

# **ESP32**

## **Troubleshooting Guide**

# ESP32 Troubleshooting Guide

The ESP32 has a few common problems, specially when you are trying to upload new sketches or install the ESP32 add-on for the Arduino IDE.

This guide is dedicated to the ESP32 when programmed with Arduino IDE. Here's a compilation with some of the most common problems with the ESP32 and how to fix them.

**IMPORTANT:** MAKE SURE YOU HAVE THE LATEST ARDUINO IDE INSTALLED. USING A DIFFERENT ARDUINO IDE VERSION MIGHT CAUSE OTHER UNEXPECTED PROBLEMS AND ERRORS.

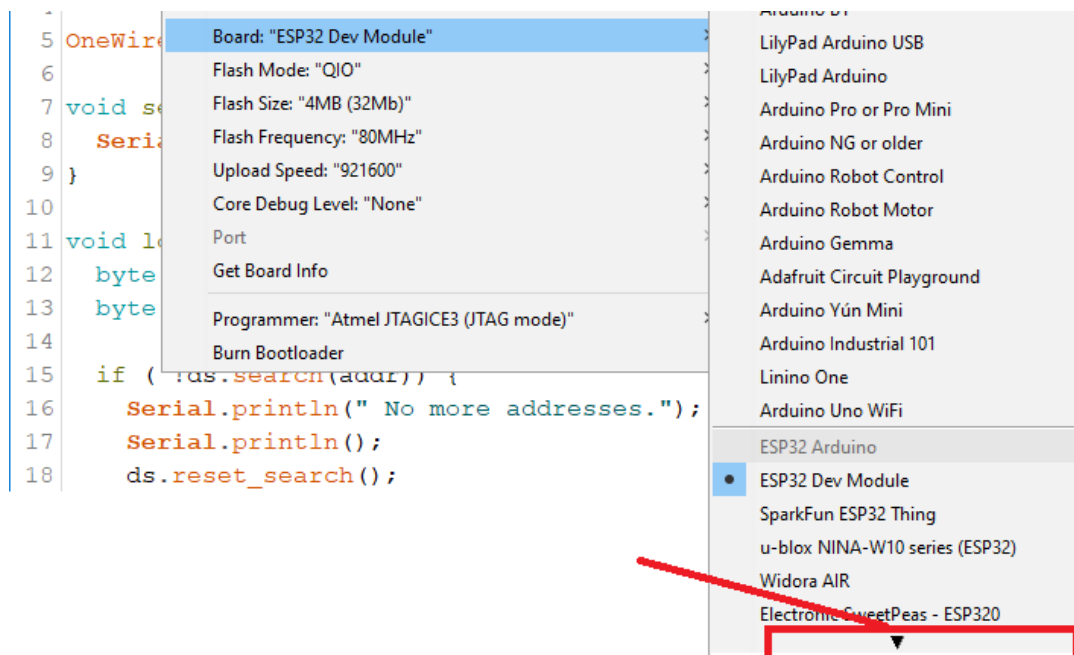
## 1. How to install the ESP32 add-on for the Arduino IDE?

There's an add-on for the Arduino IDE that allows you to program the ESP32 using the Arduino IDE and its programming language. Follow one of the next Unit to prepare your Arduino IDE to work with the ESP32 in your operating system:

- [Windows, Mac and Linux instructions – ESP32 Board in Arduino IDE](#)

## 2. I can't see the ESP32 boards in the Arduino IDE Tools menu

If you still don't see the boards in the Arduino IDE, make sure you click on the small arrow (highlighted in the figure below) to scroll all the way down through the boards:



If at this moment you can't find your ESP32 board name, we recommend repeating the installation process from scratch.

### 3. `C:\\Users\\ User\\Documents \\Arduino\\ hardware\\ espressif\\ esp32/tools /xtensa-esp32-elf /bin/ xtensa-esp32-elf-g++": file does not exist`

After installing the ESP32 add-on, if you open the Arduino IDE and it fails to compile code to your ESP32 board, we recommend re-running the Arduino IDE ESP32 add-on installation.

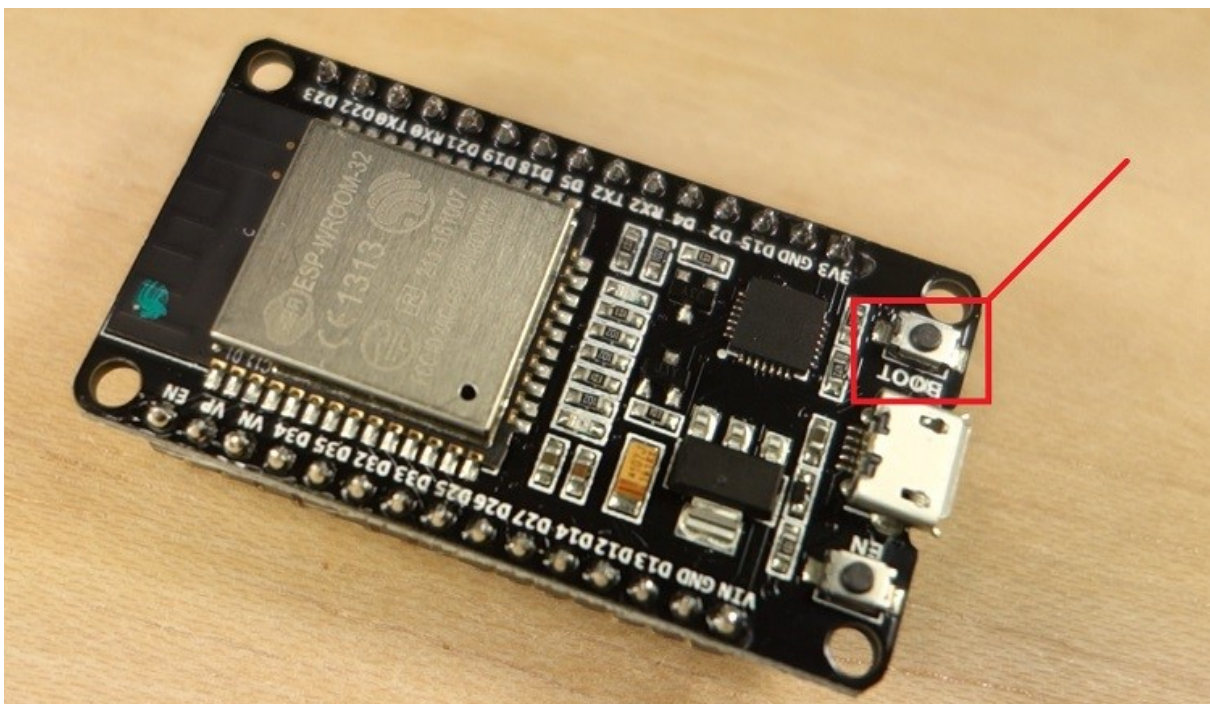
**Note:** Windows PCs often have multiple Arduino IDE versions installed (portable and local installations). Make sure you are running the Arduino IDE where you installed the ESP32 add-on.

### 4. A fatal error occurred: "Failed to connect to ESP32: Timed out... Connecting..."

When you try to upload a new sketch to your ESP32 and it fails to connect to your board, it means that your ESP32 is not in flashing/uploading mode.

Having the right board name and COM port selected, follow these steps:

- Hold-down the **"BOOT"** button in your ESP32 board



- Press the **"Upload"** button in the Arduino IDE to upload a new sketch:



- After you see the “**Connecting....**” message in your Arduino IDE, release the finger from the “**BOOT**” button:

```

Uploading...
Archiving built core (caching) in: C:\Users\RUISAN-1\AppData\Local\Temp\arduino_cache_959883\core\core_espressif_esp32_esp32doit-devkit-v1_Flash
Sketch uses 501366 bytes (38%) of program storage space. Maximum is 1310720 bytes.
Global variables use 37320 bytes (12%) of dynamic memory, leaving 257592 bytes for local variables. Maximum is 294912 bytes.
esptool.py v2.1
Connecting.....
Chip is ESP32D0WDQ6 (revision (unknown 0xa))
Uploading stub...
Running stub...
Stub running...
Changing baud rate to 921600
Changed.
Configuring flash size...
Auto-detected Flash size: 4MB
Compressed 8192 bytes to 47...
  
```

- After that, you should see the “**Done uploading**” message

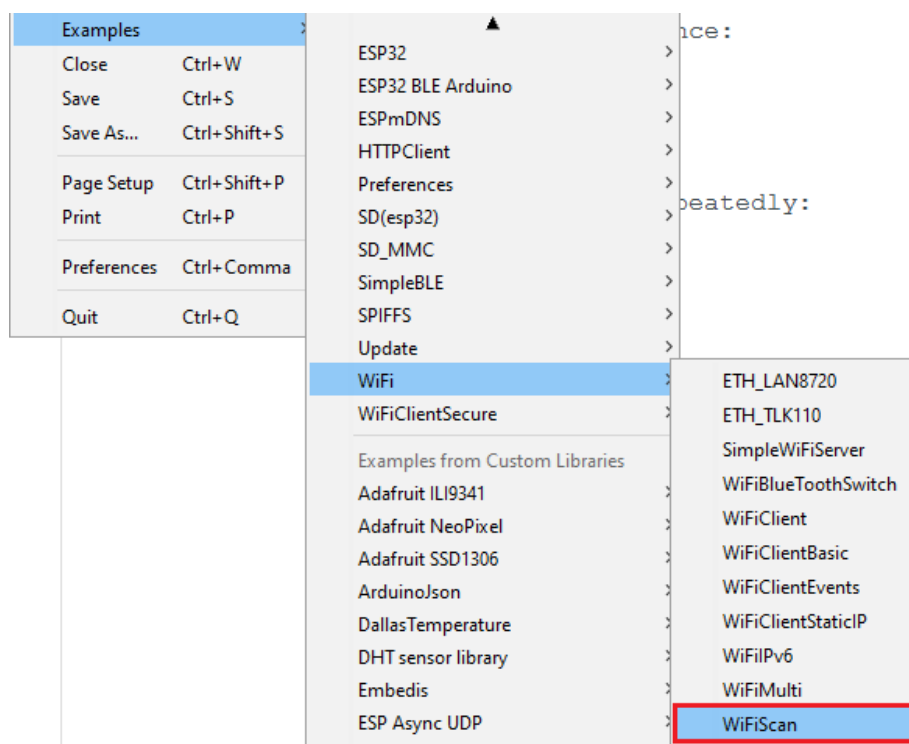
That’s it. Your ESP32 should have the new sketch running. With those boards/with that setup, after uploading a new sketch, press the “ENABLE” button to restart the ESP32 and run the new uploaded sketch.

You’ll also have to repeat that button sequence every time you want to upload a new sketch.

To be honest we’re not sure why that happens with the newer boards. We don’t have any ESP32 board with that behavior. We think it’s something different with in your specific board or the Arduino IDE fails to send the right command sequence to put the ESP32 automatically in flashing/uploading mode.

## 5. Error compiling WiFiScan sketch

If you try to upload the ESP32 *WiFiScan.ino* sketch provided in the course:





And it fails to compile with a similar error message:

```
In function 'void setup()':  
ScanNetworks:52: error: 'class WiFiClass' has no member named  
'firmwareVersion'  
String fv = WiFi.firmwareVersion();
```

It looks like your Arduino IDE is compiling the WiFi library for the Arduino board (instead of using the ESP32 WiFi library).

**Note:** you'll probably never use any WiFi shield with your Arduino board, right? If you don't use it, you need to remove that folder/those folders from your Arduino IDE (move it to your desktop, for example).

The WiFi library is located, in a similar path:

```
C:\Users\ruiasantos\Downloads\arduino-1.8.7-windows\arduino-1.8.7\libraries\WiFi
```

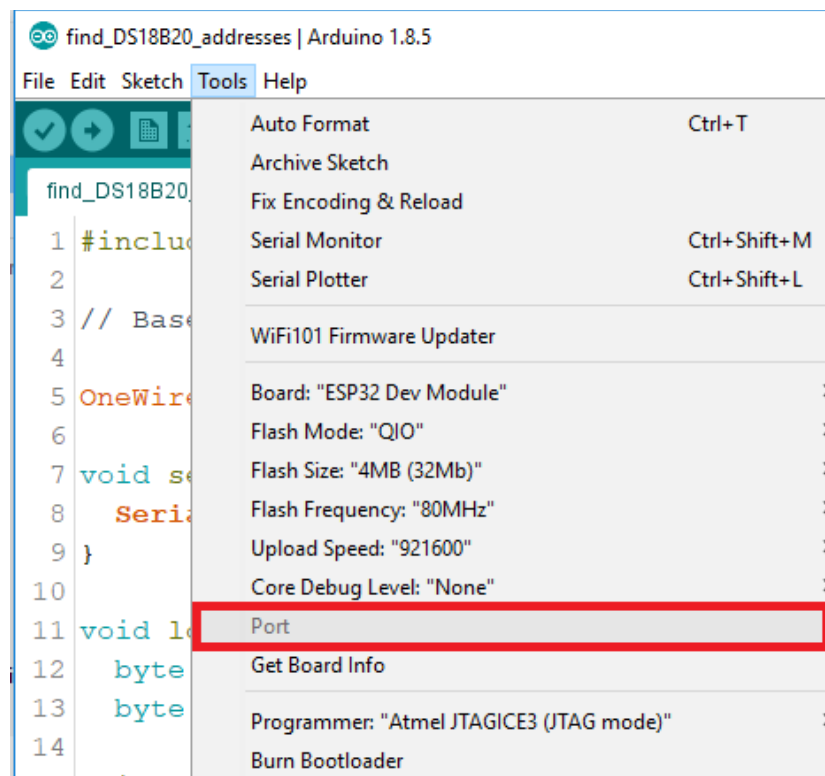
And/or at:

```
C:\Users\ruiasantos\Documents\Arduino\libraries\libraries\WiFi
```

After removing the entire WiFi library folder from one location or both locations, restart your Arduino IDE and try to compile the code again.

## 6. COM Port not found/not available

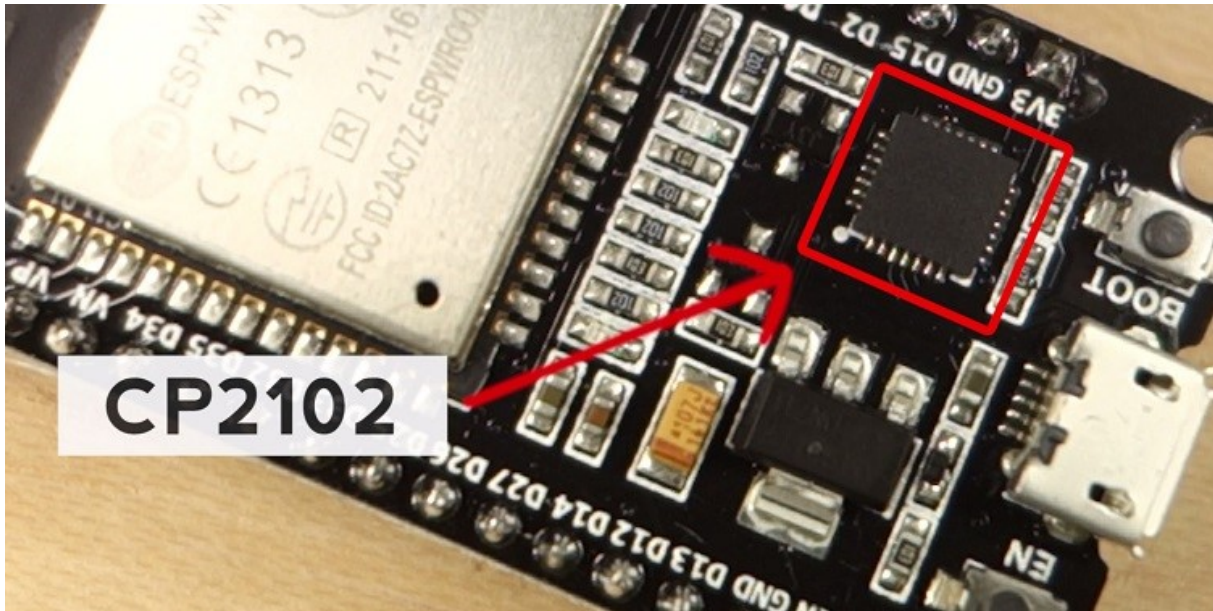
If you plug your ESP32 board to your computer, but you can't find the ESP32 Port available in your Arduino IDE (it's grayed out):



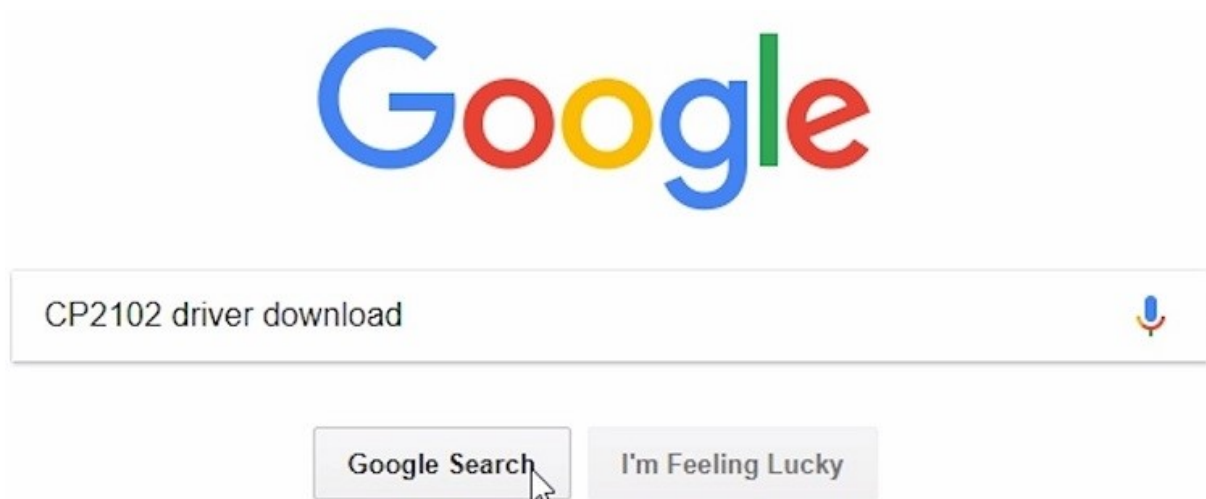
It might be one of these two problems: **1. USB drivers missing** or **2. USB cable without data wires**.

**1.** If you don't see your ESP's COM port available, this often means you don't have the USB drivers installed. Take a closer look at the chip next to the voltage regulator on board and check its name.

The ESP32 DEVKIT V1 DOIT board uses the **CP2102** chip.



Go to Google and search for your particular chip to find the drivers and install them in your operating system.



You can download the CP2102 drivers on the [Silicon Labs](https://www.siliconlabs.com/) website.

## CP210x USB to UART Bridge VCP Drivers

The CP210x USB to UART Bridge Virtual COM Port (VCP) drivers are required for device operation as a Virtual COM Port to facilitate host communication with CP210x products. These devices can also interface to a host using the direct access driver. These drivers are static examples detailed in application note 197: The Serial Communications Guide for the CP210x; download an example below:

[AN197: The Serial Communications Guide for the CP210x](#)

### Download Software

The CP210x Manufacturing DLL and Runtime DLL have been updated and must be used with v6.0 and later of the CP210x Windows VCP Driver. Application Note Software downloads affected are AN144SW.zip, AN205SW.zip and AN223SW.zip. If you are using a 5.x driver and need support you can download archived Application Note Software.

[Legacy OS software and driver package download links and support information >](#)

### Download for Windows 10 Universal (v10.1.1)

Platform	Software	Release Notes
 Windows 10 Universal	<a href="#">Download VCP (2.3 MB)</a>	<a href="#">Download VCP Revision History</a>

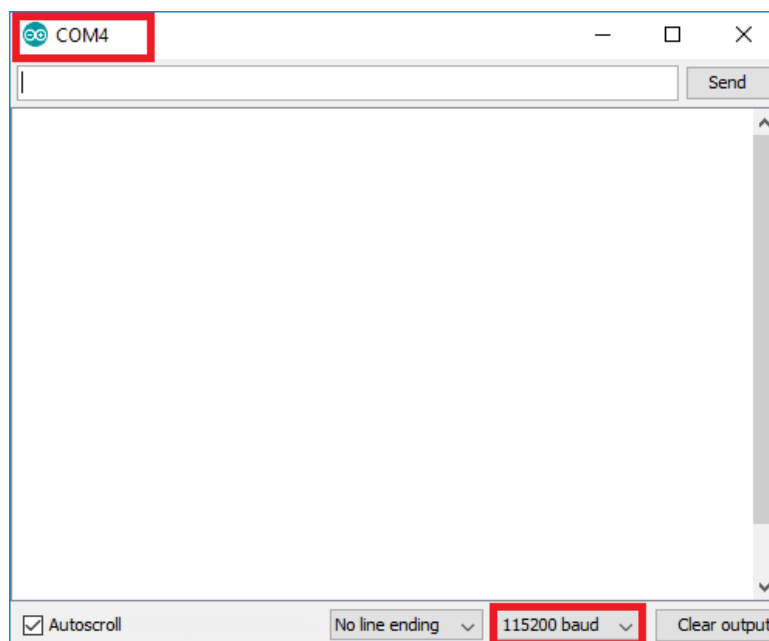
After they are installed, restart the Arduino IDE and you should see the COM port in the Tools menu.

2. If you have the drivers installed, but you can't see your device, double-check that you're using a USB cable with data wires.

USB cables from powerbanks often don't have data wires (they are charge only). So, your computer will never establish a serial communication with your ESP32. Using a a proper USB cable should solve your problem.

## 7. Arduino IDE Serial Monitor "doesn't work"

If the ESP32 is only printing weird text or gibberish messages in your Arduino IDE Serial Monitor, make sure you have the right COM port selected and set the right baud rate as shown below. In most examples, we're using 115200 baud rate.



## 8. Error: “Brownout detector was triggered”

When you open your Arduino IDE Serial monitor and the error message “Brownout detector was triggered” is constantly being printed over and over again. It means that there’s some sort of hardware problem.

It’s often related to one of the following issues:

- Poor quality USB cable;
- USB cable is too long;
- Board with some defect (bad solder joints);
- Bad computer USB port;
- Or not enough power provided by the computer USB port.

**Solution:** try a different shorter USB cable (with data wires), try a different computer USB port or use a USB hub with an external power supply.

## 9. I can’t make the ESP32 add-on work with Arduino IDE

If you’ve followed all the troubleshooting tips and the ESP32 add-on doesn’t work with the Arduino IDE, we recommend experimenting programming the ESP32 with Atom text editor and PlatformIO IDE. Follow this tutorial: [Atom text editor with PlatformIO IDE to program the ESP32](#) (Module 2).