


First, you need to follow the assembly manual or video to assemble the car and connect the wires correctly.

 1_Assembly_guide	2023/5/3 14:31	文件夹
 2_Arduino_software	2023/5/3 14:09	文件夹
 3_Libraries	2023/5/3 14:10	文件夹
 CH340 Driver File-MAC	2023/5/3 14:09	文件夹
 CH340 Driver File-Windows	2023/5/3 14:09	文件夹

Next, follow this tutorial to properly create your programming environment.

## Install the Arduino IDE

### Arduino software

The Arduino Integrated Development Environment (IDE) is the software side of the Arduino platform. Used to write and upload code to the dashboard . Follow the tutorial to install the Arduino software (IDE) .


#### 1.1 Enter the Arduino software official website

Enter in the browser and click to go to the <https://www.arduino.cc/en/software> webpage, and you can see the following

webpage location:

[HARDWARE](#) [SOFTWARE](#) [CLOUD](#) [DOCUMENTATION ▼](#) [COMMUNITY ▼](#) [BLOG](#) [ABOUT](#)

# Downloads



## Arduino IDE 2.0.0

The new major release of the Arduino IDE is faster and even more powerful! In addition to a more modern editor and a more responsive interface it features autocompletion, code navigation, and even a live debugger.

For more details, please refer to the [Arduino IDE 2.0 documentation](#).

### DOWNLOAD OPTIONS

**Windows** Win 10 and newer, 64 bits  
**Windows** MSI installer  
**Windows** ZIP file

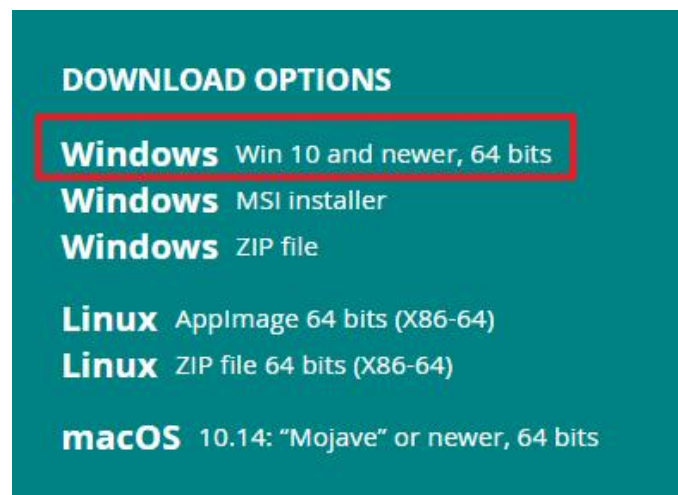
**Linux** AppImage 64 bits (X86-64)  
**Linux** ZIP file 64 bits (X86-64)

**macOS** 10.14: "Mojave" or newer, 64 bits

(Here, take win10 system to install version 2.0.0 IDE as an example. For lower systems, please slide the web page below to install version 1.8.X software. At the same time, when you see this tutorial, there may be a newer version on the website!)

## 1.2 Select the system version for software adaptation

Select the development software compatible with your computer system to download, here take Windows 10 as an example.



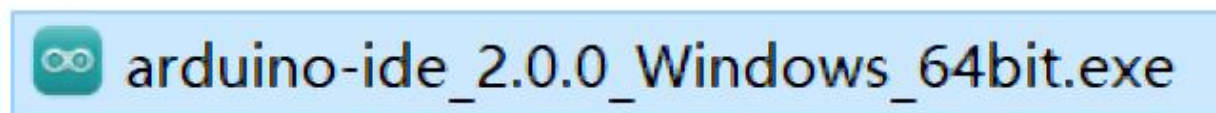
You can choose between an installer (.exe) and a Zip package. We recommend that you use the first "Windows Win10 and newer" to directly install everything you need to use the Arduino software (IDE), including drivers. Whereas with the Zip package, you need to install the drivers manually. Of course Zip files are also useful if you want to create a portable installation.

Click "Windows Win10 and newer"



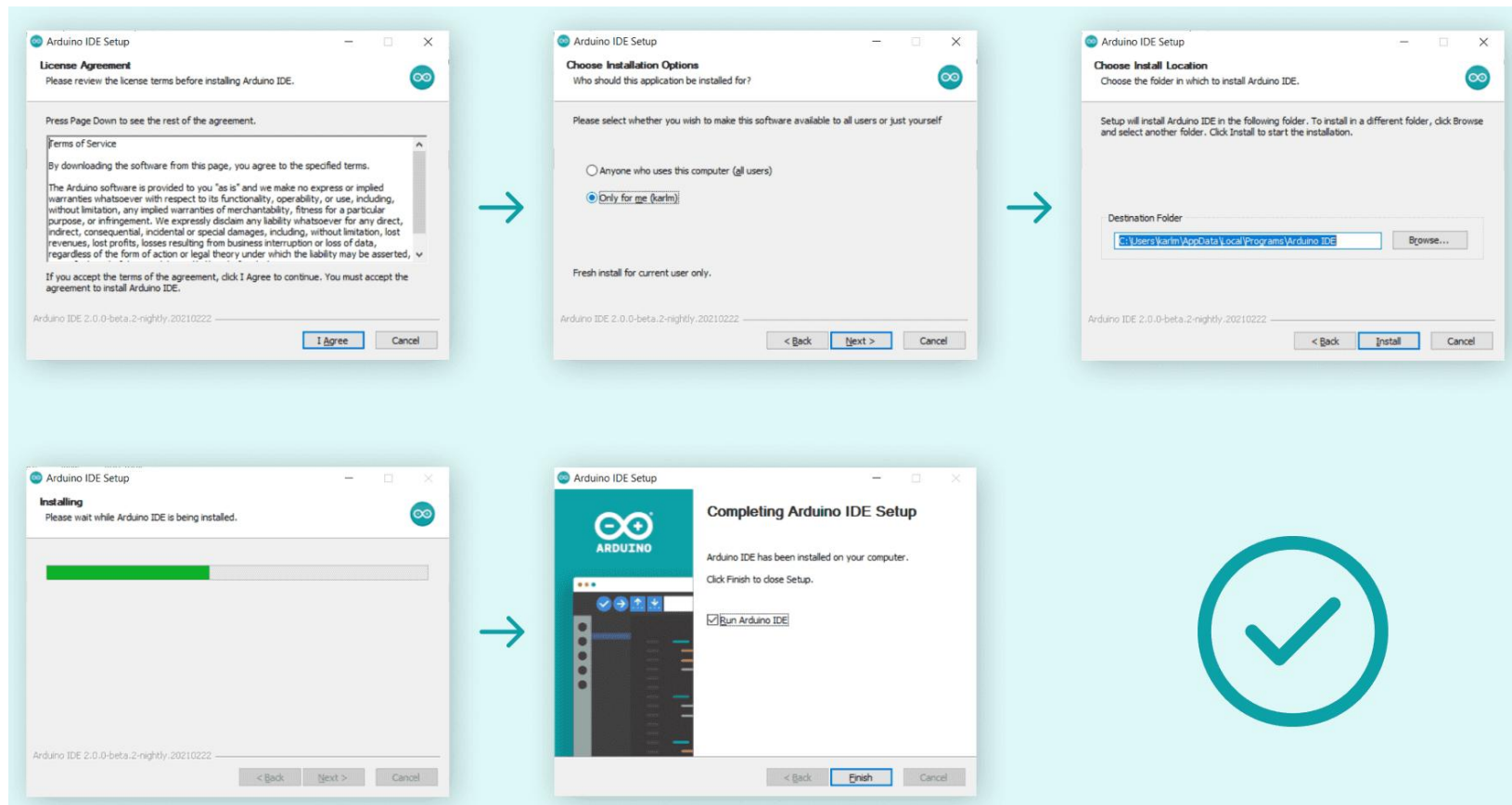
Click "JUST DOWNLOAD".

After the download is complete, you will get the installation package file with the suffix "exe"




## 1.3 Formal installation of Arduino IDE

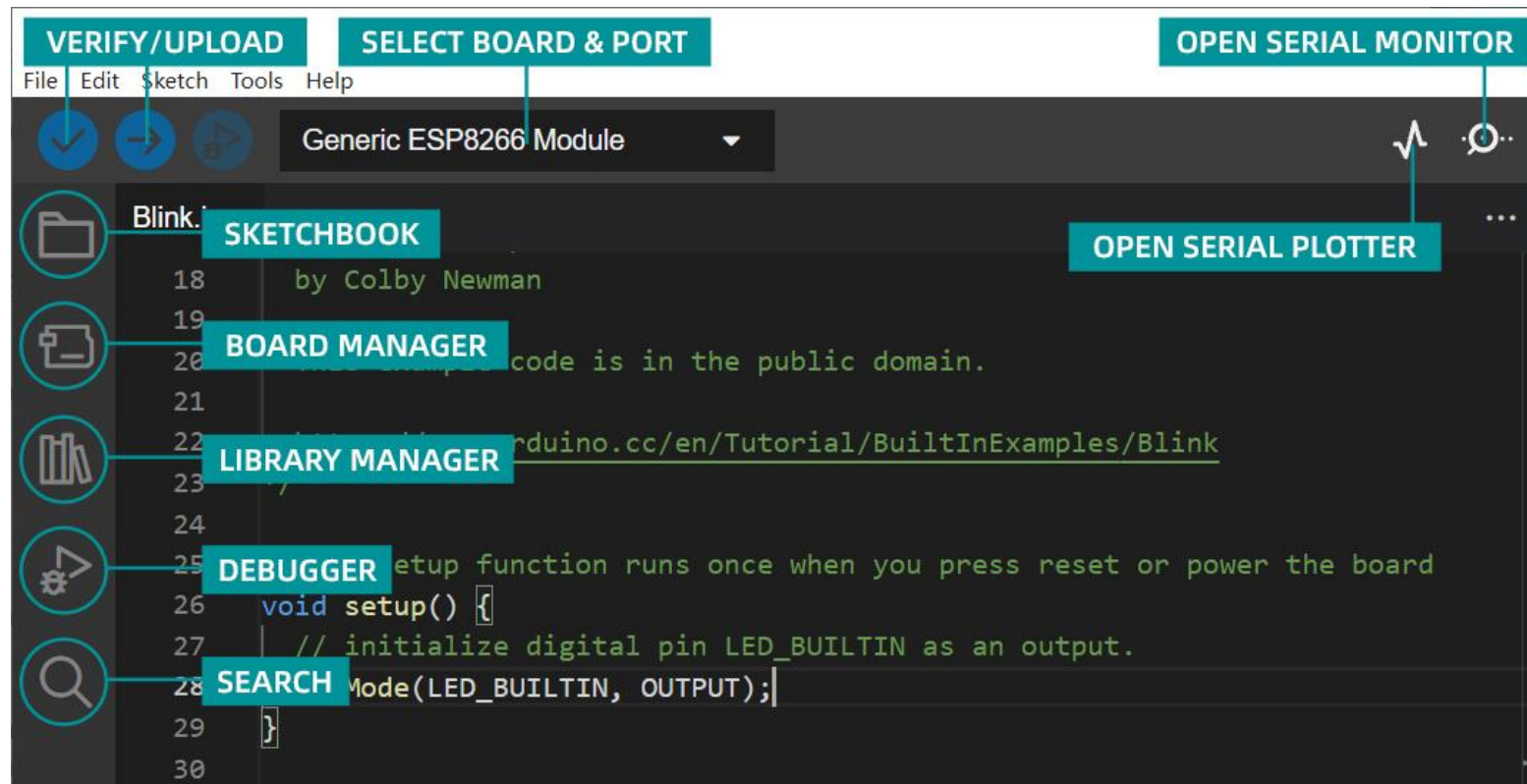
Double click to run the installer



You can press "Browse..." to select the installation path or directly enter the directory you want. Then click "Install" to install. ( For Windows users, a driver installation dialog box may pop up during the installation process , when it pops up, please allow the installation )

shortcut to the Arduino IDE software will be generated on the desktop , double-click to enter the Arduino software platform environment .

After the installation is complete, open the software and you can see the software platform interface as shown below  
(different versions of the interface will be different):



**Each area\button function:**

**compile /upload** - compile and upload your code to your Arduino board

**Select board type and port number** - .The detected Arduino board and port number will be displayed here automatically

**Project Sketches** - Here you will find all your sketches stored locally on your computer. Also, you can sync with the Arduino cloud and get your sketches from the online environment

**Board Manager** - Browse Arduino and 3rd party packages that can be installed. For example, using the MKR WiFi 1010 board requires the Arduino SAMD Boards package to be installed

**Library Manager** - Browse thousands of Arduino libraries contributed by Arduino and its community

**Debug** - Test and debug programs in real time

**Search** - Search for a keyword in the code

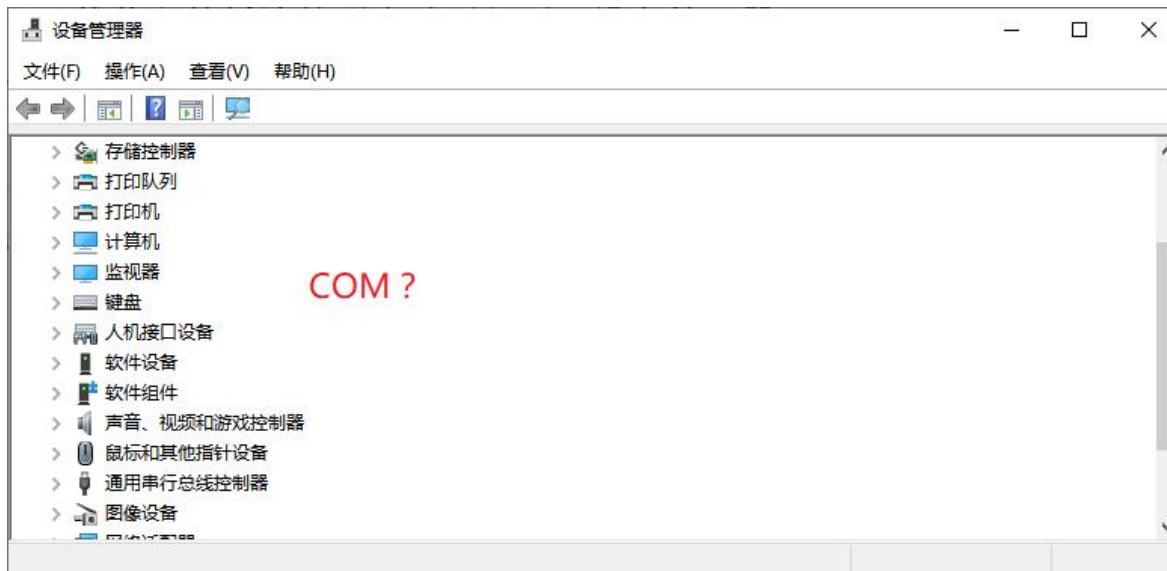
**Open Serial Monitor** - Opens the Serial Monitor tool as a new tab in the console

A program written using the Arduino software (IDE) is called a "Sketch". These "Sketches" are written in a text editor and saved with the file extension ".ino". It is worth noting that the ".ino" file must be saved in a folder with the same name as itself. If it is not in the folder with the same name, it will be forced to automatically create a file with the same name when opening the program.



## 1.4 Install CH340 driver

Sometimes computers lack the CH340 serial port driver. Use a USB cable to connect the main control board to the computer, then search and open the "Device Manager"(If you can see CH340 under COM and LPT, you don't need to install it, just skip it)

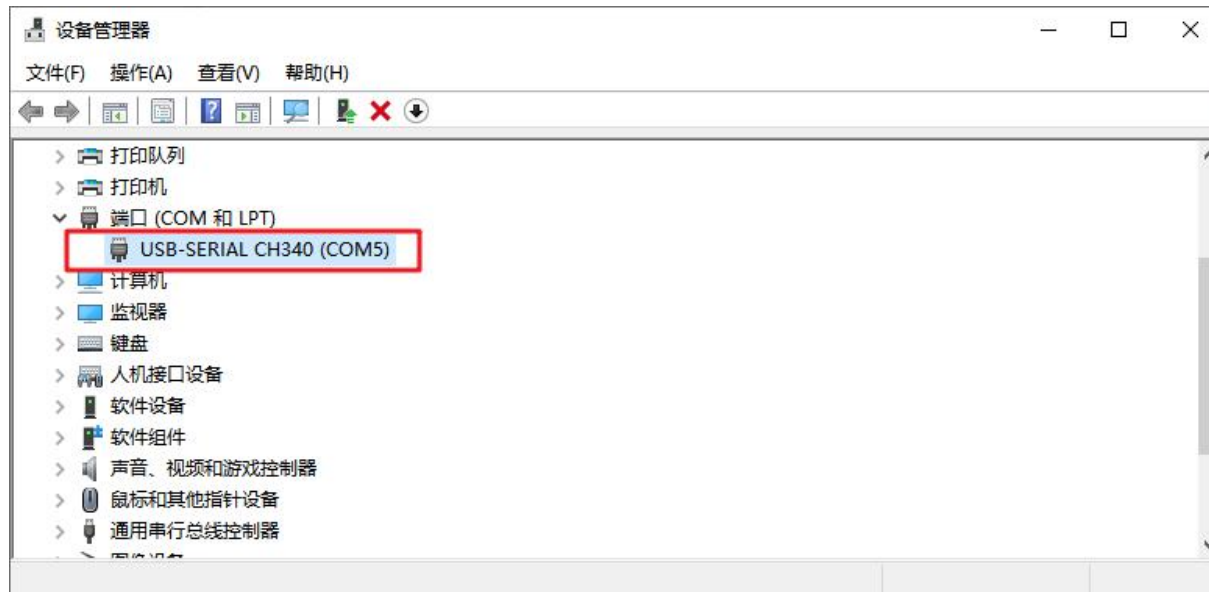


If you don't see the CH340 serial port in the above picture, you need to install the driver according to the following operations. Open the folder CH340 Driver File-Windows, double-click the exe program installation package of CH340 to

start the installation.

1_Assembly_robot	2023/4/27 11:02	文件夹
2_Arduino_IDE	2023/4/27 11:02	文件夹
3_Arduino_Libraries	2023/4/27 10:55	文件夹
CH340 Driver File-MAC	2023/4/27 11:23	文件夹
CH340 Driver File-Windows	2023/4/27 11:23	文件夹

After the installation is complete, you can see that the driver has been displayed in the device manager (make sure the main control board is properly connected to the computer)

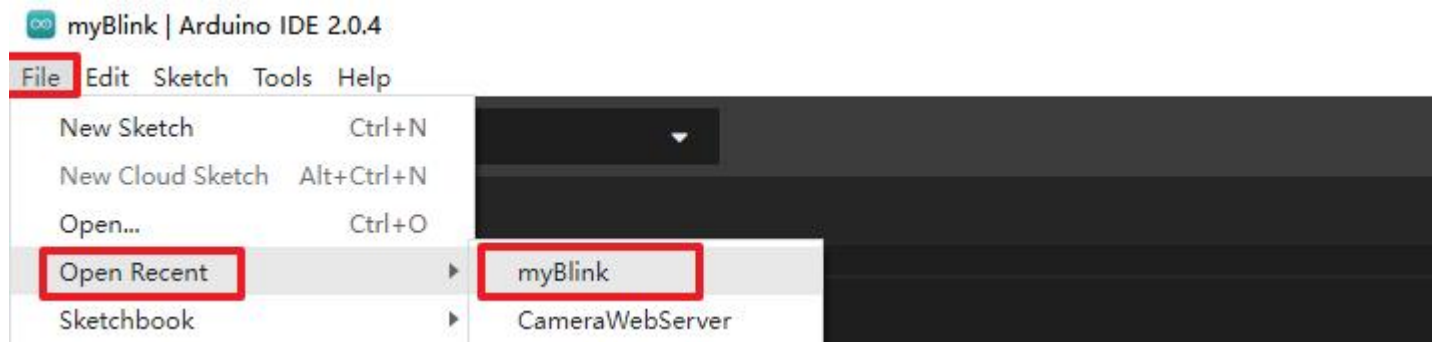




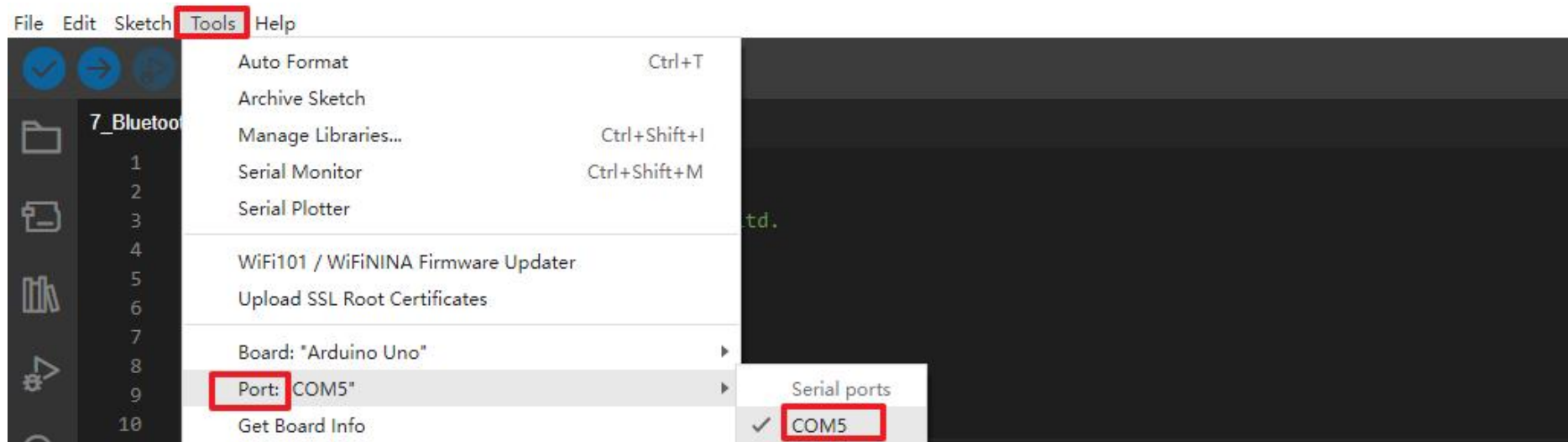
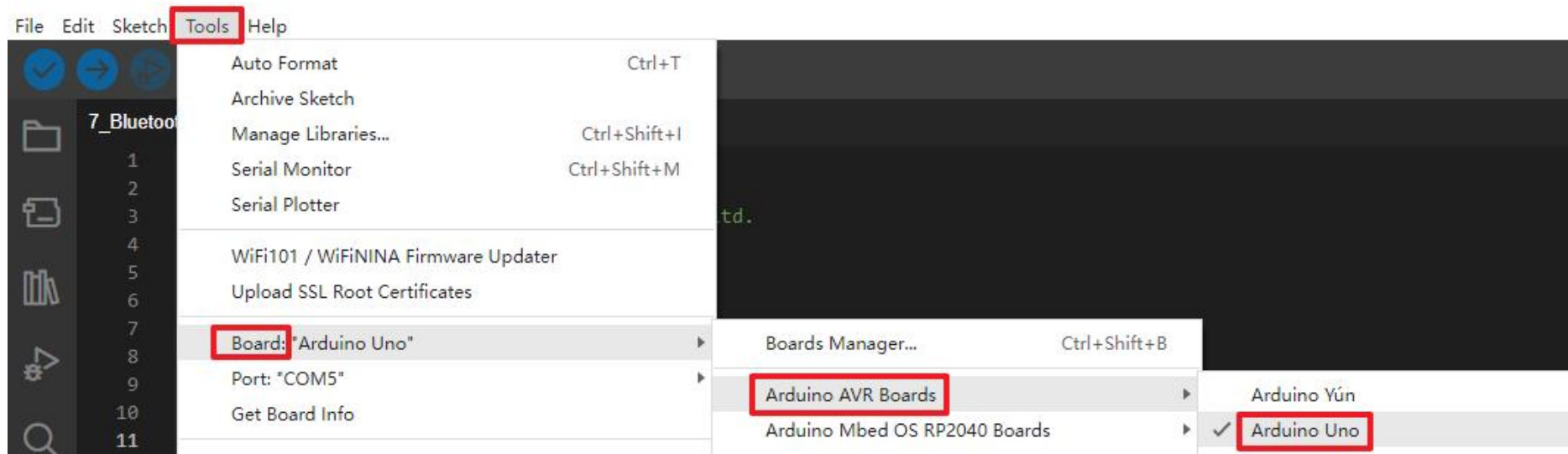
The example sketches included with the Arduino IDE are "read only". That is, you can upload them to the dashboard , but if you change them, you can't save them as the same file. So the first thing you need to do is save your own copy.

From the Arduino IDE's File menu, select "Save As.." and save the sketch as "MyBlink".

You've saved a copy of the "flicker" in your sketchbook, if you ever want to find it again, just open it using the " File > Open Recent " menu option.



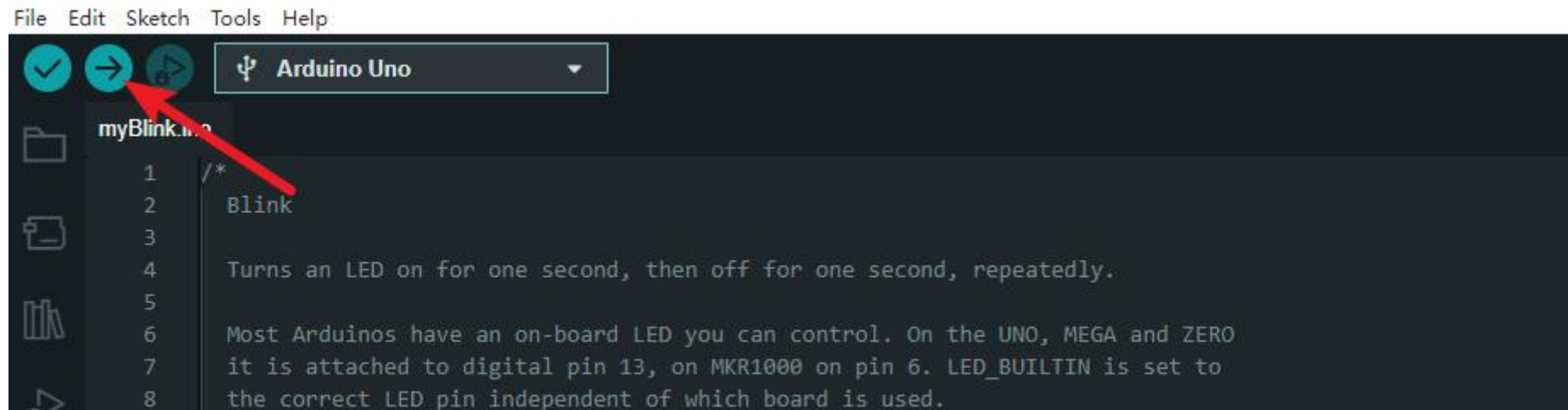
Connect the Arduino board to the computer using a USB cable and check that the Board Type and Serial Port are set correctly.



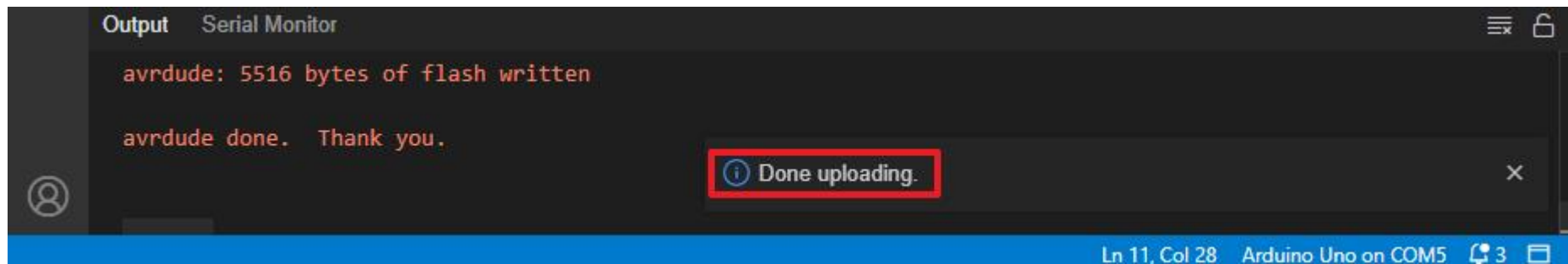
Note: The board type here is **Uno** and the serial port is **COM5** .

Actually the serial port appears to be different for everyone, even though COM 5 is selected here , it could be COM3 or COM4 on your computer. A correct COM port should be COM X (arduino X XX) standard.

After clicking the "Upload" button, the program starts to upload. At this time, the LED on the Arduino will start to blink as the sketch is transferred.



The transfer is complete and "Done Uploading" appears.



"Compile Sketch.." process , you might get an error message:

This could mean that your board is not connected at all, or that the CH340 driver is not installed (if required) or that the serial port is selected incorrectly . If you encounter this situation, please check your IDE settings and motherboard connection, and ask business personnel for help after taking a screenshot .

When the upload is complete , the board LED should reboot and start blinking. Note that a large part of this sketch consists of annotations. These are not actual program instructions; rather, they explain how to make the program work. They are there for your easy readability . Everything between " /\* " and " \*/ " at the top of the sketch is a block comment ,

which explains the purpose of the sketch.

A single-line comment starts with "//" and everything up to the end of the line is considered a comment.

The first part of code is:

```
// the setup function runs once when you press reset or power the board
void setup () {
  // initialize digital pin LED_BUILTIN as an output.
  pinMode (LED_BUILTIN, OUTPUT);
}
```

Every sketch needs a "setup" function , aka "Void setup()" function, which is executed when the reset button is pressed. It is executed whenever the board is reset for any reason, such as powering on for the first time or after uploading a sketch .

The next step is to name the pin and set the output, here set " LED\_BUILTIN " as the output port. On most Arduinos, including UNO , pin 13 is the pin corresponding to the LED, and for the convenience of programming, the program has set the LED\_BUILTIN variable to this pin, so it is not necessary to rename it to pin 13 for direct use.



The sketch must also have a "loop" function. Unlike the "Set" function, which only runs once, after a reset, the "Loop" function will restart immediately after finishing running the command.

```
// the loop function runs over and over again forever
void loop () {
  digitalWrite (LED_BUILTIN, HIGH); // turn the LED on (HIGH is the voltage level)
  delay ( 1000 ); // wait for a second
  digitalWrite (LED_BUILTIN, LOW); // turn the LED off by making the voltage LOW
  delay ( 1000 ); // wait for a second
}
```

Inside the loop function, the command first turns on the LED pin (high level), then "delays for 1000 milliseconds (1 second), then turns off the LED pin and pauses for one second.

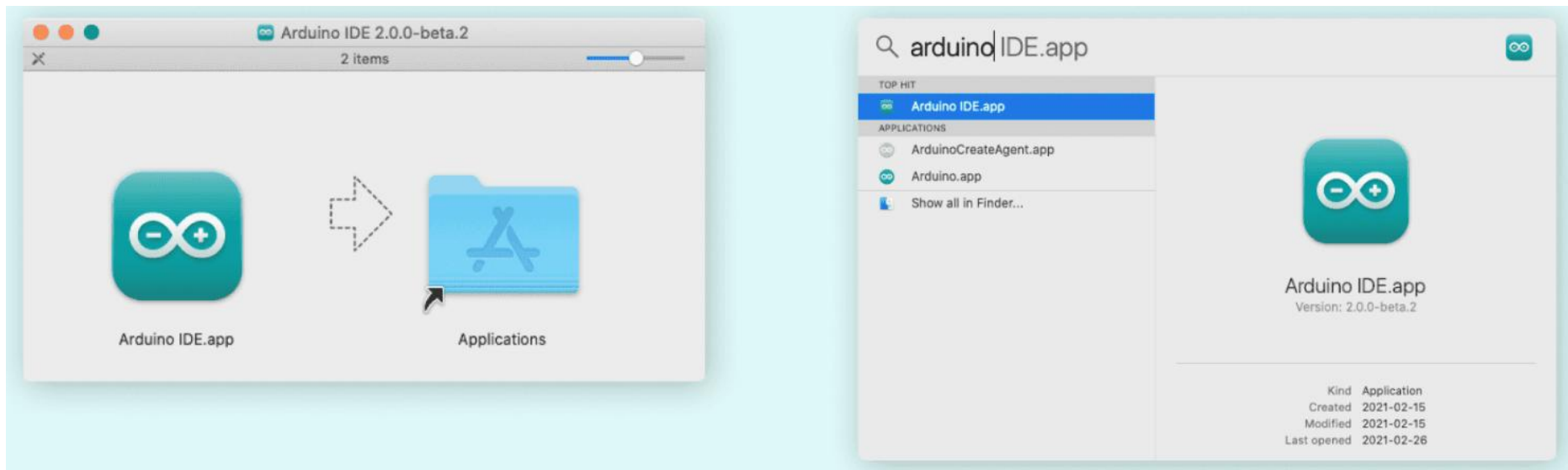
You are now going to make your LED blink faster. The key, as you might have guessed, is changing the parameters in "delay ()".

```
void loop() {
  digitalWrite(LED_BUILTIN, HIGH); // turn the LED on (HIGH is the voltage level)
  delay(1000); // wait for a second
  digitalWrite(LED_BUILTIN, LOW); // turn the LED off by making the voltage LOW
  delay(1000); // wait for a second
}
```

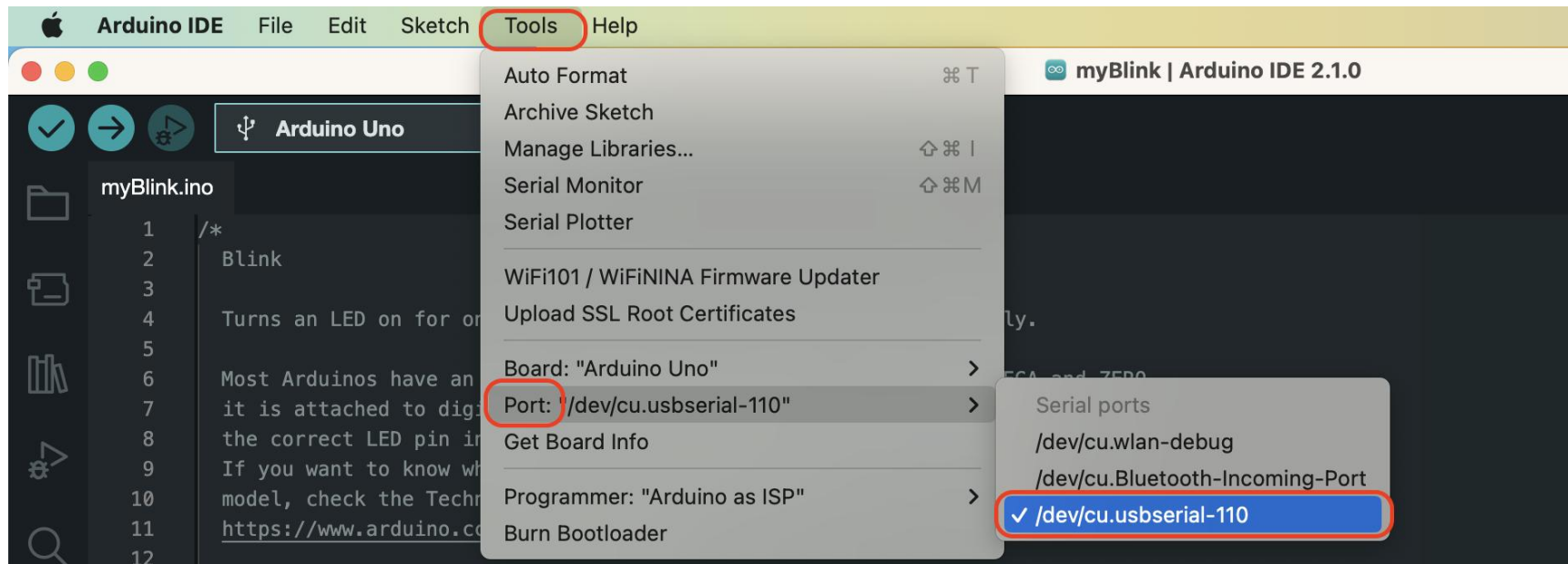
This delay time is in milliseconds, so if you want the "LED" to blink twice as fast, change the value from "1000" to "500" . This will pause for half a second on each delay, instead of a second. Upload the sketch again and you should see the "LED" start blinking faster .

## 1.6 Arduino IDE on Mac OS X

Download and unzip the zip file, double-click Arduino.app to install; if there is no Java runtime library in your computer, the system will ask you to install it, after the installation is complete, you can run the Arduino IDE.

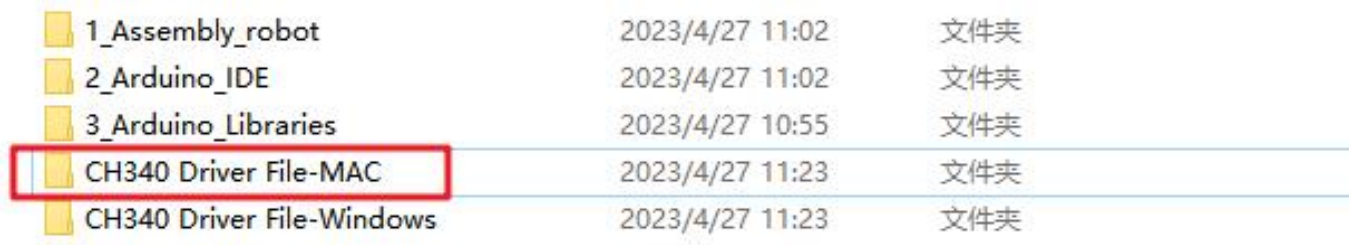


Similarly, when you connect the main control board to the computer with a USB cable, you will find that the software recognizes "USBserial" as shown in the figure below.



If you do not see the USB serial port, you need to install the CH340 driver.

Open the folder CH340 Driver File-MAC, double-click to install the pkg file



During the installation process, if the computer prompts that the installation permission is required, you need to go to the "Security and Privacy" setting to allow the APP from any source.



At this point, the preparation is done!