

Overview

Introduction

RP2040-One is a mini RP2040 development board. The onboard PCB USB-A connector makes it plug-and-play instantly. Mini body, 29 x multi-function GPIO pins (20 x via edge pinout, others via solder points), and the edge of the PCB adopt the castellated design, which can be easily and quickly integrated into your project.

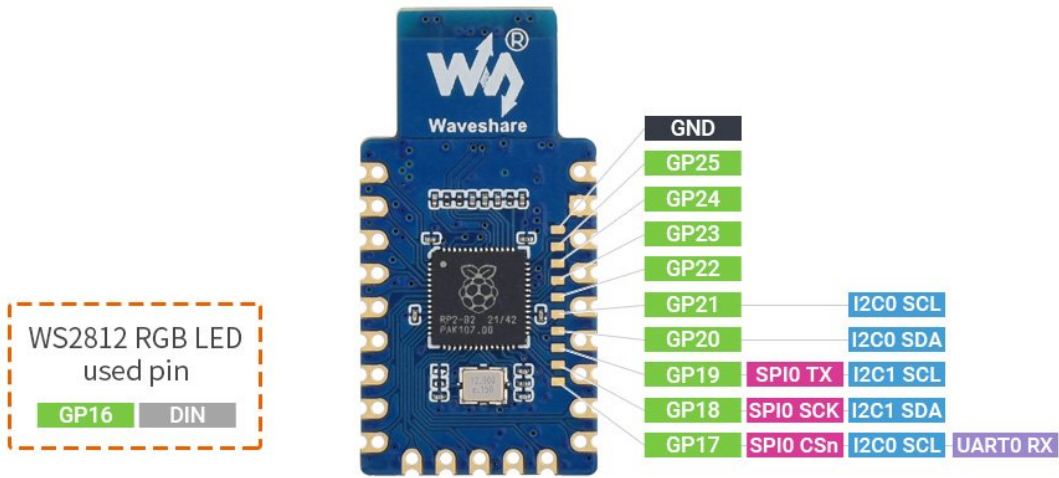
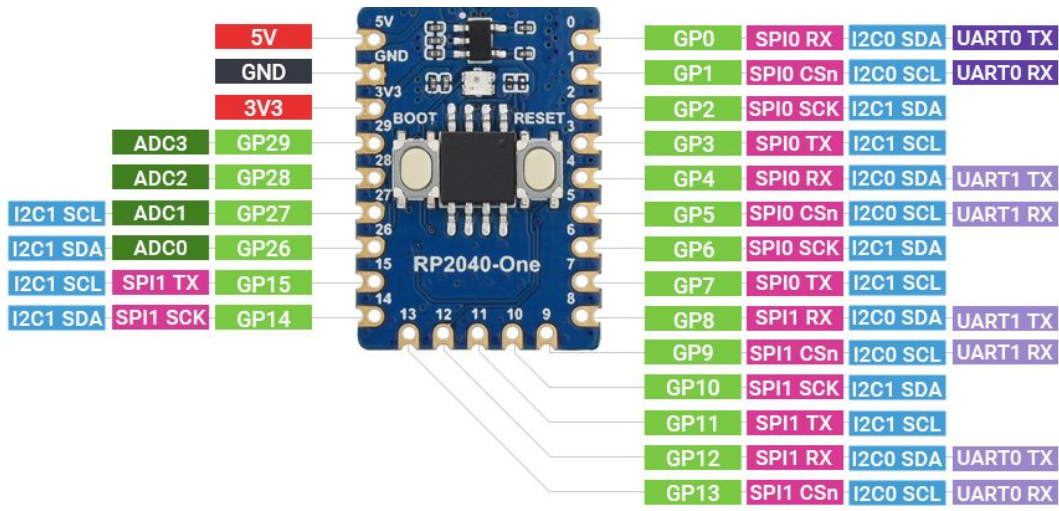


Features

- RP2040 microcontroller chip designed by Raspberry Pi in the United Kingdom
- Dual-core Arm Cortex M0+ processor, flexible clock running up to 133MHZ
- 246KB of SRAM, and 4MB of on-board Flash memory
- The castellated module allows soldering direct to carrier boards
- USB1.1 with device and host support
- Low-power sleep and dormant modes
- Drag-and-drop programming using mass storage over USB
- 29 x multi-function GPIO pins (20x via edge pinout, others via solder points)
- 2 x SPI, 2 x UART, 4 x 12-bit ADC, 16 x controllable PWM channels
- Accurate clock and timer on-chip
- Temperature sensor
- Accelerated floating-point libraries on-chip
- 8 x Programmable I/O (PIO) state machines for custom peripheral support

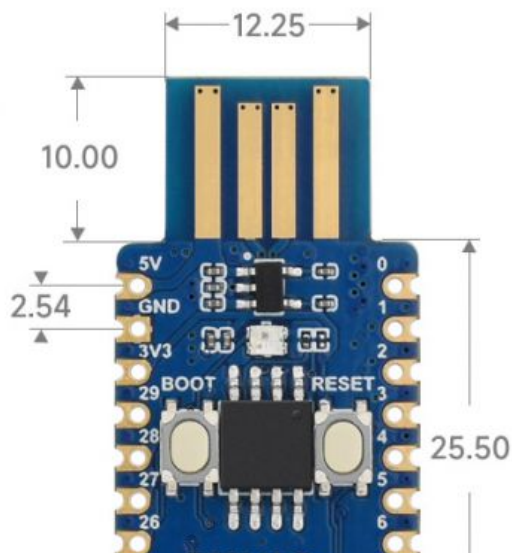
Pinout

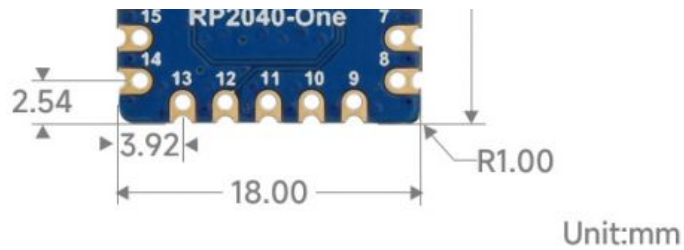




- Power
- Ground
- UART / UART (default)
- GPIO, PIO, and PWM
- ADC
- SPI
- Debugging
- I2C

Dimensions





Pico Quick Start

Download Firmware

- [MicroPython Firmware Download](#)
- [C_Blink Firmware Download](#) [\[Expand\]](#)

Video Tutorial

- [Pico Tutorial I - Basic Introduction](#)
- [Pico Tutorial II - GPIO](#) [\[Expand\]](#)
- [Pico Tutorial III - PWM](#) [\[Expand\]](#)
- [Pico Tutorial IV - ADC](#) [\[Expand\]](#)
- [Pico Tutorial V - UART](#) [\[Expand\]](#)
- [Pico Tutorial VI - To be continued...](#) [\[Expand\]](#)

MicroPython Series

- [【MicroPython】 machine.Pin Function](#)
- [【MicroPython】 machine.PWM Function](#)
- [【MicroPython】 machine.ADC Function](#)
- [【MicroPython】 machine.UART Function](#)
- [【MicroPython】 machine.I2C Function](#)
- [【MicroPython】 machine.SPI Function](#)
- [【MicroPython】 rp2.StateMachine](#)

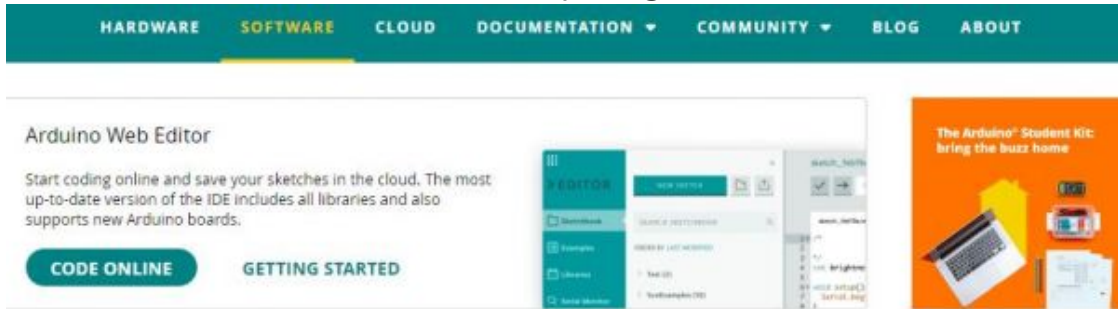
C/C++ Series

- [【C/C++】 Windows Tutorial 1 - Environment Setting](#)
- [【C/C++】 Windows Tutorial 1 - Create New Project](#)

Arduino IDE Series

Install Arduino IDE

1. Download the Arduino IDE installation package from [Arduino website](#).



Downloads

A screenshot of the Arduino IDE 2.0.0 download page. On the left, there is a large Arduino logo and the text 'Arduino IDE 2.0.0'. Below this, a paragraph describes the new major release as faster and more powerful, mentioning features like a modern editor, responsive interface, autocompletion, code navigation, and a live debugger. It also refers to the 'Arduino IDE 2.0 documentation' and mentions that nightly builds are available. At the bottom left, there is a 'SOURCE CODE' section stating that the IDE is open source and hosted on GitHub. On the right side, there is a teal-colored box titled 'DOWNLOAD OPTIONS'. It lists three options for Windows: 'Win 10 and newer, 64 bits', 'MSI installer', and 'ZIP file'. It also lists two options for Linux: 'AppImage 64 bits (X86-64)' and 'ZIP file 64 bits (X86-64)'. Finally, it lists 'macOS 10.14: "Mojave" or newer, 64 bits'. A red arrow points to the 'Win 10 and newer, 64 bits' option.

2. Just click on "JUST DOWNLOAD".

Support the Arduino IDE

Since the release 1.x release in March 2015, the Arduino IDE has been downloaded **69,954,557** times — impressive! Help its development with a donation.





Learn more about [donating to Arduino](#).

3. Click to install after downloading.



4. **Note: You will be prompted to install the driver during the installation process, we can click Install.**

Install Arduino-Pico Core on Arduino IDE

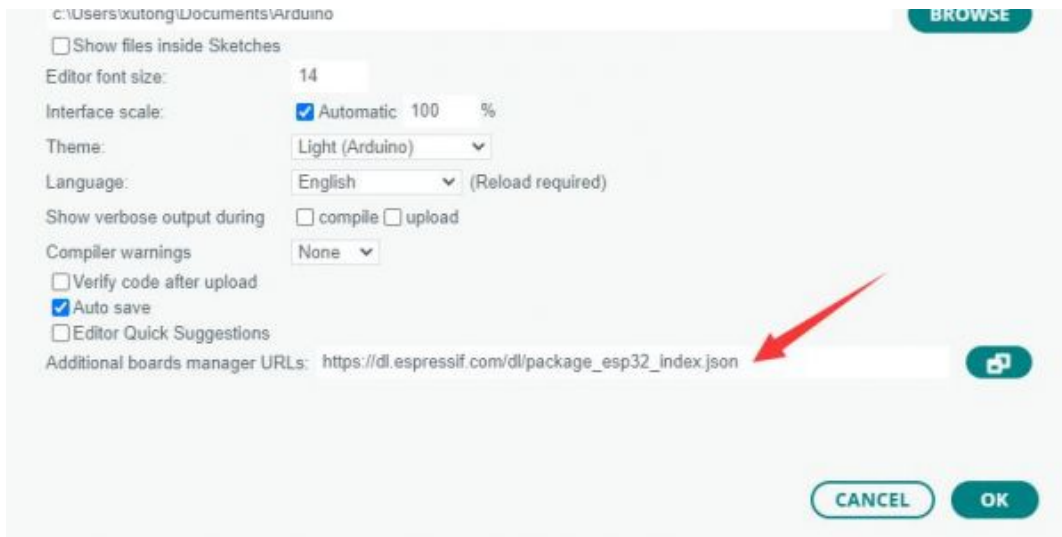
1. Open Arduino IDE, click the File on the left corner and choose "Preferences".



2. Add the following link in the additional development board manager URL, then click OK.

```
https://github.com/earlephilhower/arduino-pico/releases/download/global/package_rp2040_index.json
```

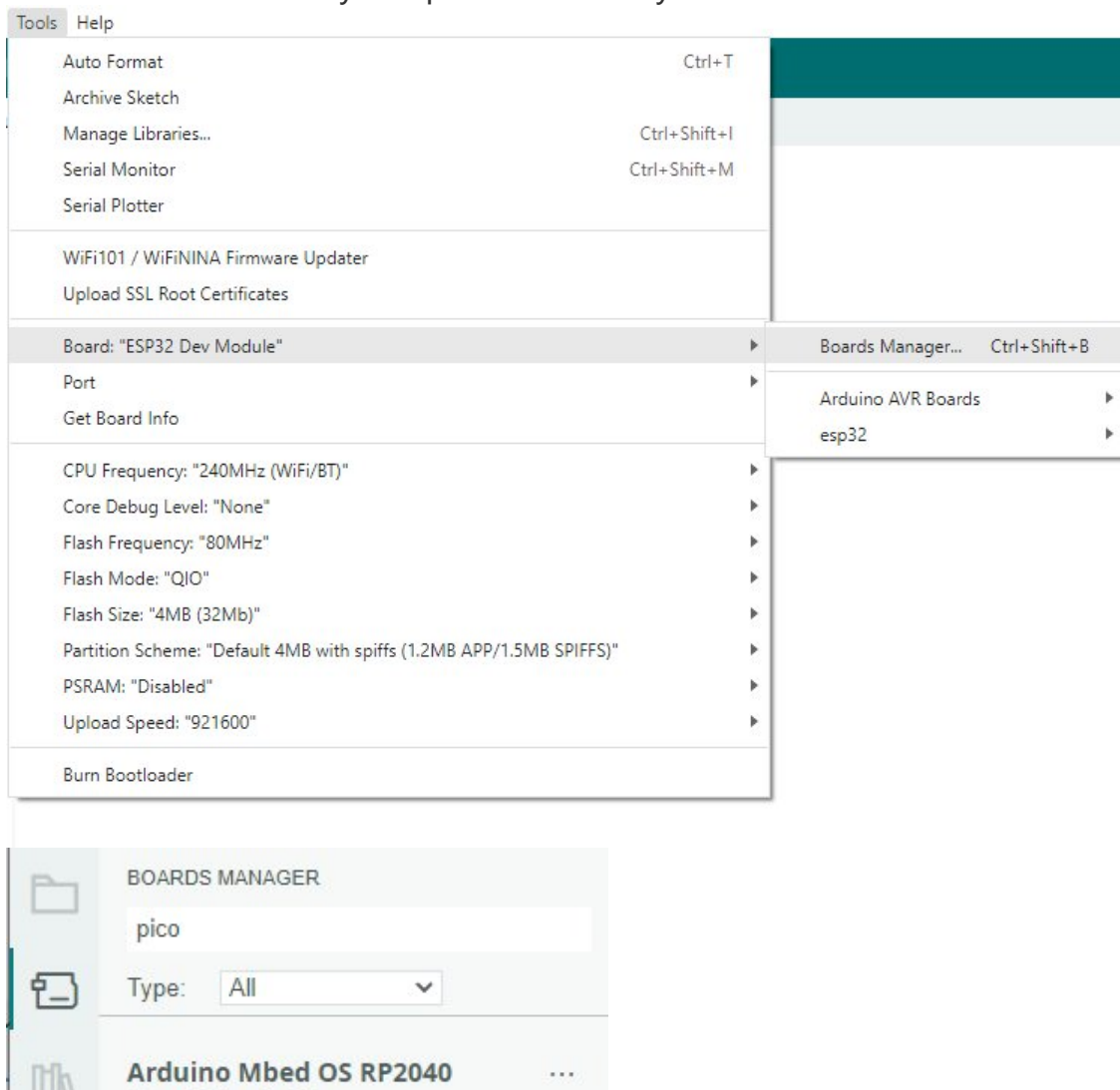


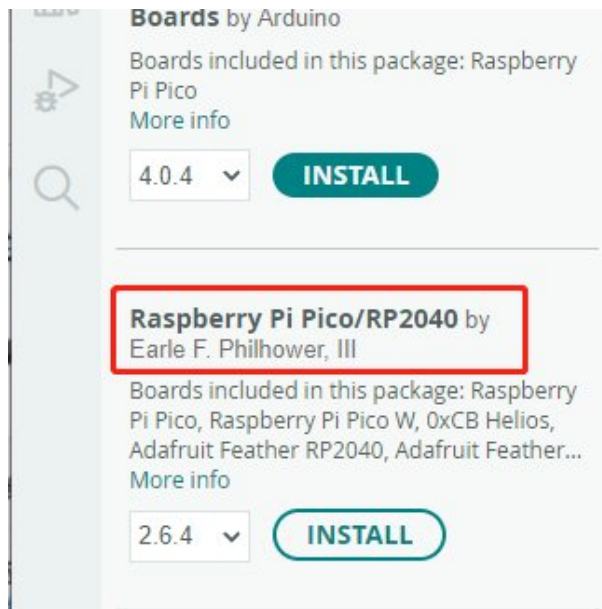


Note: If you already have the ESP8266 board URL, you can separate the URLs with commas like this:

```
https://dl.espressif.com/dl/package_esp32_index.json,https://github.com/earlephilhower/arduino-pico/releases/download/global/package_rp2040_index.json
```

3. Click on Tools -> Dev Board -> Dev Board Manager -> Search for pico, it shows installed since my computer has already installed it.





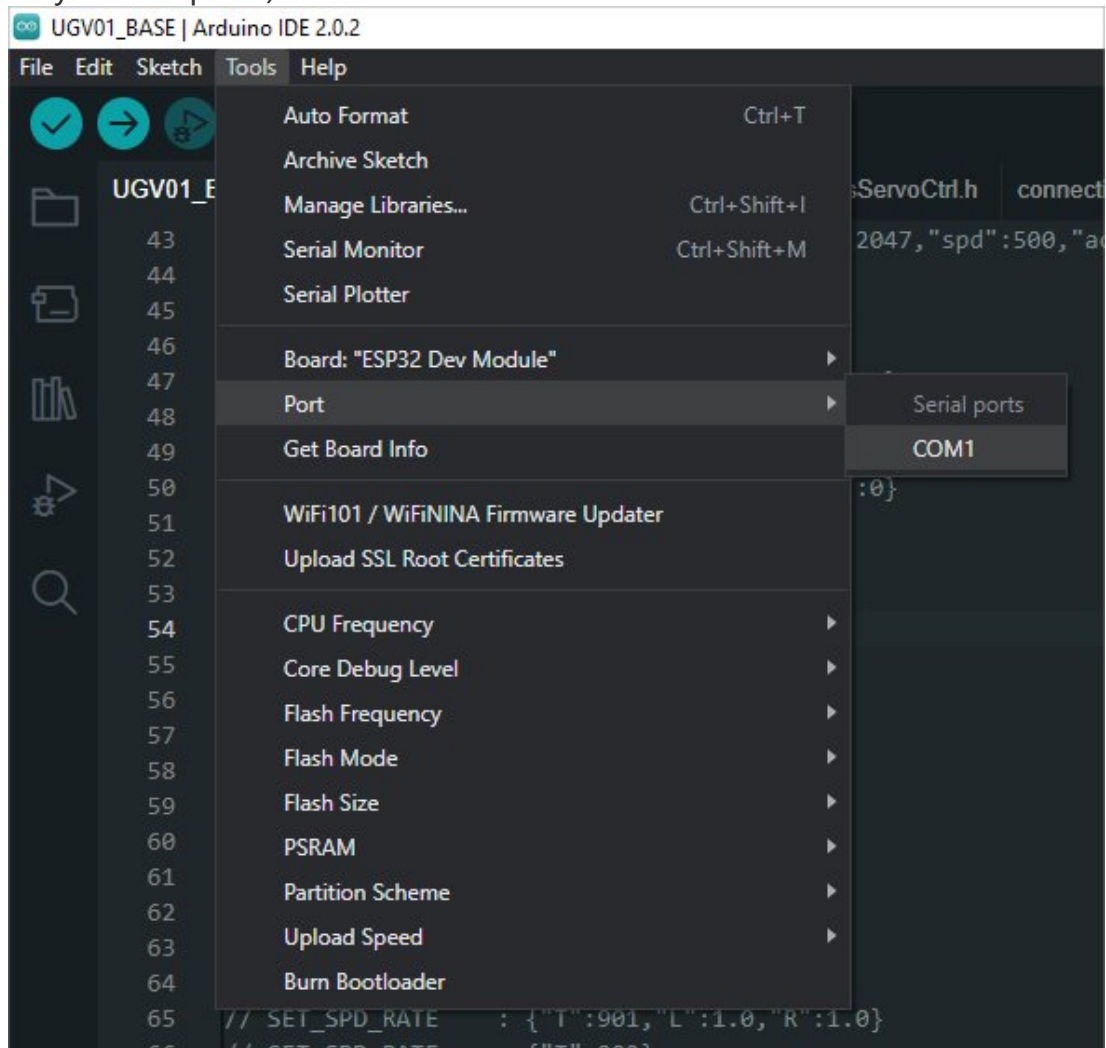
Upload Demo At the First Time

1. Press and hold the BOOTSET button on the Pico board, connect the Pico to the USB port of the computer via the Micro USB cable, and release the button when the computer recognizes a removable hard drive (RPI-RP2).

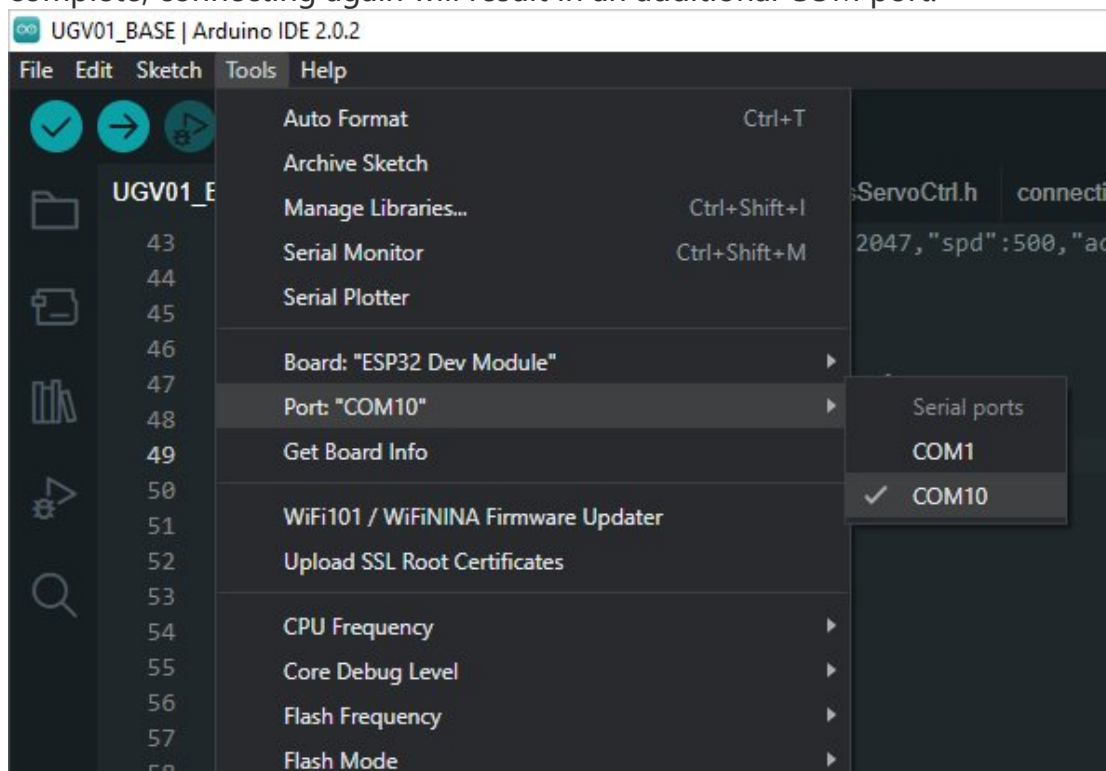


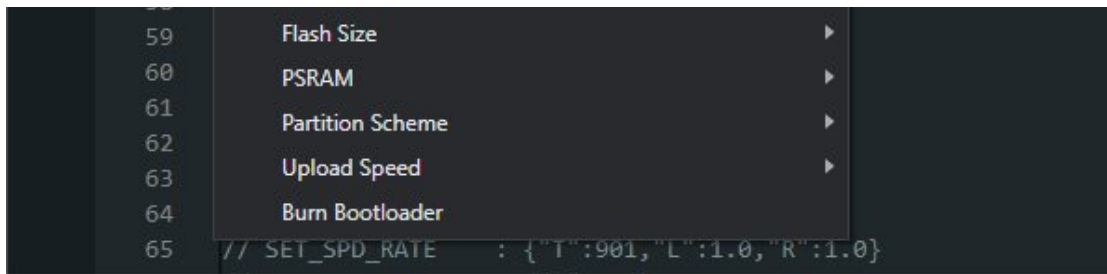
2. Download the demo, open arduino\PWM\D1-LED path under the D1-LED.ino.
3. Click Tools -> Port, remember the existing COM, do not need to click this

COM (different computers show different COM, remember the existing COM on your computer).

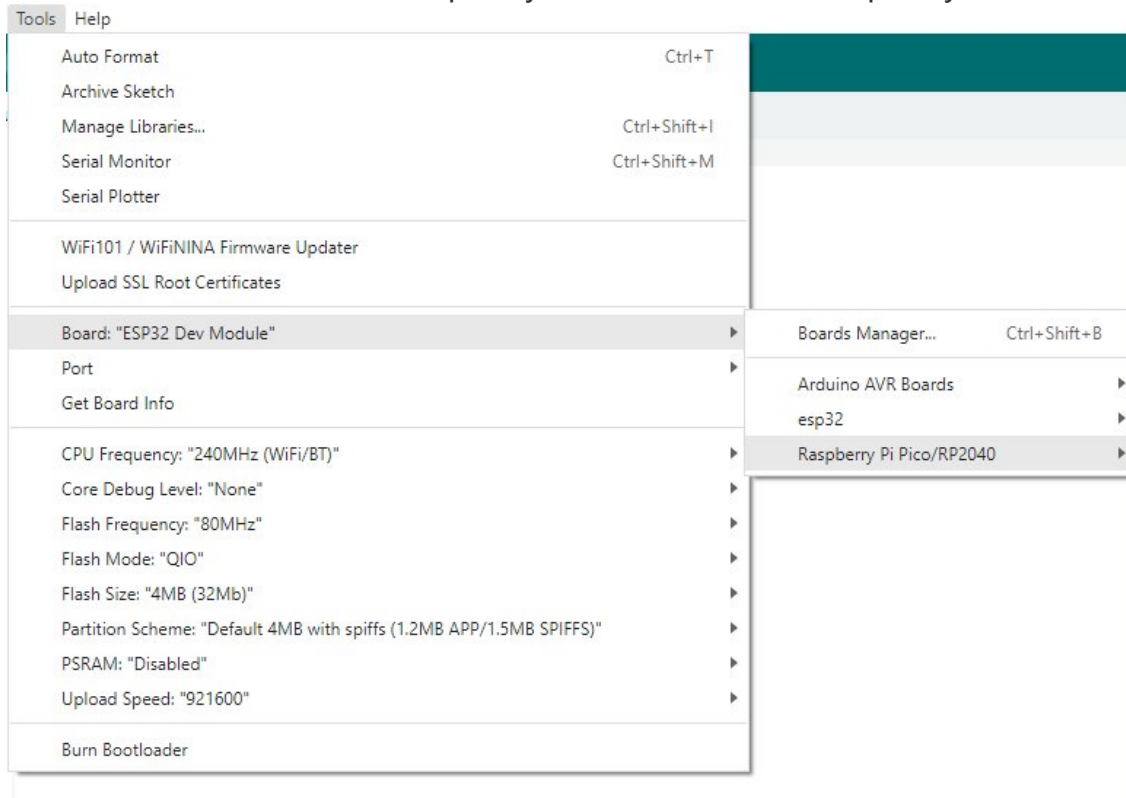


4. Connect the driver board to the computer with a USB cable, then click Tools > Ports, select uf2 Board for the first connection, and after the upload is complete, connecting again will result in an additional COM port.

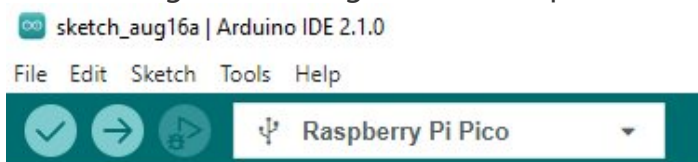




5. Click Tool -> Dev Board -> Raspberry Pi Pico/RP2040 -> Raspberry Pi Pico.



6. After setting, click the right arrow to upload.



- If you encounter problems during the period, you need to reinstall or replace the Arduino IDE version, uninstall the Arduino IDE needs to be uninstalled cleanly, after uninstalling the software you need to manually delete all the contents of the folder C:\Users\[name]\AppData\Local\Arduino15 (you need to show the hidden files in order to see it) and then reinstall.

Pico-W Series Tutorial (To be continued...)

Open Source Demo

- [MicroPython Demo \(GitHub\)](#)
- [MicroPython Firmware/Blink Demo \(C\)](#)
- [Official Raspberry Pi C/C++ Demo](#)

- [Official Raspberry Pi MicroPython Demo](#)
- [Arduino Official C/C++ Demo](#)

Resource

Documents

- [RP2040-One Schematic Diagram](#)
- [RP2040-One.zip](#)

Program

- [RP2040-Zero.zip](#)
- [JustUSB \(shared by Waveshare user\)](#)

Official Documents

Official Raspberry Pi Documents

- [Get Started With Raspberry Pi Pico and MicroPython](#)
- [Raspberry Pi Books](#)
- [RPI-PICO-R3-PUBLIC-SCHEMATIC.pdf](#)
- [Pico-R3-A4-Pinout.pdf](#)
- [Getting started with pico.pdf](#)
- [Pico C SDK](#)
- [Pico python sdk.pdf](#)
- [Pico datasheet.pdf](#)
- [Rp2040 datasheet.pdf](#)
- [Hardware design with rp2040.pdf](#)

Raspberry Pi Open-source Program

- [Raspberry Pi Official C/C++ Example \(github\)](#)
- [Raspberry Pi Official Micropython \(github\)](#)

Development Software

- [Thonny Python IDE \(Windows V3.3.3\)](#)
- [Zimo221.7z](#)

- [Image2Lcd.7z](#)

Support

Technical Support

If you need technical support or have any feedback/review, please click the **Submit Now** button to submit a ticket, Our support team will check and reply to you within 1 to 2 working days. Please be patient as we make every effort to help you to resolve the issue.

Working Time: 9 AM - 6 AM GMT+8 (Monday to Friday)

[Submit Now](#)