

Installing the ESP32 Board in Arduino IDE (Windows, Mac OS X, Linux)

There's an add-on for the Arduino IDE that allows you to program the ESP32 using the Arduino IDE and its programming language. In this tutorial we'll show you how to install the ESP32 board in Arduino IDE whether you're using Windows, Mac OS X or Linux.

Using Arduino 2.0? Follow this tutorial instead: [Installing ESP32 Board in Arduino IDE 2.0](#)

Watch the Video Tutorial

This tutorial is available in video format (watch below) and in written format (continue reading this page).

Install the ESP32 Board in Arduino IDE in less than 1 minute (Windows, ...



If you have any problems during the installation procedure, take a look at the [ESP32 Troubleshooting Guide](#).

If you like the ESP32, enroll in our course: [Learn ESP32 with Arduino IDE](#).

Prerequisites: Arduino IDE Installed

Before starting this installation procedure, you need to have Arduino IDE installed on your computer. There are two versions of the Arduino IDE you can install: version 1 and version 2.

You can download and install Arduino IDE by clicking on the following link: arduino.cc/en/Main/Software

Which Arduino IDE version do we recommend? At the moment, there are some plugins for the ESP32 (like the SPIFFS Filesystem Uploader Plugin) that are not yet supported on Arduino 2. So, if you intend to use the SPIFFS plugin in the future, we recommend installing the legacy version 1.8.X. You just need to scroll down on the Arduino software page to find it.

If you'll use Arduino 2, you can follow this tutorial instead:

- [Installing ESP32 Board in Arduino IDE 2.0](#)

If later on, you need to install the SPIFFS plugin, you can install Arduino 1.8.X and have both versions installed on your computer.

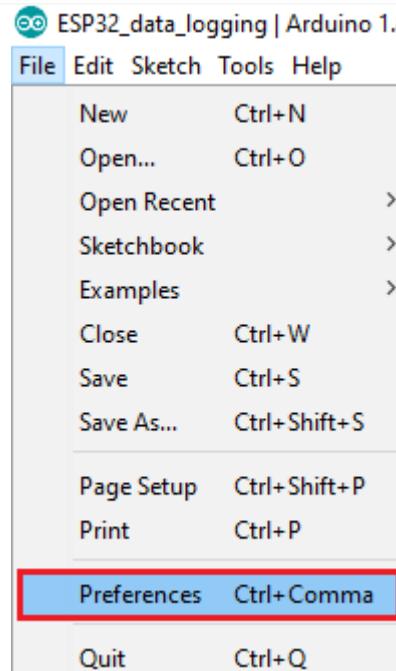
Do you need an ESP32 board? You can [buy it here](#).

Installing ESP32 Add-on in Arduino IDE

To install the ESP32 board in your Arduino IDE, follow these next instructions:

1. In your Arduino IDE, go to **File> Preferences**

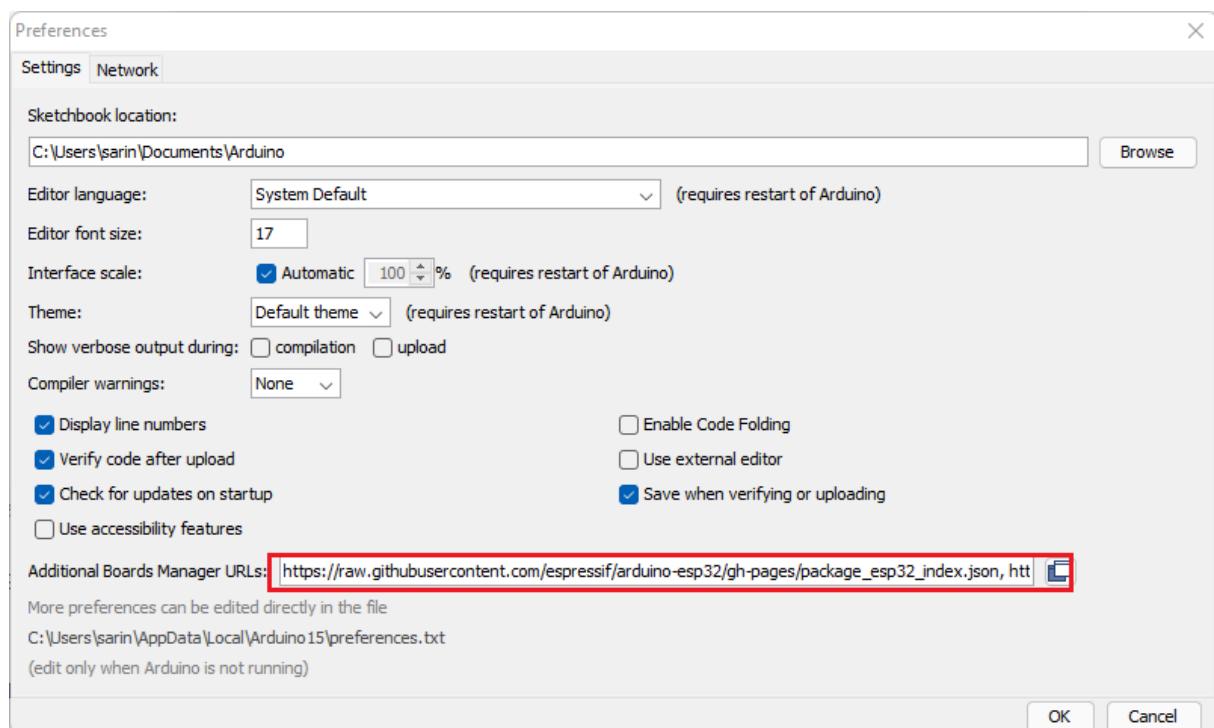




2. Enter the following into the “Additional Board Manager URLs” field:

https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package_esp32_index.json

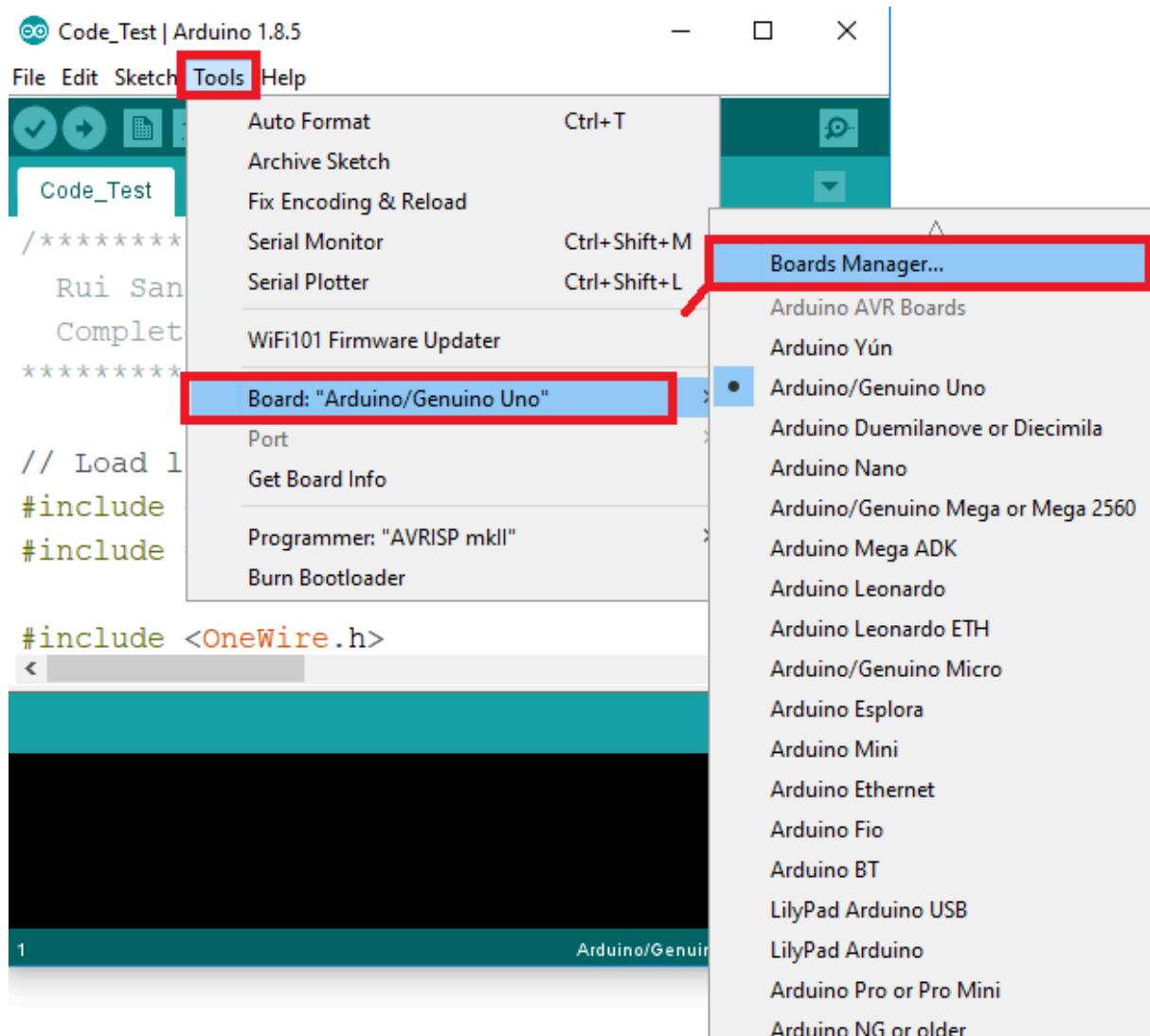
Then, click the “OK” button:



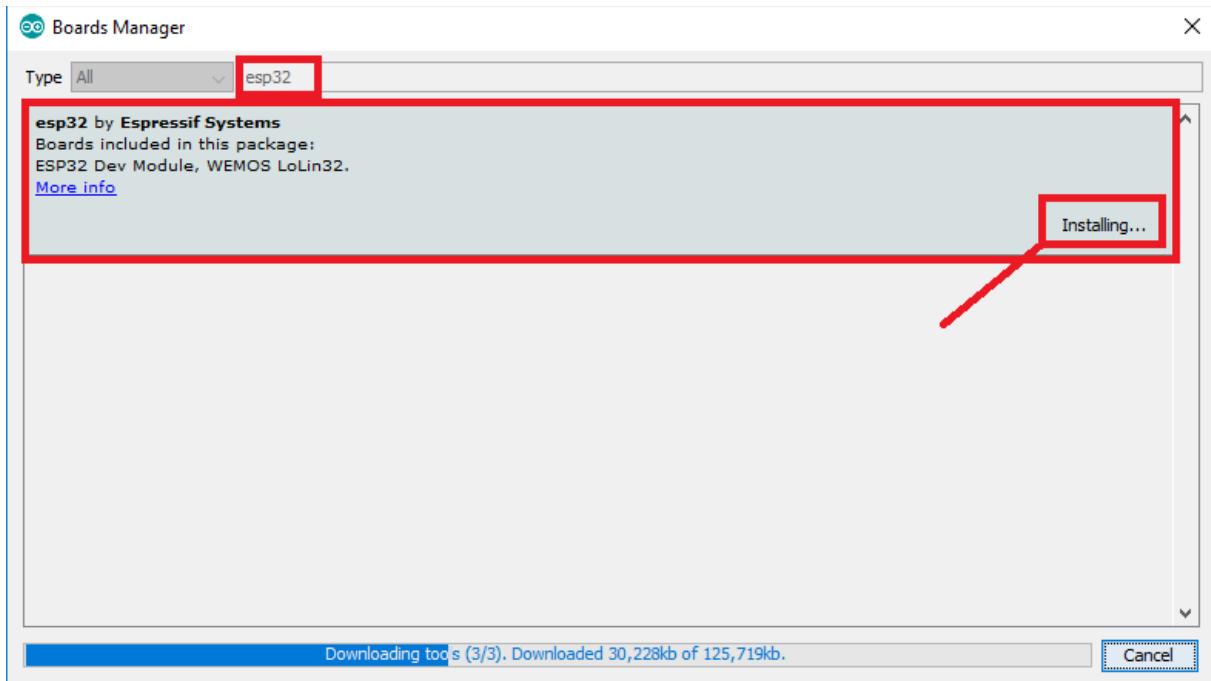
Note: if you already have the ESP8266 boards URL, you can separate the URLs with a comma as follows:

https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package_esp32_index.json,
http://arduino.esp8266.com/stable/package_esp8266com_index.json

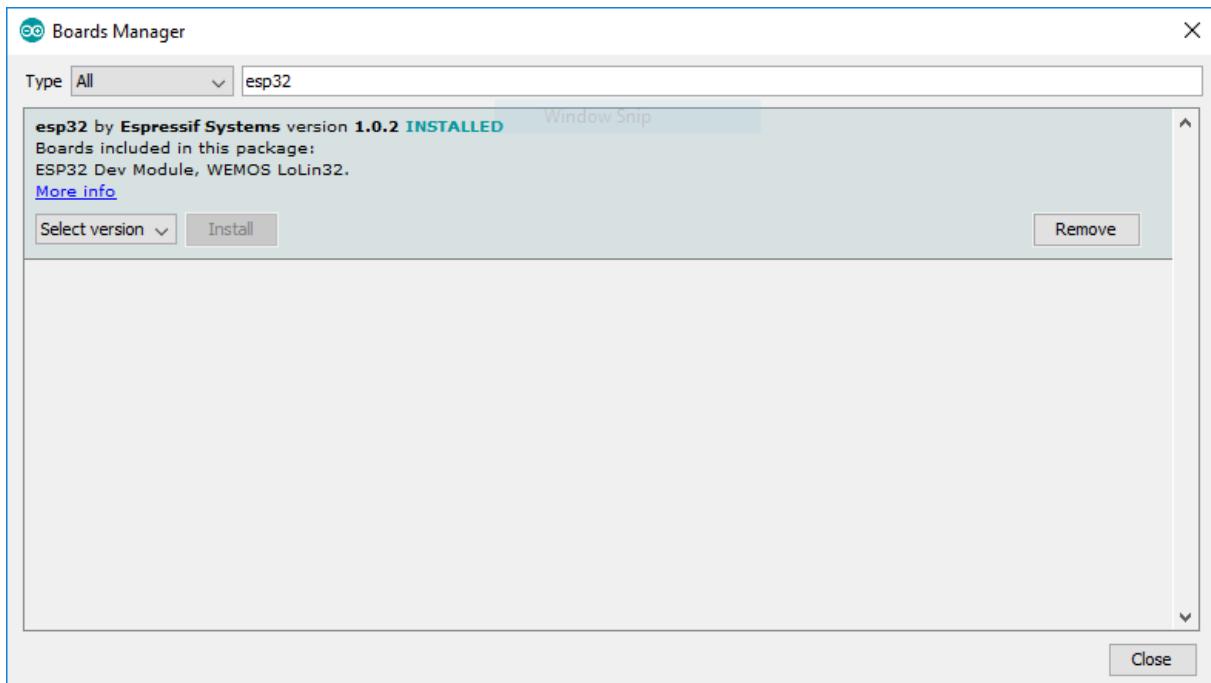
3. Open the Boards Manager. Go to **Tools > Board > Boards Manager...**



4. Search for **ESP32** and press install button for the "**ESP32 by Espressif Systems**":



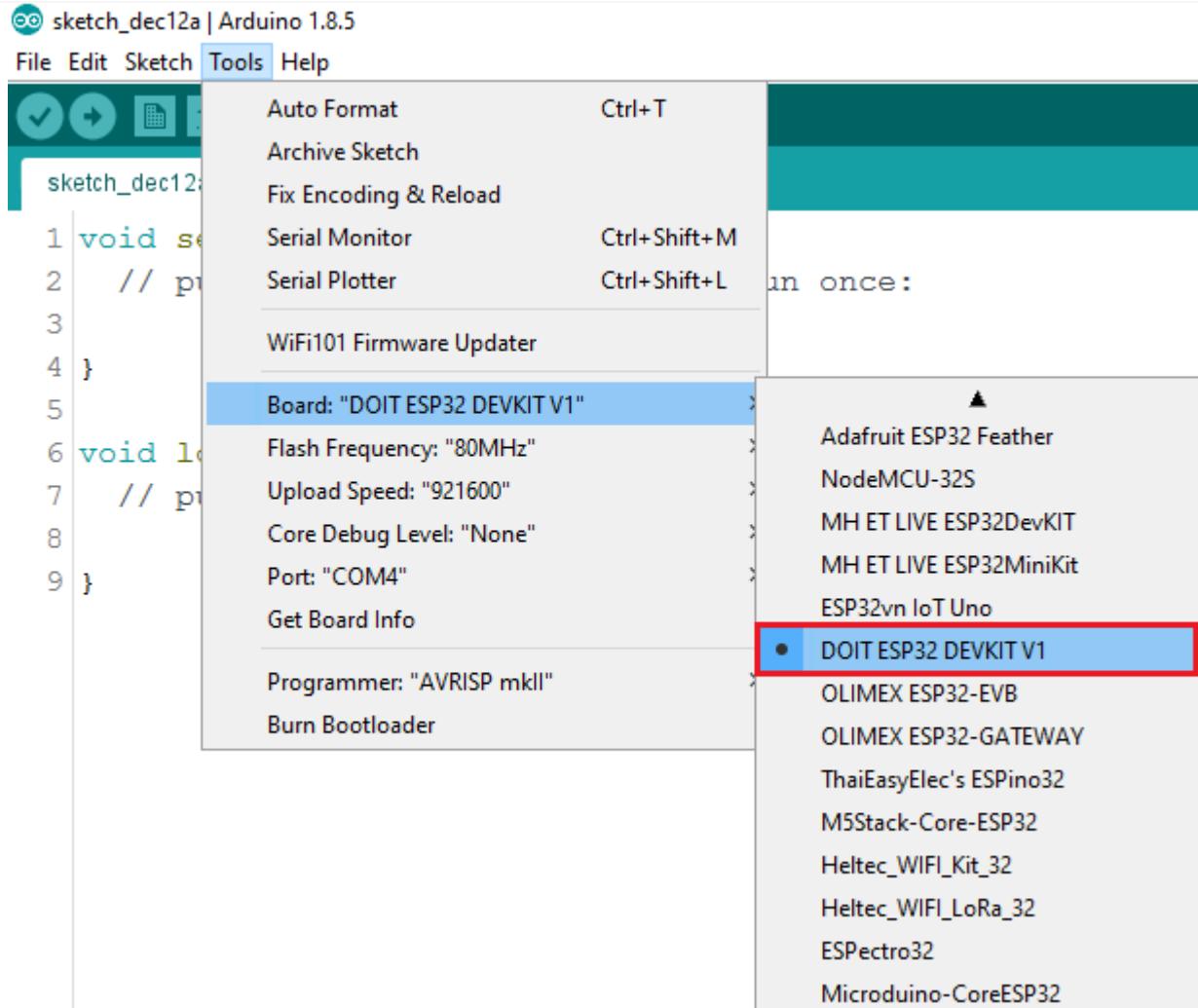
5. That's it. It should be installed after a few seconds.



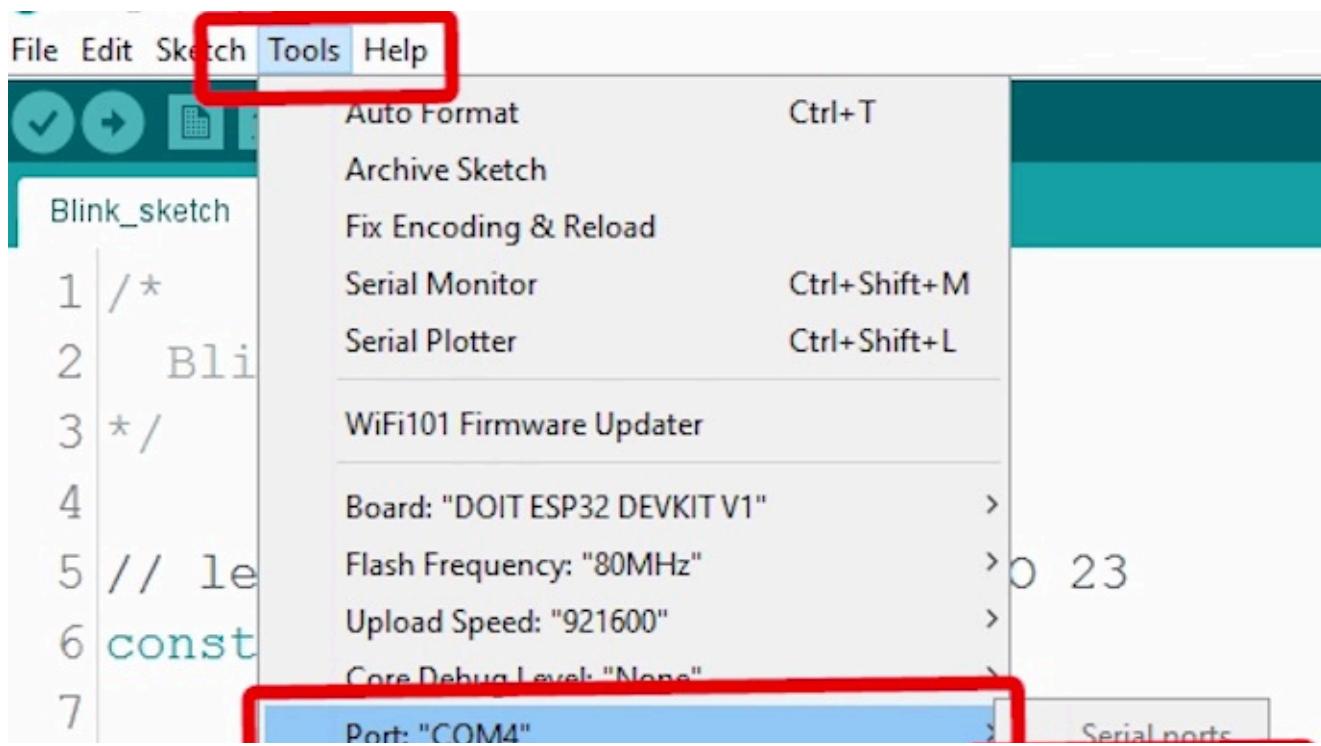
Testing the Installation

Plug the ESP32 board to your computer. With your Arduino IDE open, follow these steps:

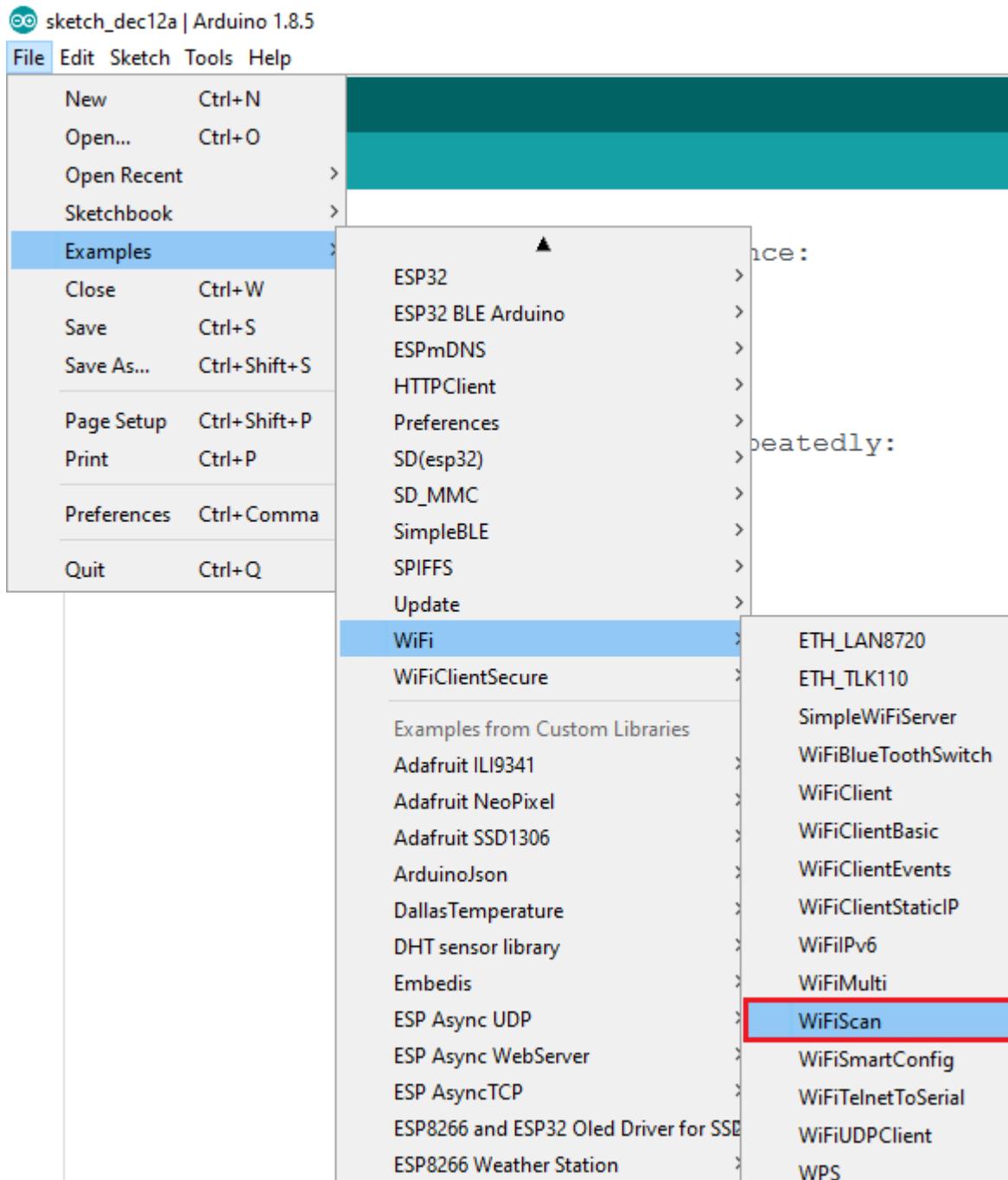
1. Select your Board in **Tools > Board** menu (in my case it's the **DOIT ESP32 DEVKIT V1**)



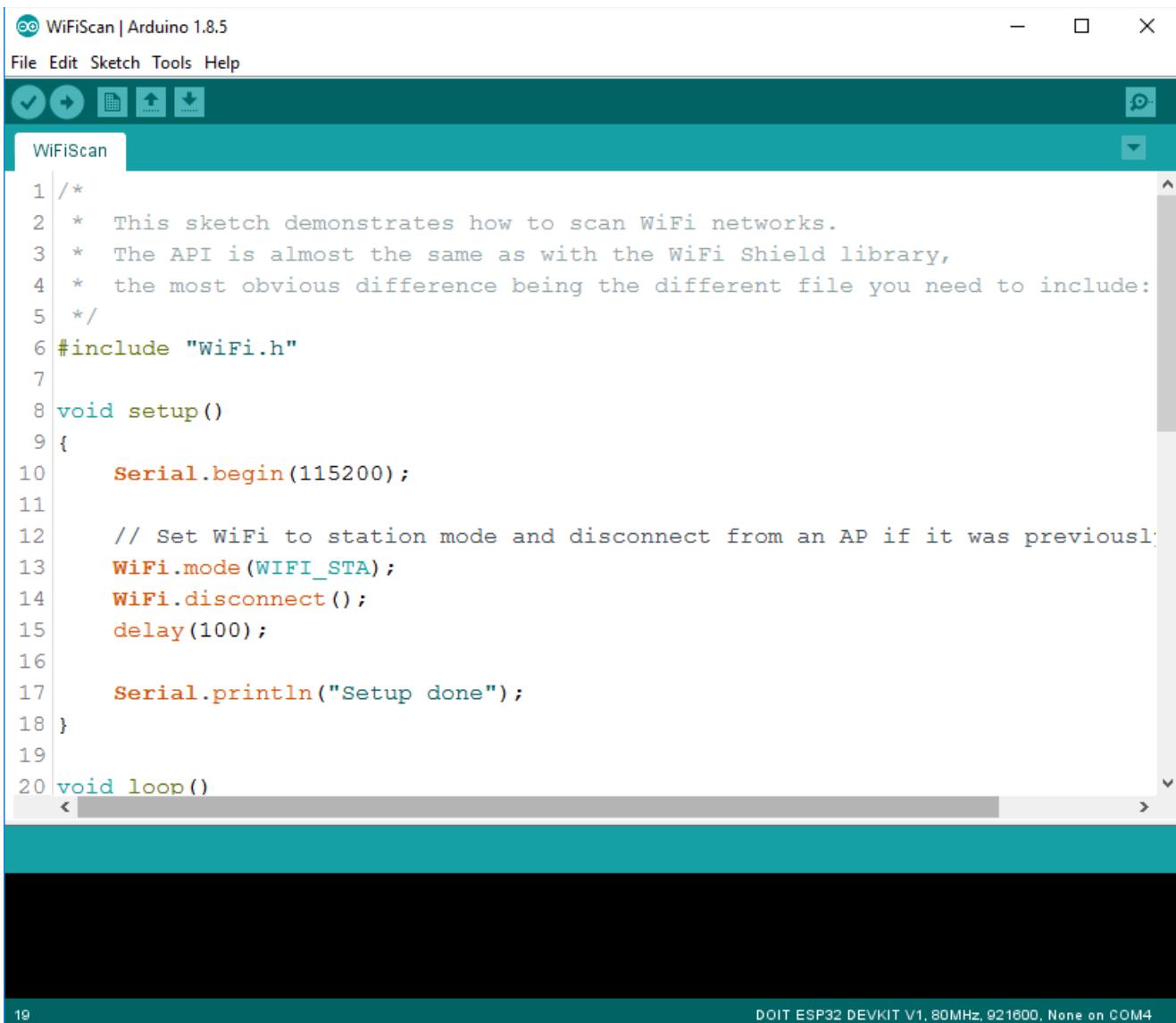
2. Select the Port (if you don't see the COM Port in your Arduino IDE, you need to install the [CP210x USB to UART Bridge VCP Drivers](#)):



3. Open the following example under **File > Examples > WiFi (ESP32) > WiFiScan**



4. A new sketch opens in your Arduino IDE:



The screenshot shows the Arduino IDE interface with the title bar "WiFiScan | Arduino 1.8.5". The menu bar includes File, Edit, Sketch, Tools, and Help. Below the menu is a toolbar with icons for file operations like Open, Save, and Upload. The main window displays the "WiFiScan" sketch code. The code is as follows:

```
1 /*  
2  * This sketch demonstrates how to scan WiFi networks.  
3  * The API is almost the same as with the WiFi Shield library,  
4  * the most obvious difference being the different file you need to include:  
5  */  
6 #include "WiFi.h"  
7  
8 void setup()  
9 {  
10    Serial.begin(115200);  
11  
12    // Set WiFi to station mode and disconnect from an AP if it was previously connected  
13    WiFi.mode(WIFI_STA);  
14    WiFi.disconnect();  
15    delay(100);  
16  
17    Serial.println("Setup done");  
18 }  
19  
20 void loop()  
21 }
```

The status bar at the bottom shows "19" on the left and "DOIT ESP32 DEVKIT V1, 80MHz, 921600, None on COM4" on the right.

5. Press the **Upload** button in the Arduino IDE. Wait a few seconds while the code compiles and uploads to your board.



6. If everything went as expected, you should see a “**Done uploading.**” message.



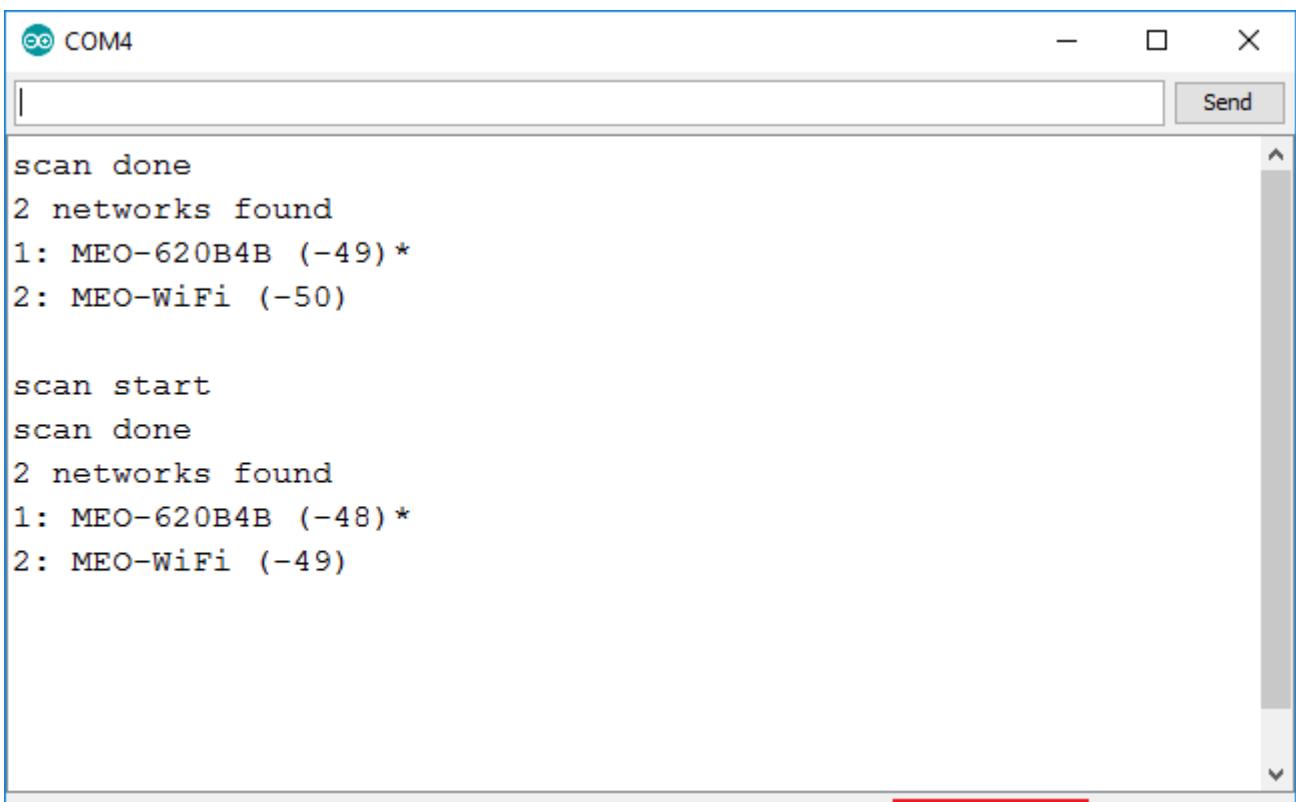
```
Done uploading.  
Writing at 0x0004c000... (84 %)  
Writing at 0x00050000... (89 %)  
Writing at 0x00054000... (94 %)  
Writing at 0x00058000... (100 %)  
Wrote 481440 bytes (299651 compressed) at 0x00010000 in 4.7 seconds  
Hash of data verified.  
Compressed 3072 bytes to 122...  
  
Writing at 0x00008000... (100 %)  
Wrote 3072 bytes (122 compressed) at 0x00008000 in 0.0 seconds (e  
Hash of data verified.  
  
Leaving...  
Hard resetting...
```

DOIT ESP32 DEVKIT V1, 80MHz, 921600, None on COM4

7. Open the Arduino IDE Serial Monitor at a baud rate of 115200:



8. Press the ESP32 on-board **Enable** button and you should see the networks available near your ESP32:



The screenshot shows the Arduino IDE Serial Monitor window titled "COM4". The window displays the output of an WiFi scan. It starts with "scan done", followed by "2 networks found". It lists two networks: "1: MEO-620B4B (-49)*" and "2: MEO-WiFi (-50)". Below this, it shows another "scan start", followed by "scan done", and "2 networks found" again, listing the same two networks. The text is in a monospaced font, and the background is white with a dark grey header bar.

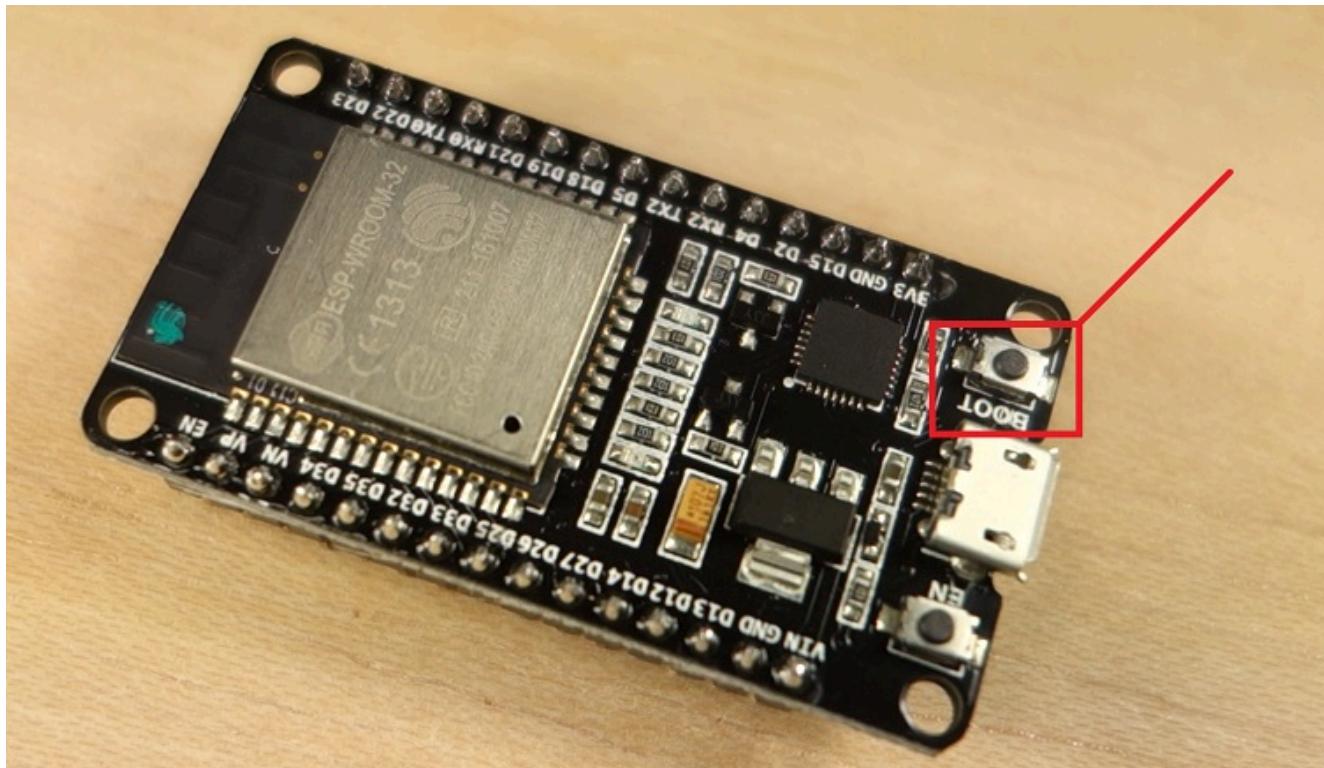
```
scan done  
2 networks found  
1: MEO-620B4B (-49)*  
2: MEO-WiFi (-50)  
  
scan start  
scan done  
2 networks found  
1: MEO-620B4B (-48)*  
2: MEO-WiFi (-49)
```

Troubleshooting

1) If you try to upload a new sketch to your ESP32 and you get this error message “*A fatal error occurred: Failed to connect to ESP32: Timed out... Connecting...*”. 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 your 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...

Writing at 0x0000e000... (100 %)
Wrote 8192 bytes (47 compressed) at 0x0000e000 in 0.0 seconds (effective 8192.1 kbit/s)...
Hash of data verified.
Compressed 12304 bytes to 8126...

Writing at 0x00001000... (100 %)

```

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

That's it. Your ESP32 should have the new sketch running. 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. But if you want to solve this issue once for all without the need to press the **BOOT** button, follow the suggestions in the next guide:

- [SOLVED] Failed to connect to ESP32: Timed out waiting for packet header
- 2)** If you get the error “COM Port not found/not available”, you might need to install the CP210x Drivers:

- [Install USB Drivers – CP210x USB to UART Bridge \(Windows PC\)](#)
- [Install USB Drivers – CP210x USB to UART Bridge \(Mac OS X\)](#)

If you experience any problems or issues with your ESP32, take a look at our in-depth [ESP32 Troubleshooting Guide](#).

Wrapping Up

This is a quick guide that illustrates how to prepare your Arduino IDE for the ESP32 on a Windows PC, Mac OS X, or Linux computer. If you encounter any issues during the installation procedure, take a look at the [ESP32 troubleshooting guide](#).

Now, you can start building your own IoT projects with the ESP32!

- [Learn ESP32 with Arduino IDE \[eBook + Video Course\]](#)
- [ESP32 vs ESP8266 – Pros and Cons](#)
- [Free ESP32 Projects and Tutorials](#)
- [Build an ESP32 Web Server with Arduino IDE](#)
- [ESP32 DHT11/DHT22 Web Server with Arduino IDE](#)

Thanks for reading.



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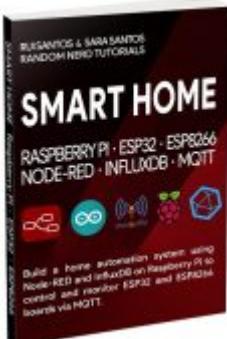
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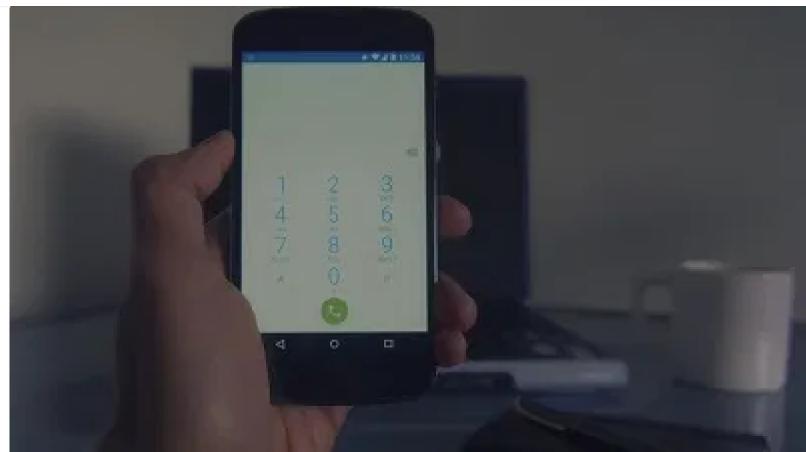
SMART HOME with Raspberry Pi, ESP32, ESP8266 [eBook]



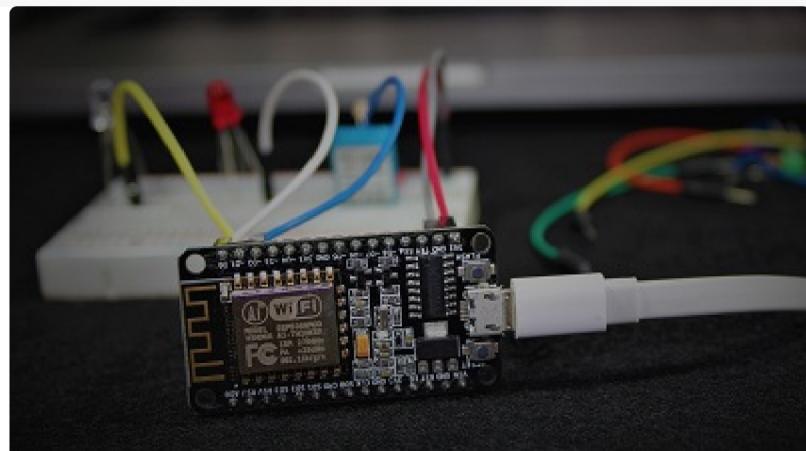
Learn how to build a home automation system and we'll cover the following main subjects: Node-RED, Node-RED Dashboard, Raspberry Pi, ESP32, ESP8266, MQTT, and InfluxDB database [DOWNLOAD »](#)

Recommended Resources

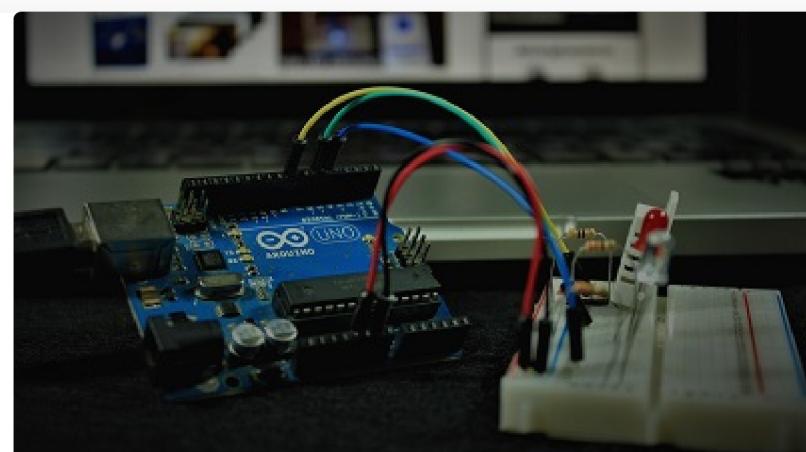




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180 thoughts on “Installing the ESP32 Board in Arduino IDE (Windows, Mac OS X, Linux)”



Duncan

December 17, 2016 at 1:38 am

Can you explain why Python and a whole load of command line stuff is required?

It wasn't necessary for the ESP8266, installing that into the Arduino IDE



I thought ESP 32 was the same...

[Reply](#)



Rui Santos

December 21, 2016 at 11:59 am

Hi Duncan,

At the moment the Arduino IDE requires Python to communicate with the ESP32.

It's not currently able to do upload scripts exclusively from the Arduino IDE, but it should work like it did for the ESP8266 in a near future.

Thanks for asking,

Rui

[Reply](#)



Steve

June 6, 2023 at 12:48 am

run this on Ubuntu 22.04

```
sudo apt install python3-serial
```

[Reply](#)



M.T.Mendis

December 17, 2016 at 11:46 am



Thank you very much. I learn something from you.

Mendis.

[Reply](#)



Rui Santos

December 21, 2016 at 11:56 am

You're welcome,

Rui

[Reply](#)



James Cullins

December 19, 2016 at 3:44 pm

I keep getting the compile error below

File "C:\Users\Engineering\Documents\Arduino-1.6.13\hardware\espressif\esp32/tools/esptool.py", line 183

```
print '%s' % inst.CHIP_NAME
```

^

SyntaxError: Missing parentheses in call to 'print'

Multiple libraries were found for "WiFi.h"

```
Used: C:\Users\Engineering\Documents\Arduino-
```

Not used: C:\Users\Engineering\Documents\Arduino-1.6.13\libraries\WiFi
Using library WiFi at version 1.0 in folder:
C:\Users\Engineering\Documents\Arduino-
1.6.13\hardware\espressif\esp32\libraries\WiFi
exit status 1
Error compiling for board ESP32 Dev Module.

[Reply](#)



CobRce

February 15, 2019 at 6:58 pm

That's because it's executing python3 which requires parenthesis for "print", to solve this:

- install python 2.7 (in c:\python27 for example)
- add the it's directory (c:\python27) to PATH environment variable
- rename the python.exe located in the python 3 directory (c:\python36) to python3.exe

[Reply](#)



Freeland J Salsburg

October 15, 2022 at 7:10 am

Your problem is not with the 'print' command, the compiler requires there be only one #include file in all libraries with the same name; #include file with the same name in multiple Libraries cause the compiler to ERROR and not go any farther. Move one or the other file to a temporary folder, preferably move the file not in the ARDUINO Library folder to the temp location and use it, not the file in the Application Library folder.



**James Cullins**

December 19, 2016 at 4:58 pm

Found my error, I had both 2.7 and 3.6 Python versions. I unloaded 3.6 and made sure 2.7 and in path. Thanks

[Reply](#)**Rui Santos**

December 21, 2016 at 11:55 am

I'm glad you found the solution, thanks for sharing it with us!

Rui

[Reply](#)**Ton**

December 24, 2016 at 10:33 pm

Thanks for this interesting item, i made it working in the IDE.
Now i have to wait for an ESP 32.

Happy New Year and Merry Chrismas.

[Reply](#)

**Rui Santos**

December 26, 2016 at 7:54 pm

You're welcome,
More tutorials with this board very soon.

Rui

[Reply](#)**Stefan Ludwig**

December 29, 2016 at 10:03 pm

Hi Rui,

I'm not very familiar with Arduino IDE so far. But I have installed the ESP8266-board-definitions.

I don't remember the exact process. Your tutorial misses how to add the ESP32-board definitions. I'm using Arduino IDE V1.6.12 which does not include ESP32. As a newbee I would have to re-install the newest Arduino-IDE. This would require a lot of additional adjustments.

please add to this tutorial how the board -definition of the ESP32 can be added.

best regards

Stefan

[Reply](#)

**Rui Santos**

January 2, 2017 at 3:58 pm

Hi Stefan,

This post describes the exact process adding the ESP32 board to your Arduino IDE installation.

[Reply](#)**Stefan**

December 29, 2016 at 10:08 pm

Same thing with your link

“The ESP32 is currently being integrated with the Arduino IDE just like it was done for the ESP8266, but not everything is working at the moment (see here).”

linking right in the middle of github does newbees like me not help at all.
I’m also a newbee to github.

maybe you wait with your tutorial until the standard integration is done. Or at least add a first block of info telling what knowledge somebody should have to use your tutorial.

I mean something like that:

If you are familiar with Github and git and are not afraid of installing python you could already play with the ESP32

best regards

Stefan



[Reply](#)**Rui Santos**

January 2, 2017 at 4:00 pm

I agree with you Stefan, the ESP32 is not as easy as the ESP8266 to integrate with the Arduino IDE, but if you follow this exact tutorial you should be able to prepare your Arduino IDE with the ESP32 boards. When new instructions are available, I'll update this tutorial.

Thanks,

Rui

[Reply](#)**Amelina R. Buenaflor**

February 7, 2022 at 12:49 pm

hello, im just a college student. I have some problems about esp32 cannot find in board manager Actually i followed the steps on installing the arduino ide 2.0 beta and i went on file-preference and paste the url in additional board manager. Is it due to weak internet?Im just hoping that you can response on my message. its very hard to me on how to identify whats the problem. i was tried to search on youtube and google but i cant find the solution on this problem. It is a huge thanks when you response on it.

[Reply](#)**Sara Santos**

Hi.

What is exactly the problem that you're facing?

Can you provide more details?

Otherwise, it is very difficult to find out what might be wrong.

Regards,

Sara

[Reply](#)



Saravanan

May 27, 2022 at 5:46 pm

We were almost done by the steps as per the tutorial but there is an error “does not exist or your board is not connected”



JDavis

February 22, 2017 at 2:37 am

Everything up to last get.py was smooth.

On windows machine it seems to be missing a file named ‘requests’

```
jim@maximus MINGW64 /c/Program Files  
(x86)/Arduino/hardware/espressif/esp32/tools (master)  
$ python get.py  
Traceback (most recent call last):  
File "get.py", line 25, in  
import requests  
ModuleNotFoundError: No module named 'requests'
```



**Karanja Mutahi**

October 28, 2018 at 7:55 pm

pip install requests

[Reply](#)**Stefan Ludwig**

March 10, 2017 at 2:05 pm

Hi Rui,

what are the steps that the arduino-IDE-developers have to take until the ESP32-support reaches the stage as described in the following:

I'm not very familiar with the Arduino-IDE and specific terms and words. I hope it is still understandable what I want to ask

- 1.) Download the ESP32-“plugin” (or is it called “board-manager-entry”?)
- 2.) start arduino-IDE new
- 3.) write code for the ESP32-based board
- 4.) upload code to the board – code is running.

I would like to use the Arduino-IDE like it is meant to be:
choose your arduino-board from a list write and upload code.

Maybe I sound like I want to make everybody to hurry up. I don't mean so.
I'm very thankful for all the coders that took great effort to make coding a
μC-board through the Arduino-IDE so easy. It is just that I would like to
have some information about this: What is your ESTIMATION



will it take 6 weeks or maybe 3 months or will it take 24 months until
ESP32-boards are fully supported by the Arduino-IDE?

best regards

Stefan

[Reply](#)



Mike Jupp

April 14, 2017 at 9:58 am

Fails with error:

"C:\\Program Files
(x86)\\Arduino\\hardware\\espressif\\esp32/tools/xtensa-esp32-
elf/bin/xtensa-esp32-elf-g++": file does not exist

[Reply](#)



pableitor

April 14, 2018 at 9:51 am

Follow the steps as Rui says , just run GET as admin in Windows , it
worked for me.

[Reply](#)



peter



thanks ru very interested at the this time I'm using my phone?, a android s6 Samsung witch I use to switch my lid lighting on & off so very interested in this technology and as you know I like making projects like guitar pedals + I'm a radio am thanks again pete

[Reply](#)**Rui Santos**

April 16, 2017 at 6:02 pm

Thanks for reading. You could apply to that project, but I don't have any information on that specific requirement.

Regards,
Rui

[Reply](#)**Mckenzie Gibson**

February 26, 2018 at 10:59 am

Hi Thanks for the information. i am having problems cloning Git Gui. Something to do with permissions. Any suggestions how I fix this or can I copy the relevant files?

[Reply](#)**Mckenzie Gibson**

February 27, 2018 at 10:49 am



After a bit of fairly random key presses I got everything (well the program you demonstrate) to work. thank you. The pleasure on success far outweighs the frustration when everything fails

[Reply](#)



Alan

February 27, 2018 at 9:31 pm

I got the espressif library put in the hardware directory for the Arduino, but the BLE directory is empty. Is it the same for the 8266, and/or where can I find it?

Thanks

[Reply](#)



Duncan Amos

February 27, 2018 at 10:04 pm

The ESP8266 doesn't have BLE (or Classic Bluetooth).

[Reply](#)



Joel

March 9, 2018 at 9:26 pm



I followed the instructions for Installing the ESP32 Board in Arduino IDE, but it doesn't communicate with the board. The port option is grayed out and I can't select the port to use. I have this dev board:
ezsbc.com/index.php/featured-products-list-home-page/wifi01-32.html#.WqL5pnXwblM

When I try to upload, I get:

"Failed to execute script esptool the selected serial port Failed to execute script esptool
does not exist or your board is not connected"

[Reply](#)



Rui Santos

March 14, 2018 at 6:03 pm

Hi Joel,

As we've discussed in the Facebook group, if your board doesn't appear in your Arduino IDE it's a problem with your drivers.

I would uninstall the drivers for your ESP32 built-in serial converter chip and try to install them again...

[Reply](#)



Ken McNabb

May 26, 2018 at 8:40 am

OK Found a solution that is currently working, although I'm not sure yet if anything else broke implementing it. I found when running the GET.EXE it

files back up to the esp32 directory has got it working, and I can load and run the suggested example. Not sure why the sub-directory is added, but it did it again after un-installing everything and starting again too.

[Reply](#)**Nomad**

June 1, 2018 at 12:43 am

You d'man, unless of course you are a girl, then you d'girl! I have had two of these in my parts box now since they came out, and never could get them running. I have been to dozens of sites with step-by-step instructions and although I can build a computer from scratch, and have done so, on a dare, and I have beat lawyers in court when acting as a paralegal, I could not get the blasted things to work. This one has guided me, and works great. The first unit I tried, both brand new, failed to work at all, and I thought, well just like the rest of the instructions, but just for shits and giggles, I grabbed my second unit, and IT WORKS!!!! Thanks a billion now I can have fun with my ESP32 as well as my ESP8266's (I have about a dozen doing chores around my house and reporting back) and my Arduinos that are serving several devices I made for our RV to use when on the road, such as my home built GPS, my leveling device since the built in one only works once in awhile, and other little toys that make my wife of 48 years giggle when I press the buttons on my remotes.

[Reply](#)**Rui Santos**

June 11, 2018 at 4:42 pm

Me (Rui Santos) I'm a guy. But if Rui Santos answers a question (he's



I'm glad this tutorial worked out for you! Thanks for letting me know!

Regards,

Rui

[Reply](#)



spencer (Nobody Inparticular)

December 2, 2021 at 11:06 am

Somewhere back in a post (ESP32-S CAM MB web sever) you did an example of Face Detection, Showed you as Target O ? and a girl undefined as a Target. If that's Sara...ya, uhhm, just let her answer the questions.

Took me about a week to get the dang cams working. Of all the web pages I've scanned/read (has to be hundreds) trying to see a live cam stream, yours is the one that pulled the rabbit out of the hat. It doesn't seem to me that it should be such a challenge to get some sketch's and load them into a device and have it work. I think the Arduino IDE (or maybe its in the code) should be able to not only detect the camera (it dos) but if the wrong drivers are loaded, Install the drivers that WILL work. I mean, It detects the camera... I read a lot of posts that huddle around ... where to get information. For example, where do I find a list or source for -> index.json files for additional board support to add to the board manager? Thanks for helping folks out.

[Reply](#)



Sara Santos

December 2, 2021 at 12:10 pm

Hi.

I'm not sure I understand your question



<https://randomnerdtutorials.com/esp32-cam-video-streaming-face-recognition-arduino-ide/>

As for your question, I think the following answers that:

- https://arduino.github.io/arduino-cli/0.19/package_index_json-specification/
- <https://github.com/arduino/Arduino/issues/3232>

Regards,

Sara

[Reply](#)



Pim Kaethoven

June 22, 2018 at 1:27 am

When I open the get.exe it opens a commandscreen and then it doesn't do anything anymore. Do I just have to wait a very long time or did I do something wrong?

[Reply](#)



Rui Santos

June 23, 2018 at 8:42 am

After that, can you see the ESP32 boards available in the Arduino IDE after closing the get.exe file?

[Reply](#)



I followed this excellent how-to to the end and everything appeared to be ok. Went into IDE and selected COM6 (the ESP chose that), I'm using the ESP module you used above.

But when I try to download a sketch I get

onnecting.....
.....

A fatal error occurred: Failed to connect to ESP32: Timed out waiting for packet header

Any suggestions

[Reply](#)



Sara Santos

July 30, 2018 at 9:20 am

Hi George.

When that happens, you need to hold-down the “BOOT” button in your ESP32 board while the code is uploading.

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

This should solve your problem.

You may also want to take a look at the ESP32 troubleshooting guide:

<https://randomnerdtutorials.com/esp32-troubleshooting-guide/>

I hope this helps.

Regards,

Sara 😊

[Reply](#)



**tony**

July 31, 2018 at 4:36 pm

Edit the “Sketchbook location” with forward slashes, so it looks as follows:

C:/Users/ruisantos/Documents/Arduino

how do i do that? sorry if it is a dumb question

[Reply](#)**Rui Santos**

August 4, 2018 at 4:17 pm

Simply replace it manually, if it looks like this:

C:\Users\ruisantos\Documents\Arduino

Remove those \ and replace with /

C:/Users/ruisantos/Documents/Arduino

I hope that helps.

Regards,

Rui

[Reply](#)**Hotz**

August 11, 2018 at 9:05 am



Thanks to your tutorial I finally got it working again – my Arduino IDE and the ESP32. Before I was really lost even I followed some other instructions in the Web. Your tutorials are so clearly clear and you never forget any step. And your layout earns an award!

[Reply](#)



Sara Santos

August 12, 2018 at 10:38 am

Thanks. We're glad it works.

Many users struggle to get the Arduino IDE working with the ESP32.

We try to make the instructions as clear as possible, so that anyone can get it working.

Regards,

Sara 😊

[Reply](#)



Mr.Chawanwit

September 27, 2018 at 4:04 am

Hi Rui,

I have a problem

A fatal error occurred: Failed to connect to ESP32: Timed out waiting for packet header

From doing that to you. What is it? Installed the library? On the board?



[Reply](#)**Rui Santos**

September 27, 2018 at 10:03 am

Make sure you hold down the BOOT button to force your ESP32 into flashing mode

[Reply](#)**Dzandaa**

October 23, 2018 at 5:36 pm

Hi,

I've got this board:

[banggood.com/Goouuu-ESP-32F-Development-Board-ESP32-Kit-Bluetooth-WiFi-IoT-Control-Module-For-Arduino-p-1357920.html?rmmds=search&ID=557197&cur_warehouse=CN](https://www.banggood.com/Goouuu-ESP-32F-Development-Board-ESP32-Kit-Bluetooth-WiFi-IoT-Control-Module-For-Arduino-p-1357920.html?rmmds=search&ID=557197&cur_warehouse=CN)

I don't have any specification for the TFT, Speaker output and the RGB Led.

I was able to use the RGB led with trial and error, using the "ESP32 Wrover module" 😊

I didn't find a ESP-32F manager, just using the ESP-32 manager.

Any idea for the rest?

Thank you.

[Reply](#)

**Sara Santos**

October 24, 2018 at 11:19 am

Hi Dzandaa.

I've never used that board. So, I don't have any information about that. Maybe the best thing to do is trying to get some documentation or information from the vendor.

I'm sorry that I can't help.

Regards,

Sara 😊

[Reply](#)**Ray**

October 31, 2018 at 6:21 am

Rui,

You also have to PUSH THE BOOT BUTTON while UPLOADING (at least on the DEVKIT V1) else you get an error:

“Failed to connect to ESP32: Timed out waiting for packet header”

Thanks!

[Reply](#)

Bonjour. j'ai utiliser votre sketch WiFi Scan avec l'Esp32.la compilation dure 5 Minutes et le CPU de W7 tourne à 100%.pourquoi? à vous lire.salutations. vos cours m'intéresse,existet-ils en verion livres? car étant souvent en déplacement il m'est difficile de regarder les videos

[Reply](#)**Sara Santos**

November 14, 2018 at 10:49 am

Hi Robert.

I don't understand french. I used the translator but didn't understand your first question.

Our ESP32 course is available both in video and eBook. When you buy the course, you get both versions.

Regards,

Sara 😊

[Reply](#)**Suren**

November 18, 2018 at 1:02 am

..if anybody still have trouble uploading sketches to their WEMOS D1R1 or similar after CH341SER driver install & even with latest arduino ide with the ESP8266 PLATFORM downloaded connected to proper port in device manager Windows Xp or higher, with error message cxxabi_tweaks.h not present do this....copy cxxabi_tweaks.h from{ your drive]C:\Documents



2\xtensa-lx106-elf\include\c++\4.8.2\xtensa-lx106-elf\bits to C:\Documents and Settings
\your pc name\Local Settings\Application Data\Arduino15\packages\esp8266\tools\xtensa-lx106-elf-gcc\1.20.0-26-gb404fb9-2\xtensa-lx106-elf
\include\c++\4.8.2\bitsit took me a week to figure it out...finally the blink sketches worked...so i have a renewed my spirit for a wifi radio

[Reply](#)



Michael Neff

December 9, 2018 at 8:34 pm

Thank you this is an excellent guide and help. I only want to inform about a key item from my point of view:

CP210x Driver Issue v10.1.4 on Windows 10 1809 : currently I did not found any solution for installing this driver working correctly with Arduino IDE; you do not will find the port ! Any solution ?

[Reply](#)



Sara Santos

December 14, 2018 at 5:22 pm

Hi Michael.

I've never faced that error and I haven't find much information about that.
Only the following link:

https://www.silabs.com/community/interface/forum.topic.html/cp210x_driver_issue-DhIE

If anyone knows a solution for this, please share with us.

[Read more](#)



[Reply](#)**Mckenzie Gibson**

December 28, 2018 at 1:39 pm

Hi Rui,

Thanks for the instructions. I was having difficulties installing but when I wrote exactly what I had done I realised my mistake. Wow Do I feel stupid. I suggest to all those having difficulties that they write down exactly what they are doing and perhaps the problem will solve itself.

[Reply](#)**Peter**

January 7, 2019 at 10:44 pm

For those getting the error: “A fatal error occurred: Failed to connect to ESP32: Timed out waiting for packet header”

I ran into the same issue and couldn’t resolve for the life of me. Turns out I have been shipped (twice, now) an ESP8266 in an ESP32 packaging. Configuring for the ESP8266 solved my issue, naturally. Throwing this out there in case this same thing happened to others.

[Reply](#)**Sara Santos**

January 7, 2019 at 11:23 pm



Hi Peter.

I'm sorry for that issue. Where did you order your "ESP32" boards?

[Reply](#)



Peter

August 23, 2021 at 7:36 pm

Just observing..... Sara asks a good question. As I gain experience with this board I am finding that not all boards are built and configured in the same way, even though they are labeled the same. One of the boards I purchased has never worked correctly but it uses COM6, not COM4. There is no communication with the Serial Monitor. The antenna attaches on a different side of the board. But, the provider of that board is highly suspect. Trying to track things down, I find that their website link is dead and they are located in China.

Lessons learned. Have ordered a new board from a different vendor. Establishing a reliable vendor is essential.

[Reply](#)



Sara Santos

February 16, 2019 at 11:34 am

You can solve that issue by following this tutorial:

<https://randomnerdtutorials.com/solved-failed-to-connect-to-esp32-timed-out-waiting-for-packet-header/>

Regards,

^



[Reply](#)**John**

May 8, 2019 at 2:54 am

I finally got an ESP32. (Better late than never). I tried using this instructional to get it up and running. The board is a Node32s. I can see the port in the IDE; but when I try to upload the example sketch, I get an error that says it failed to connect to ESP32: Timed out waiting for packet header. Any thoughts?

[Reply](#)**Sara Santos**

May 8, 2019 at 8:55 am

Hi John.

Please describe the instructions in this tutorial to be able to upload code:
<https://randomnerdtutorials.com/solved-failed-to-connect-to-esp32-timed-out-waiting-for-packet-header/>

Regards,

Sara

[Reply](#)**Stephen Mann**

May 16, 2019 at 5:08 pm



My Boards Manager says that I have the “ESP32 by Expressif Systems” version 1.0.2 installed.

But I don’t see the ESP32 *anything in the boards manager.

Any tips? Do I need to go back to version 1.0.1 in my Boards Manager?

[Reply](#)

Daniel Fernandes

May 26, 2019 at 5:23 pm

Cumprimentos Sara e/ou Rui. Primeiramente, obrigado pelo tutorial; no entanto, tenho uma questão um tanto diferente:

Qualquer sketch feito para a plataforma Arduino, é possível usá-lo com o esp32 ou esp8266? Se não, o que deve ser mudado e/ou acrescentado no código para tal? Muito obrigado

[Reply](#)

**Duncan Amos**

May 27, 2019 at 1:22 pm

And for those of us (I suspect, the majority) who don't read Portuguese???

[Reply](#)



Hi Daniel.

Next time, try to post your questions in English so that all our readers can understand.

An Arduino sketch can be used for the ESP32 with some changes. There are a few things that you need to be aware of:

- if you're using libraries, they should be compatible with the ESP32
- the pins used in Arduino are different in the ESP32
- there are some functions in the Arduino that are different on the ESP32.
For example, `analogWrite()` doesn't work with the ESP32
- the input range of `analogRead()` of Arduino UNO is 0 to 1023, while on the ESP32 is 0 to 4095

There are also other small details you need to take into account when adapting an Arduino code to work with the ESP32.

I hope I've answered your question.

Thank you for following our work.

Regards,
Sara

[Reply](#)



JOSHUA A/L JAMES ANDREW

July 15, 2019 at 3:57 pm

Hi I just read this excellent tutorial but I have a problem where in the board manager it says “error: can't download https://dl.espressif.com/dl/package_esp32_index.json” and can't search for the esp32 in the search bar there... Please help



**Sara Santos**

July 16, 2019 at 8:50 am

Hi.

That happened to me a few days ago.

The solution was to unistall Arduino IDE and install again.

Then, install the ESP32 add-on.

Regards,

Sara

[Reply](#)**BobbyMac99**

August 23, 2019 at 3:01 am

Installing 1.8.9 resolved the problem. Make sure you put the new library source under your preferences, Additional Boards Manager box (shown above in blue, if you have a 8266 one already there separate by commas). So it should read

"https://dl.espressif.com/dl/package_esp32_index.json,
http://arduino.esp8266.com/stable/package_esp8266com_index.json" – without the double quotes.

[Reply](#)**Joel**

August 23, 2019 at 6:09 pm



Hi Sara and Rui,

The sketch uploads but I keep getting this repeating message in the Serial Monitor:

```
rst:0x10 (RTCWDT_RTC_RESET),boot:0x13 (SPI_FAST_FLASH_BOOT)
configsip: 0, SPIWP:0xee
clk_drv:0x00,q_drv:0x00,d_drv:0x00,cs0_drv:0x00,hd_drv:0x00,wp_drv:0x
00
mode:DIO, clock div:1
load:0x3fff0018,len:4
load:0xffffffff,len:-1
ets Jun 8 2016 00:22:57
```

```
rst:0x10 (RTCWDT_RTC_RESET),boot:0x13 (SPI_FAST_FLASH_BOOT)
configsip: 0, SPIWP:0xee
clk_drv:0x00,q_drv:0x00,d_drv:0x00,cs0_drv:0x00,hd_drv:0x00,wp_drv:0x
00
mode:DIO, clock div:1
load:0x3fff0018,len:4
load:0xffffffff,len:-1
ets Jun 8 2016 00:22:57
```

I am using the latest Arduino IDE version 1.8.9. and I am using a Node MCU ESP 32. I am using I2C the serial protocol and have wired correctly to the CLK and SDI pins. I am using a MacBook Pro.

When I loaded your code to my Arduino Uno, the code ran fine.

[Reply](#)



Niekie

September 12, 2019 at 11:10 am



Hi Sara,

So I have the ESP32 DEVKIT V1 30 pin development board. I selected the ESP32 DEVKIT V1 board and when I plugged it into the PC COM28 popped up. So I selected it.

```
"esptool.py v2.6
Serial port COM28
Connecting....._____
.....An error occurred while uploading the sketch
```

A fatal error occurred: Failed to connect to ESP32: Timed out waiting for packet header"

This is the error message that I received. I then tried holding the BOOT button down until I saw the "Connecting..." message and released the BOOT button, but the same error then popped up.

Any further suggestions?

[Reply](#)



BobbyMac99

September 13, 2019 at 9:36 am

If that fix doesn't work – I always hold the rst and boot button together, then release the rst, wait 1 second, and release the boot – all after the Connecting prompt and as the_____ part comes up.

[Reply](#)



**Niekie**

September 12, 2019 at 1:02 pm

Nevermind. Hardware problem in my circuit. Thanks 😊

[Reply](#)**Rainer**

December 1, 2019 at 5:41 pm

Hi Rui,

Thanks for your great work and website, for me the best tutorials on Arduino, an ESP. Clear, and complete and working, you ebook too, the best I gave seen on the net and I'am in the electronic business about 50 years now.

Have some ESP32 devices since a log time, but had troubles on my mac when compiling, like many others. I'am now on 10.14.6 and tried once again, it works 😊 I followed your tutorial Above. But one thing, the DOITESP32 DEVKIT V1 ist not shown. I Installed the same board library as you and even newer ones. I than the ESP 32 Dev Module. The WiFi Scan sample works. Will I be able to get all out of my ESP32 even when there is an other board selected or how can I get the right board.

Rainer

[Reply](#)**cyberdie**

Hi. i've followed all the steps and all went fine.
BUT my AI Tinker ESP32-Cam doesn't have a ENABLE button!!!
Only the RESET one!

Some clue?

[Reply](#)



Sara Santos

December 14, 2019 at 11:57 am

Hi.

It's the same. Some boards have a label as "RST" and others as "EN".

So, it's the same thing.

Regards.

Sara

[Reply](#)



cyberdie

December 14, 2019 at 7:56 pm

Hi Sara, ok but when i upload the sketch all goes fine ending with the text you can see below. Then if i push the reset button and the serial console shows:

```
rst:0x1 (POWERON_RESET),boot:0x3  
(DOWNLOAD_BOOT(UART0/UART1/SDIO_REL_V2))  
waiting for download
```

and nothing more



SKETCH LOAD:

Writing at 0x00008000... (100 %)

Wrote 3072 bytes (119 compressed) at 0x00008000 in 0.0 seconds
(effective 1068.5 kbit/s)...

Hash of data verified.

Leaving...

Hard resetting via RTS pin...

[Reply](#)



Sara Santos

December 16, 2019 at 9:49 am

Hi.

The “Leaving...

Hard resetting via RTS pin..." message indicates that the code was successfully uploaded to your board.

Just press the RST/EN button to restart the ESP32 and run the code.

Regards,

Sara

[Reply](#)



cyberdie

December 16, 2019 at 10:29 am

Thank you Sara!



**moses**

February 6, 2020 at 1:52 pm

Very useful website , very useful sharings

thank you very much

[Reply](#)**Terry Drummond**

March 13, 2020 at 3:06 pm

I have successfully installed the ESP32 to the arduino IDE. When uploading the test sketch, I get the following error:

Arduino: 1.8.12 (Windows 10), Board: “ESP32 Dev Module, Disabled, Default 4MB with spiffs (1.2MB APP/1.5MB SPIFFS), 240MHz (WiFi/BT), QIO, 80MHz, 4MB (32Mb), 921600, None”

Traceback (most recent call last):

File “esptool.py”, line 2959, in

File “esptool.py”, line 2952, in _main

File “esptool.py”, line 2725, in main

File “esptool.py”, line 2244, in elf2image

File “esptool.py”, line 1783, in __init__



Scan.ino.elf'

Failed to execute script esptool

Multiple libraries were found for “WiFi.h”

Used:

C:\Users\tdrummon\AppData\Local\Arduino15\packages\esp32\hardware\esp32\1.0.4\libraries\WiFi

Not used: C:\Program Files (x86)\Arduino\libraries\WiFi

exit status -1

Error compiling for board ESP32 Dev Module.

This report would have more information with

“Show verbose output during compilation”

option enabled in File -> Preferences.

Also, must the COM port bve COM Port 4? All see available is COM Port 5.

[Reply](#)



Sara Santos

March 15, 2020 at 4:47 pm

Hi Terry.

The port can be different. It is the port that shows in your Arduino IDE.

Regards,

Sara

[Reply](#)



Sentekin Can



Try to change baud rate to 115200 from 921600.

[Reply](#)



Chidananda HM

March 23, 2020 at 7:14 am

Thank you so much, i was able to connect

[Reply](#)



kostas

March 25, 2020 at 1:02 pm

Hi

I try to install esp32 and esp8266 in arduino ide, i follow your instructions, my laptop is a lenovo g580 with ubuntu 18.04 but i have a problem with esp32 when i try to run the wifi scan sketch from the examples. The esp8266 is running without any problem.

This is the message from arduino ide

Arduino: 1.8.12 (Linux), Board: “ESP32 Dev Module, Disabled, Default 4MB with spiffs (1.2MB APP/1.5MB SPIFFS), 240MHz (WiFi/BT), QIO, 80MHz, 4MB (32Mb), 921600, None”

Multiple libraries were found for “WiFi.h”

Used:

/home/leonidas/snap/arduino/5/.arduino15/packages/esp32/hardware/esp32/1.0.4/libraries/WiFi



exec: "python": executable file not found in \$PATH

Error compiling for board ESP32 Dev Module.

This report would have more information with

"Show verbose output during compilation"

option enabled in File -> Preferences.

What can i do?

[Reply](#)



Sara Santos

March 28, 2020 at 12:24 pm

Hi.

Take a look at this discussion and see if any of the suggestions solve your issue: <https://www.esp32.com/viewtopic.php?t=7616#p33322>

Regards,

Sara

[Reply](#)



kostas

March 29, 2020 at 7:19 pm

Thank you Sara for your kind and quick response.

I was tried all these thinks but nothing was happen. The most odd fact is that before 3 months i set up two ESP8266 (WEMOS D1 & NODE MSU) and an ESP32 (i don't know witch board) and all of them works until now with my wifi settings, but i cant change anything after the blocking of arduino IDE.

I am really tired with this situation and i think that i will quit of these boards



[Reply](#)**Sara Santos**

April 3, 2020 at 9:50 am

Hi.

I'm sorry for that issue.

I usually don't work with ubuntu, so I'm not familiar with the problems when using Arduino IDE.

Many times, new problems appear when one updates to a newest version of Arduino IDE that happens to have some bugs. The solution is to get back to the previous working version.

I'm not sure if that's the case.

Everything always worked fine for me on a Windows computer.

Regards,

Sara

[Reply](#)**C Munque**

March 31, 2020 at 6:24 pm

Two possibly related questions:

1 – I'm using a ESP32 WROOM and am unable to find it represented in Arduino IDE > Menu Bar > Tools > Board listing. There are plenty of ESP32 boards there represented (thanks to your installation instructions), just not the ESP32 WROOM.

2 – I'm wondering if that explains why I'm suddenly unable to run any sketches after flashing ESP32s using Arduino IDE. There's no problem

pasted below. I've been testing a bunch of boards, but I'm always getting the same output:

```
rst:0x1 (POWERON_RESET),boot:0x13 (SPI_FAST_FLASH_BOOT)
configsip: 0, SPIWP:0xee
clk_drv:0x00,q_drv:0x00,d_drv:0x00,cs0_drv:0x00,hd_drv:0x00,wp_drv:0x
00
mode:DIO, clock div:1
load:0x3fff0018,len:4
load:0x3fff001c,len:1216
ho 0 tail 12 room 4
load:0x40078000,len:9720
ho 0 tail 12 room 4
load:0x40080400,len:6352
entry 0x400806b8
```

[Reply](#)



C Munque

March 31, 2020 at 6:40 pm

Answering my own question here: Solution was to change one line of my Arduino code:

I'd had all my sketches showing
Serial.begin(9600);
and wasn't able to find the equivalent baud rate in the Serial Monitor (it was simply hidden by a the scroll of the pulldown — dumb oversight on my part)
Changing that to
Serial.begin(115200);
or even leaving at 9600 — just making sure to match the baud rate of the Serial Monitor solved the problem.

whether or not the sketch runs, but my impression is that sketches that previously weren't working are now working just fine.

[Reply](#)



Sentekin Can

May 17, 2020 at 11:05 pm

C Munque, if baud rated does not much, you will see strange characters on the Serial Monitor.

Today I received two ESP32 DEVKITV1 from Amazon and, like you , I tried all different boards. My problem was that the board would not be uploaded with sketch. Then, here, I read troubleshooting section and about BOOT P.B. (See my comment). Closes I could come in board selection, was DOIT ESP32 DEVKIT V1, and so magically it worked.

[Reply](#)



James Pattinson

February 3, 2021 at 9:17 pm

WHAT BOARD DID YOU END UP CHOOSING FOR THE WROOM?

[Reply](#)



Sara Santos

February 6, 2021 at 11:48 am

Regards,
Sara

[Reply](#)



Robert Fujita

February 8, 2021 at 10:55 pm

Is there a good solution to the ESP32 board issue with MacOS Big Sur?

[Reply](#)



Sara Santos

February 9, 2021 at 12:16 pm

Hi.

Read this: <https://rntlab.com/question/macintosh-big-sur-macos-11-0-1-breaks-esp32-programming-on-arduino-ide/>

Regards,
Sara



Sentekin Can

May 17, 2020 at 10:56 pm

Thank you very much for the tutorial. I had wrestled with upload error problem almost a day before I saw your troubleshooting section and pushing BOOT push button. It was a relief, and now I am ready to start.



[Reply](#)**Sara Santos**

May 18, 2020 at 2:01 pm

Great!

[Reply](#)**joel**

May 21, 2020 at 1:40 am

Hello, I have problems including

```
#include "soc / soc.h" // Disable brownour problems  
#include "soc / rtc_CNTL_REG.H" // Disable brownour problems  
#include "driver / RTC_IO.H"
```

Could you tell me what the libraries are called that I should download?

[Reply](#)**Sara Santos**

May 21, 2020 at 3:07 pm

Hi.

You don't need to install anything.

It comes by default when you install the ESP32 boards in your Arduino IDE.

Regards,



[Reply](#)**joel**

May 22, 2020 at 9:40 pm

Sorry my question was for another of your posts, precisely for the ESP-CAM. I'll do it in the right place.

[Reply](#)**Alfred**

May 30, 2020 at 3:36 am

Very useful website,

i made everything like you indicated.

until the final message shown:

The “Leaving...

Hard resetting via RTS pin..."

then when i looked the COM monitor should show me the neighbors wifi,
but it is show me this:

??-???:?

??-??6?8? D??-??4??B??M?]??2??C?^??/? ??

??-?? ? ??40

??M??>??-??6? ??A0?:?

??-??R??eF?j??t??A??8?H@??-??t??

C-?:?2??-??d??B??^??

??-??

??-??



What could it be?? please help me!!

[Reply](#)



Sara Santos

May 30, 2020 at 9:17 am

Hi.

Make sure you have the right baud rate selected on the Serial Monitor.
On the bottom right corner, double-check that you have 115200 baud
rate.

Regards,

Sara

[Reply](#)



Alfred

May 30, 2020 at 3:44 pm

Thank you so much, that's was the issue. I love this site.

[Reply](#)



Jonathan

June 27, 2020 at 8:39 pm

Very good, I purchased your ESP32 course and the only time I have had problems is due to me missing a vital point early on. All the information is



through line by line. Keep up the good work, you are saving people lots of time by pointing them to resources that can take a long time find among all the information on the internet.

[Reply](#)



Sara Santos

June 29, 2020 at 9:50 am

Hi.

Thank you for your feedback Jonathan.

If you need any help following the course, you can use the forum on the RNTLAB: <https://rntlab.com/forum/> (exclusive for members)

Regards,

Sara

[Reply](#)



alex harijanto

July 16, 2020 at 3:23 am

Hi,

Thank you very much. I learn alot of ESP8266 and ESP32 from you.

[Reply](#)



Sara Santos

July 17, 2020 at 9:12 am



Great! 😊

[Reply](#)



Robert Fujita

August 27, 2020 at 10:34 pm

Hello,

I'm experiencing problems loading files to my sketch, but first I wanted to ensure my board is installed properly. The ESP32 Add-on in the Arduino IDE is installed correctly. When I go to the board manager, the 'ESP32 by Espressif Systems' is not available. Am I missing a step or something else that needs to be performed to get that installed?

Thanks for providing all your ESP tutorials.

[Reply](#)



Mark

August 28, 2020 at 4:53 am

I was having problems installing my ESP32 with IDE with my hobby room computer so I tried it on my office computer and it worked! I think I may have had a typo in the Espressif address but I have both computers working now.

[Reply](#)



**Robert Fujita**

August 28, 2020 at 8:28 pm

Thanks for your response. I double checked my spelling for URL's and they are ok.

[Reply](#)**Richard Cavallaro**

August 28, 2020 at 11:05 am

Not sure if this helps, but I'm programming an ESP32 through the arduino IDE and I don't see the option for "ESP32 by Espressif Systems". Mine is the ESP32 NodeMCU. And I select the board "Node32s". Works fine for me.

[Reply](#)**Obediah Mckay**

October 25, 2020 at 7:29 pm

hi i used the troubleshoot it worked but im just getting garbage though in the com

[Reply](#)

**Obediah Mckay**

October 25, 2020 at 7:38 pm

nvm i fixed it i had my baud rate set wrong on system monitor

[Reply](#)**Gianfranco**

November 16, 2020 at 4:33 pm

Hallo...

PLEASE HELP MEEEE... (me not only)

I have upgrade my macos to BIG SUR...

Arduino works but not esp32 and esp8266...

I tried the CH*** install but doesn't work...

How much time we have to wait that esp32 and/or esp8266 and/or CH*** and/or Arduino and/or Mac help us to upgrade???

Thank and have a nice week!

@}-,-'—--

Gianfranco

[Reply](#)**Sara Santos**

November 17, 2020 at 3:59 pm



Hi.

I still don't know how to solve the problem.

<https://rntlab.com/question/macintosh-big-sur-macos-11-0-1-breaks-esp32-programming-on-arduino-ide/>

Regards,

Sara

[Reply](#)



Gianfranco

November 17, 2020 at 10:30 pm

Thank...

I have found the same this morning too.

https://www.silabs.com/community/interface/forum.topic.html/vcp_driver_for_macosbigsur110x-SWJK

We must wait... I hope little little time...

Bye bye!

[Reply](#)



saranya

January 18, 2021 at 11:02 pm

I've downloaded the ESP32 successfully but I have a problem with connecting to the board. I've tried this on two different computers with different combinations of connecting cables and two different ESP32s and it won't work. For one of the computers I'm using (Mac), the COM port won't even show up. Here's the error message I've gotten:



A fatal error occurred: Failed to connect to ESP32: Timed out waiting for packet header

Thank you so much!

[Reply](#)



Sara Santos

January 20, 2021 at 11:57 am

Hi.

Make sure you press the on-board BOOT button when you start seeing a lot of dots on the debugging window.

<https://randomnerdtutorials.com/solved-failed-to-connect-to-esp32-timed-out-waiting-for-packet-header/>

Regards,

Sara

[Reply](#)



saranya

January 27, 2021 at 12:21 am

Hi, thank you so much! I've tried pressing the BOOT button many times but I still can't see the COM port, which worked a few days ago but is now gone, and I'm not sure what to do.

[Reply](#)

Thanks a lot.

Easy and clear to understand!!

[Reply](#)



Blake

March 16, 2021 at 5:48 pm

I keep getting the error message: Error downloading
https://dl.espressif.com/dl/package_esp32_index.json

[Reply](#)



Sara Santos

March 17, 2021 at 11:04 am

Check that you have internet connection while trying to install the boards.

Also, take a look at this article and see if it helps:

<https://randomnerdtutorials.com/solved-arduino-ide-esp32-esp8266-installation/>

Regards,

Sara

[Reply](#)



Russ



I kept having this problem as well. In my case it was due to at least 2 things:

- 1) My certificate for arduino.cc was expired.
- 2) I have Java installed and it is a different (newer) version than what the Arduino IDE uses.

I wrote what I did on the Arduino forum. I hope it's okay to post this here. If not I'll put the whole long description here too.

forum.arduino.cc/index.php?topic=721801.msg4927205#msg4927205

I hope it helps. It would probably be easier for me to uninstall Java but it was quite a learning process so it was worth it to me anyway.

Good Luck,

Russ

[Reply](#)



Faris Ikhmal

July 12, 2021 at 6:28 am

Hi, If i bought DOIT esp32 version 36 pin, which board do i have to select?
Is it the same DOIT esp32 DEVKIT V1?

[Reply](#)



Sara Santos

July 12, 2021 at 10:08 am

Yes.

[Reply](#)



**Abdullah Memon**

July 27, 2021 at 9:02 pm

Hey, I followed all steps but I am continuously getting plugin error within arduino15 directly. Kindly tell me solution

[Reply](#)**Sara Santos**

July 28, 2021 at 9:43 am

Hi.

What is exactly the error?

It seems something related to this:

<https://randomnerdtutorials.com/solved-arduino-ide-esp32-esp8266-installation/>

Regards,

Sara

[Reply](#)**Abdullah Memon**

July 30, 2021 at 7:38 pm

Hi.

I followed above mentioned link but still facing same error, the exact error is: "Arduino: 1.8.15 (Windows 7), Board: "DOIT ESP32 DEVKIT V1, 80MHz, 921600, None"

c:/users/a/appdata/local/arduino15/packages/esp32/tools/xtensa-esp32-



```
c:/users/a/appdata/local/arduino15/packages/esp32/tools/xtensa-esp32-elf-gcc/1.22.0-80-g6c4433a-5.2.0/bin/../libexec/gcc/xtensa-esp32-elf/5.2.0/liblto_plugin-0.dll: error loading plugin:  
collect2.exe: error: ld returned 1 exit status  
Multiple libraries were found for "WiFi.h"  
Used:  
C:\Users\a\AppData\Local\Arduino15\packages\esp32\hardware\esp32\1.0.1\libraries\WiFi  
Not used: C:\Program Files (x86)\Arduino\libraries\WiFi  
exit status 1  
Error compiling for board DOIT ESP32 DEVKIT V1.  
This report would have more information with  
"Show verbose output during compilation"  
option enabled in File -> Preferences.  
"
```

Previously, I was able to resolve multiple libraries error but another error I still unable to resolve.

[Reply](#)



Sara Santos

July 31, 2021 at 11:07 am

Is there any line of the code highlighted when you get the error?

Regards,

Sara

[Reply](#)



Abdullah Memon

July 31, 2021 at 11:58 am



**Andreas Heinrich**

August 18, 2021 at 4:29 pm

I am really thankful to you for your carefully made tutorials: every single detail is described! That made it easy to me doing first steps with the esp32 module and later getting more and more knowledge to create my own projects 😊

Andreas

[Reply](#)**Peter**

August 19, 2021 at 2:54 pm

Having trouble getting the latest version of Arduino IDE to work according to this tutorial. Would appreciate your thoughts.

Following the tutorial at <https://randomnerdtutorials.com/ttgo-lora32-sx1276-arduino-ide>. Presently in this section: “Installing OLED Libraries” and working through the linked material (https://github.com/adafruit/Adafruit_SSD1306).

Downloaded and installed Arduino IDE v1.8.15.

Step 2 is confusing. On the one hand it says, ‘Enter https://dl.espressif.com/dl/package_esp32_index.json into the “Additional Board Manager URLs” field as shown in the figure below.’ But, the figure shows an additional link to be included. The total link to enter into the field



Step 3 says to select Arduino/Genuino Uno. No such board is listed in the latest version. Instead, I selected Arduino Uno.

In Step 4, are you talking about the Library Manager instead of the Board Manager? In the Board Manager, the dialog disappears once the board is selected. In the Library Manager, I searched for “esp32”, as shown in the tutorial. There is no library named “esp32 by Espressif Systems”.

Question: Does the board have to be plugged into the computer hosting the Arduino IDE for this tutorial to work as written? There is no indication of that in the tutorial.

Thank you for any insights you can offer.

[Reply](#)



Sara Santos

August 19, 2021 at 3:05 pm

Hi.

I think there is a misunderstanding.

In step 3 we don't say to select any board. We say to go to Tools > Board > Boards Manager...

And then, search for “ESP32” there in the Boards Manager. We don't talk in any place about the library manager.

If you find the instructions confusing, you can also check the video instructions.

Regards,

Sara

[Reply](#)



**Peter**

August 21, 2021 at 9:19 pm

Indeed Sara. Thanks. The video is not optional since there is extra information there. Managed to complete the installation. Here are my notes:

Regarding Step 4:

Watched the video.

When I open Tools/Boards, there is a grayed-out “Board Manager” at the top of the dialog. I tried clicking on that and another dialog appeared. The search for esp32 was successful and I was able to download the correct library.

Turns out that the board has to be plugged in for it to be displayed in the Tools/Board menu. If you plug the board in while the Arduino IDE is active, the board will not show up. (It did not for me.) It was necessary to exit the IDE and restart it. Then the board will appear under Tools/Board/ESP32 Arduino/DOIT ESP32 DEVKIT v1, per the video.

It is still confusing which link to use at the beginning of this step.

Step 5. During the upload process, the program was compiled. These two warnings occurred:

```
C:\Users\sooth\AppData\Local\Arduino15\packages\esp32\hardware\es
p32\1.0.6\cores\esp32\esp32-hal-spi.c:922:39: warning: initialization
from incompatible pointer type [-Wincompatible-pointer-types]
uint8_t * last_out8 = &result[c_long-1];
^
```

```
C:\Users\sooth\AppData\Local\Arduino15\packages\esp32\hardware\es
p32\1.0.6\cores\esp32\esp32-hal-spi.c:923:40: warning: initialization
```

```
uint8_t * last_data8 = &last_data;  
^
```

Maybe the program will still work but warnings like this should not be left laying around. They tend to rise up and bite later, as the software evolves.

Step 7. Is there supposed to be a figure in this step? If so, it appears to be dead. There is an odd icon where a figure might be.

Used Tools/Serial Monitor to access the serial monitor. The resulting dialog can easily be set for a baud rate of 115200.

Step 8. The program keeps cycling through a network scan. Found networks are listed in the serial monitor. It would be interesting to know what the number in parenthesis means, and what the asterix being present or not indicates. My ESP32 board display shows “Sending packet: 2040”.

By combining the written and video tutorials, this first experience was completed.

[Reply](#)



Jesio Costa

September 4, 2021 at 7:03 pm

Ola, tem como eu saber a intensidade do sinal de uma placa para outra?
Como se fosse o rssi do wifi...

Att

[Reply](#)



**Sara Santos**

September 6, 2021 at 9:20 am

Hi.

In your Arduino IDE, with an ESP32 board selected, go to File > Examples > ESP32 > ESPNow > Master

In that example, there's a section that gets the RSSI.

Regards,

Sara

[Reply](#)**Steve Joseph**

September 25, 2021 at 5:56 pm

Very clear instructions, thanks.

For Linux Mint 19.3:

All worked until compile time, when I got

ImportError: No module named serial

Online search gave lots of advice about python versions and editing esp32 package files, but the thing that worked was the obvious (in hindsight)
sudo apt install python-serial

After that, it compiled.

The port comes up as

/dev/ttyUSB0

and you have to give permission to access the device, see

<https://askubuntu.com/questions/15570/configure-udev-to-change-permissions-on-usb-hid-device>

and then it will upload.

[Reply](#)

**Derek**

September 27, 2021 at 2:59 am

Hi, I seem to be having problems with the IDE for some reason it doesn't seem to recognise some commands shown in other peoples source code including those on this site. I am trying to get what is normally an analogWrite command for PWM on Arduino to work on the ESP32. The example here talks about an ledcWrite but the IDE does not recognise it, just as it doesn't recognise pins like D01 that are printed on the board and in other peoples scripts.

[Reply](#)**Sara Santos**

September 27, 2021 at 10:31 am

Hi.

For the IDE to recognize functions specific for the ESP32, you need to have an ESP32 board selected.

In your Arduino IDE, go to Tools > Board and select an ESP32 board.

Regards,

Sara

[Reply](#)**Sabri Helvacı**

September 28, 2021 at 12:06 pm



Thank you for all the information you have provided.

[Reply](#)



ZERAPI

December 4, 2021 at 9:53 am

Hello,

Concerning the ESP32 CAM (DM-ESP32 S version) I get an error:
“E (25829) wifi:AP has neither DSSS parameter nor HT Information, drop it”

when launching the Web server program. The “scanner” sketch works perfectly, it detects all active networks, but returns this error on only one address. Do you have any idea about this error?

Thank you in advance for your help.

[Reply](#)



Sara Santos

December 4, 2021 at 2:47 pm

Hi.

Unfortunately, I have no idea what that error means.

I never faced that error and I didn't find anything about it on the internet.

Regards,

Sara

[Reply](#)



**Alnoor**

December 17, 2021 at 9:41 pm

Hi i am getting error, what am I doing wrong. Could not find boards.txt in C:\Users\14168\Documents\Arduino\hardware\espressif\cores. Is it pre-1.5?

[Reply](#)**Paul**

January 7, 2022 at 9:34 pm

Hi. I have an ESp32_Wroom_32 board. Noted in previous thread response 6/2/21 “ You can choose ESP32 Dev Module or ESP32 Wrover Module “ as nowhere do I see above Wroom board. But on trying these boards previously Arduino still does not appear to recognize

[Reply](#)**donbrew**

January 12, 2022 at 9:02 pm

Since this is among the first results for a search for “esp32 boards arduino” you might consider updating the address for the boards.

The real address on January/12/2022 is:

https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package_esp32_index.json



**Peguy**

January 21, 2022 at 8:02 am

Thank's for this simple and excellent tuto

[Reply](#)**Dave**

January 26, 2022 at 2:38 am

I'm trying to follow this example but I get this error compiling:

```
c:/users/closd/documents/arduino/data/packages/esp32/tools/xtensa-  
esp32-elf-gcc/1.22.0-97-gc752ad5-5.2.0/bin/..../lib/gcc/xtensa-esp32-  
elf/5.2.0/..../..../..xtensa-esp32-elf/bin/ld.exe: cannot find crt1-sim.o: No  
such file or directory
```

```
c:/users/closd/documents/arduino/data/packages/esp32/tools/xtensa-  
esp32-elf-gcc/1.22.0-97-gc752ad5-5.2.0/bin/..../lib/gcc/xtensa-esp32-  
elf/5.2.0/..../..../..xtensa-esp32-elf/bin/ld.exe: cannot find _vectors.o: No  
such file or directory
```

```
collect2.exe: error: ld returned 1 exit status
```

Multiple libraries were found for "WiFi.h"

Used:

```
C:\Users\closd\Documents\ArduinoData\packages\esp32\hardware\esp32\  
2.0.2\libraries\WiFi
```

Not used: C:\Program

```
Files\WindowsApps\ArduinoLLC.ArduinoIDE_1.8.57.0_x86_mdqgnx93n4  
wtt\libraries\WiFi
```

exit status 1



ESP32 support wrong. The IDE works file with Arduino and Adafruit boards. I also have a ESP8266 working fine through the IDE. Any clues why I managed to get this wrong on two different machines?

[Reply](#)



Sara Santos

January 26, 2022 at 9:17 am

Hi.

That seems an issue with the ESP32 boards installation.

Uninstall the boards and install them again. You may also need to uninstall Arduino IDE and install again.

Regards,

Sara

[Reply](#)



ugur from TURKIYE

February 22, 2022 at 9:56 pm

ch9102 chip

“Connect GPIO0 (IO0) shortly to GND, just after the programming in Arduino starts.”

[Reply](#)



noonecares



Update the Link, your old Link did cost me a hour!

https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package_esp32_index.json

[Reply](#)



Sara Santos

April 19, 2022 at 2:32 pm

Hi.

Thanks for your comment.

It's updated now.

Regards,

Sara

[Reply](#)



Martin Rice

May 16, 2022 at 2:38 pm

I have had two problems using the CP210x USB to UART bridge to connect to my various ESP32 modules. After several months of successfully uploading sketches from Arduino IDE to TTGO T-Call ESP32 SIM800L modules I suddenly found the connection timing out and failing. I solved this by updating the driver (from Version 6.7.4.261 (19/09/2016) to 11.1.0.53 (18/02/2022).)

The second problem was installing the driver at all on my new ASUS



here turned out to be a ‘Memory Integrity’ security issue: see
<https://support.microsoft.com/en-au/windows/a-driver-can-t-load-on-this-device-8eea34e5-ff4b-16ec-870d-61a4a43b3dd5>

The advice from Microsoft was to turn off memory integrity. It was already off so I tried turning it On, and the driver installed properly! Plugging in the ESP32 module gave the familiar recognition sound, and I was able to upload sketches OK. (On my older devices there is no such security patch and no problem installing the CP210x driver.)

[Reply](#)



Jason Schulz

May 31, 2022 at 9:57 pm

If you upgraded to Ubuntu 22.04 and having issues with the ttyusb no longer working — general consensus is to remove the brltty package since it’s interfering. regular usb devices such mice or usb harddrive work fine but the esp32,8266, etc won’t work via usb without removing that package. I couldn’t get any of my unos to work either.

<https://bugs.launchpad.net/ubuntu/+source/brltty/+bug/1970408>

[Reply](#)



NTL2009

July 31, 2022 at 4:56 pm

Fixed in latest update:



brltty (6.4-4ubuntu3) jammy; urgency=medium

Try to resolve brltty conflicting with generic serials (lp: #1958224)
debian/brltty.udev.rules, debian/brltty-usb-generic.rules,
debian/brltty.examples:

split the generic identifier udev rules to a separate rule which
is going to be distributed as an example but not installed by default.
Those rules are needed by some braille readers to work but conflict
with cp210x and FTDI serial ports. Those special devices had required
manual setup in Ubuntu since 2011 and were only added back to the
default configuration due to a merge error.

[Reply](#)



Behrouz

August 4, 2022 at 10:58 am

Hello,

Thank you all for sharing their knowledge/experience.

While trying to upload the WIFI Scan example, I received the following
error message;

exec: “{runtime.tools.ctags.path}/ctags”: file does not exist
Error compiling for board ESP32 Dev Module.

Then I tried using Boot button however, there come no “connecting ...” so
that could release the Boot button and, finally the same message showed;

exec: “{runtime.tools.ctags.path}/ctags”: file does not exist
Error compiling for board ESP32 Dev Module.

**Sara Santos**

August 5, 2022 at 1:22 pm

Hi.

I suggest uninstalling and installing the Arduino IDE from start.

Regards,

Sara

[Reply](#)**narmie**

September 23, 2022 at 3:21 pm

Hi sara and Rui

can i know what the problem with this code?? I already follow step by step by wathcing this youtubehttps://www.youtube.com/watch?v=GDlk6qgQ_E

Arduino: 1.8.19 (Windows 10), Board: “ESP32 Wrover Module, Huge APP (3MB No OTA/1MB SPIFFS), QIO, 40MHz, 115200, None”

Sketch uses 2594774 bytes (82%) of program storage space. Maximum is 3145728 bytes.

Global variables use 56256 bytes (17%) of dynamic memory, leaving 271424 bytes for local variables. Maximum is 327680 bytes.

esptool.py v3.0-dev



Connecting...

Traceback (most recent call last):

File “esptool.py”, line 3682, in

File “esptool.py”, line 3675, in _main

File “esptool.py”, line 3330, in main

File “esptool.py”, line 512, in connect

File “esptool.py”, line 492, in _connect_attempt

File “esptool.py”, line 431, in sync

File “esptool.py”, line 369, in command

File “esptool.py”, line 332, in write

File “site-packages\serial\serialwin32.py”, line 323, in write

serial.serialutil.SerialTimeoutException: Write timeout

Failed to execute script esptool

An error occurred while uploading the sketch

This report would have more information with
“Show verbose output during compilation”
option enabled in File -> Preferences.

[Reply](#)



Zaddam



Bonsoir je me tourne vers vous en désespoir de cause
J'essaie d'installer mon ESP32cam depuis plusieurs jours j'ai regardé tous les tutos , causes d'erreurs, dépannage je ne trouve pas la solution, J'ai changé le port USB, le câble; rien n'y fait
Lorsque j'essaie de connecter la carte les messages suivants se répétent sans cesse

```
19:45:06.594 -> rst:0x1 (POWERON_RESET),boot:0x13
(SPI_FAST_FLASH_BOOT)
19:45:06.594 -> configSip: 0, SPIWP:0xee
19:45:06.594 ->
clk_drv:0x00,q_drv:0x00,d_drv:0x00,cs0_drv:0x00,hd_drv:0x00,wp_drv:0x
00
19:45:06.594 -> mode:DIO, clock div:1
19:45:06.594 -> load:0x3fff0018,len:4
19:45:06.594 -> load:0x3fff001c,len:1216
19:45:06.594 -> ho 0 tail 12 room 4
19:45:06.594 -> load:0x40078000,len:10944
19:45:06.594 -> load:0x40080400,len:6388
19:45:06.594 -> entry 0x400806b4
19:45:08.416 ->
```

La carte est-elle endommagée ? merci pour votre aide

[Reply](#)



Andreas

February 9, 2023 at 11:40 am

Immediately after the Ubuntu update 22.04 I have the problem that ttusb no longer works.

[Reply](#)



**Pushkar**

March 7, 2023 at 4:00 am

Hi Sara and Rui,

I got the following error:

"

Arduino: 1.8.19 (Windows Store 1.8.57.0) (Windows 10), Board: "ESP32 Dev Module, Disabled, Disabled, Default 4MB with spiffs (1.2MB APP/1.5MB SPIFFS), 240MHz (WiFi/BT), QIO, 80MHz, 4MB (32Mb), 921600, Core 1, Core 1, None, Disabled"

Sketch uses 702197 bytes (53%) of program storage space. Maximum is 1310720 bytes.

Global variables use 42660 bytes (13%) of dynamic memory, leaving 285020 bytes for local variables. Maximum is 327680 bytes.

esptool.py v4.5.1

Serial port COM3

Connecting.....

A fatal error occurred: Failed to connect to ESP32: No serial data received.

For troubleshooting steps visit:

<https://docs.espressif.com/projects/esptool/en/latest/troubleshooting.html>

the selected serial port For troubleshooting steps visit:

<https://docs.espressif.com/projects/esptool/en/latest/troubleshooting.html>

does not exist or your board is not connected

This report would have more information with



I have ESP32-S board.

Thanks!

[Reply](#)



Sara Santos

March 9, 2023 at 12:20 am

Hi.

You probably need to press the BOOT button when you start seeing the dots on the debugging window.

Check our troubleshooting guide: <https://randomnerdtutorials.com/esp32-troubleshooting-guide/>

See bullet number 4.

I hope this helps.

Regards,

Sara

[Reply](#)



William

March 24, 2023 at 8:53 pm

This when adding to the “additional boards manager” It would fail. I think the original JSON link is no longer working. I fixed it by changing my Board Manager URL from:

https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package_esp32_index.json

To:

https://dl.espressif.com/dl/package_esp32_index.json



[Reply](#)**Sara Santos**

March 25, 2023 at 11:33 am

Hi.

The link we have is the most recent so that you can have the Arduino core for the ESP32 from version 2.0.

The other link only goes up to version 1.0.6.

Both links are working just fine for me.

So, you might want to try to install it with our link again so that you can have the latest version of the Arduino core for the ESP32.

Regards,

Sara

[Reply](#)**Stephen Mann**

March 25, 2023 at 1:56 pm

You said: "The link we have is the most recent so that you can have the Arduino core for the ESP32 from version 2.0. The other link only goes up to version 1.0.6."

What about Version 1.8.xx?

[Reply](#)**Sara Santos**

March 25, 2023 at 4:23 pm



Are you referring to yhe version of the Arduino IDE?~

I am referring to the version of the ESP32 boards installation.

[Reply](#)



Stephen Mann

March 26, 2023 at 3:12 pm

Are you referring to yhe version of the Arduino IDE?

Yes. Which board manager should I use in V1.8.xx of the Arduino IDE?



Sara Santos

March 26, 2023 at 10:46 pm

The one in the tutorial:

https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package_esp32_index.json



Andrzej

April 12, 2023 at 5:43 pm

Bardzo pomocna informacja. Z zaciekawieniem zapoznaję się z tą konkretną i ciekawą stroną.



**as**

June 5, 2023 at 5:50 am

FYI! Old links, see new in <https://docs.espressif.com/projects/arduino-esp32/en/latest/installing.html>

[Reply](#)**Sara Santos**

June 5, 2023 at 5:47 pm

Hi.

If you open the two URLs, you'll see that the file is the same. So, you can use either link.

Regards,

Sara

[Reply](#)**Randy Constan**

August 16, 2023 at 2:08 am

Sara,

If I want to build ESP32 sketches using the arduino IDE on a windows computer. can you tell me the minimum OS and machine specifications? I



bit desktop, and an older Windows-XP 32 bit machine. The windows 10 machine does fine, but the windows XP machine can't complete an ESP32 sketch build, complaining that python can't work in 32 bits. I'm looking at used laptops, but I'd like to be sure the one I choose will work. Was the problem in my older machine the fact that it was windows-XP, or was the problem related to the CPU and OS needing to be 64 bits? Thanks for any help!

[Reply](#)**RICK CAVALLARO**

August 16, 2023 at 2:59 am

I don't know if this helps, but I've compiled and loaded ESP32 sketches from my 64 bit Windows & laptop for a long time. I've used the 1.8x arduino IDE and later. For what it's worth, mine is an ancient (like 10 years old) Lenovo T430. You can get them on Ebay these days for next to nothing.

[Reply](#)**RICK CAVALLARO**

August 16, 2023 at 3:00 am

Shoot – that should say Windows 7

[Reply](#)

Hi,

This is what I get:

Sketch uses 1510925 bytes (48%) of program storage space. Maximum is 3145728 bytes.

Global variables use 70396 bytes (21%) of dynamic memory, leaving 257284 bytes for local variables. Maximum is 327680 bytes.

esptool.py v4.5.1

Serial port COM1

Connecting.....

A fatal error occurred: Failed to connect to ESP32: No serial data received.

For troubleshooting steps visit:

<https://docs.espressif.com/projects/esptool/en/latest/troubleshooting.html>

Failed uploading: uploading error: exit status 2

[Reply](#)



Sara Santos

November 7, 2023 at 7:44 am

Press the BOOT button when you start seeing the dots in the debugging window.

Regards,

Sara

[Reply](#)



Rick Cavallaro

November 7, 2023 at 8:31 am



For what it's worth, I use the boot button on some of my ESP32's, but I use the added capacitor on boards that are built into things where the boot button might be hard to access.

When I use the boot button, I wait for the dots, and then hold the button until I see that its loading the sketch. Not sure if I have to hold it that long, but that's what I do, and it works for me.

The alternative is a 10uF capacitor between the GND pin and the EN pin. With that, you can skip the boot button. But I realize I don't have to tell you this Sara. Just bringing it up for the wider audience.

[Reply](#)



Sara Santos

November 9, 2023 at 4:26 pm

Thanks 😊

[Reply](#)



Samavia Fayyaz

April 18, 2024 at 3:29 pm

HEY RUI.

iam working on my final year project which i have to get the readings of temperature and humidity check on thingspeak by arduino ide and running code into it . iam using GSM module with built in ESP32 module in it . i have run the code and install all the libraries of ESP32 and follow your this

i have search everywhere on internet but found no solution. can you please help me what to do .

[Reply](#)



Sara Santos

April 19, 2024 at 6:17 pm

Hi.

The wifi library for the ESP32 is simply WiFi.h

Regards,

Sara

[Reply](#)



Bill

July 16, 2024 at 12:04 am

Following up on my previous post, I found my issue. I was looking at “Library Manager” and not “Boards Manager”. Under Boards Manager, I did indeed find the esp32 board, and I’m currently installing it. Thanks for the tutorial!

[Reply](#)

Leave a Comment



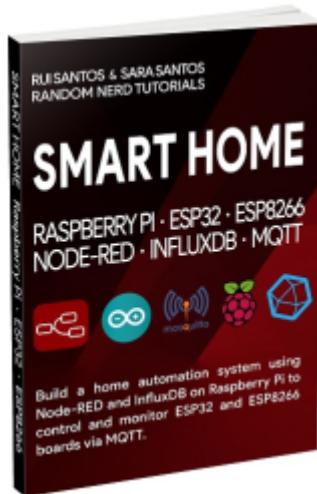
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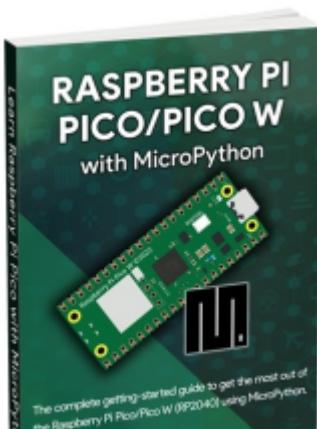




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