

## Adjusting the Z-Offset on a Printrbot

The Z-Offset is a value that determines the height at which the nozzle will be set after the sensor has detected the bed. If you find that your nozzle is positioned too high above the bed or is scraping against the surface, you may need to slightly adjust your z-offset for better results.

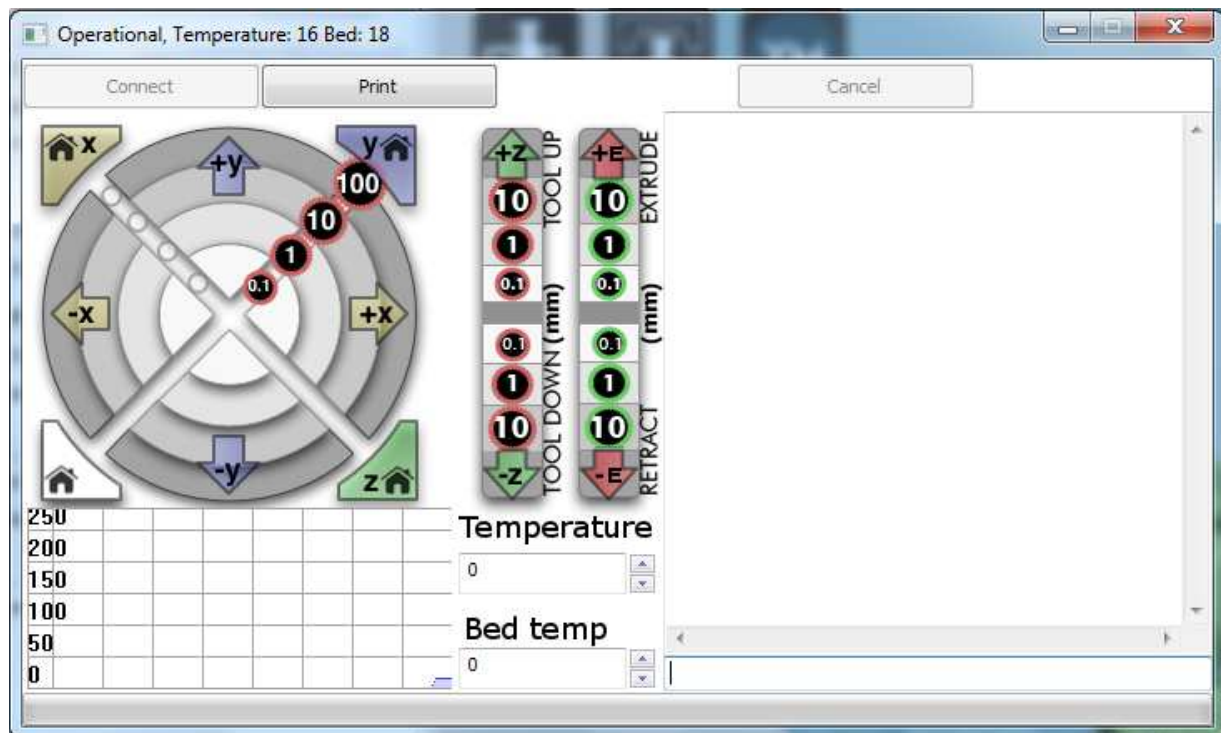
To adjust the Z-offset, firstly open up **Cura** and load up a simple model. Connect your Printrbot to your computer - you will then be presented with the **“Print with USB”** command (Red Box) once the model has finished loading.



Clicking this button will bring up a new window, this is the **“Pronterface”** command window used to send instructions to the printer via USB cable. You will first need to enable it by going to **File > Preferences**. In the preferences window under **“Print Window”** select **“Pronterface UI”** in the dropdown menu.



Once enable you will be presented with the Pronterface command window when you click on the **"Print with USB"** option.



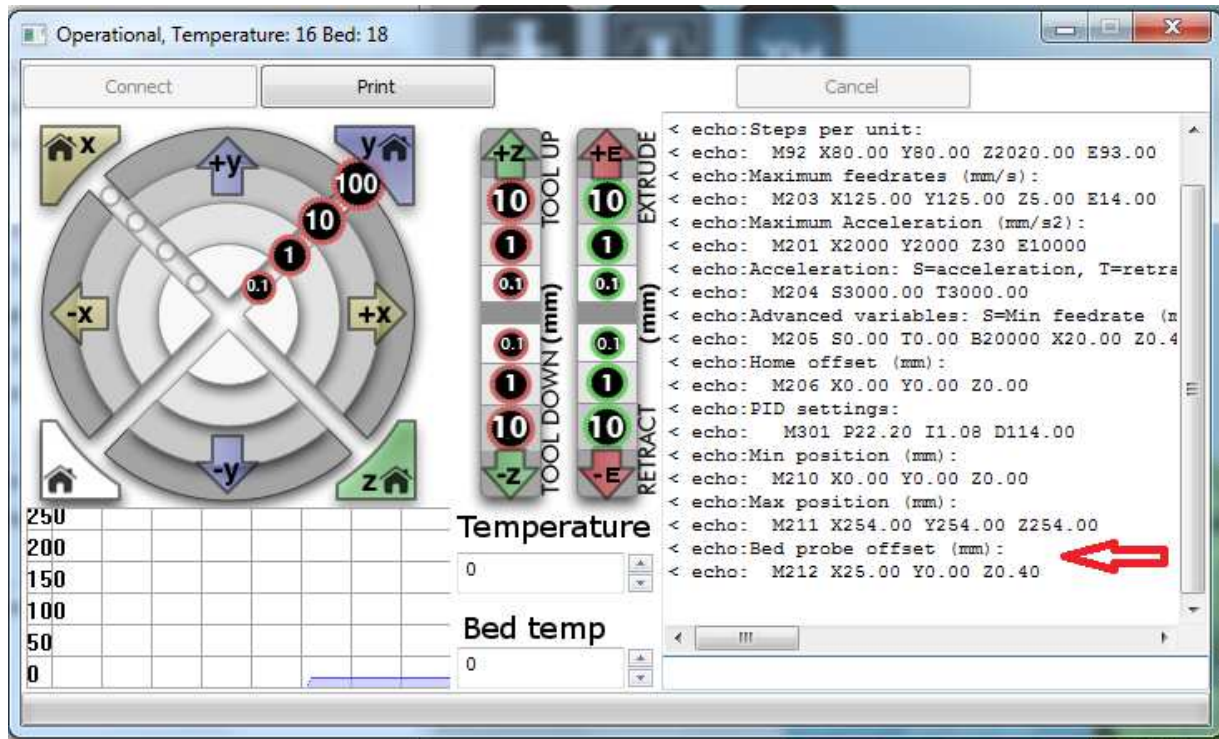
In the bottom right hand corner there is a text box where you can type in lines of code to send to the printer. For adjusting the Z-Offset we will be using 3 different codes, they are as follows:

**M501 – Read the current parameters on the machine**

**M500 – Saves the current parameters**

**M212 – Adjusts the offset of the XYZ axis**

The first thing we need to do is to check our current settings. Type M501 into the text box and hit enter, you should see some values appear in the message box above it.



Make note of the “Bed probe offset (mm):” line - that is the current offset values for the X, Y and Z axis. Pay particular attention to the Z value as that is the one we will be adjusting.

Note: Make note of the value for the Z-Offset, in the case above it is set to 0.40 in the positive. We may need this value again should you wish to revert back to the original settings.

From here, we will now need to fine tune this setting. If your nozzle is sitting too low you will need to raise this value, if it is too high you will need to lower it. The ideal height of the nozzle should be so that a sheet of paper can slide between the nozzle and the bed with slight resistance.

To adjust the value simply type into the text box, the code M212 followed by Z and the adjusted value.

For example, if you wanted to raise the Z offset by 1 mm from 0.4mm you would type:

M212 Z1.4

Then press enter, after which you will need to save these settings so type in M500 and hit enter. Pronterface should return a message saying that the values have been saved.

You can now review the values by using the read command again (M501).

As a tip when adjusting the offset, it is best use small increments to avoid the nozzle crashing into the bed or being set too high off the platform. Generally speaking, increments of 0.2-0.5mm are best to fine tune the Z offset.

Once the settings have been saved, you can run the test print and see if the alignment has been corrected. Remember to be on standby to cancel the print should your nozzle begin to dig into the platform. Make these small adjustments to the Z offset until you can get a good first layer.