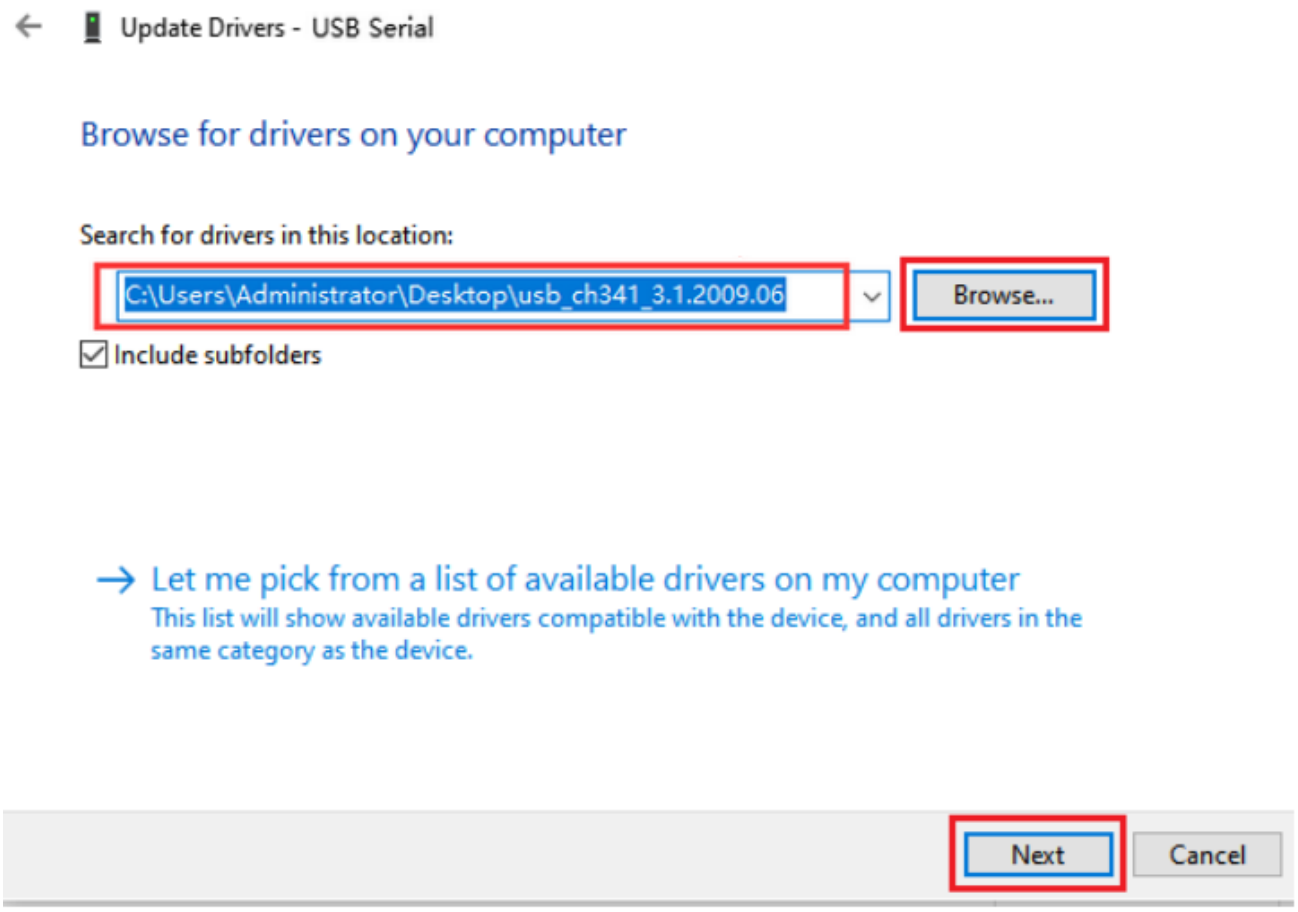




Browse for "**usb_ch341_3.1.2009.06 folder**" in our tutorial.

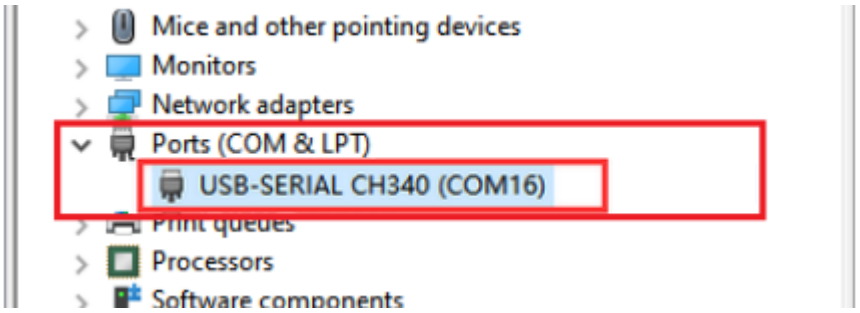
Path: ...\TUTORIAL\4. Python\1. Development Environment Configuration\CH340 Driver\Windows



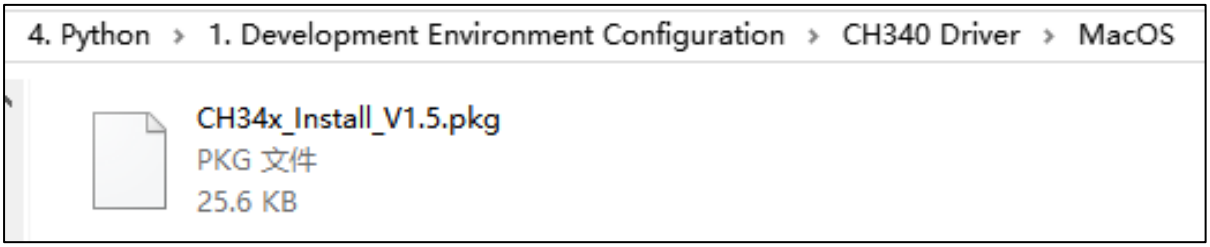


Click ''Close ".

You will see the port number.



For MAC, Driver path is: ...\TUTORIAL\4. Python\1. Development Environment Configuration\CH340 Driver\MacOS



Or download driver from: https://drive.google.com/file/d/1xP4yNM-F6I0_3k9bPSd2BEU1yWGokUHp/view?usp=sharing

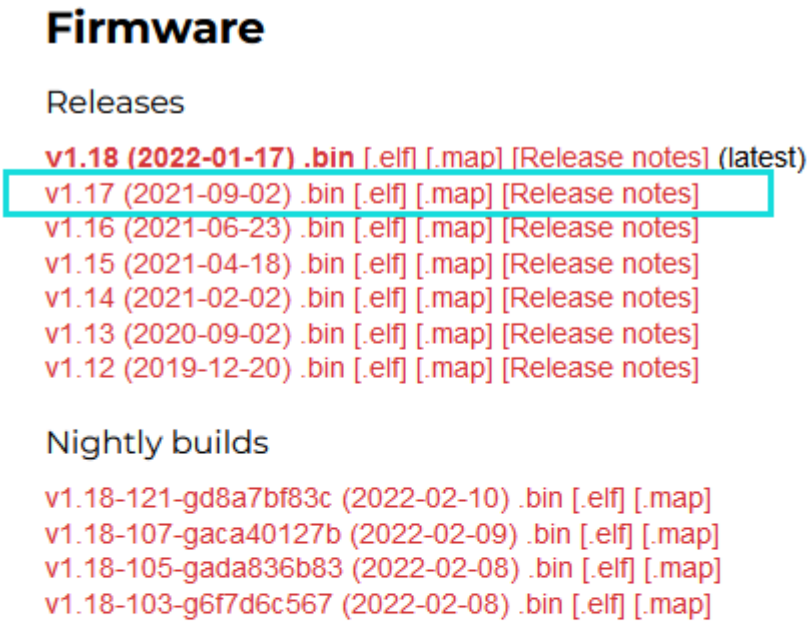
Micropython Firmware

To run a Python program on the ESP32 board, we need to burn the firmware to the ESP32 board first.

I . Micropython Firmware Download

microPython: http://micropython.org/

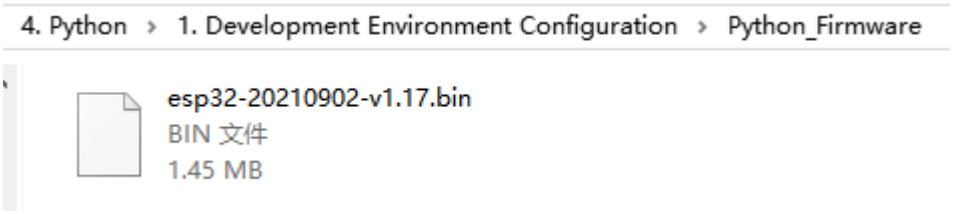
microPython ESP32 firmware: https://micropython.org/download/esp32/



In this kit,we adopt: **esp32-20210902-v1.17.bin**

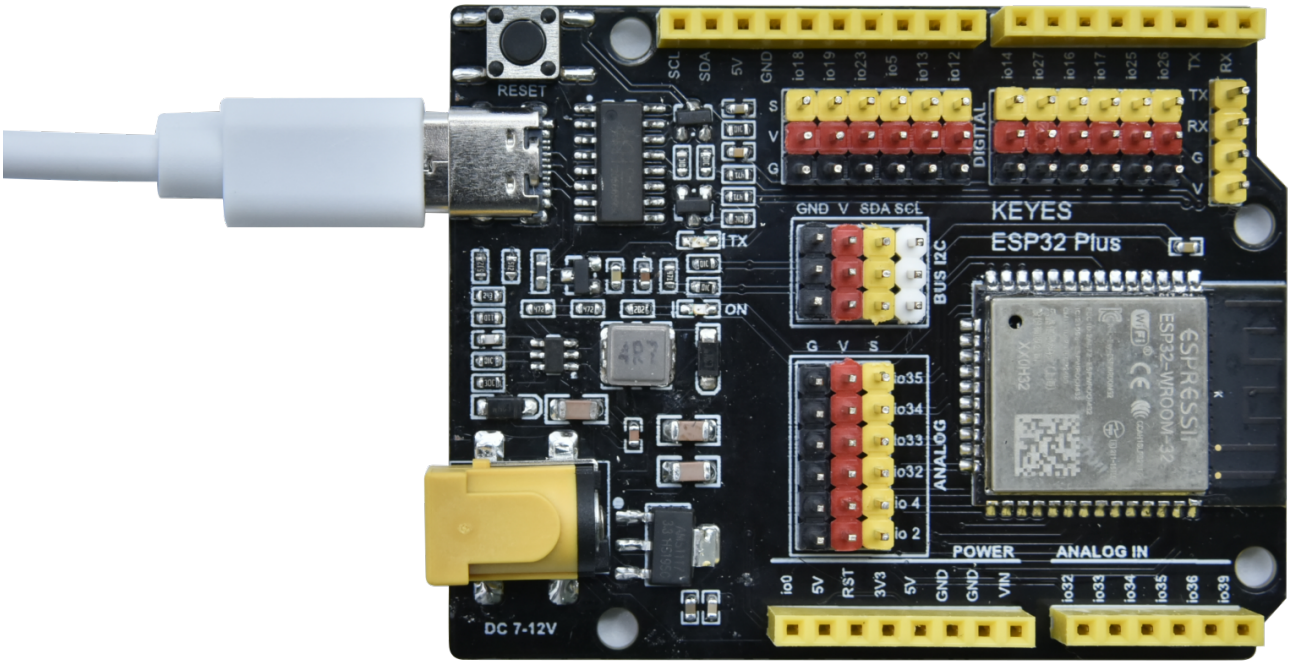
Download firmware reference: https://micropython.org/resources/firmware/esp32-20210902-v1.17.bin

We have provided in out tutorial. Path: ...\TUTORIAL\4. Python\1. Development Environment Configuration\Python_Firmware

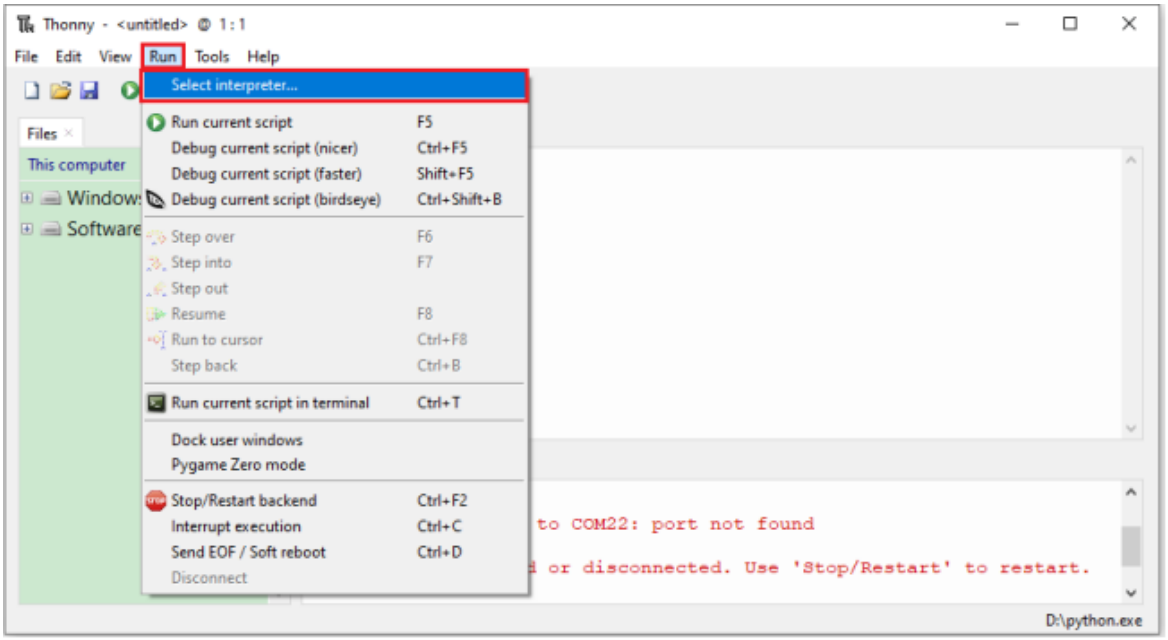


II. Burn Micropython Firmware

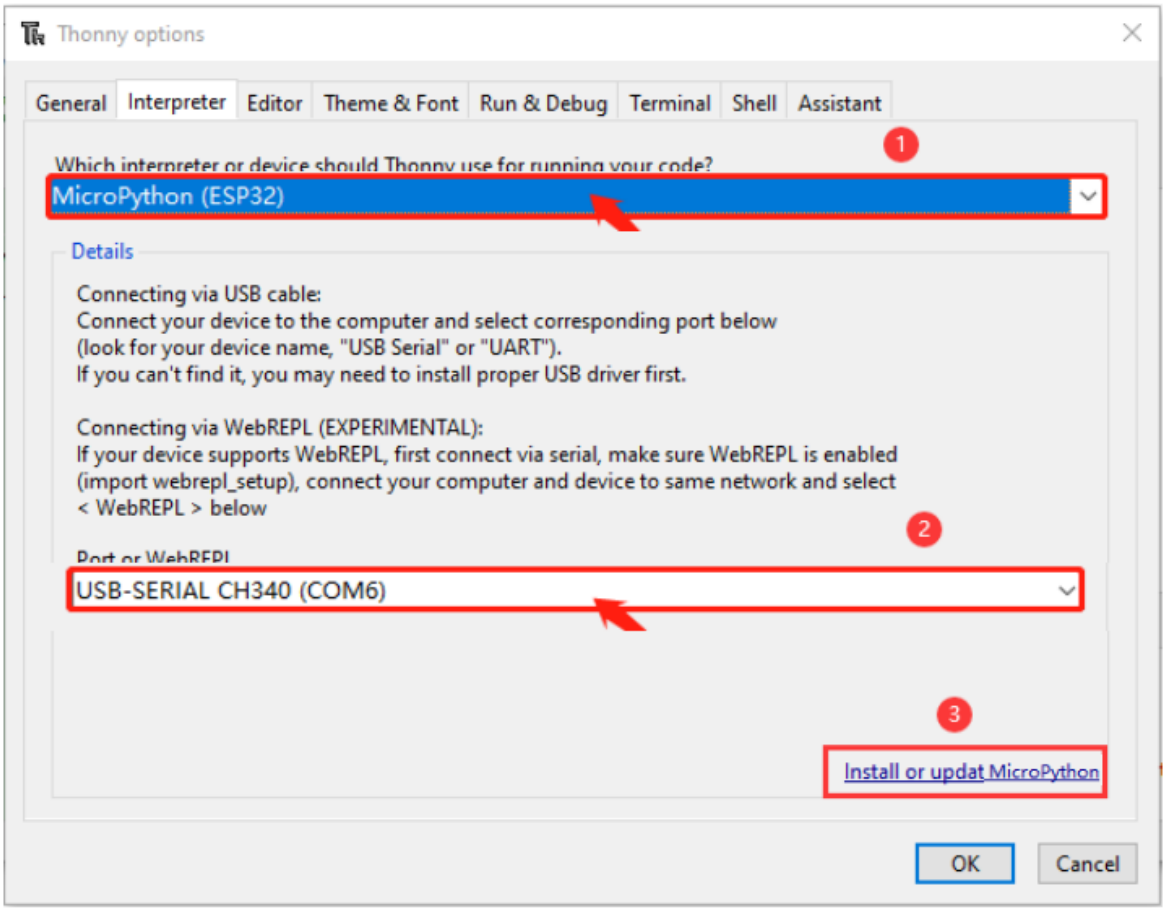
Connect ESP32 Plus board to your computer via USB cable.



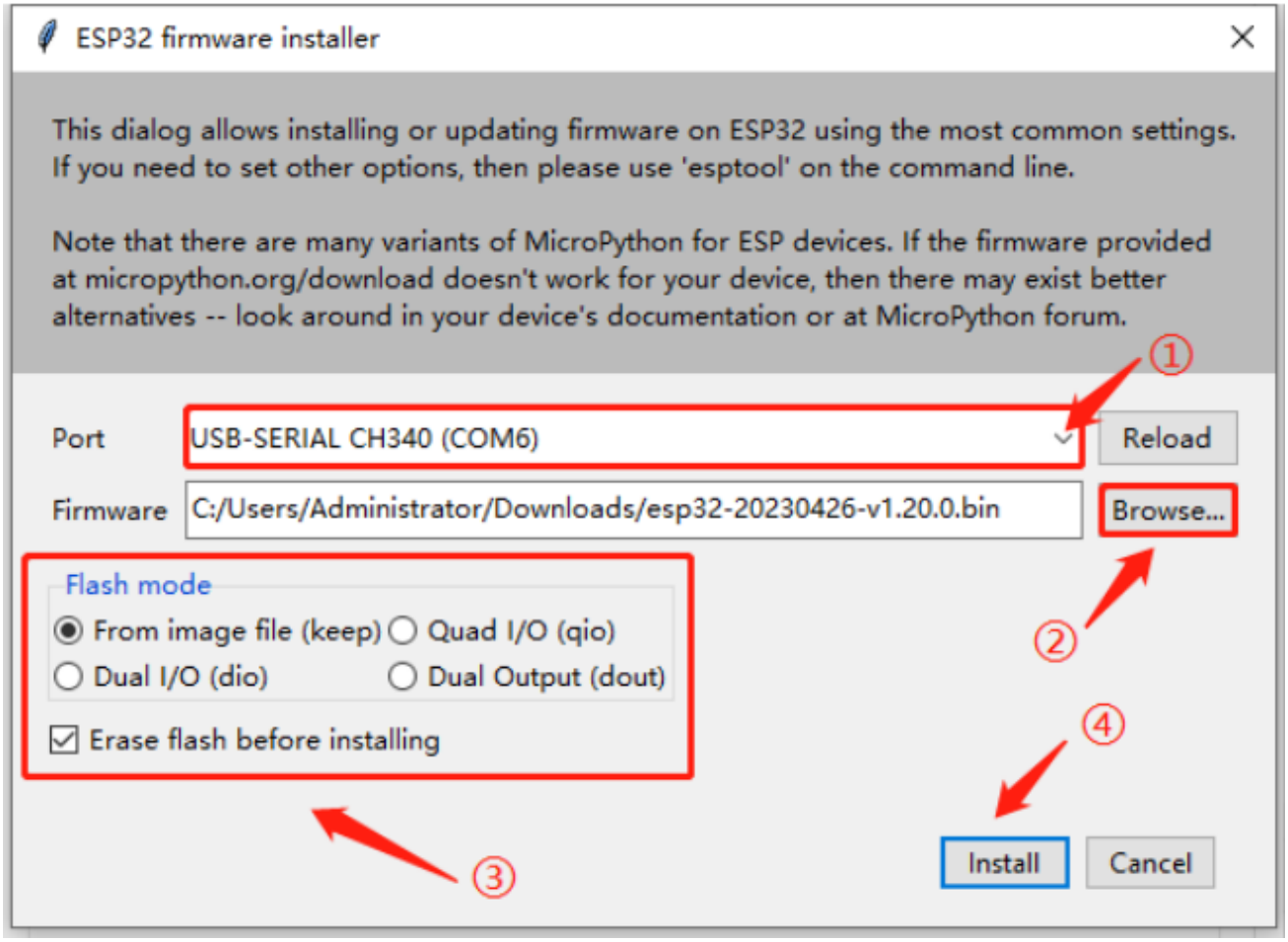
Make sure the driver has been installed successfully and the COM port can be identified correctly. Open Device Manager and expand “Ports”. Open Thonny, click “run” and “Select interpreter...”.

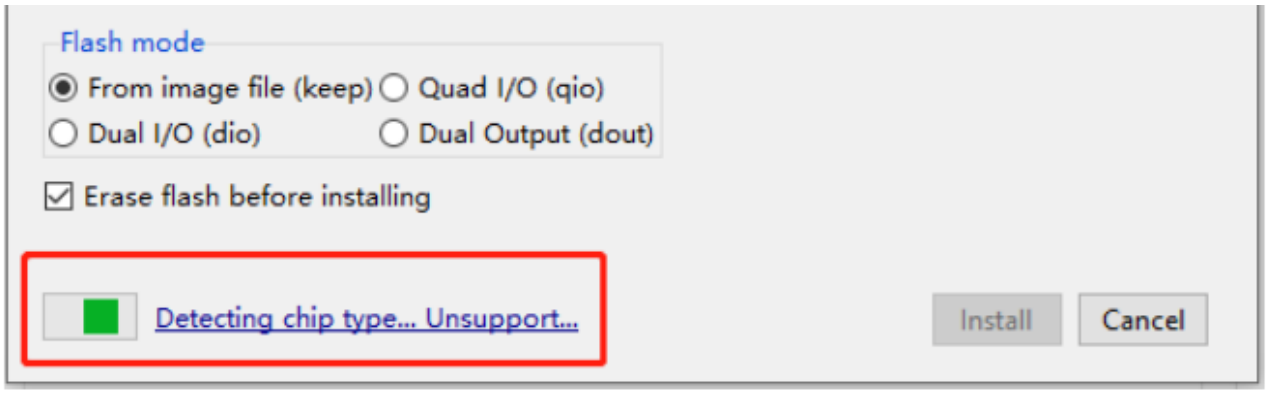


Select “Micropython (ESP32)” and “USB-SERIAL CH340(COMx)” and click “Install or update MicroPython”.

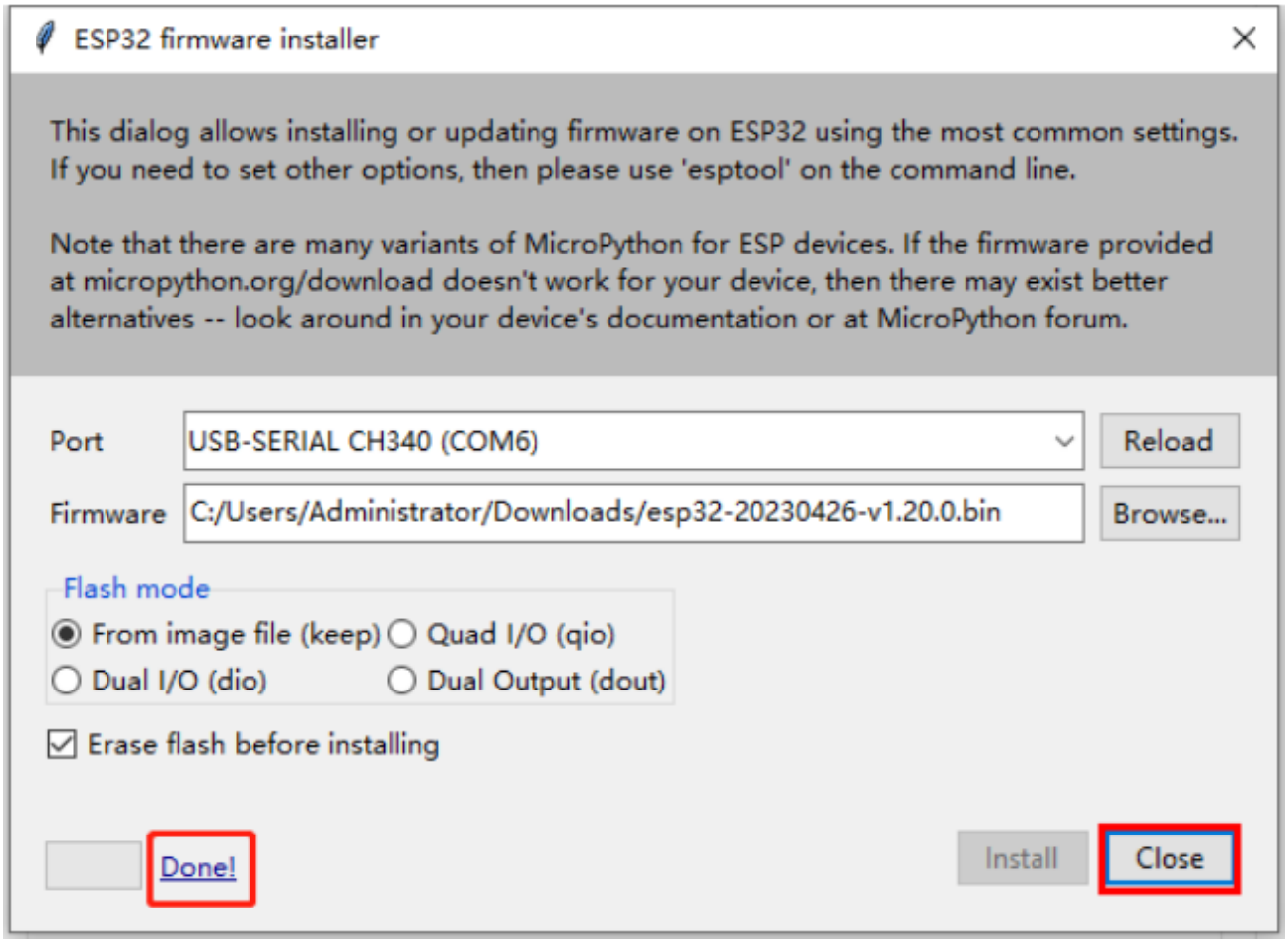


Choose “USB-SERIAL CH340(COMx)”. “Browse...” to find and click “**esp32-20210902-v1.17.bin**”. Tick “From image file(Keep)” and “Erase flash before installing”, and click “Install”.

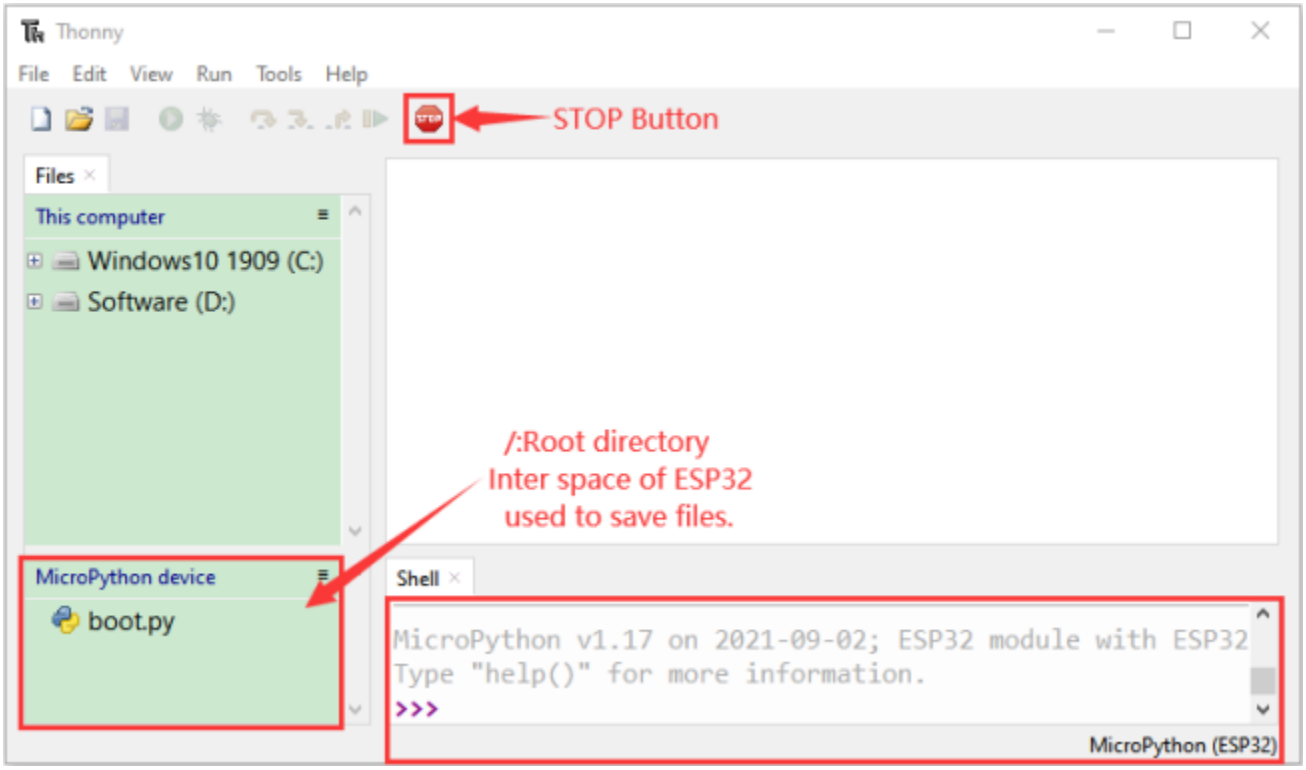




Done and close.

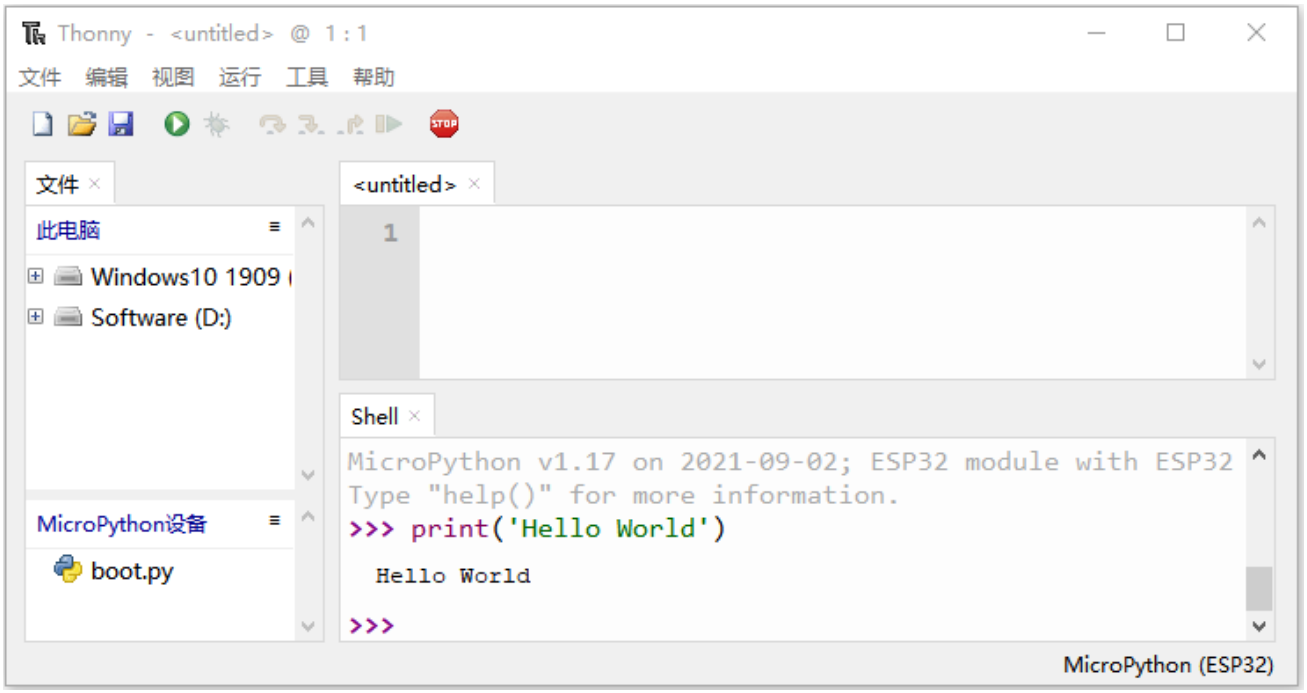


Click  to stop.



Test Code

Test the Shell commander: Input print('hello world') in the "Shell" and press Enter.

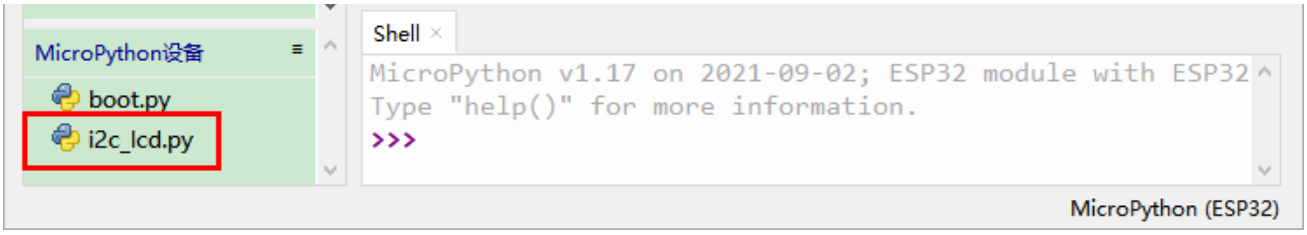


Run the test code (online)

Connect the ESP32 to your PC. Users can program and debug programs with Thonny.

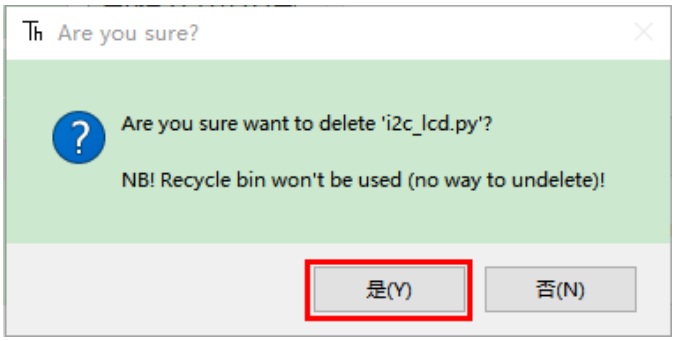
Choose a code(here we choose project 9 i2c_lcd) and select "Upload to/".

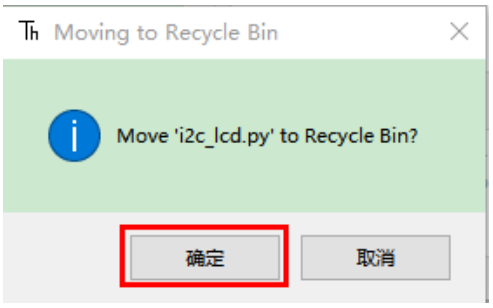
Click  or press "F5" the code will run.



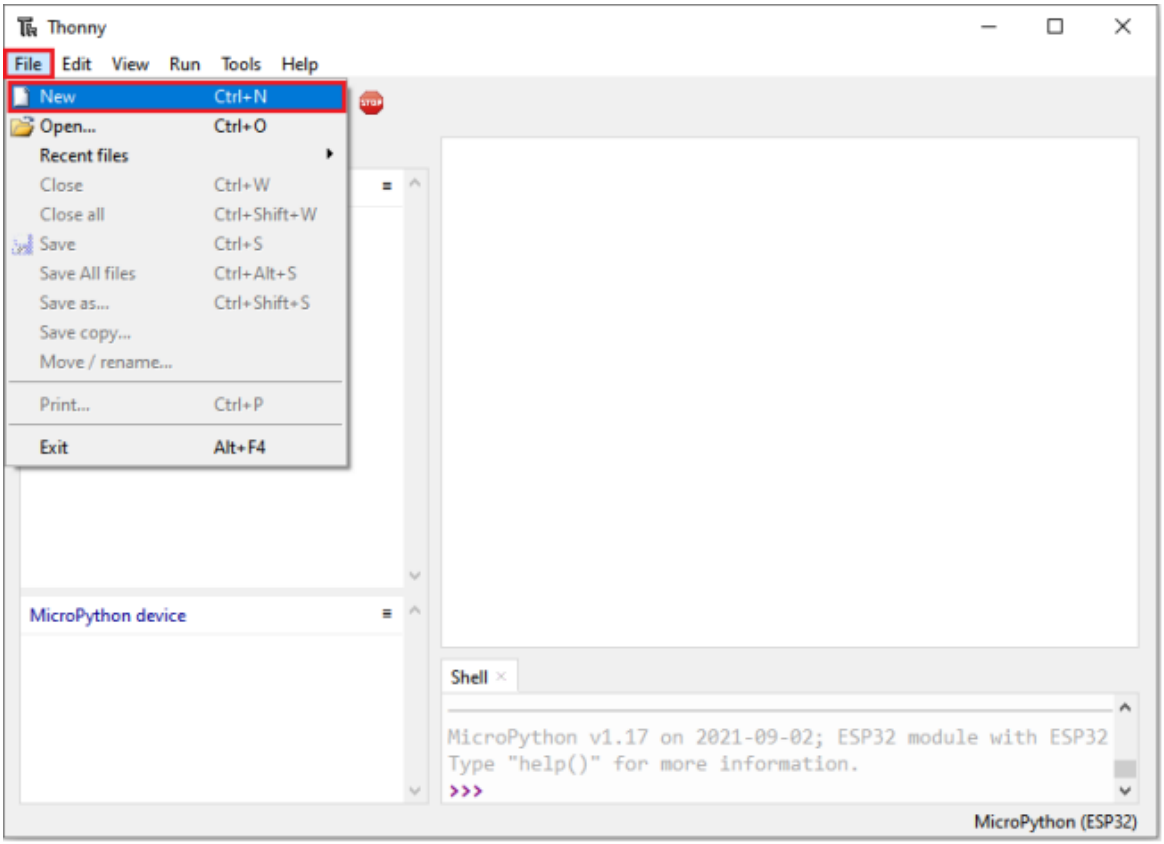
Other operations:

Also you can download code to your computer or delete code or move it to recycle bin.





Click “File” → “New” to create and edit code.

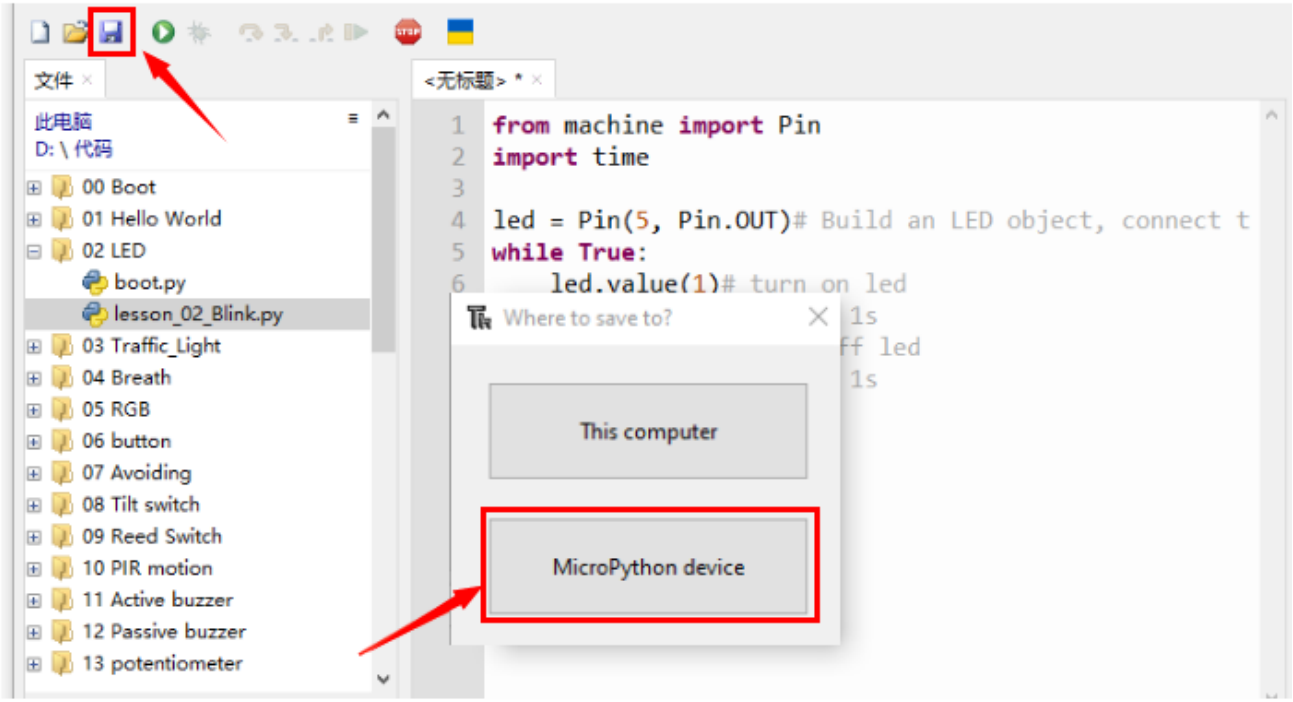


Enter the code in the new file. We take the **lesson 01. LED blink.py** as an example.

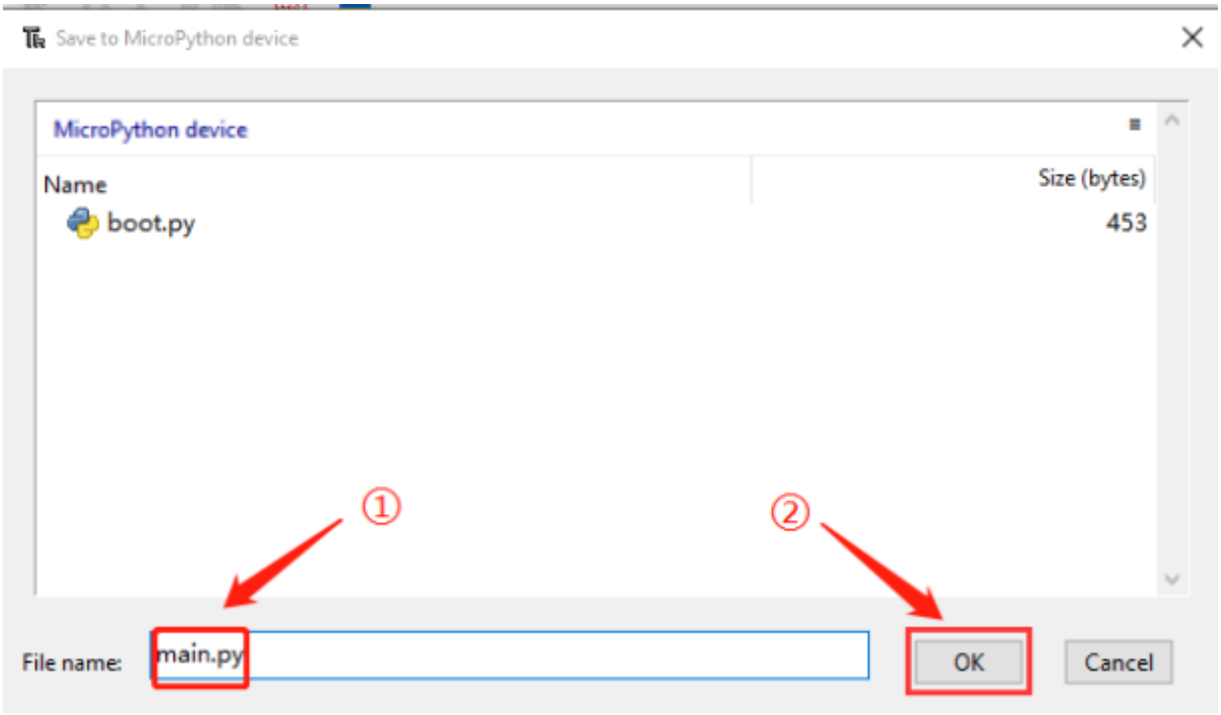
```
from machine import Pin
import time

led = Pin(5, Pin.OUT)# Build an LED object, connect t
while True:
    led.value(1)# turn on led
    time.sleep(1)# delay 1s
    led.value(0)# turn off led
    time.sleep(1)# delay 1s
```

Click 💾 to save code on your computer or ESP32.



Enter **main.py** in the new page and click **OK**.



Then the code will be uploaded to the ESP32.