# E707 Basic NodeMCU-V2 Shield V1.1 Getting Started Guide

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# Intro

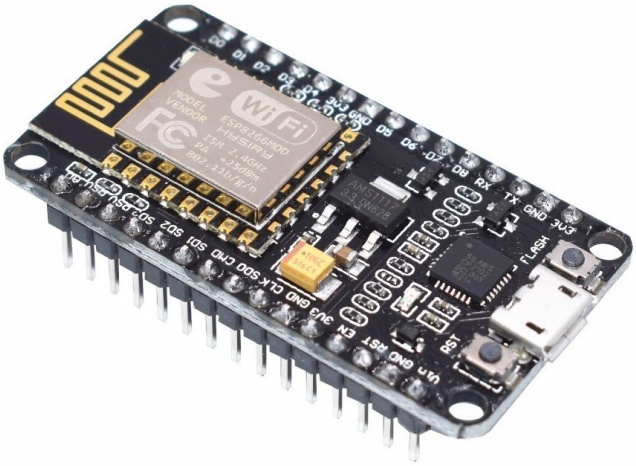
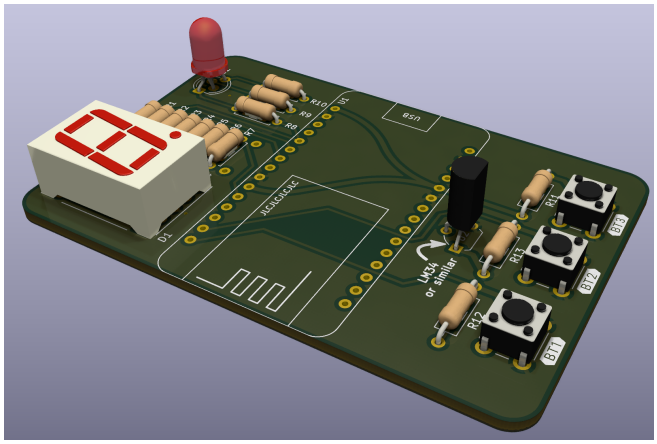
The purpose of this document is to be used as a "Getting Started" guide for the E707 Basic NodeMCU-V2 Shield. This document has been written for a beginner (somebody who has little to no experience with Arduino's or electronics) to get them up and running with the shield and upload a basic example to it.

About the name of this board, the reason I have added `V2` to the `NodeMCU-V2` part of the name is to distuguishe that this shield is only compatible with that is widely refered as NodeMCU V2, instead of other varients/versions of the NodeMCU. The shield's version is what comes after the `Shield` part of the name. Sorry for any confusion.

# Prerequesites

## Components

You should have the following 2 parts:

| A NodeMCU V2 Development Board | E707 Basic NodeMCU-V2 Shield |
|---|---|
|  |  |

If the NodeMCU isn't already plugged into the shield (plug it into the 2 pin headers on the board).

This assumes that the shield is already soldered. If it isn't and you have a plain PCB and components, checkout the Soldering Guide.

## Software

### Arduino IDE

We will be using the Arduino IDE (Integrated Development Environment) to create programs and upload them to the NodeMCU. While it is the most common way of doing so, there are other tools

and IDEs out there like MicroPython for examples.

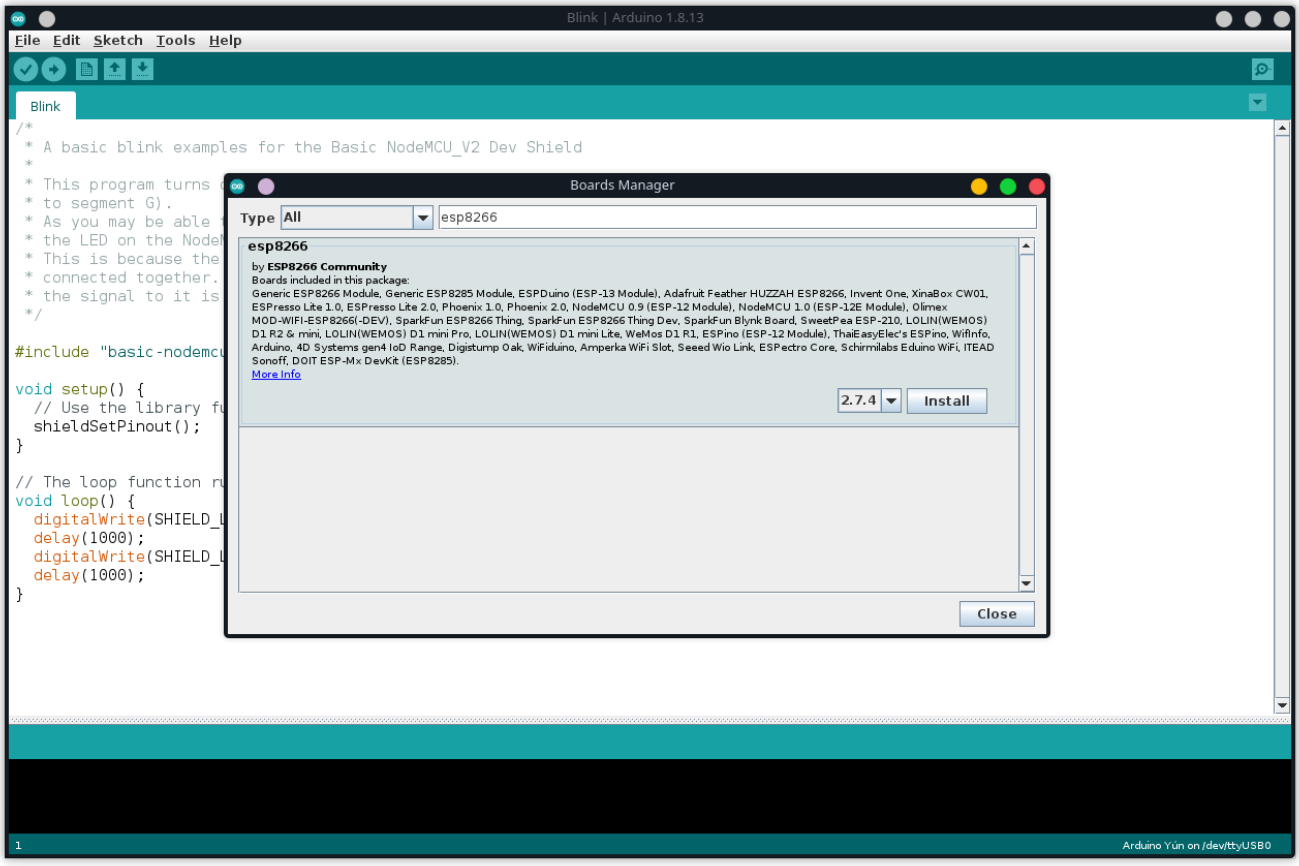
If you don't have the Arduino IDE installed on you machine, you should do that now. The program's download page can be found at https://www.arduino.cc/en/software. They have a Getting Started Guide if you're having trouble installing the program.

## ESP8266 Board Package

When you first install the Arduino IDE, it doesn't come with the ability to upload to ESP8266 based modules (like the NodeMCU), so we must add that. Open up the IDE and go into `File→Preferences`. In the *Additional Board Managers URLs* section, enter the following URL:

```
https://arduino.esp8266.com/stable/package_esp8266com_index.json
```

This allows us to use the build-in Board Manager to install ESP8266 board. After that, exit out of the preferences menu (by clicking the *OK* button) and go into `Tools→Board→Board Manager`. Once the Board Manager menu pops us, type in `esp8266` in the filter entry and press Enter. You should see an `esp8266 by ESP8266 Community` board popup.




Click on the Install button for that board. The download and installation process might take a hot minute, so grab a quick cup of coffee in the meanwhile (or tea which is my personal favorite). After the installation process is complete, close out of the Board Manager (with the Close button). You are now able to compile and upload programs to ESP8266 based modules including the NodeMCU which we are using.

# E707 Basic NodeMCU-V2 Shield Library

While you can go right ahead and start using the shield by reading the schematic and seeing which periferals connect to where, a library was made for this shield to make that process simpler. It includes pin definitions, some helper functions (for the temperature sensor for example), and examples.

To download the library, head over to it's repository on GitHub:

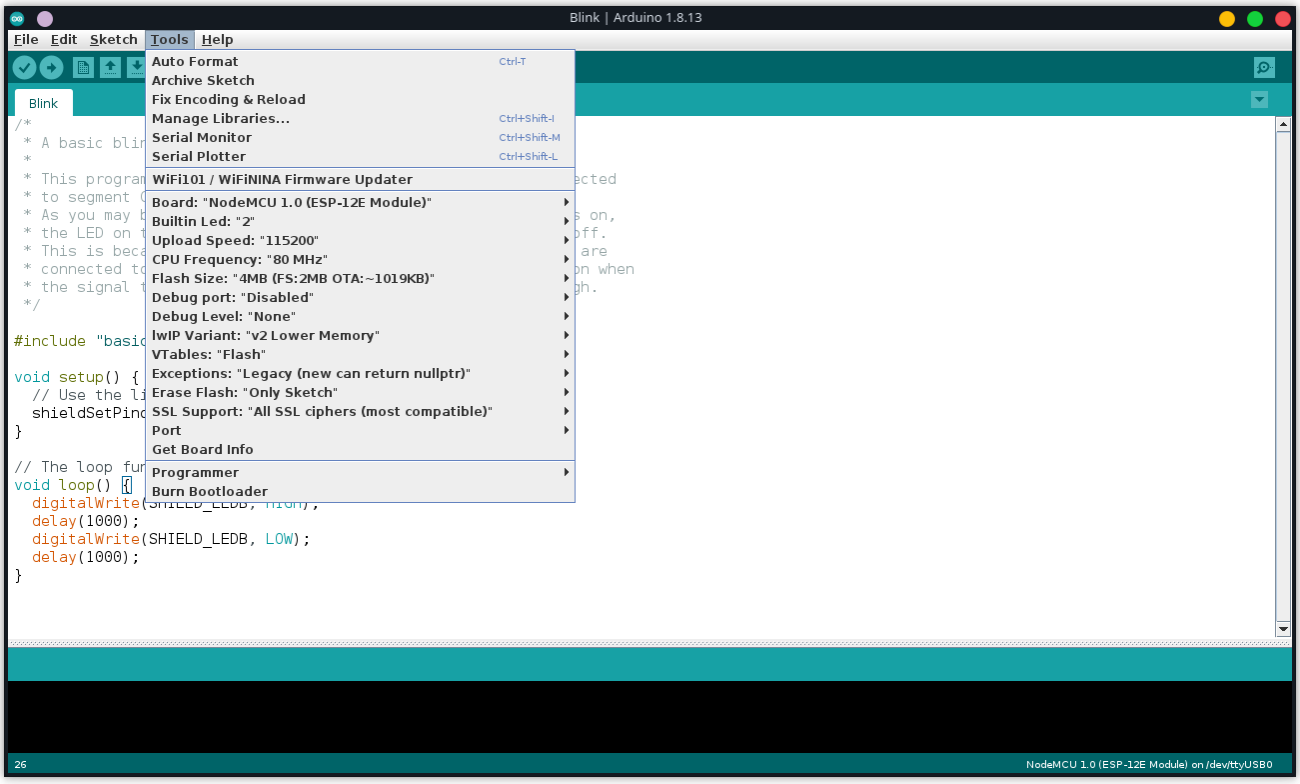
```
https://github.com/Electro707/Basic-NodeMCUV2-Dev-Shield-Library
```

Then click on the `Code→Download Zip` button on the Github page to get a .zip file of the library. In the Arduino IDE, go to `Sketch→Include Library→Add .ZIP Library`. Browse to the download location of the library and select it.

# Lets Light This Place Up

Now let's make some LEDs blink on the Dev. Shield. Go to and select `Files→Examples→E707 Basic NodeMCU-V2 Shield→Blink`. A new sketch should pop up with some pre-written code.

New let's select the right board to compile and upload to. In the Tools menu, for the Board select `NodeMCU 1.0 (ESP-12E Module)` board. The rest of the settings should be fines, and it should look like the following:



The reason why the esp8266 board manager calls the `NodeMCU-V2 → NodeMCU 1.0 (ESP-12E Module)` is because the terminology `NodeMCU V2` is the widely used terminology by the community, while the board version is technically v1.0 from NodeMCU, and what is refered to as `NodeMCU V1` is technically board version v0.9. Yeah it's kind of confusing

Now let's compile the Blink example we just loaded (turning the human-readable code into machine code). Click on the  Compile button in the IDE. If all goes well, the IDE's status bar should say `Done Compiling`. Now let's plug in the NodeMCU Board into the computer. Use a MicroUSB cable to connect the NodeMCU module to the computer. Now go into the Tools menu, and in the Port submenu chose a COM port that isn't COM1 which should appear (or for Linux and Mac users the port which isn't `dev/ttyS0`). Now we are able to upload the program, and we do that by clicking on the  Upload button in the IDE. When the status bar of the IDE says `Done Uploading`, the program has been uploaded to the board.

You should start noticing that the shield's blue LED (and the middle segment on the 7 segment display) should start blinking. If that's the case, CONGRATULATIONS, you just uploaded a program on the NodeMCU board with the E707 Basic NodeMCU-V2 Shield.

# Now What?

Well really that's up to you. There is a vast possibility of what you can do with the NodeMCU board and the shield, and we've only done a tiny fraction of what's it's capable of (and we haven't started using the Wifi part of the NodeMCU). There are plenty of examples that you can try out, which the ESP8266 board package and the E707 Basic NodeMCU-V2 Shield's library provides.

Now go out there and have fun!