

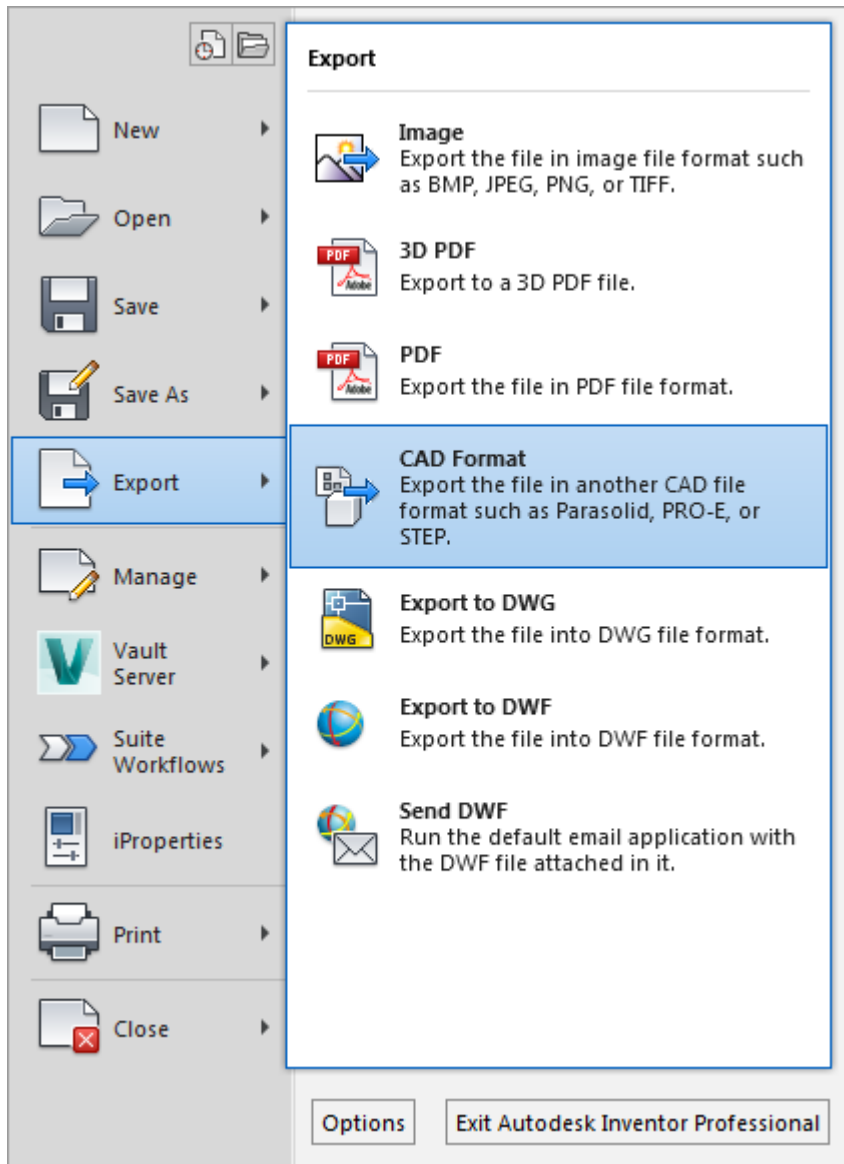
# How to Print to the Stratasy's Uprint SE+ 3D Printers

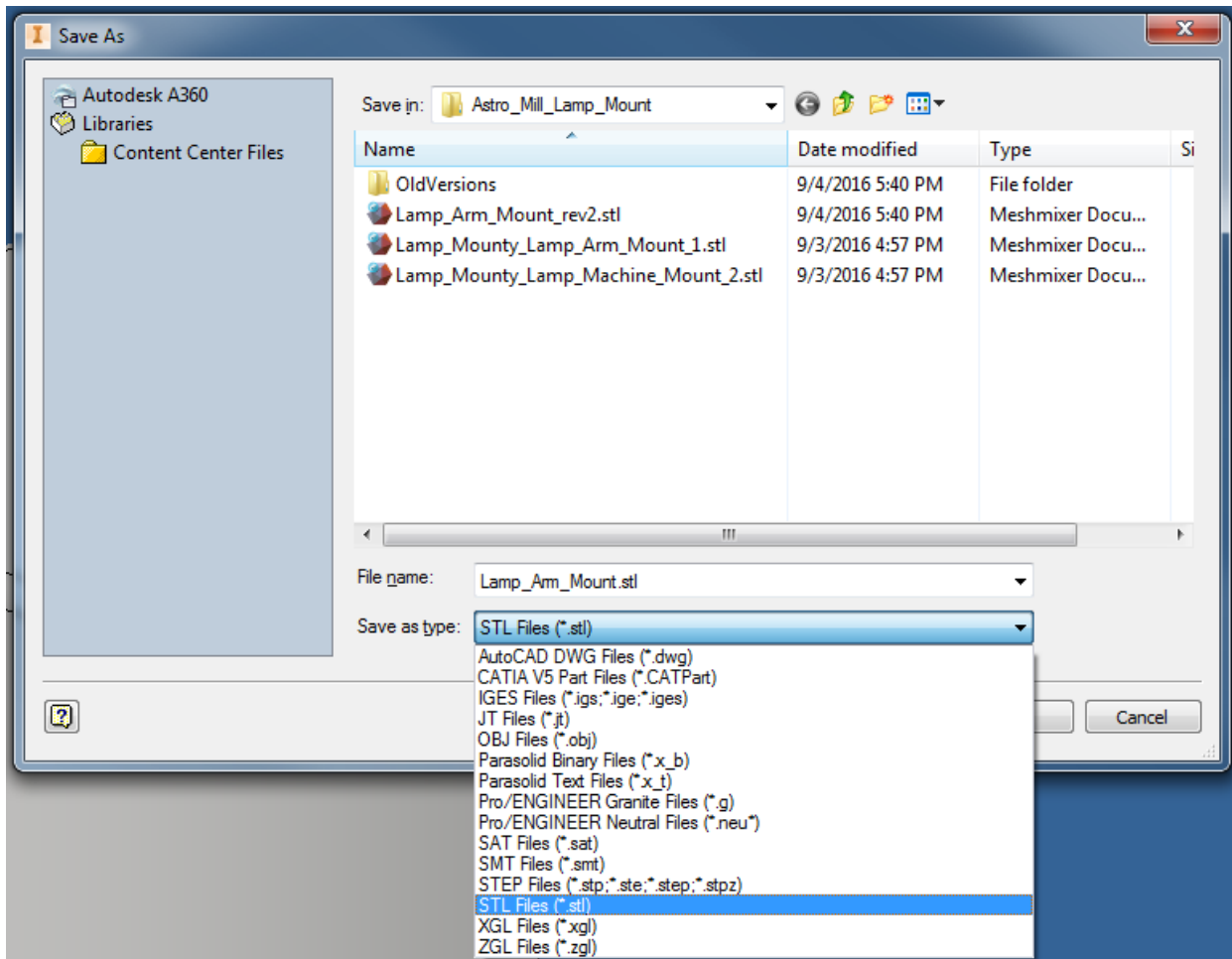
Within Autodesk Inventor, choose:

-File

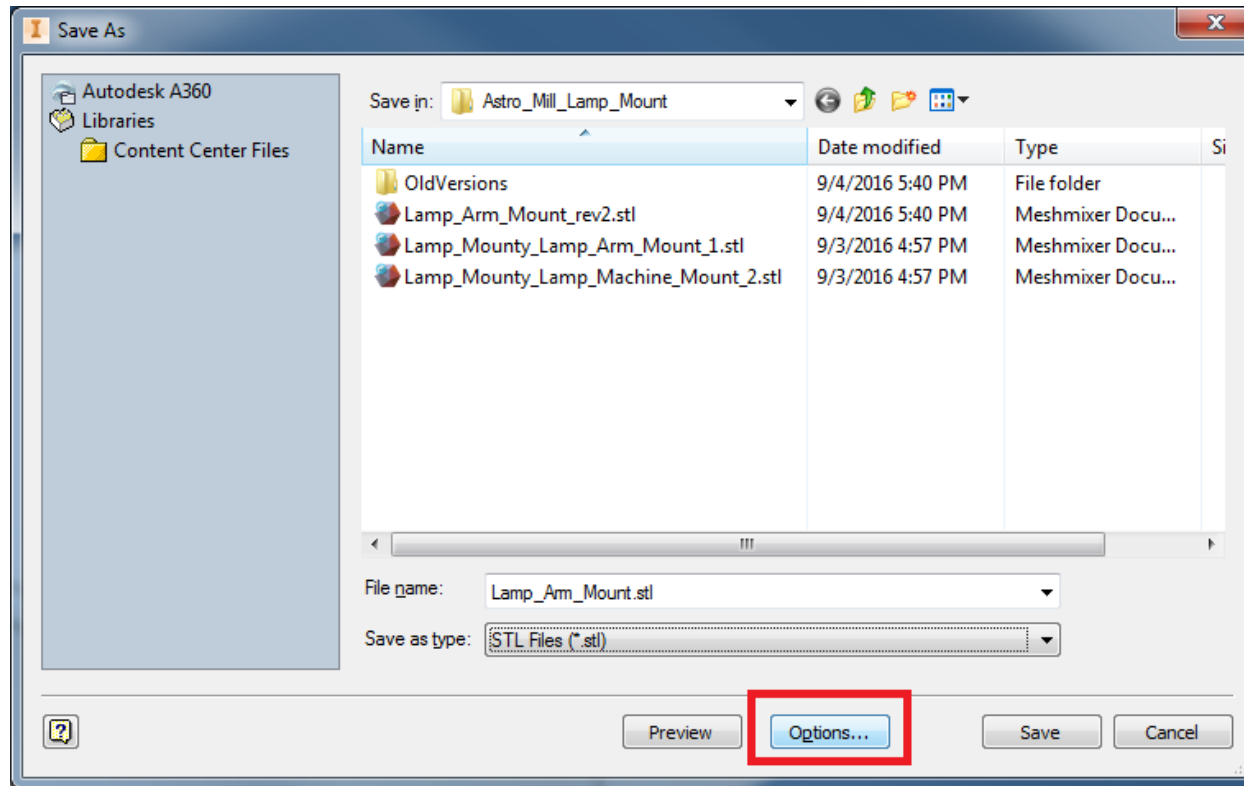
-Export

-CAD Format

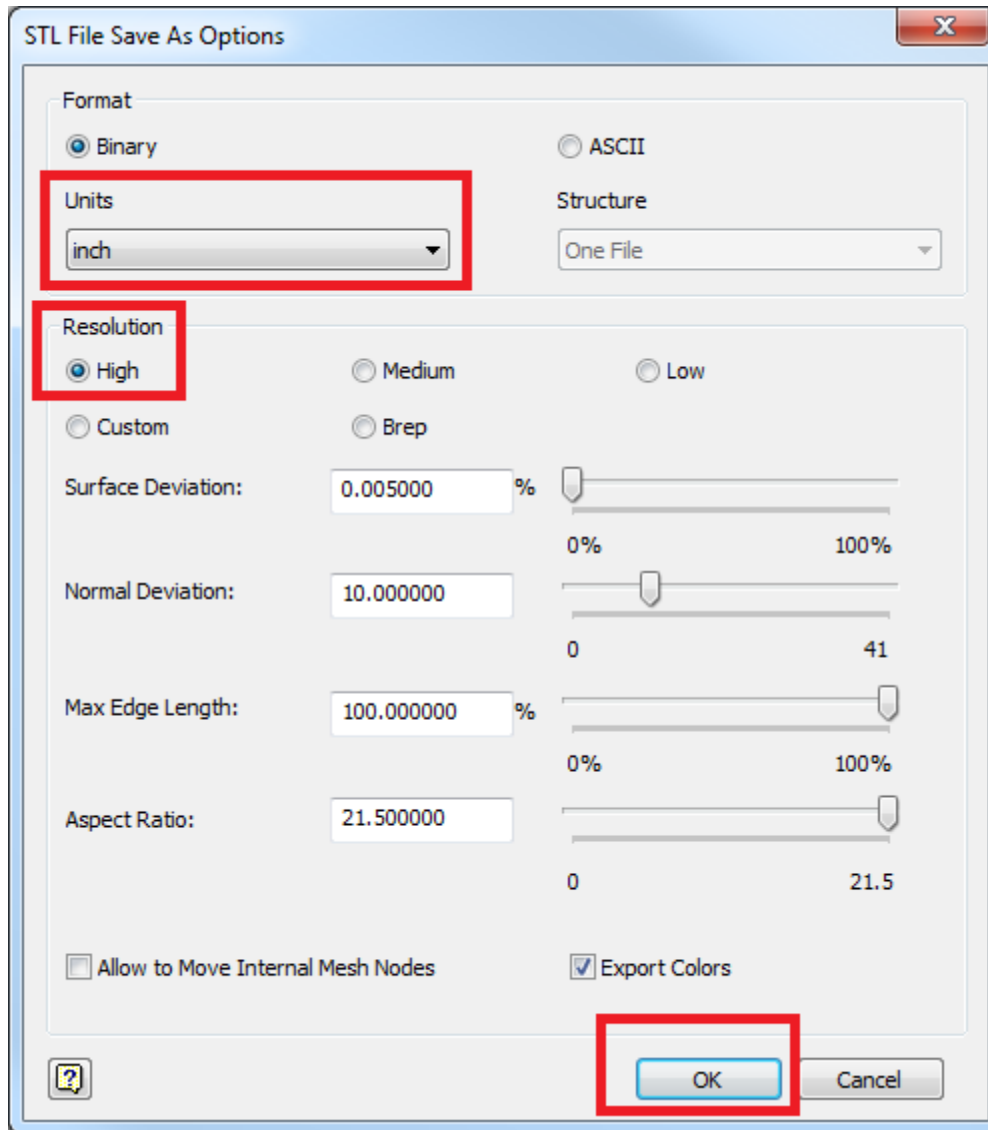




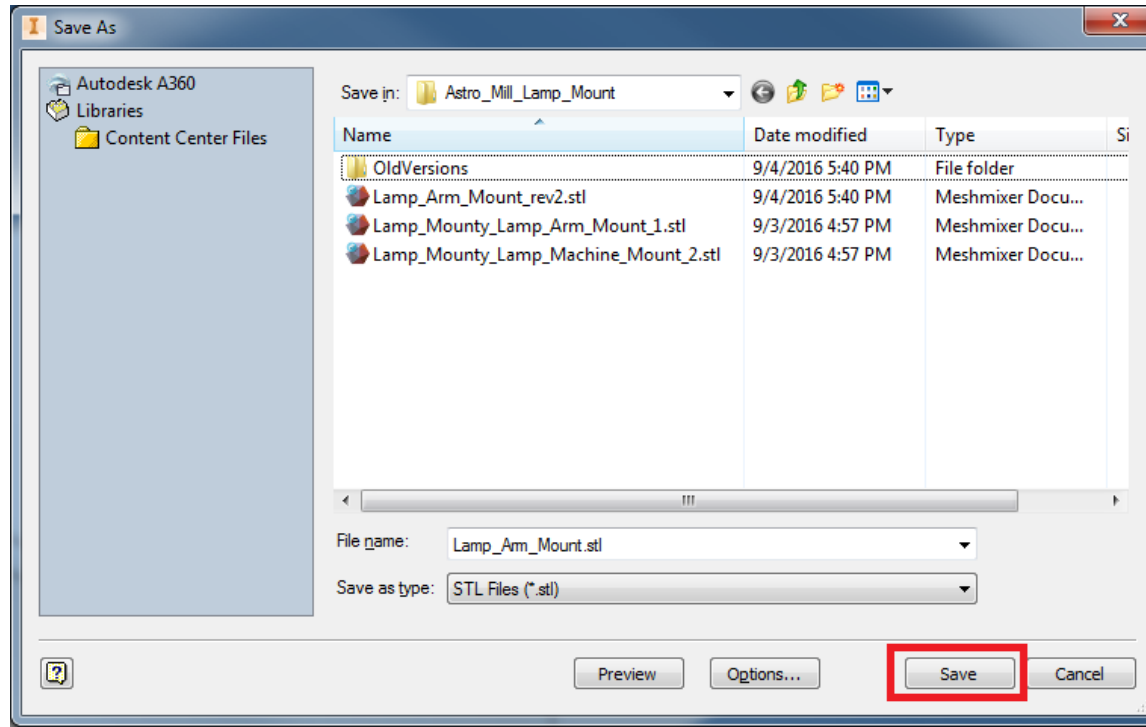
In the “Save As Type” dropdown menu, choose the “STL Files (\*.stl)” type.



Select the “Options” button.



Assuming your model is designed in inches, choose “inch” Units, “High” Resolution, and leave the other settings as they are. Click OK



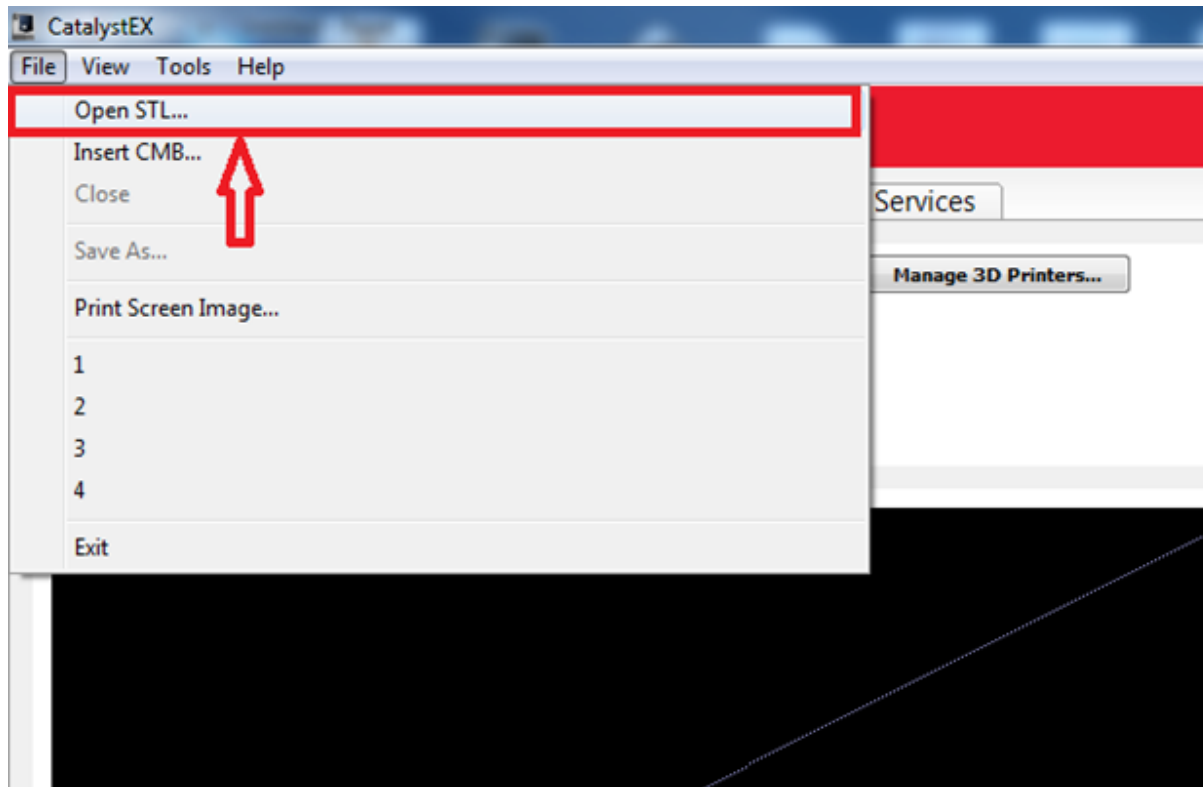
Be sure you are in a proper directory to save files, such as on your “U:” drive. In general, do not save files to the Desktop, “Documents”, or anywhere on the C: drive. Name the file and click Save.



Turn on the Stratasys uPrint SE Plus 3D Printer. It takes about 5 minutes to boot up and become ready to accept a printing job.



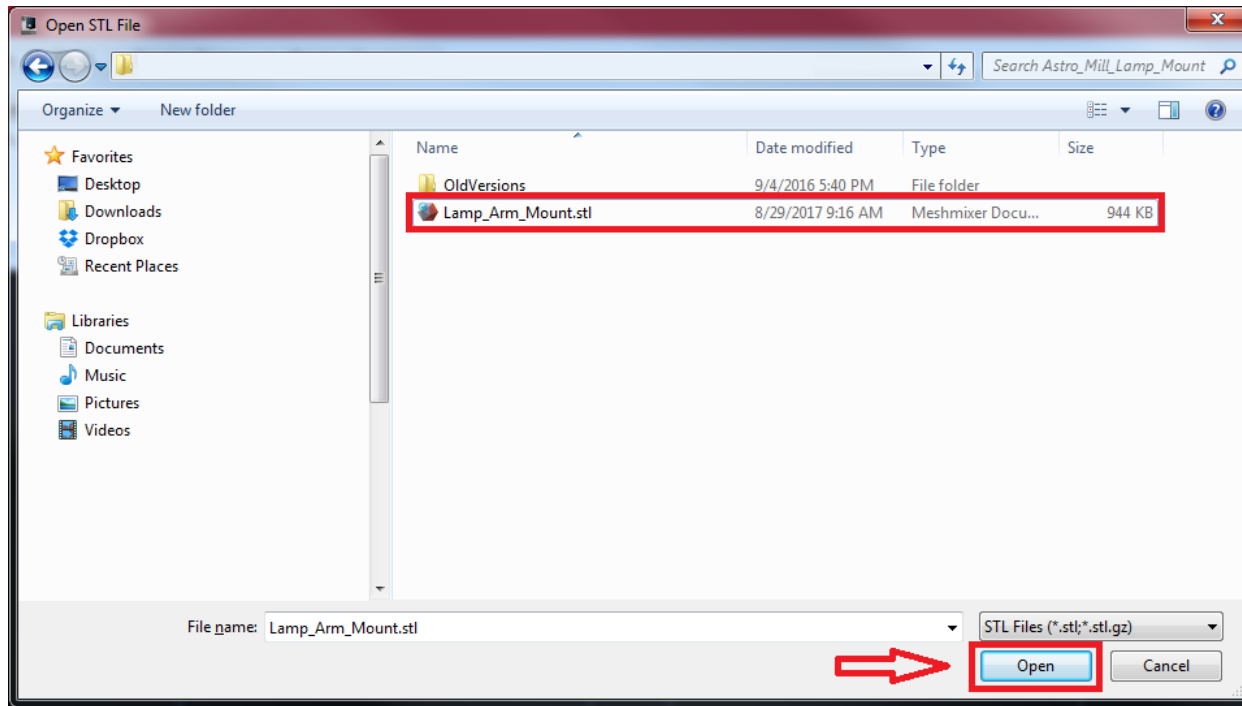
Next, launch the program CatalystEX 4.4 from the Desktop or Start Menu.



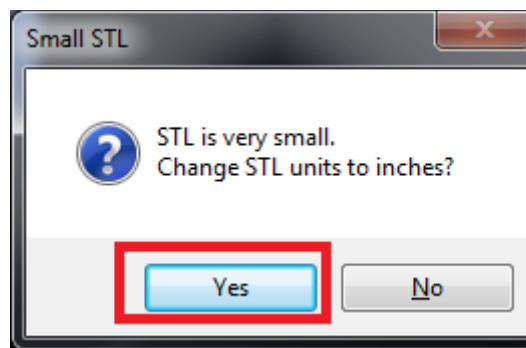
Within CatalystEX, choose:

-File

-Open STL

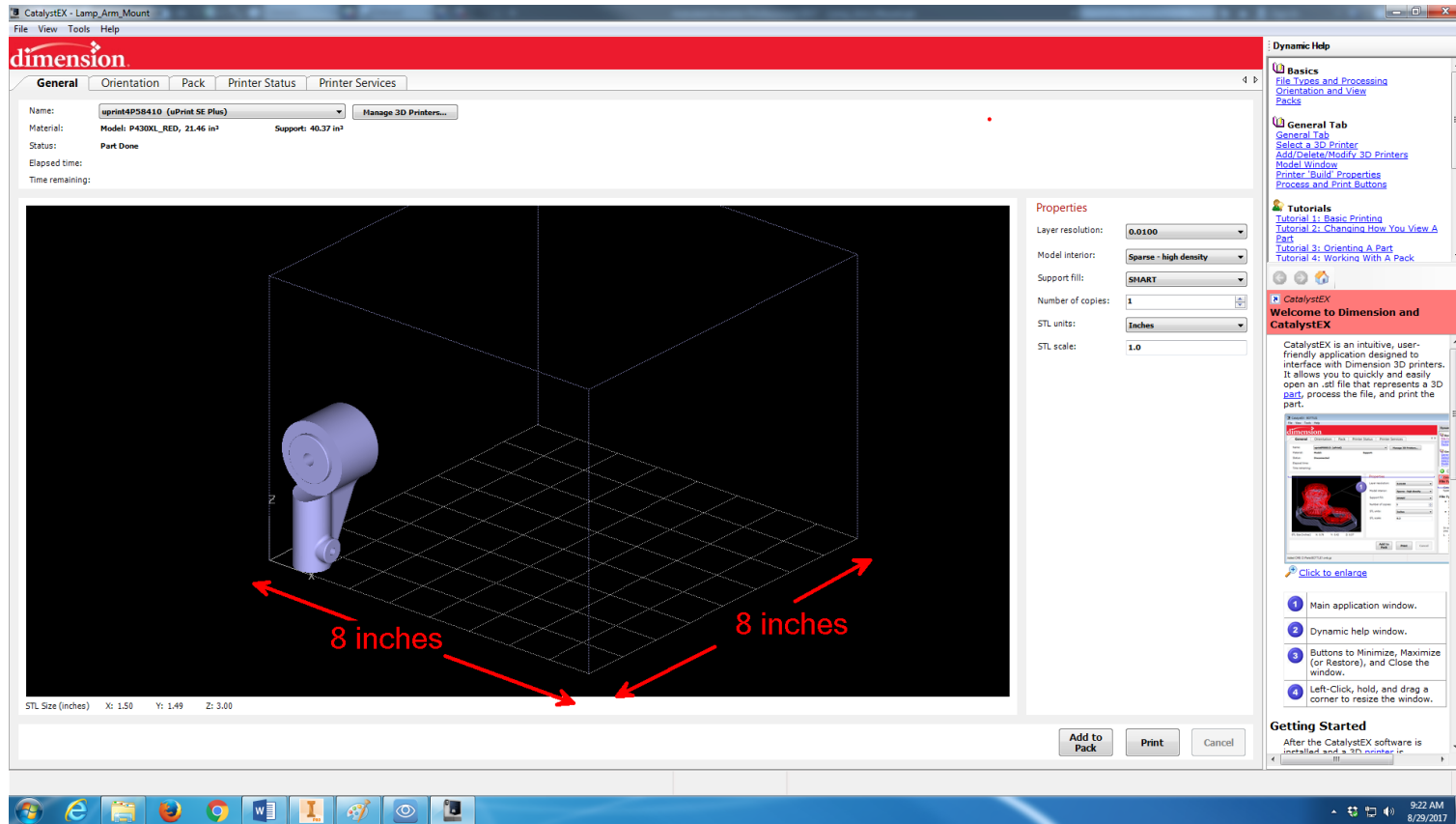


Browse to and select the STL file, and choose Open



You may be prompted to change the STL units to inches. If so, click Yes.

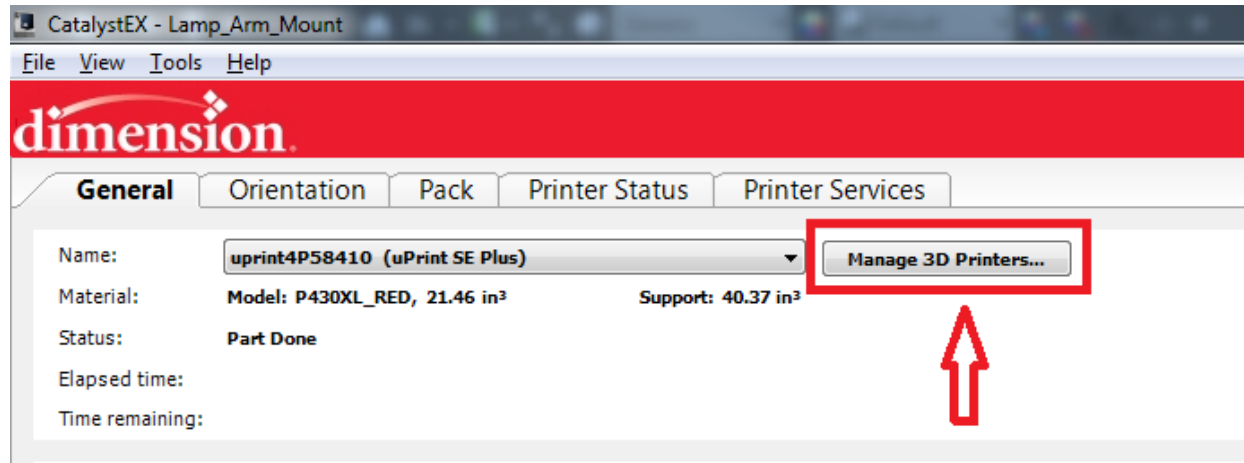




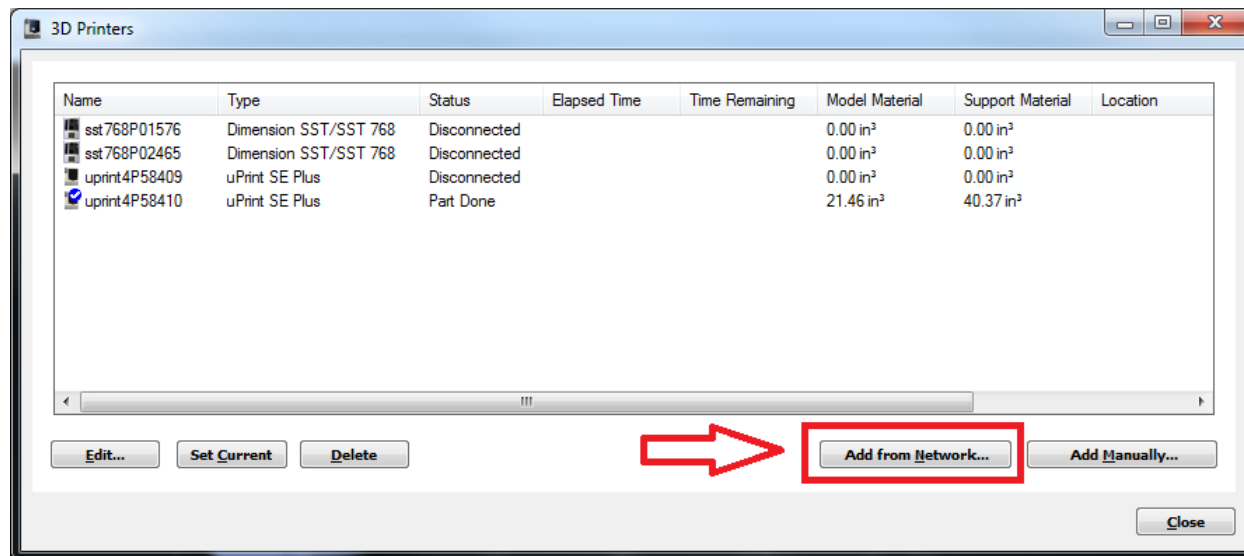
-Visually verify the scale of your STL file on the coordinate grid. Each small grid square is one inch by one inch.

-The total build volume available is 8x8x8 inches.

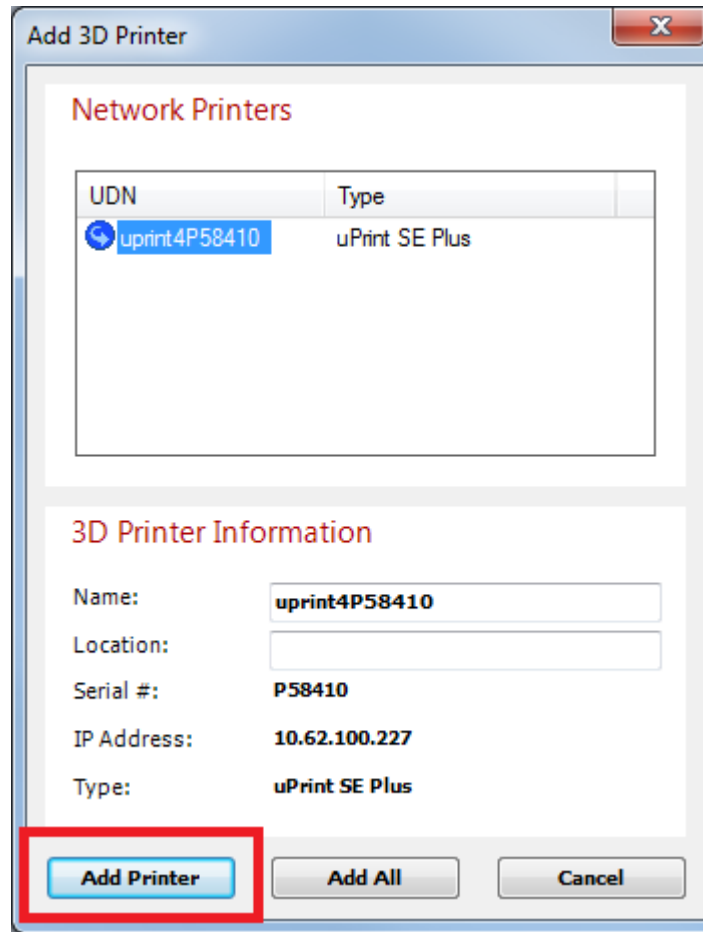
-If the scale of your model is not correct, you may re-scale it here, but a better idea is to re-check your STL unit settings in Inventor. Improper re-scaling in Catalyst may lead to improper fitment of components as designed.



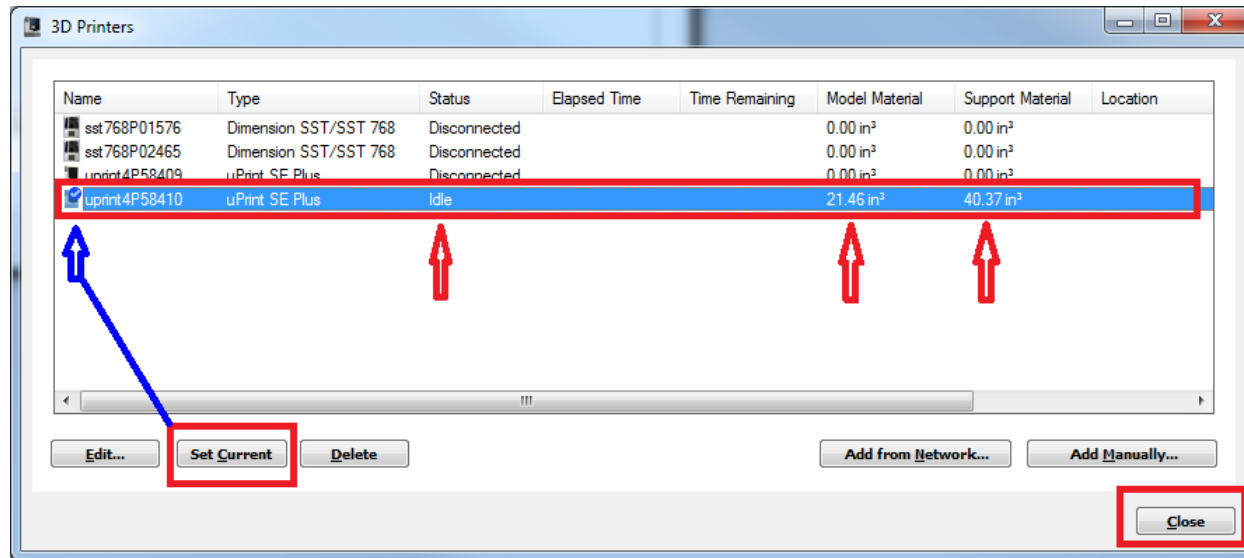
On the “General” tab, click the “Manage 3D Printers” button.



Click the “Add from Network” button.



Select the printer you wish to use, and click the “Add Printer” button.



Ensure that the correct printer with Idle status is set as the current printer.

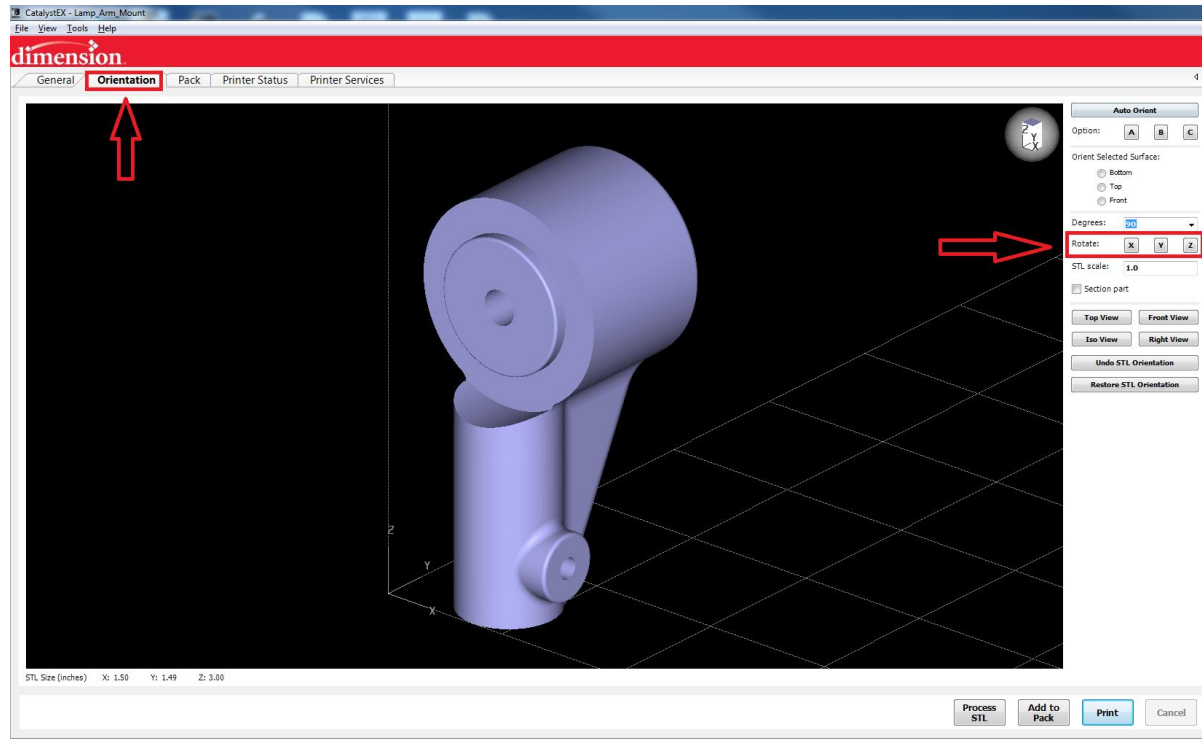
Take note of the amount of model material and support material in units of cubic inches. If not enough material remains, you may not be able to proceed with printing your model. In this scenario, ask for assistance in loading new filament.

Do not open or attempt to load new filament without permission from the instructor!

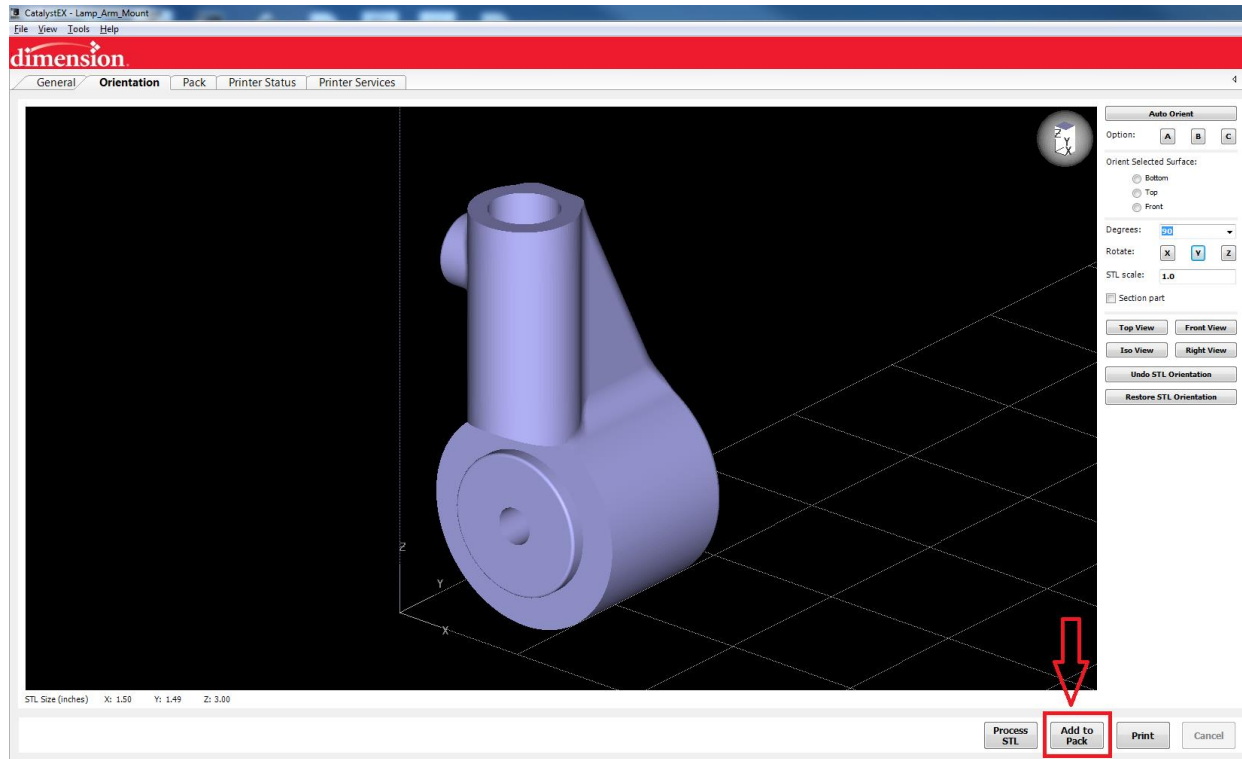
## Properties

Layer resolution:	0.0100
Model interior:	Sparse - low density
Support fill:	SMART
Number of copies:	1
STL units:	Inches
STL scale:	1.0

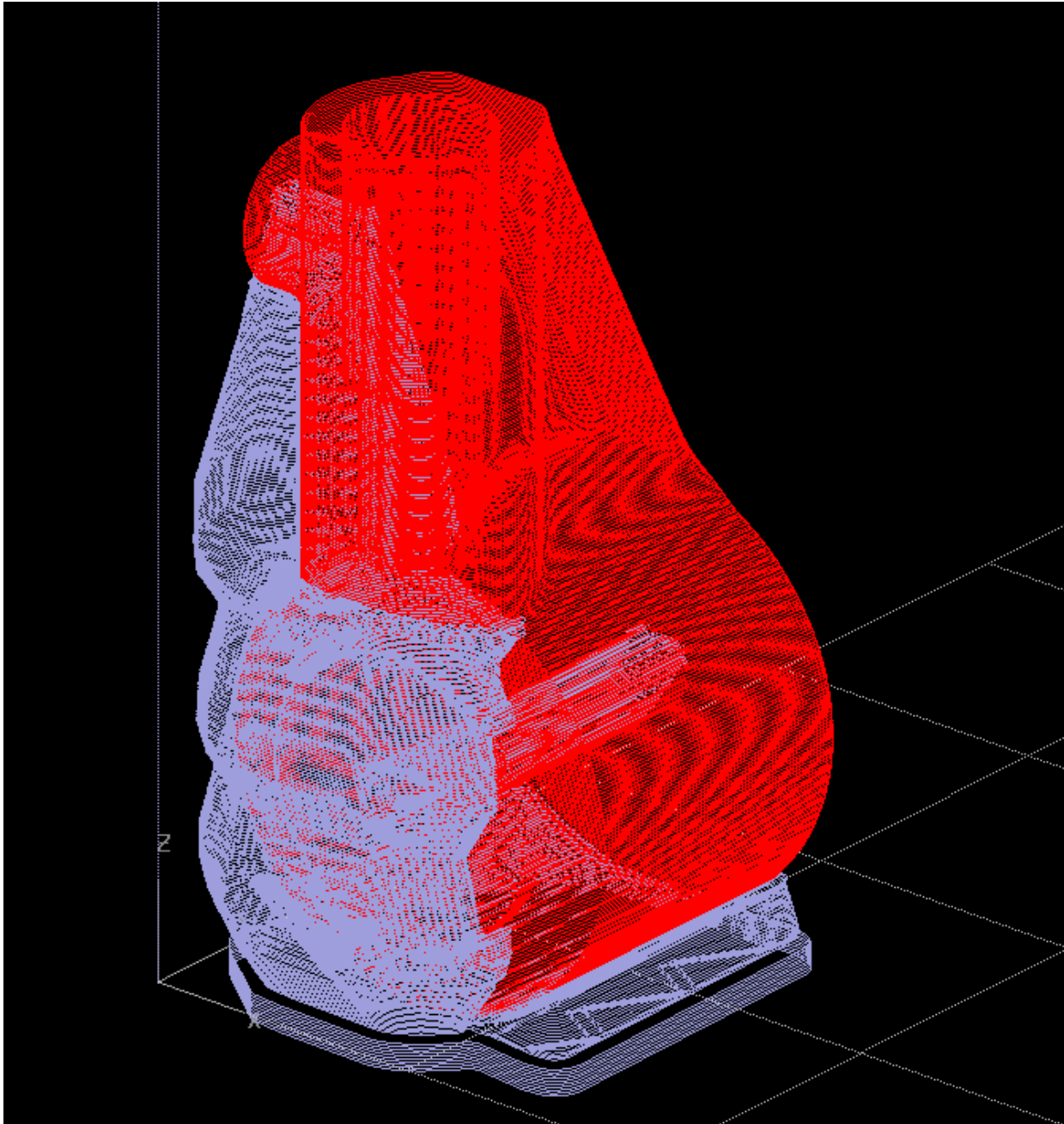
For the model interior, in most instances, you should choose “**Sparse – low density**.” This works well for first-iteration prototypes, artistic pieces, and non-structural components. Furthermore, it will print faster than other methods. Choosing “Solid fill” uses substantially more material, considerably increasing the print time and the cost of the 3D print. “Solid fill” should be used only for structural load-bearing components that have already been proven to fit using a “Sparse – low density” prototype. The “Sparse – high density” option provides greater strength than the “Sparse – low density” option while not consuming as much material as the “Solid” option.



On the “Orientation” tab, rotate the model to the desired orientation. You may wish to try the “Auto-Orient” button, but often better results are achieved by manually orienting the model. While the model can be printed in any orientation, the resulting print quality can vary. In general, the model should be oriented to reduce the amount of support material to be printed. That is, the model should be oriented such that larger regions are lower in the vertical Z direction. Cylinders print nicely when the circular cross section is oriented in the XY plane but with some parts such as this one, the designer must make a choice as to which orientation he or she desires.

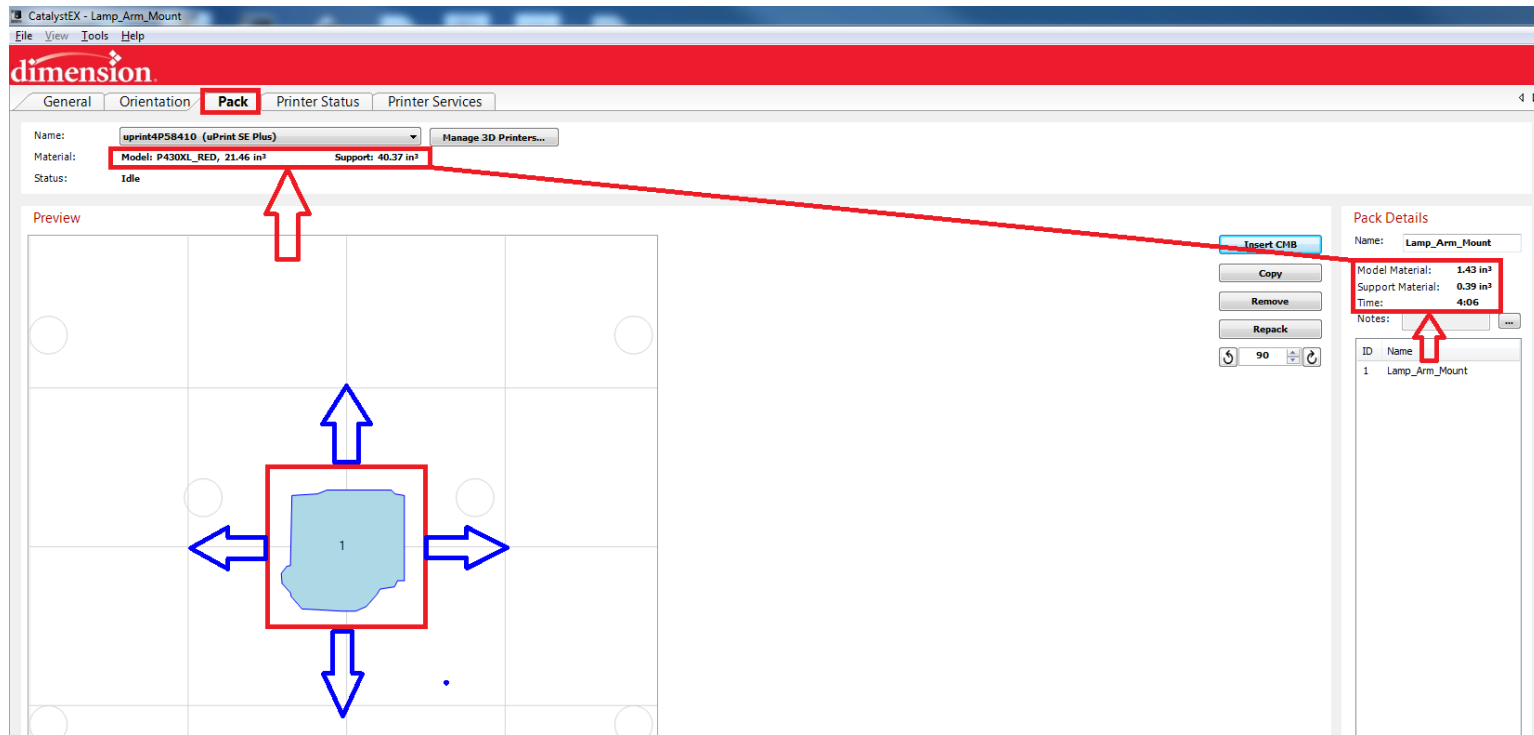


Once the scale has been verified, the type of model interior fill density has been set, and the desired orientation has been achieved, click the “Add to Pack” button.



The software will slice the model into layers. Red lines indicate model material to be printed, while white lines indicate the soluble support material, which will later be dissolved away in a sodium hydroxide solution.

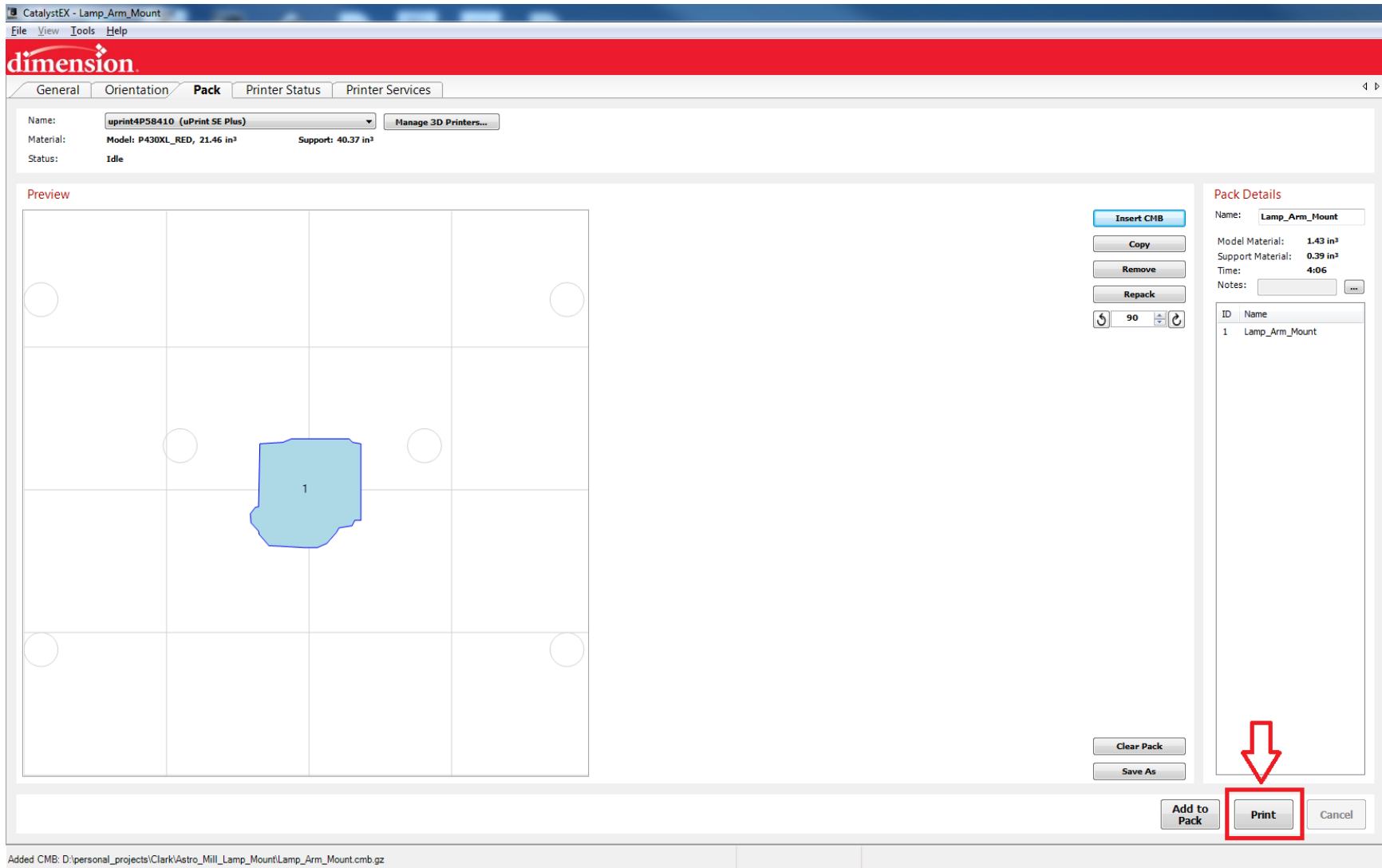




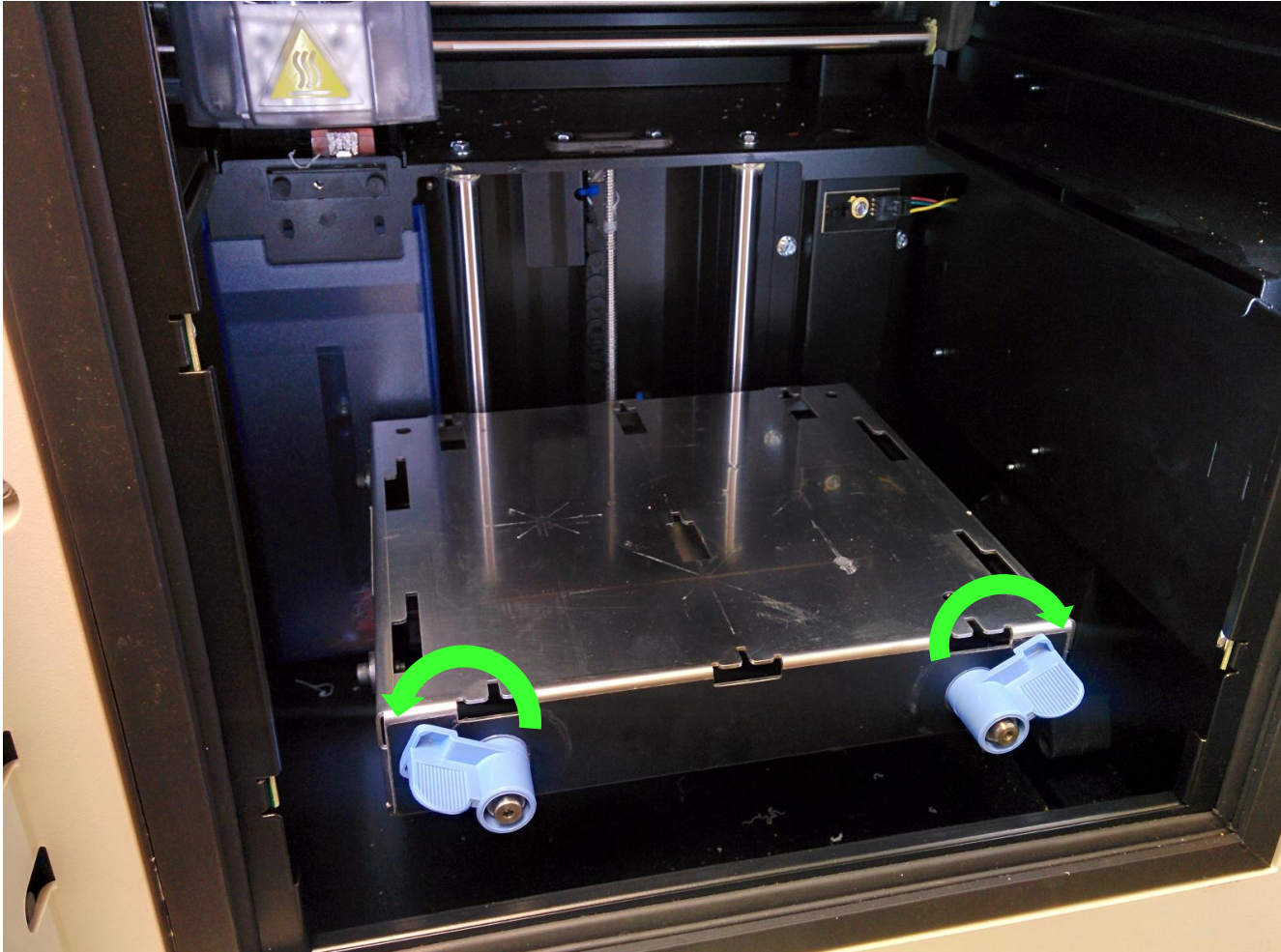
On the Pack tab, click and drag the model into position on the build plate. If you are using a build plate that has been used before, be sure to position the model on an area of the build plate that has not been printed on before. Each square in this pack view is 2 inches by 2 inches.

Note the amount of material the pack is using under the “Pack Details” section on the right. Material costs approximately \$5 per cubic inch. Ensure that the print is not using an unreasonable amount of material, and verify that the cartridges in the machine have more volume remaining than is needed to print the pack.

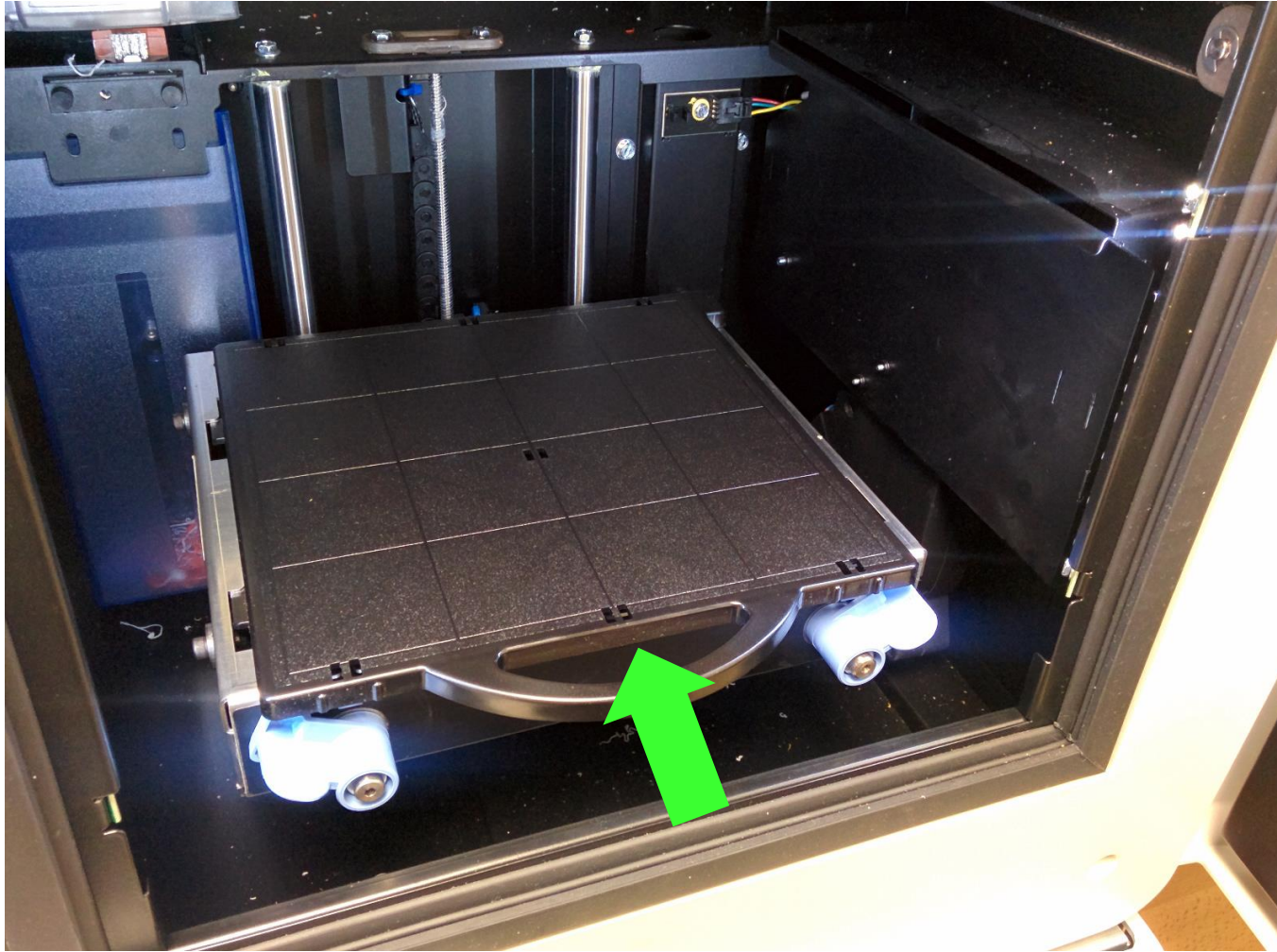
**Repeat all the above steps in this document for each part model that is ready to print today. It is best to add multiple STL models together into one pack and print them at the same time, to avoid using excess build plates.**



After verifying the model position on the build plate, the material consumption, and print time, click “Print” to send the pack to the printer.

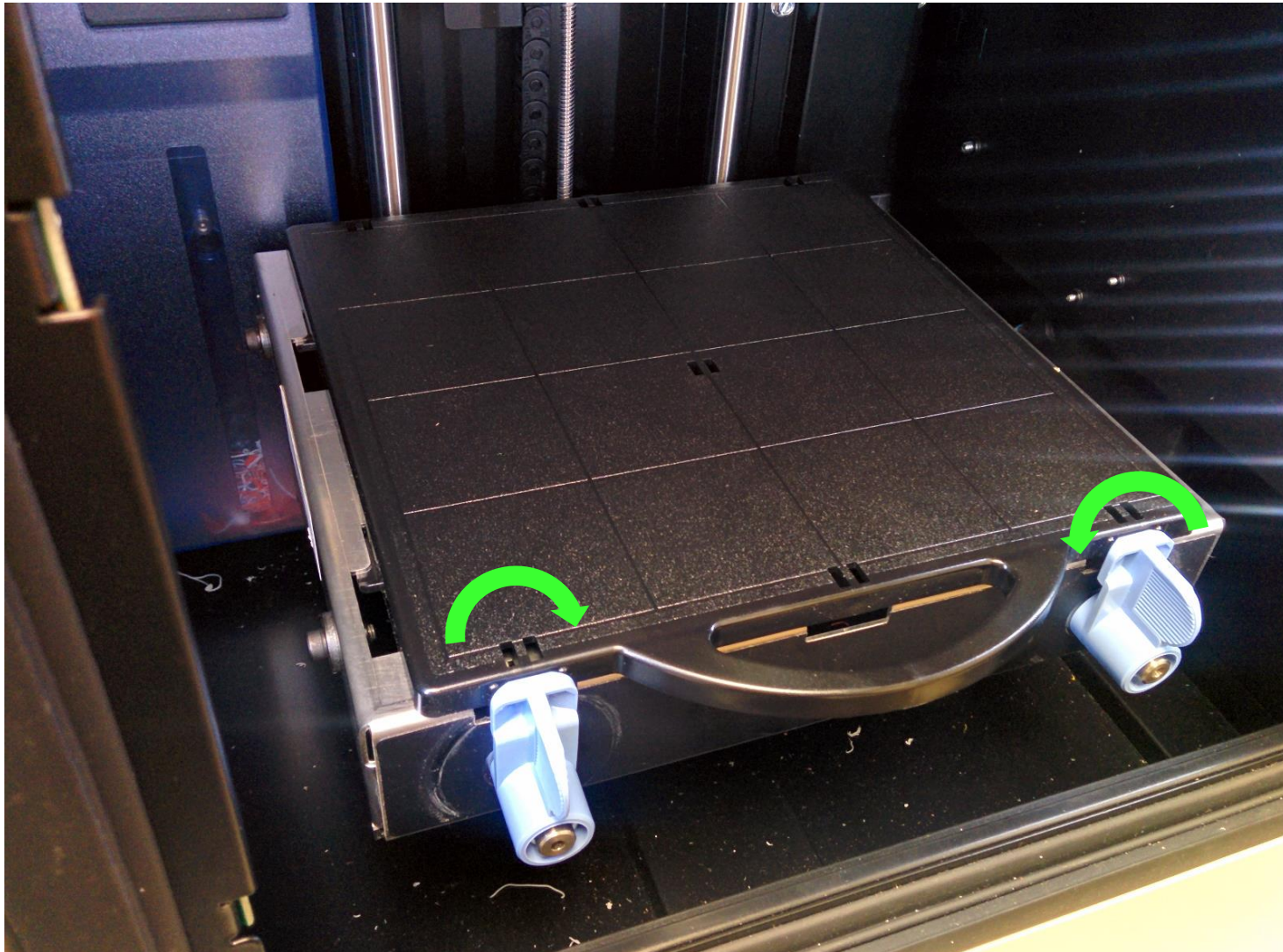


At the printer, open the blue thumb tabs so a new build plate may be installed.

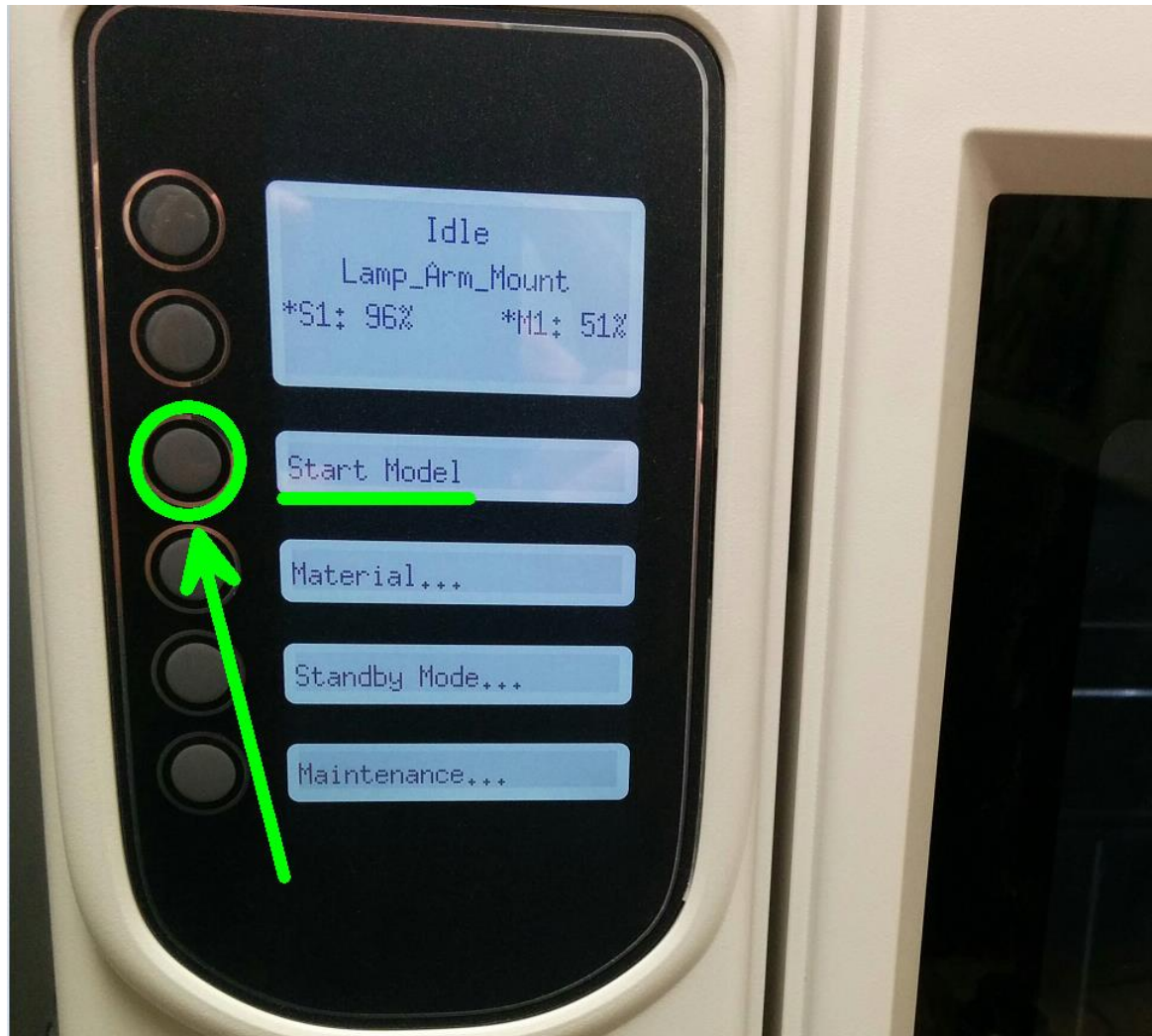


Insert a new build plate such that its tabs align with the cutouts in the top surface of the metal build table. Push it in fully until its front edge is flush with the front face of the metal build table.





Rotate the blue thumb tabs to the vertical closed position as shown.



The printer's screen should show Idle status and the name of the print job you sent. Press the button next to "Start Model." That's it! The machine may take several minutes to warm up and calibrate before it begins printing. Check back in about 30 minutes to see how your print is going.