

## What is ESP32 Chip?

ESP32 is the name of the chip that was developed by Espressif Systems. This provides Wi-Fi (and in some models) dual-mode Bluetooth connectivity to embedded devices.

## What is the usage of ESP32?

Smart industrial devices, including Programmable Logic Controllers (PLCs)

Smart medical devices, including wearable health monitors.

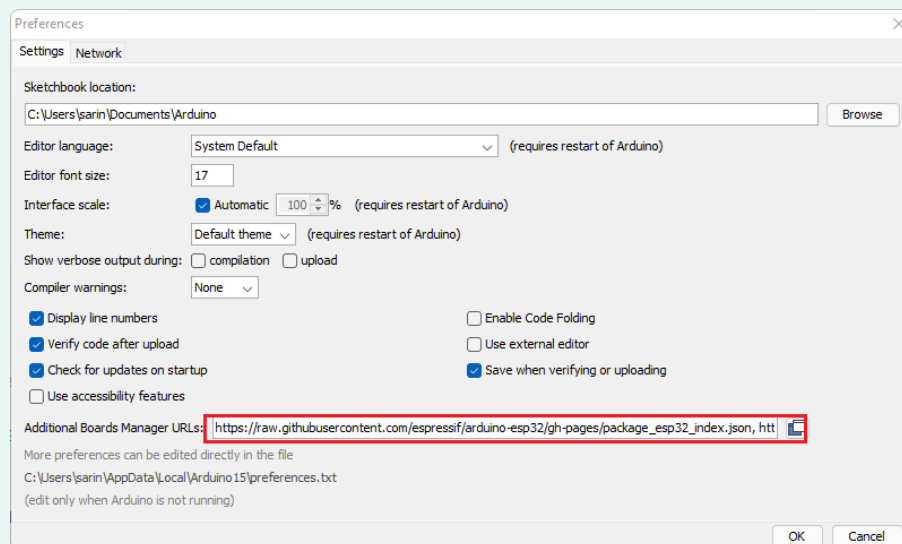
Smart energy devices, including HVAC and thermostats.

Smart security devices, including surveillance cameras and smart locks.

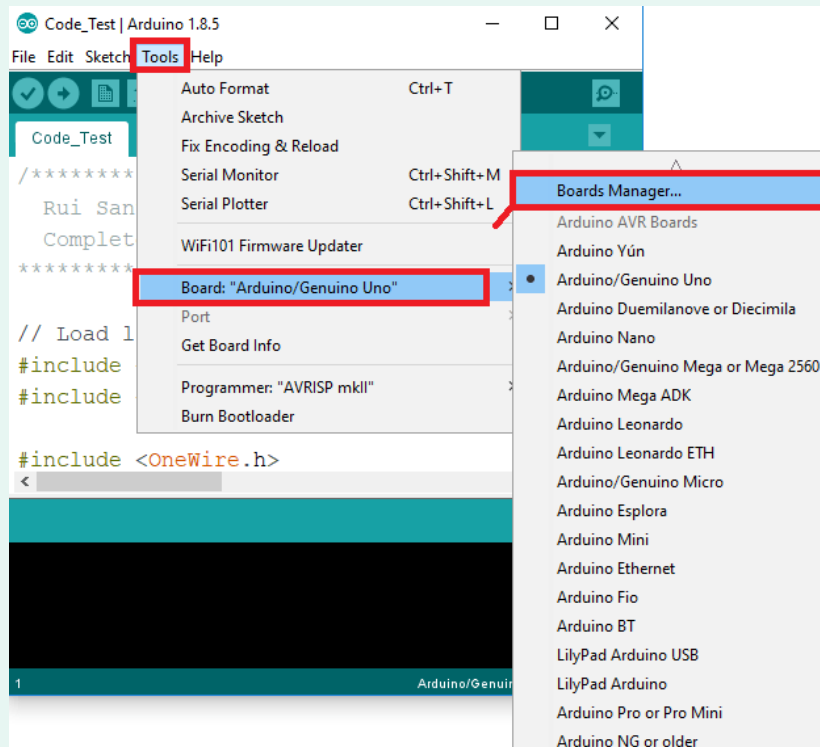
## Installing ESP32 in Arduino IDE:

1. In Arduino IDE, go to File> Preferences
2. Enter the following into the “Additional Board Manager URLs” field:

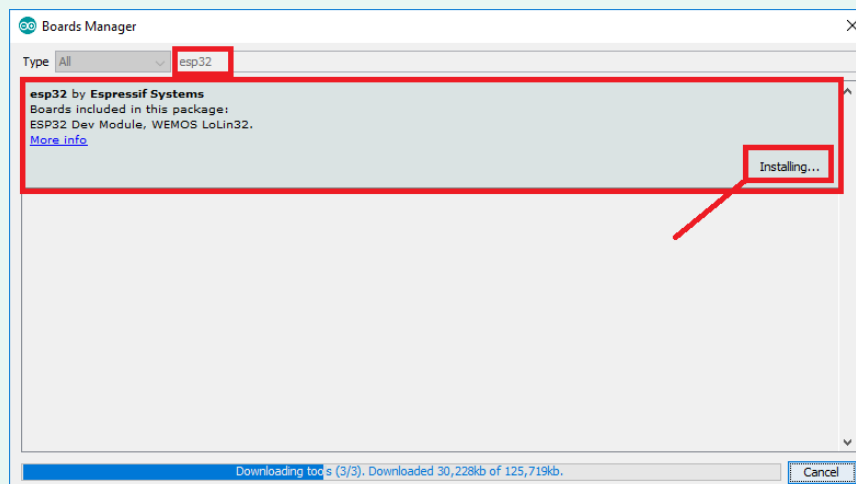
[https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package\\_esp32\\_index.json](https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package_esp32_index.json)



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



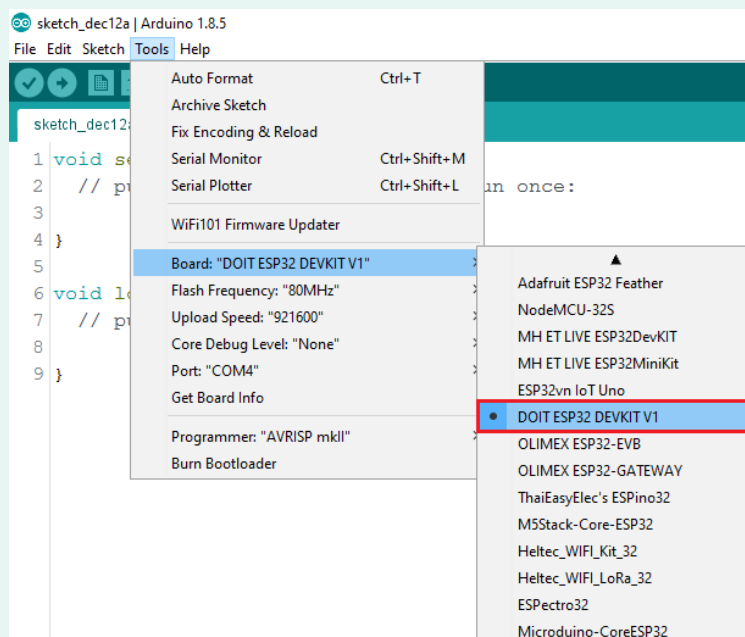
4. Search for **ESP32** and press install button for the “**ESP32 by Espressif Systems**” and install the extinction



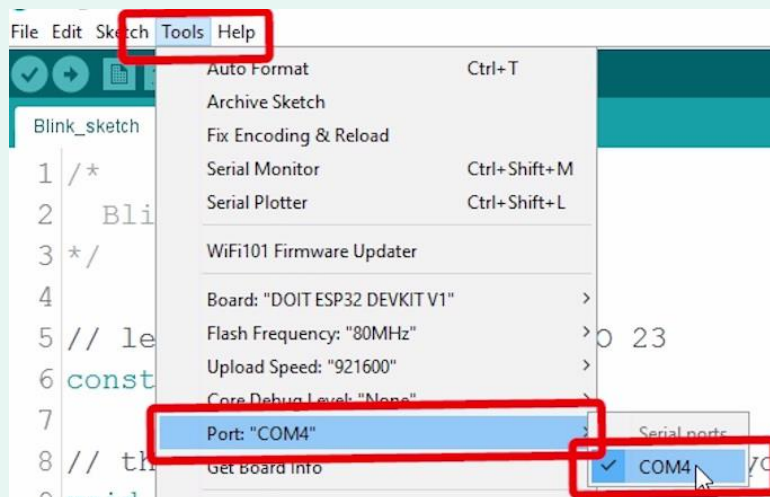
## Testing the Installation:

Plug the ESP32 board to the computer. Then follow these steps:

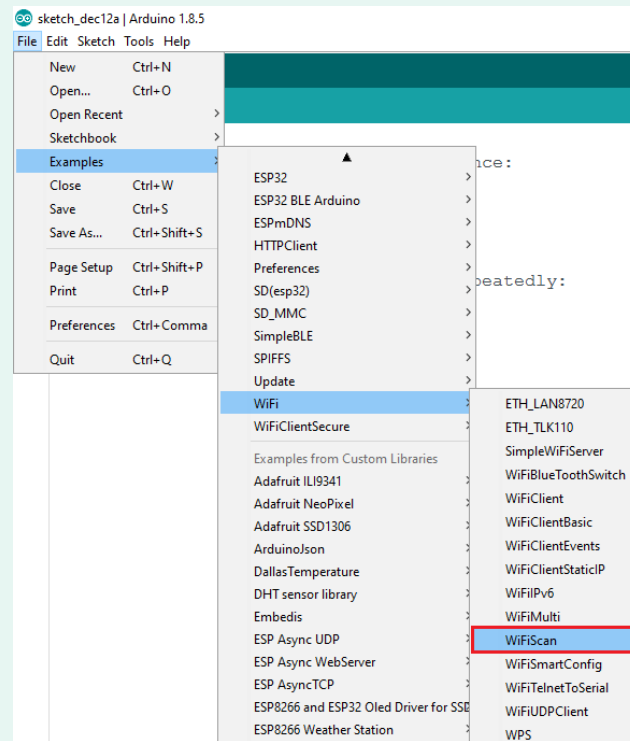
1. Select your Board in **Tools > Board** menu > **DOIT ESP32 DEVKIT V1**



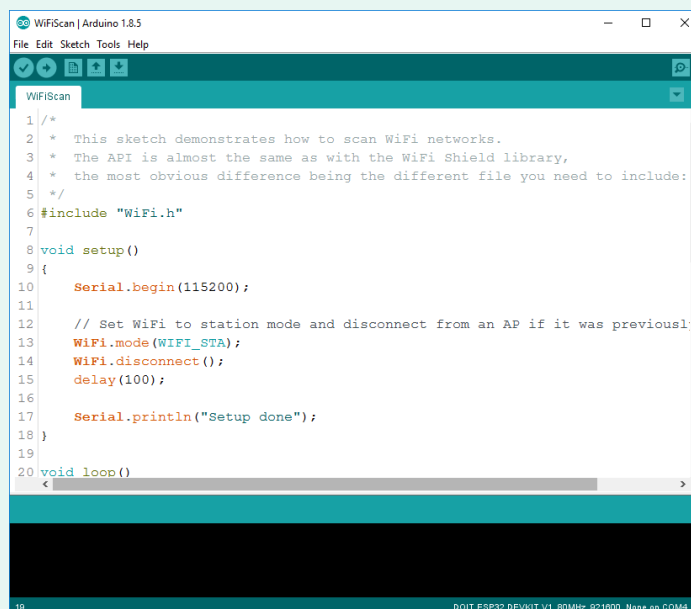
2. Select the Port



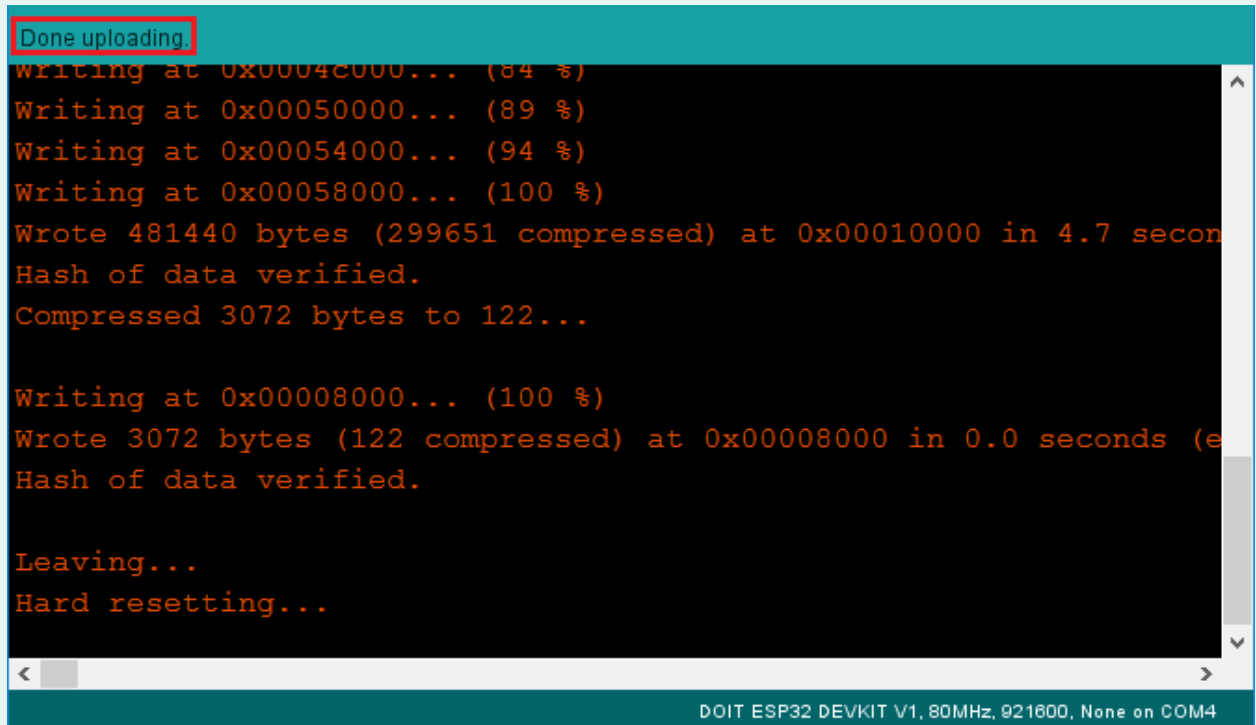
3. Open the following example under **File > Examples > WiFi (ESP32) > WiFiScan**



4. A new sketch opens in your Arduino IDE, Press the **Upload** button in the Arduino IDE. Wait a few seconds while the code compiles and uploads to the board.



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

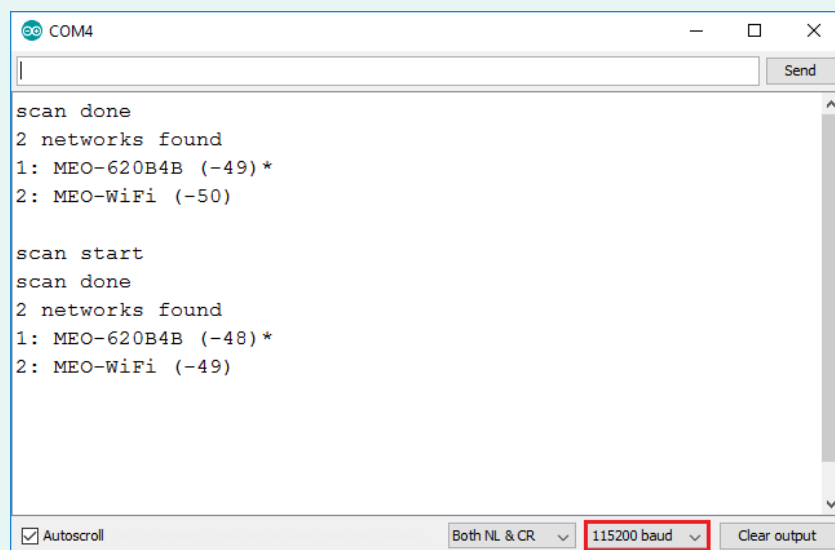


The screenshot shows the Arduino IDE Serial Monitor window. The title bar indicates the port is COM4. The text in the monitor is as follows:

```
Done uploading.  
writing at 0x00042000... (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 (effective 115200 baud)  
Hash of data verified.  
  
Leaving...  
Hard resetting...
```

At the bottom of the window, the status bar reads: "DOIT ESP32 DEVKIT V1, 80MHz, 921600, None on COM4".

6. Open the Arduino IDE Serial Monitor at a baud rate of 115200, then 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 with the title bar "COM4". The text in the monitor is as follows:

```
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)
```

At the bottom of the window, the status bar shows "Autoscroll" checked, "Both NL & CR" selected, "115200 baud" selected, and a "Clear output" button.

## References:

- ESP32: Technical Reference Manual :  
[https://www.espressif.com/sites/default/files/documentation/esp32\\_technical\\_reference\\_manual\\_en.pdf](https://www.espressif.com/sites/default/files/documentation/esp32_technical_reference_manual_en.pdf)
- ESP32 for IoT: A Complete Guide: <https://www.nabto.com/guide-to-iot-esp-32/>
- Installing the ESP32 Board in Arduino IDE (Windows, Mac OS X, Linux):  
<https://randomnerdtutorials.com/installing-the-esp32-board-in-arduino-ide-windows-instructions/>