

Care and Feeding of Your Afinia H480

You have a neat little 3D printer in your store, and it's always a conversation starter, but sometimes it doesn't seem to work as expected. We've collected some quick tips to get your device well-tuned and running great.

But first, let's make sure we have the basics. For these steps to work, you need to have the Afinia hooked up directly to a computer with a USB cable, the Afinia software has to be installed on that computer, and the printer has to be on and initialized. (That's the button on the front, hold down the I side for three or four seconds until the machine comes to life with several loud beeps.)

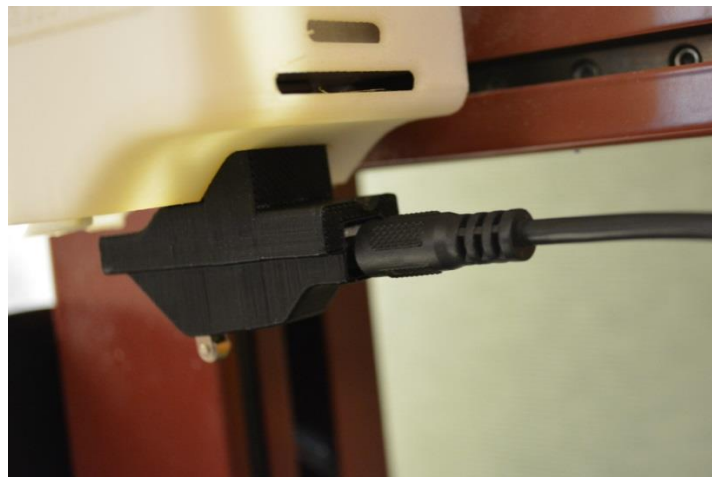
Auto-level and Nozzle Height

One of the things that makes the Afinia such a great machine is that it automates a lot of the processes that have to be done manually with other 3D printers. The Auto-Level and Nozzle Height Detect are your two best friends for everyday use.

This is the Auto-Leveler:



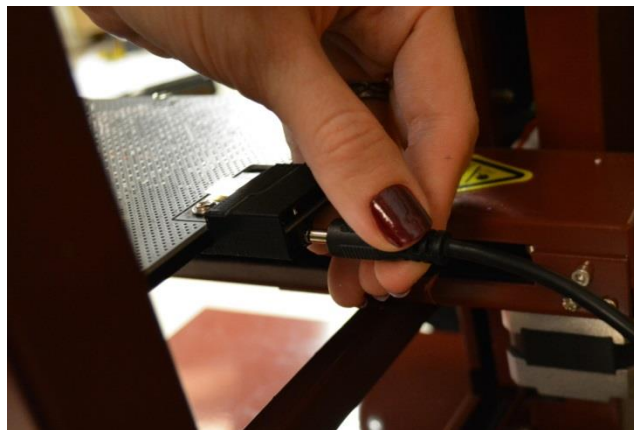
It attaches to the Afinia like this, right over the nozzle:



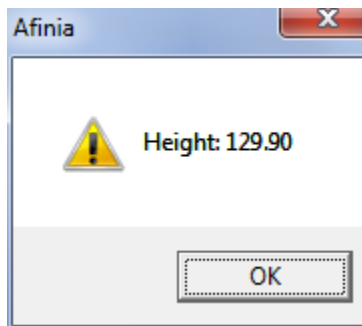
The other end of the cable has to go into the back of the Afinia next to the power switch in the back, right here:



From there, you'll go into the "3D Print" menu and click on "Auto Level". The machine will go through its process of detecting the levels at the nine cardinal points. After that, you'll have to run the Nozzle Level Detect. Remove the leveling piece from over the nozzle, remove the cable from the back of the leveling piece, and put that end of the cable into the back of the printing plate:



You'll go back up to the "3D Print" menu and click on "Nozzle Height Detect". It will run through its process, and when it's done, you'll get a dialogue window like this:



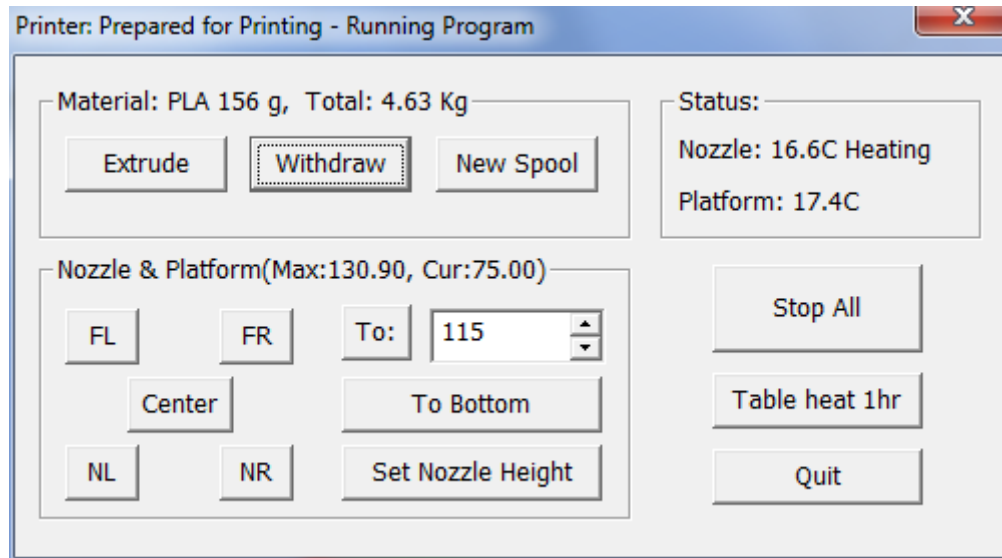
Yours may or may not have that exact value. The important part is just that it returns a height of less than 135.

Picking your filament

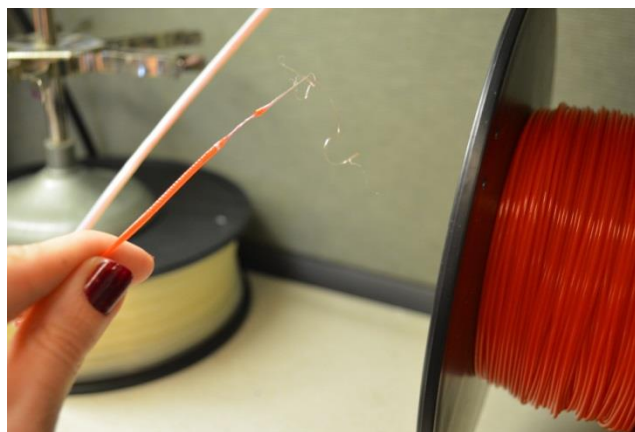
There are two main types of filament that the Afinia H480 uses, ABS and PLA. They have some slightly different properties such as slightly different melting points, and the Afinia is configured to handle them both. Probably the most important distinction is that PLA plastics do not need the heated plate the same way that ABS plastics do. However, this also means that sometimes the prints don't stick as well as they should. Also, PLA tends to be a bit more brittle while ABS feels slightly more pliable.

Let's walk through the steps of changing out the filament, assuming that you have a roll on there already. If you don't, just skip ahead to the loading phase.

In the Afinia interface, go up to "3D Print" and then click on "Maintenance". This dialogue box will pop up:



In this example, you'll see that we had a spool of PLA on there and about 156g left. (See below for suggestions on how to keep track of your filament.) Click on the button that says "Withdraw", and you can watch the temperature of the nozzle go up as it prepares to kick back the filament. It'll ultimately heat up to over 250C, and then the extruder will go in reverse, kicking out your filament, which will look like this:



Clip that off (it can gum up the works if you try to reuse it next time) and pull the filament out of the plastic guiding tube.

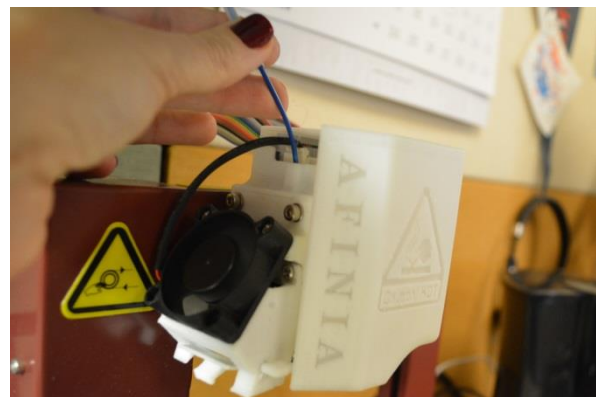
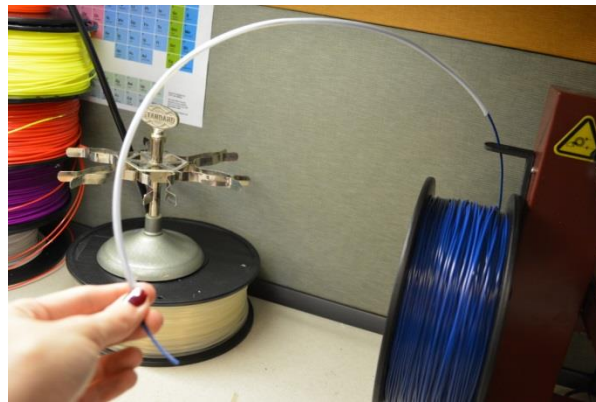
Before we go too much further, it's been mentioned that the 1kg spools that RadioShack carries do not fit easily on the spindles that come as part of the Afinia. This is true. However, we do have a larger spindle available that you can print on the Afinia to accommodate RadioShack 1kg spools:



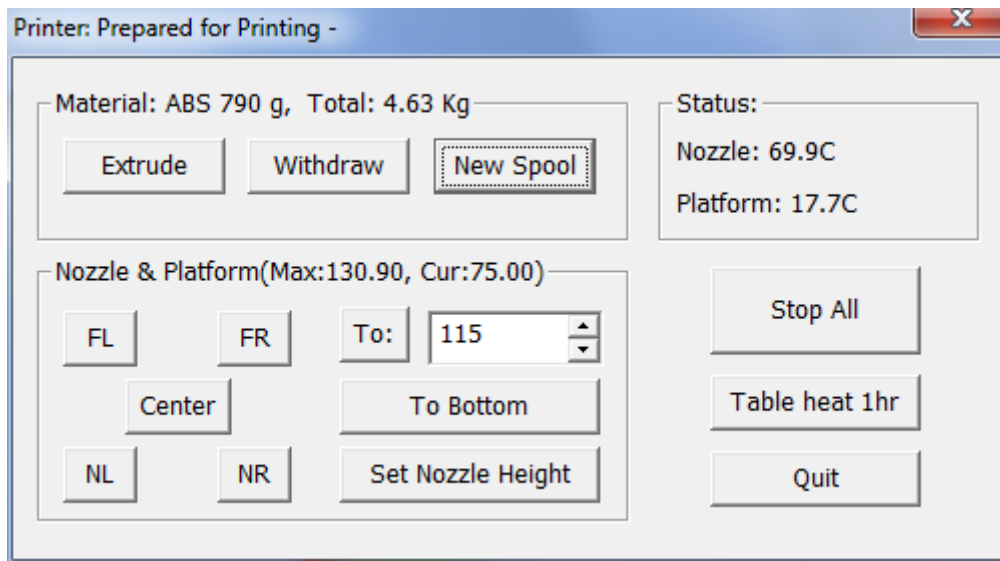
Set the new spool up on the spindle, and make sure that the filament is coming up from the back of the spool and into the feeder slot:



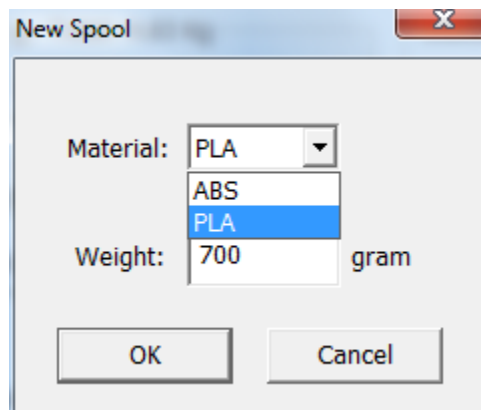
And just to be on the safe side, add the plastic guiding tube as well before you put the filament into the extruder:



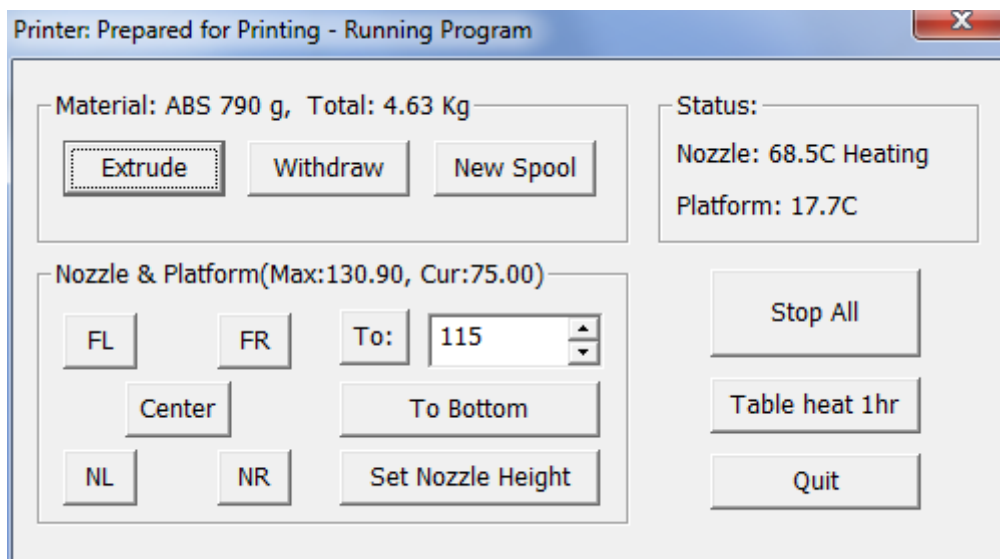
You'll have to select "New Spool" from the "Maintenance" dialogue"



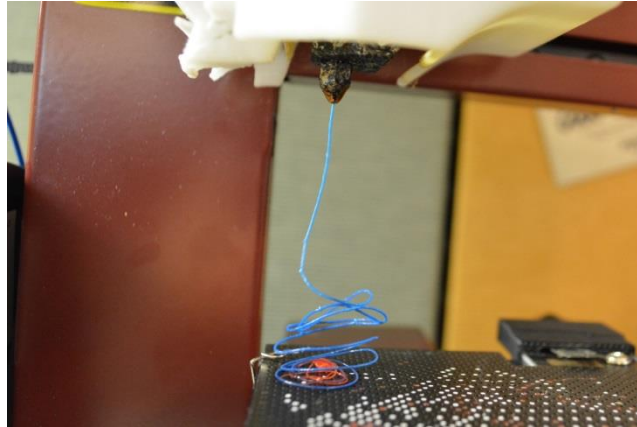
When you do, a new dialogue box pops up. You'll need to know what kind of plastic it is and how much *usable* filament you have left on the spool. If it's a new spool, you'll type in 1000 g (or 700 g if it's a different manufacturer than RadioShack). If not, check your tracking sheets (see below) to enter the correct number.



When the correct values are entered, click OK, and then click on "Extrude" from the Maintenance window:



The nozzle will heat up again and start extruding the new filament. In the process, it will also push out the old filament. This is important for it to do in order to get a clean print, and it also looks very cool:



And now you're ready to select your SLT file and print!

How often should you do this? We'd recommend every few prints or so. Make sure to remove your perf board before you remove your print, and make sure that all of your clips are in place before initializing a new print.

What causes warping?

After a while, your prints will not adhere to the perf board as well as you'd like, and you get a phenomenon called "warping". It will not get better the more you try to print. The solution is to change out the perf board with a new one:

<http://www.radioshack.com/product/index.jsp?productId=42955106>

Keeping track of your filament

COMING SOON