

NanoBean Conversion guide

Version 1.1

Nikos Natsios 2018

Disclaimer:

Should you choose to follow these conversion instructions, you accept any and all responsibility for damages done to your printer and equipment involved. You recognize and accept that I take no responsibility for any damage may be attributed to these instruction and software related to them.

If you are not willing to risk your printer's integrity, DO NOT follow through with this conversion. Always take the necessary safety measures when dealing with toxic chemicals, use the necessary hand and face protective gear and be aware that ESD might damage your hardware, so "ground" yourselves and tools.

Description:

NanoDLP is a DLP 3d printer software, that offers a wide array of options, allowing users to fine-tune and customize the way their DLP printer works. If you are reading this, chances are you already read about it and might feel underwhelmed by the stock Bean functionality (inadequate slicing options, tedious resin profile creation, no auto-homing at print start, etc.). You can find out more by visiting <https://www.nanodlp.com/>

Kudo Bean comes with a Marlin derivative Firmware. Marlin has the inherent lack of reporting actions back to the control software, although it is very easy to add this functionality as an "echo" message, that nanoDLP expects when waiting for an action to complete using the `[[WaitForDoneMessage]]` call, within startup or exposure sequence queues.

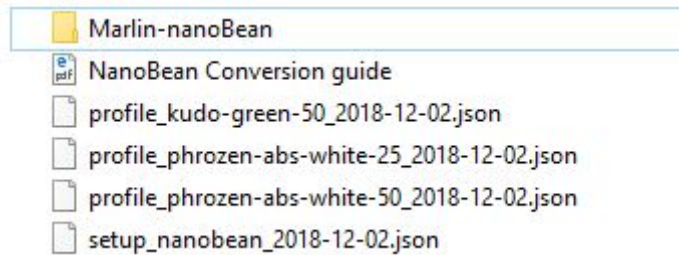
Adding those messages does not change the functionality of the original Bean setup.

This means that should you choose to flash the Arduino board with the nanoBean firmware, you can continue using the stock software in the original SD card that came with the Bean.

My recommendation is to use a new SD card for the nanoDLP installation, and keep the original SD in case you want to use the original software.

Installation guide

This archive contains the following files:



You will need to download the following software:

[Arduino IDE](#)

[nanoDLP SD card image file](#)

[WinDiskImager](#)

SD Card Formatter

Other things you will need

- SD card with a capacity of at least 8Gb (16Gb recommended)
- 2mm allen key or hex screwdriver to open the Bean back panel
- USB type A to type B cable to connect the Arduino in your bean with a computer to flash the new firmware
- A computer close to the bean
- SD card reader for your computer

Step A: Flashing the Arduino FW

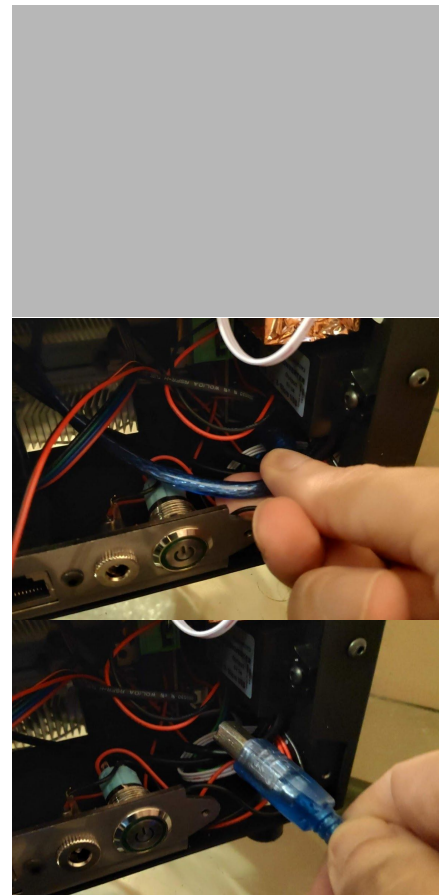
Make sure the bean is turned off, pull out the power and network cables.

Take the Bean back panel off, using the 2mm allen to remove the screws.

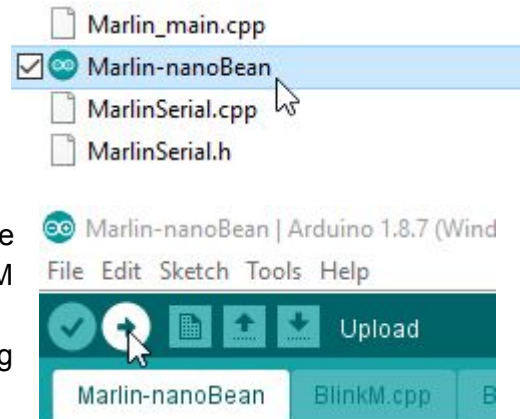
Locate the blue USB cable that connects the rPi with the arduino board and gently disconnect it from the arduino, taking care not to damage the rest of the cables in the machine.

Use the spare USB cable to connect the arduino board to the computer you will use to flash the new FW.

On your computer install the Arduino IDE.



When done, browse to the Marlin-nanoBean folder and open the Marlin-nanoBean.ino sketch file.



Connect the IDE to the board by selecting the Mega2560 board and processor, and a valid COM port in the Tools menu.

You can now upload the FW to the board by clicking the Upload button on the UI.

When the upload is complete, pull out the cable from the Arduino board, and connect the original cable to re-connect it to the rPi.

Step B: Create the nanoDLP SD card.

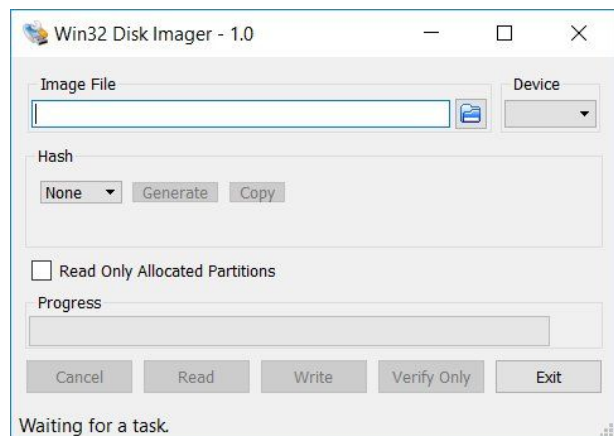
Install SD Card Formatter and Windiskimager.

Plug the new SD card into your computer's SD card reader.

Format the new SD card using SD Card Formatter.

Load windiskimager and flash the SD with the nanoDLP image you downloaded (you might need to unzip it first)

**Before removing the SD, overwrite the config.txt file with the one included in the zip. It will take care of the screen timings.*

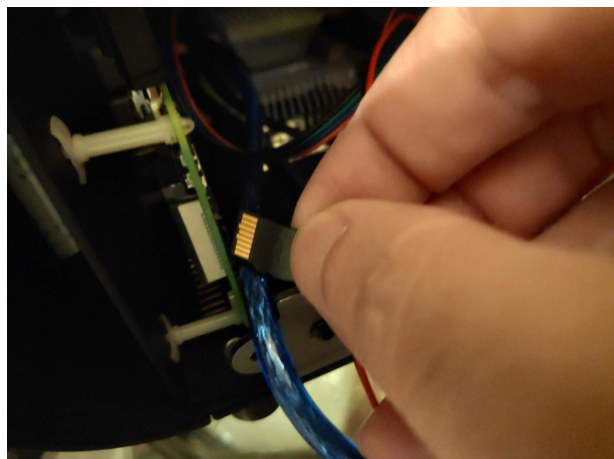


Swap the SD located in the rPi SD slot with the new nanoDLP SD card (keep the original somewhere safe for possible future use).

Step C:

Check the Arduino USB cable and the SD card again for proper connection

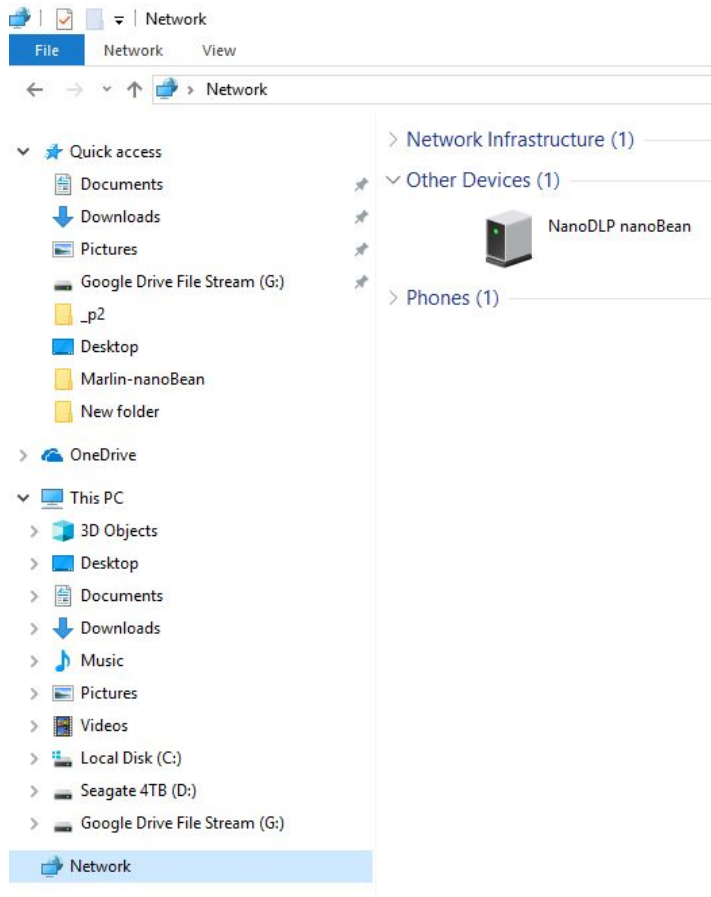
Put back the back panel again, gradually tightening the screws, do not fully tighten any screw until all are in place or you might have trouble putting the rest on.



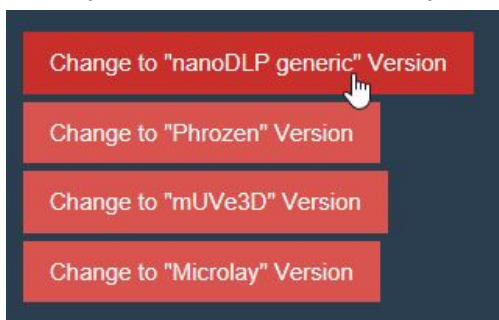
You are done!

Step B: Configuring the nanoDLP Software

You can boot up the printer and connect to it after a few seconds as you did with original Bean setup, using the same IP. If for some reason you have trouble connecting you can try locating the printer's IP through your router or just check the other devices region of your network through the windows explorer and double-click it.

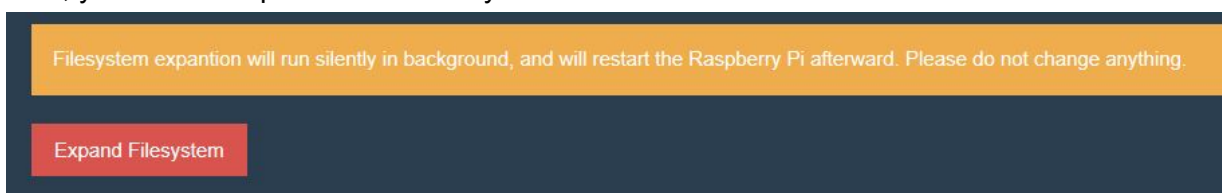


When you connect to the printer you will probably see the distribution choice screen:



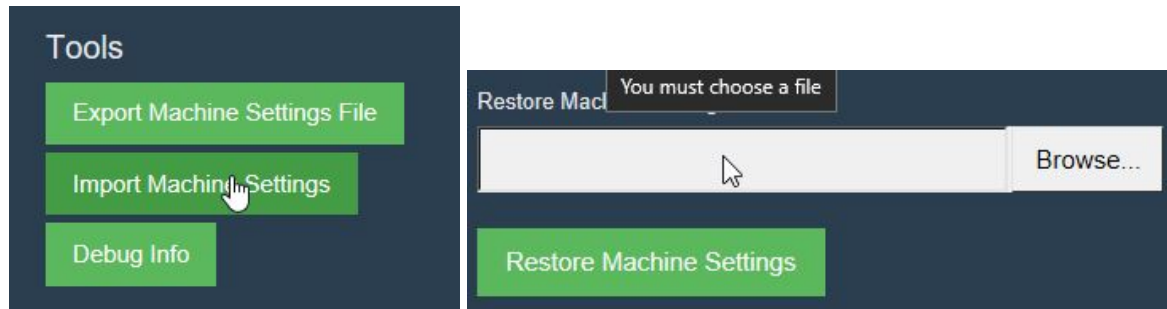
Choose the generic option. The printer will reboot and get back online briefly. This option is available in the Tools menu / change distribution button.

Next, you should expand the SD filesystem from the tools menu:



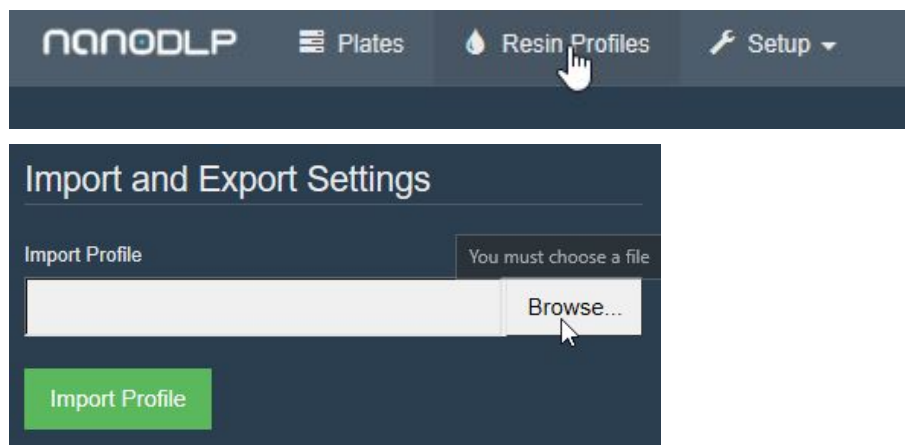
After another reboot session, we need to upgrade to the latest nanoDLP version by either clicking on the top right corner notification in the startup page, or through the tools menu again.

Next but most important, restore the machine settings from the tools menu:



Choose setup_nanobean_2018-12-02.json from the extracted files of this distribution and click import profile.

Finally, I have included three resin profiles profiles, which you can restore through the Resins menu



Final thoughts

There is a host of parameterization options that are possible with nanoDLP and it might seem hard for people new to 3D printing with SLA machines, but you can find almost any information you might need in the nanoDLP forums. I am not an expert in 3D printing so i will not be providing any more guides for this or commit to supporting this mod, but feel free to ask anything related to the forums or the FB Bean user group. I will do my best to help, within reason. Also if you have anything to add to this guide, drop me a line through Messenger and I will try to make it happen.

I hope this guide helps you get the value you wished for when you pledged for this printer, and since the hardware is more than decent for the price (imo), this mod should get you there.