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**r/BIGTREETECH** • 1 yr. ago
Air4023

Firmware guide using VS Code, PlatformIO and Auto build Marlin

Firmware guide using VS Code, PlatformIO and Auto build Marlin can actually be quite simple once you get the hang of it. Most tutorials on line seem so be geared towards someone having prior knowledge which can often be rather confusing. Once I learned to compile I thought it would be a good Idea to post a simple guide to help people though their journey to compile their own firmware. Follow these simple steps to compiling your own firmware then use a variety of places to solve your questions concerning settings for your printer or answers to errors during compiling. I hope this tutorial helps you.

1. Install VS code.
2. Add extension PlatformIO on the left hand panel extension button
3. Add Auto build Marlin extension.
4. When it all configures it self and all updates then download Marlin 2.1.2.1 on desktop either from Marlin website or github.
5. Download configuration files for all the printers for Marlin 2.1.2.1 to desktop either from Marlin website or github.
6. Make you a folder on your desktop for your printer IE Ender 3/PRO/Ender 5 ect...
7. Copy Marlin 2.1.2.1 into that folder.
8. In configuration folders navigate to your printer of choice. Open that folder ,highlight, then right click copy Configuration.h and adv configuration.h. Bootscreen and Statusscreen can also be added here if wanted.
9. Navigate to your printer folder then click on Marlin 2.1.2.1 then in side that click the plain Marlin folder.
10. Inside Marlin folder there will be a copy of configuration.h and adv configuration.h. Your going to replace them pasting the previous copied files then close out that folder. Bootscreen and Statusscreen here also. Marlin website has bootscreen and Status screen maker for customization.
11. In VS Code click file in the upper left, go down to open folder then navigate to your printer folder clicking on Marlin 2.1.2.1 then select folder. If anything is needed by PlatformIO it will configure it. wait for it to finish metadata update.
12. Do a dry run compile before any other changes to see if there are any mistakes. When build button is pressed PlateformIO will download all necessary files from the net it needs updating all files. If any errors after attempted compile fix them following the error before you or go on line or to Marlin Discord to find out the fix. When completed and you have a successful compile you are now ready to make changes to the config files for your printer.
13. Use Notepad++ to open configuration .h and adv .h and change what ever you want to suit your needs then close that out and recompile. To search a setting in the config files with notepad++ use ctr+F and a search box will come up then paste what define you are looking for. Be sure to paste the whole define or it will not come up in the search box.

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The rest my friend is all up to you. If you need help go to Marlin Discord as there are amazing people there that will help you. This is where I learned to compile my own one night with two guys spending a few hours walking me through it. It is a fantastic place to be.

Gotta go so enjoy yourself! Kind regards.



15



38



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**Overall_Rub_535** • 1y ago

Nice... Yeah I was thinking of doing a basic version video for my you tube channel to help people out... But just have not got to it yet.

You also need to create a new workspace for installing a later version of Marlin... Eg.. Upgrading from 2.1.1 to 2.1.2.1



3



Reply

**Air4023** OP • 1y ago

Thanks!, Yeah this was straight to the big dog lol! Maybe you can chime in on that one then linking them for other to benefit from.



2



Reply

**Arunnejiro** • 9mo ago

Did you make that video yet?



1



Reply

**Air4023** OP • 9mo ago

I have not, no youtube access.



2



Reply

**Arunnejiro** • 9mo ago

I don't understand, how do you not have YouTube access?

Also when you told me to dm you about the artillery sidewinder config files, I did.



1



Reply

**Air4023** OP • 9mo ago • Edited 9mo ago

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EDIT: Mysteriously your DM just popped up. I had never seen it until today seriously. Sent email.

↑ 1 ↓ [Reply](#) ...



PaganWizard2112 • 1y ago • Edited 1y ago

I apologize ahead of asking a completely noob question. I have NEVER compiled firmware, of any kind. I have a BTT SKR Pro v1.2 mainboard, TMC2209's, Keenovo AC powered bed heater, and a TFT70 screen. I will soon have a CR Touch, BTT auto shut down module, BTT Direct ESP8266EX ESP01S Serial Wireless Module WiFi Sensor, MSDD hotend, for my Ender 5 Plus. I plan on using 2 stepper drivers for the Z axis (independent Z control) for now, and "might" want to try 3 independent Z axis, but I think that's nothing more than a buck wild dream at this point. Will your instructions allow me to retain the BTT touch screen interface or will it be Marlin with only the use of the scroll wheel??

⊖ ↑ 1 ↓ [Reply](#) ...



Air4023 [OP](#) • 1y ago • Edited 1y ago

Marlin allows for multi Z screw scenarios and the screen is a self contain mini Marlin code emulator so yes it will work and yes I have the guide for the tft to properly function. I was just looking at the config files and it will be tough cookie but what a challenge lol!

Upgrades to Ender 3 Pro.

1. Ender-3 Direct Drive Extruding Kit.
2. Spider 500C High-temperature High-speed Hotend.
3. Meanwell 450 watt power supply.
4. Gulfcoast Robotics 250 watt Cast Aluminum heater bed.
5. BTT SKR Mini E3 V3 board.
6. BTT TFT35-E3 V3.0 Display Touch Screen.
7. BTT SFS V1.0 Smart Filament Sensor Detection.
8. Slice Engineering 50 watt Heater.
9. PT 1000 Temp Sensor.
10. BI Touch.
11. 92mm Gelid silent 9 power supply fan with low profile rear exhaust fan duct.
12. My own Compiled Marlin 2.1.2.1 with all the bells and whistles.

⊖ ↑ 2 ↓ [Reply](#) ...

PaganWizard2112 • 1y ago

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would you recommend?? The original runout sensor no longer works.

⊖ ↑ 1 ↓ 💬 Reply ...

Air4023 OP • 1y ago

I would go an optical as they are smaller. My BTT smart sensor is huge and I really don't like it but it works. My Bumat doesn't like it because it scraps it and leaves a lot of dust which will eventually clog it up.

⊖ ↑ 2 ↓ 💬 Reply ...

PaganWizard2112 • 1y ago

Good to know!!! Is this what you're talking about, or would you recommend something else??

⊖ ↑ 1 ↓ 💬 Reply ...

Air4023 OP • 1y ago • Edited 1y ago

Yes that will work But always try to support your local community first and not a rich 500 million dollar Yacht owner prick! ROTFLMAO!

also just be aware that this is a single driver powering two motors in parallel so just be aware of this.

⊖ ↑ 2 ↓ 💬 Reply ...

PaganWizard2112 • 1y ago

The only local supplier of 3D printing anything where I live, is Microcenter, and they don't sell anything that was made in the USA.

True, the stock Creality board ran both Z motors on a single driver, but the BTT SKR Pro v1.2 that is going into my Ender 5 Plus, has accommodations for 6 stepper drivers. I will initially be using one driver for each of these X, Y, Z0, E0, Z1. If everything goes the way I expect it to, I might try a triple Z configuration, or X,Y,Z0,E0,Z1,Z2

⊖ ↑ 1 ↓ 💬 Reply ...

Air4023 OP • 1y ago • Edited 1y ago

I understand two, and I understand four, But why three as that one has me scratching my head lol! And I do apologize because Of a momentary brain fart. Of course That board has a crap load of drives allowing for what ever your scenario dictates.:)

Or save a driver in case one goes out god forbid lol!

⊖ ↑ 1 ↓ 💬 Reply ...

neo2627 • 1y ago

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plane

2 Reply ...

Air4023 OP • 1y ago

Actually the three cores in Generators are the pattern base for all electrical generation lol!

1 Reply ...

PaganWizard2112 • 1y ago

Four Z axis is overkill, and \$\$\$ that can be spent elsewhere. This video explains it clearly.

<https://www.youtube.com/watch?v=uNiPmjTaSOg>

1 Reply ...

Air4023 OP • 1y ago

And of course that is your opinion. Don't bank on one vid as that is not wise. Besides this is a simple firmware guide so people can compile their own firmware and any other discussion is beyond the intended scope.

1 Reply ...

More replies

VettedBot • 1y ago

Hi, I'm Vetted AI Bot! I researched the '**POLISI3D IR Filament Sensor for 3D Printer**' and I thought you might find the following analysis helpful.

Users liked:

- Sensor works as intended (backed by 10 comments)
- Easy installation and upgrade (backed by 7 comments)
- Minor issues resolved (backed by 6 comments)

Users disliked:

- Inconsistent quality control leads to faulty units (backed by 2 comments)
- Incorrect wiring causes issues (backed by 2 comments)
- Missing components require additional purchases (backed by 1 comment)

If you'd like to **summon me to ask about a product**, just make a post with its Amazon link and tag me, like in this example.

This message was generated by a (very smart) bot. If you found it helpful, let us know with an upvote and a "good bot!" reply and please feel free to provide feedback on how it can be improved.

1 Reply ...

Air4023 OP • 1y ago

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BOTS that have no business intervening with giberish.

↑ 1 ↓ Reply ...



BR14N78 • 1y ago

I have done all this on a Linux Chromebook. Not sure if you can help me but I did all the necessary configuring and successfully built the firmware. No errors. I have no idea what to do now. I can't find my firmware.bin file anywhere. On a windows PC I would have more options with more folders. I have a Skr 1.4 turbo I am trying to get working but I can't get my Chromebook to recognize my board through usb. I assumed I could update the board with an sd card. Am I doing something wrong with platformio?

⊖ ↑ 1 ↓ Reply ...

Air4023 [OP](#) • 1y ago

Are you compiling with PlatformIO or Marlin Autobuild.??

One way to get it to upload through USB is in adv configuration.h through Binary transfer `#define BINARY_FILE_TRANSFER...` `#define CUSTOM_FIRMWARE_UPLOAD` and through OTA through wireless transfer `#define OTASUPPORT` // Support over-the-air firmware updates

In Windows the firmware is in the PIO folder under build but unfortunately I do not know where Linux puts the firmware but I imagine it is in the working folder for PIO. As for the chromebook it will have to possibly have a driver to see the USB. They are finiky. It may be something similar to a ch340 for windows but for Linux. Weird Linux usually doesn't need drivers but then again Chromebook lol!

⊖ ↑ 1 ↓ Reply ...



BR14N78 • 1y ago

I did it through PlatformIO. I really wish there was just a .bin file out there that I could use but I guess it's not that easy. Lol.

⊖ ↑ 1 ↓ Reply ...

Air4023 [OP](#) • 1y ago

I tell you what, go to Marlin Discord and present your problem there. There are some Linux guys there I think.

⊖ ↑ 1 ↓ Reply ...



BR14N78 • 1y ago

Thank you so much.

⊖ ↑ 2 ↓ Reply ...

Air4023 [OP](#) • 1y ago

No prob, I live there lol!

↑ 2 ↓ Reply ...



Blue_Ninjsword • 10mo ago

[Skip to main content](#)[+ Create](#)

1 Reply ...

Air4023 OP • 10mo ago • Edited 9mo ago

I myself would use the Marlin folder just because it tends to be highly supported by Marlin. Copy the boot screen from say Ender3 or pro then paste it in your folder. They are all the same and will work. EDIT; Screen could have resolution issues and might need changing. There are also the latest screen file updates in that folder depending on your screen model. they are 8/23 so current.

1 Reply ...

**Blue_Ninjsword** • 9mo ago

"Screen might need changing" How would I do this? And, what one should I use?

1 Reply ...

Air4023 OP • 9mo ago

Which screen do you have a DWIN or DACIA ?

1 Reply ...

**Blue_Ninjsword** • 9mo ago

How do I check?

1 Reply ...

Air4023 OP • 9mo ago • Edited 9mo ago

Look at the back of the screen writing the information down then look on line. In Marlin base configuration files there are DWIN files also for that screen. I think that is all you have to do. I would start with Marlin 2.1.2.1 and the DWIN files provided. Is your board the 4.2.2 ????

1 Reply ...

Luiserbar • 5mo ago

I have same problem. Everything ok but I find this message:

```
...\MKSE3 Ender 3\Marlin-2.1.2.1> platformio run --silent -e mks_robin_e3
Marlin\src\inc\Warnings.cpp:731:6: warning: #warning "Motherboard DIAG jumpers must be removed
when SENSORLESS_HOMING is disabled. (Define DIAG_JUMPERS_REMOVED to suppress this warning.)" [-
Wcpp]
731 | #warning "Motherboard DIAG jumpers must be removed when SENSORLESS_HOMING is disabled.
(Define DIAG_JUMPERS_REMOVED to suppress this warning.)"
| ^~~~~~
```

How do I repair it?

1 Reply ...

Luiserbar79 • 5mo ago

Anyone knows?

1 Reply ...

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mycomplication • 3mo ago

having trouble . vscode says I have no MB even tho it is in the config file (Board_ ROBIN_NANO_V3_1 AND is listed in Boards.h. and still after a month , I cannot compile much less do ANY PRINTING.

(LOOSING MY MIND HERE THIS IS SUPPOSED TO BE sooo EASY.....BUT IT IS not)

↑ 1 ↓ [Reply](#) ...



mycomplication • 3mo ago

Motherboard

```
#define MOTHERBOARD BOARD_RAMPS_14_EFB
```

The most important setting is Marlin is the motherboard. The firmware needs to know what board it will be running on so it can assign the right functions to all pins and take advantage of the full capabilities of the board. Setting this incorrectly will lead to unpredictable results.

Using boards.h as a reference, replace BOARD_RAMPS_14_EFB with your board's ID. The boards.h file has the most up-to-date listing of supported boards - check there first if you don't see yours listed here. sO < DID THIS and MY ROBIN NANO BOARD IS LISTED AND DEFINED BUT MARLIN DOESNT ACCEPT IT WHAT IS WRONG HERE??

↑ 1 ↓ [Reply](#) ...