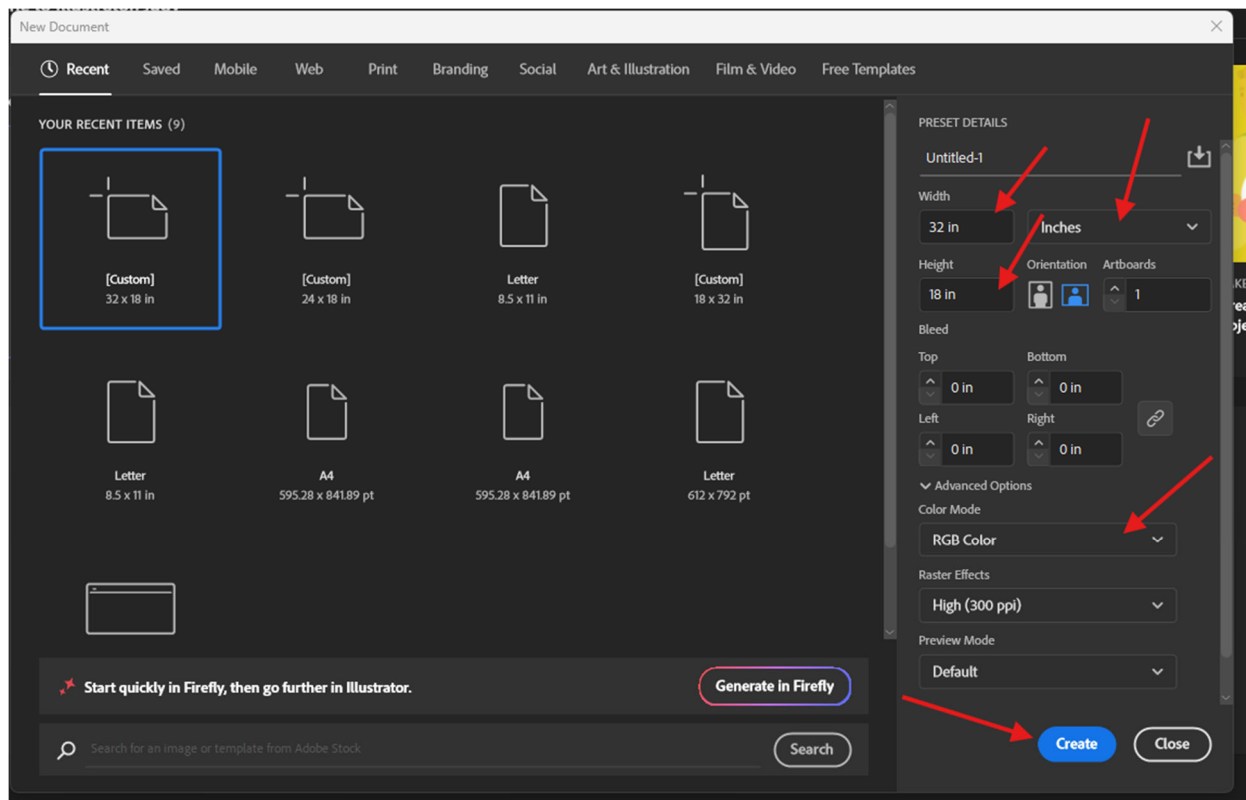
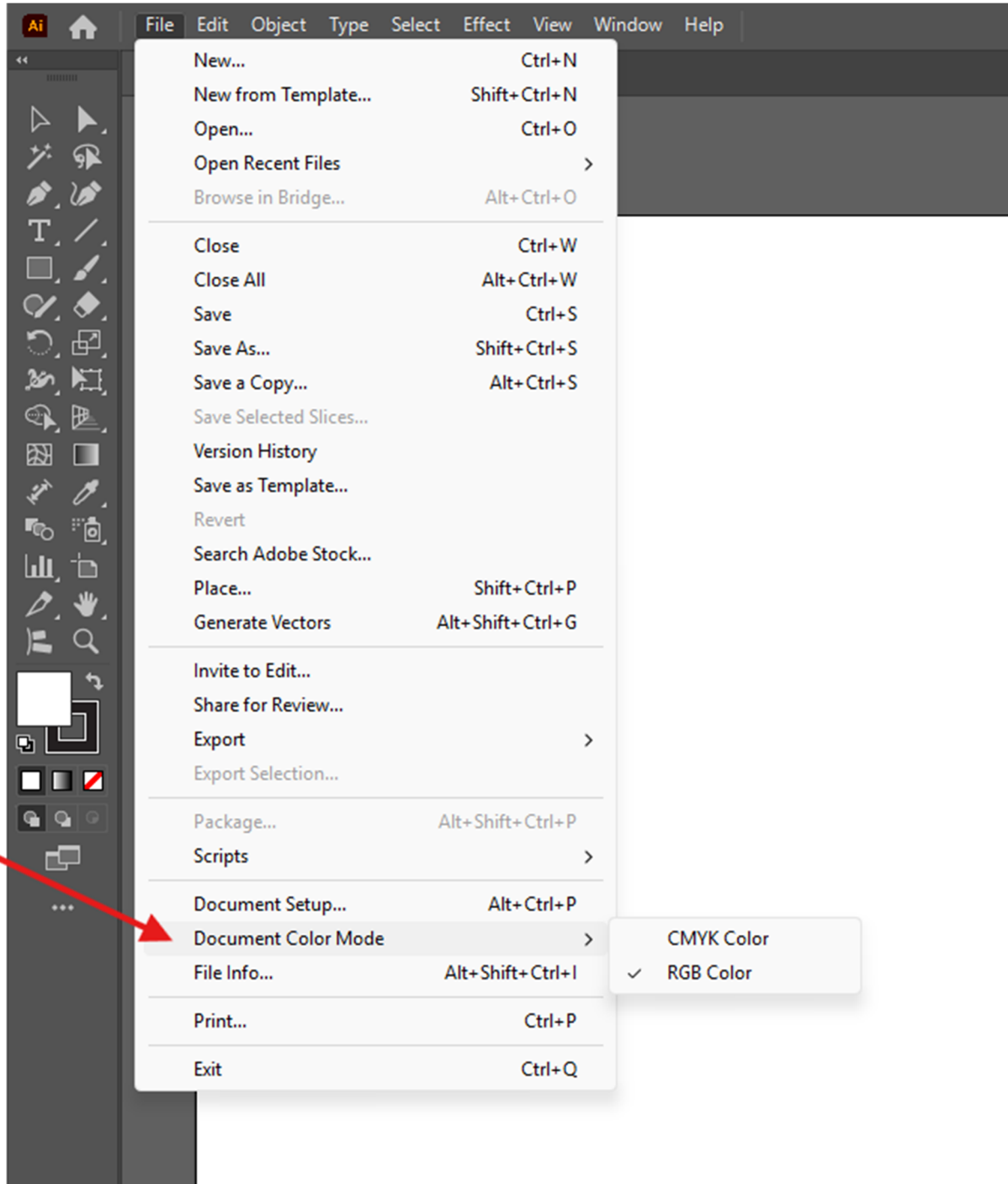


Illustrator Laser Cutting in CAP Laser Lab

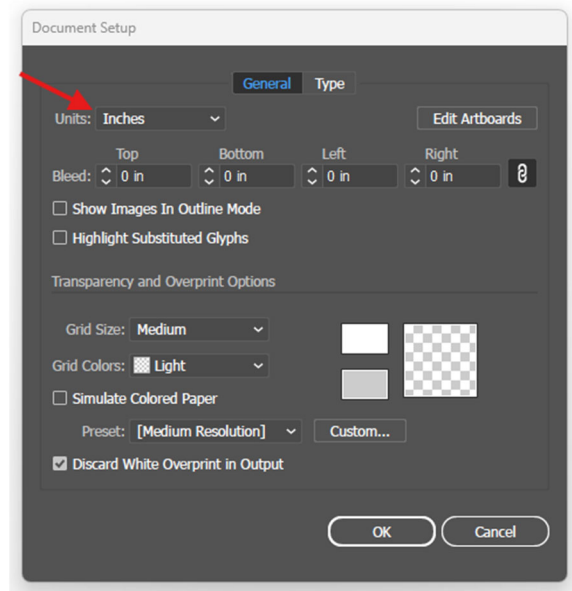
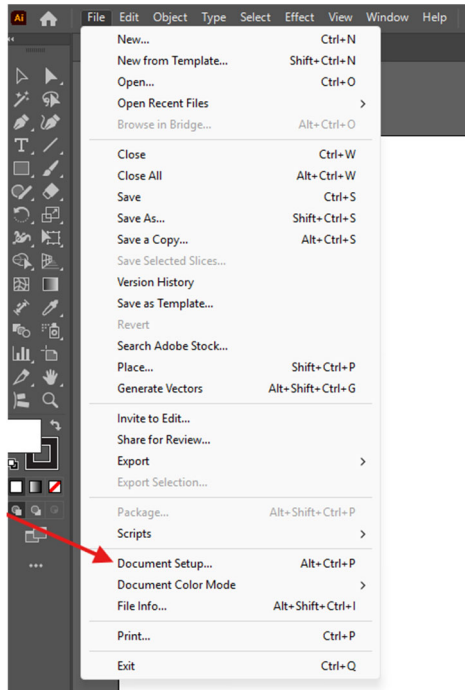
1. Cut your material to 18" x 32" for A, B, C or smaller 18" x 24" for station D
2. Log into the computer you are using with your BSU credentials. You may need to log into Adobe Cloud as well to access Adobe Illustrator.
3. Turn on the laser machine (if it is not already on).
 - a. A & B turn on at the wall behind the computer desk. You will hear the cooling fan and compressed air assist turn on.
 - b. C & D: Open the Universal Laser Control Panel, UCP to access the power for the laser. This icon can be found on the desk top or in the lower right-hand corner. Click on power button. Alternatively, you can also turn on the power to the laser on the touch panel located on the front right corner. Next, turn on compressed air. The switch for D is located behind the computer desk. The switch for C is located directly behind Laser C.
4. To start a new document on the machine in the laser lab:
 - a. Open Illustrator, choose File, click New
 - b. Set units to Inches
 - c. Set width to 32" (for A, B and C) or 24" for Laser D. Set the height of the artboard to 18"
 - d. Set Color Mode to RGB



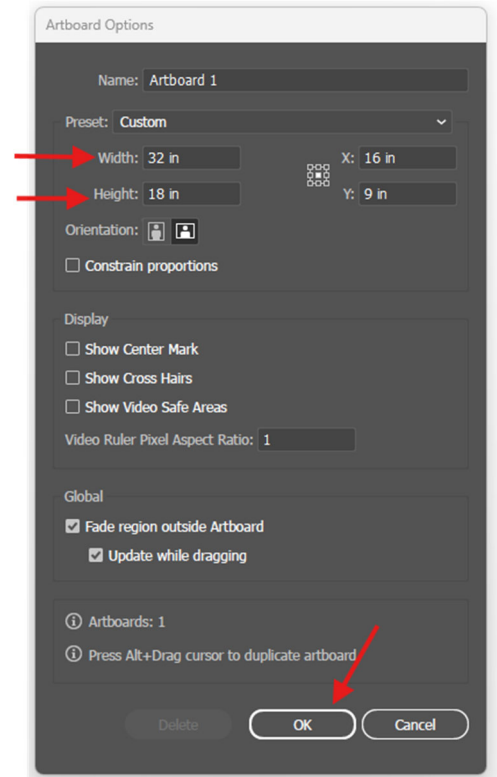
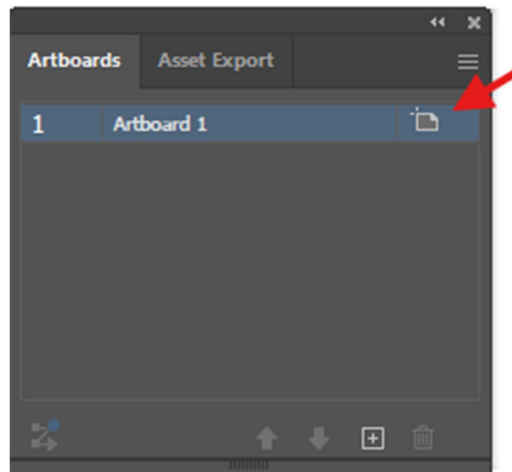
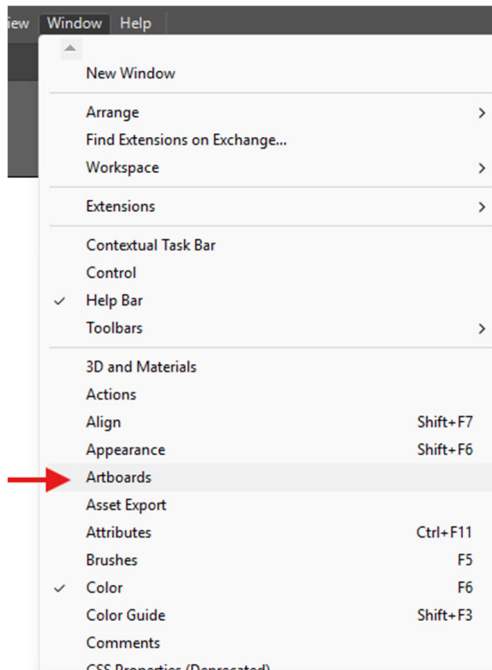
5. If you are opening a previously created file, 2 items to be aware of are Document Color Mode and Document Setup
 - a. Under File/Document Color Mode, make sure RGB is set.



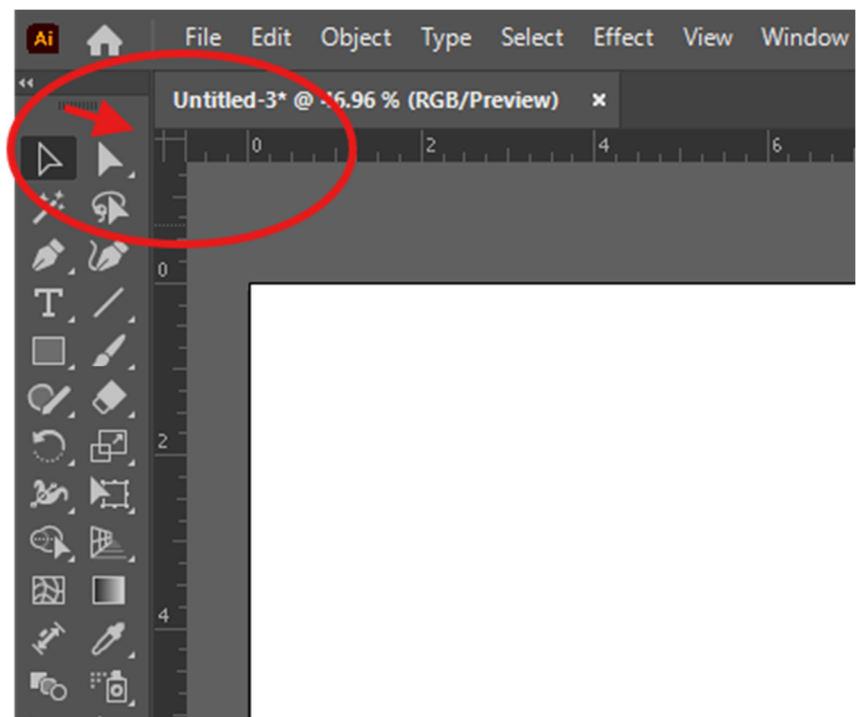
- b. Choose File/Document Setup and make sure units are set to Inches.



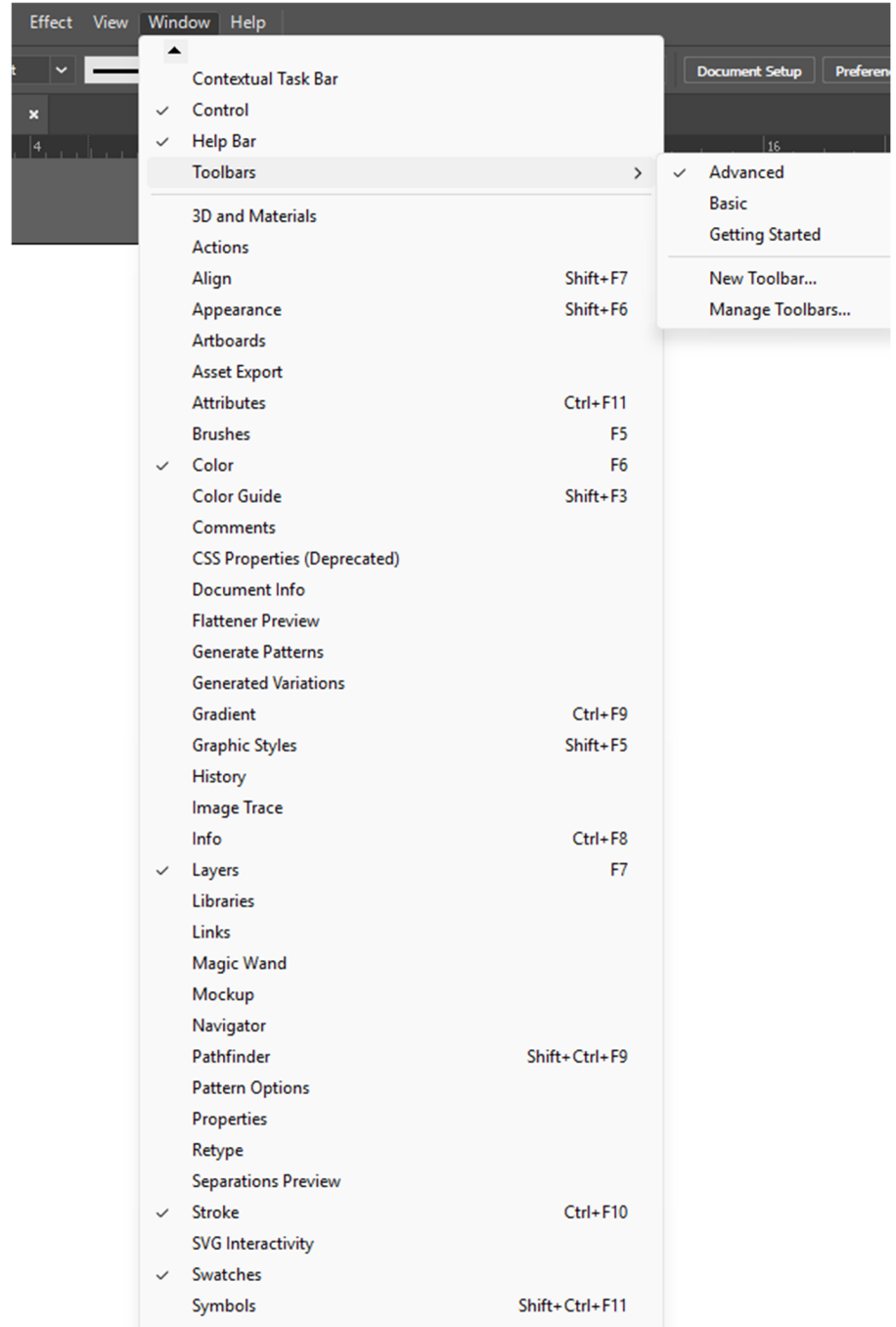
- c. Choose Window/Artboards. Click on the icon to the right of your artboard (see below). Make sure your art board with is set to 32" (or 24") and height is set to 18".



5. Turn on rulers by pressing Ctrl + R, or select View/Rulers/Show Rulers. Make sure the document origin is set correctly by dragging from the upper left corner until the crosshairs line up with the upper left corner of your artboard.

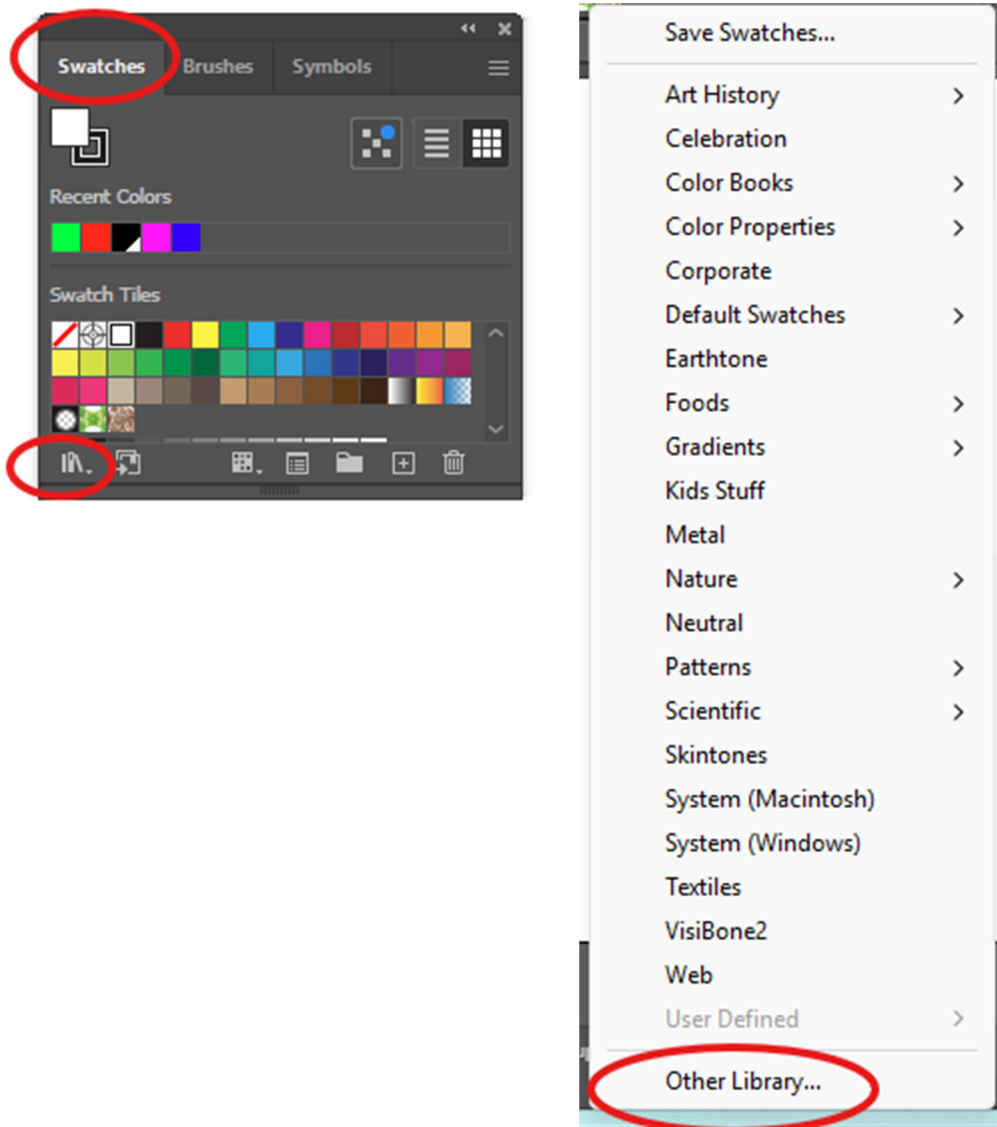


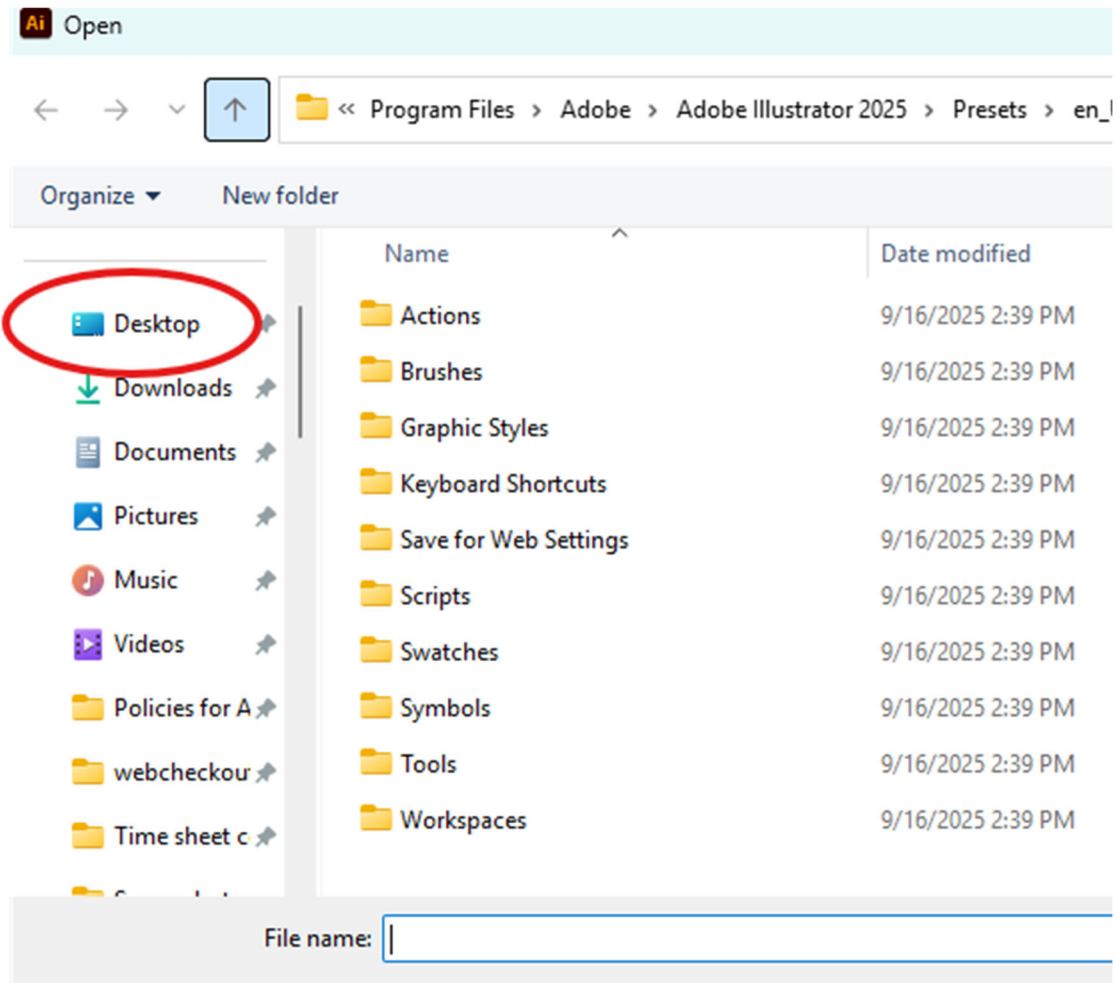
6. Open the Window menu and make sure Control, Toolbar, Color, Stroke and Swatches are turned on.



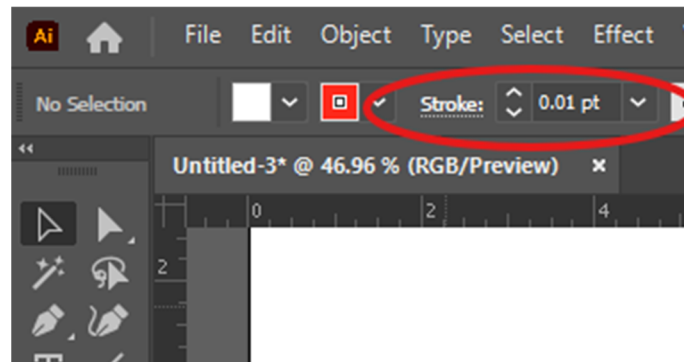
If you have the color palette saved on your thumb drive, you can connect it at this time. If you do not have the color palette on your thumb drive, connect to the color palette on the Desktop.

7. Swatches can be found in Swatch Libraries Icon/Other library.

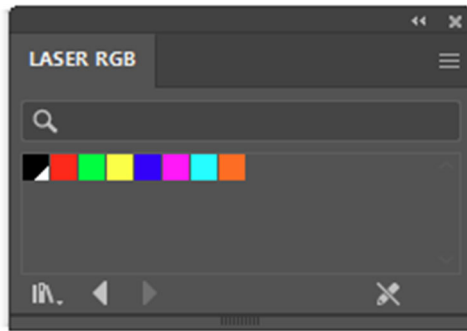




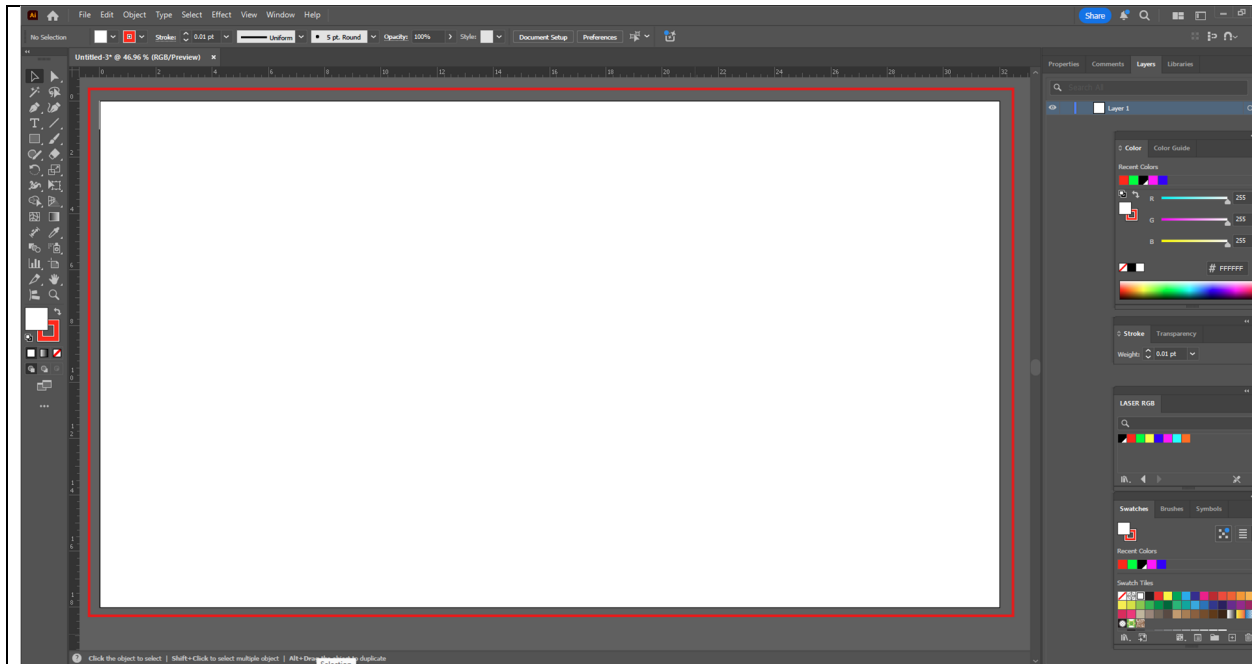
8. Check to make sure you have the desired scale by comparing the size of your drawing against the rulers and the artboard. Visually inspect your file to make sure it is still drawn and laid out as you intended.
9. In order for the laser to vector cut your document, the stroke weight must be set to .01 pt. Raster engraving can be completed by any line weight.



10. The Universal lasers that are located in the lab have 4 different modes and 3 different applications. Raster, Vector, Raster/Vector, and Skip. These modes are assigned to a select group of colors from the RGB color palette.
- Raster is the left right motion you will see the laser complete. In this setting the laser is shooting out pulses of light at specifically calibrated locations according to your object.
 - Vector Thru Cut is a vector cut that will cut all the way thru your material.
 - Raster/Vector mode will first complete a raster and then complete a vector
 - Skip is just that, skip that color.
 - RGB Color Palette



11. Assign colors to your work from the Laser RGB Color Swatch.
- The laser will cut colors in order starting with black and ending with orange. It is suggested that you assign all rasters to the color Black so they are always completed first. Blue for score and red for vector.
12. The laser machine will only cut/raster the parts of the objects that are inside the artboard area, the white-filled rectangle with the black border. Place the part of your design you wish to cut inside the rectangle, making sure none of it is touching or overlapping the edges of the box.



Once you have positioned the material you wish to cut, look thru the materials settings box at your station, find the card that most closely matches the material you are using. Take note of specific settings on that card and which colors you want to assign each setting to. Materials not in the box are not approved for the lab. Examples of materials not permitted in the lab are: concrete, cement, metal of any kind, reflective materials, PVC, foam core, and vinyl.

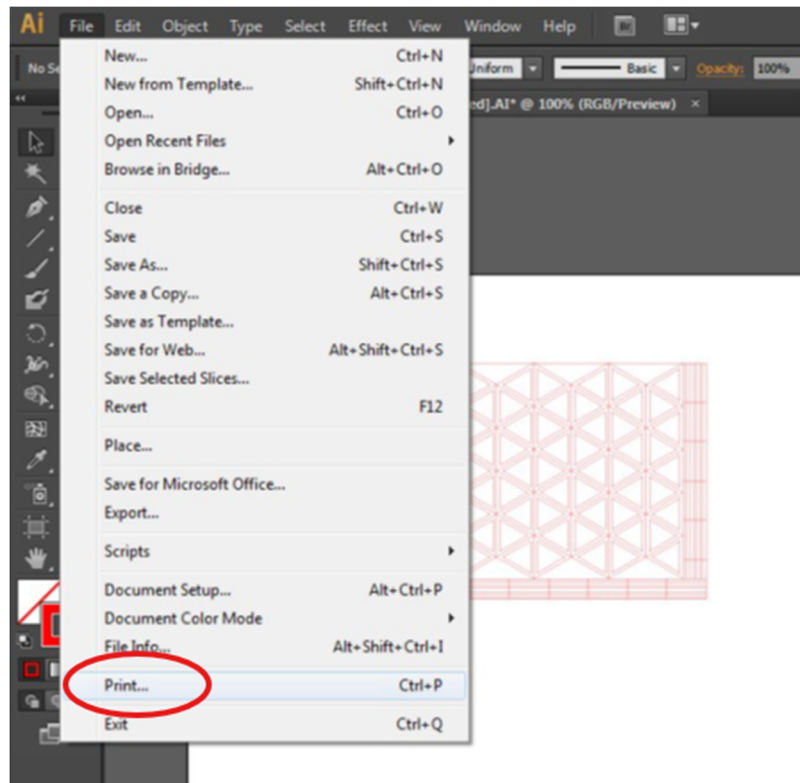


Raster is the left right motion you will see the laser complete when set to 'raster'. In this setting the laser is shooting out pulses of light at specifically calibrated locations according to your object. The raster setting can take a long time to complete if you are cutting a large file.

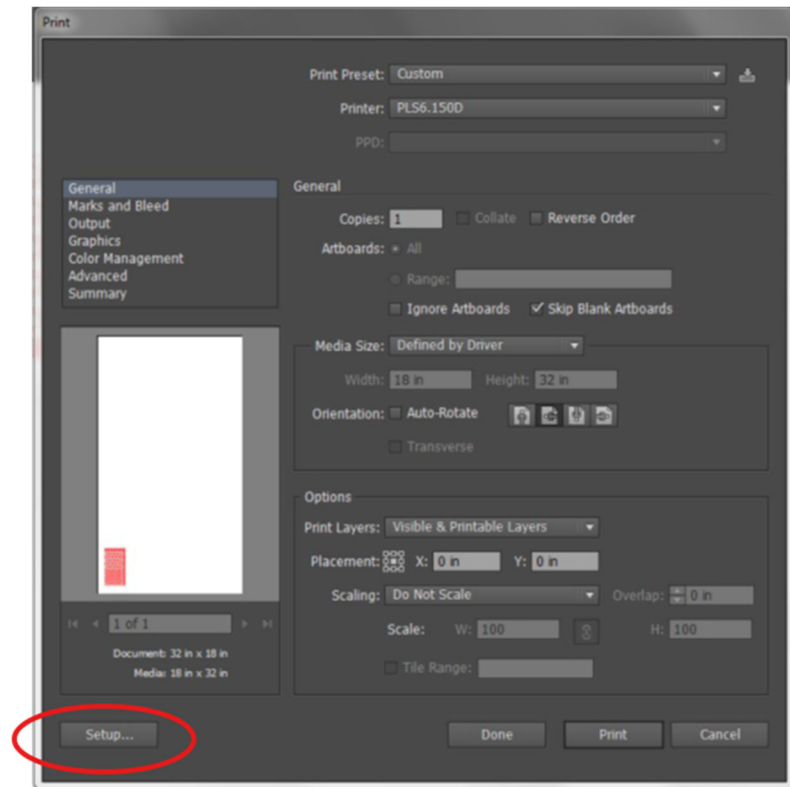
Vector Thru Cut is a vector cut that will cut all the way thru your material.

Vector Score is a vector cut that is similar to a pencil line. If you are not interested in having a shape cut entirely out, you will want to use a vector score setting. Vector score typically takes less time than a raster.

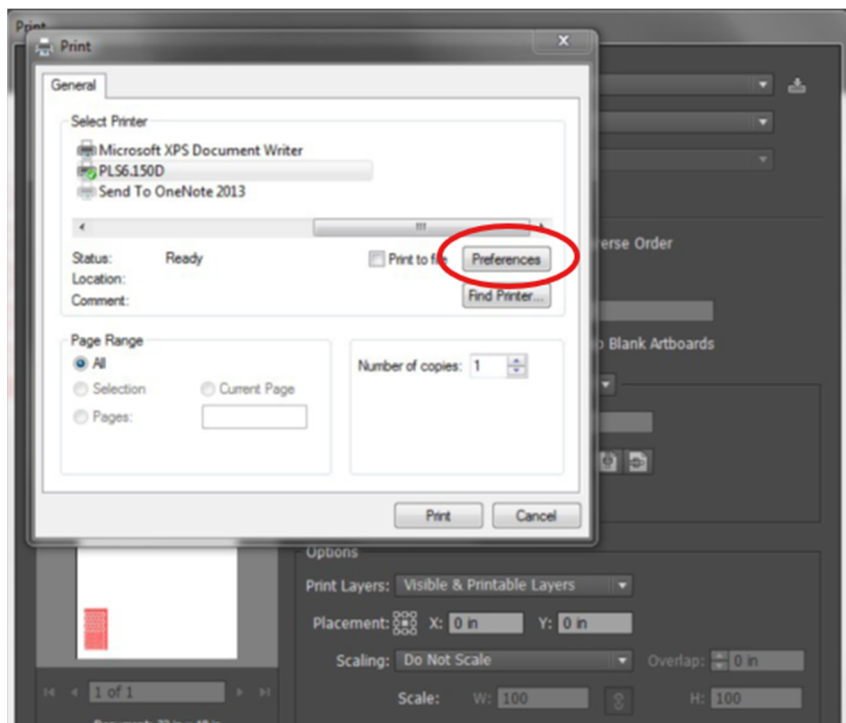
To access the laser settings, go to File/Print



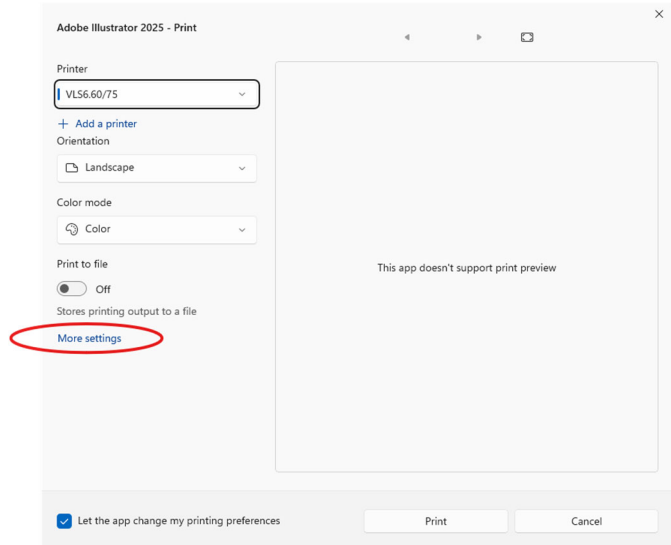
Click Setup.



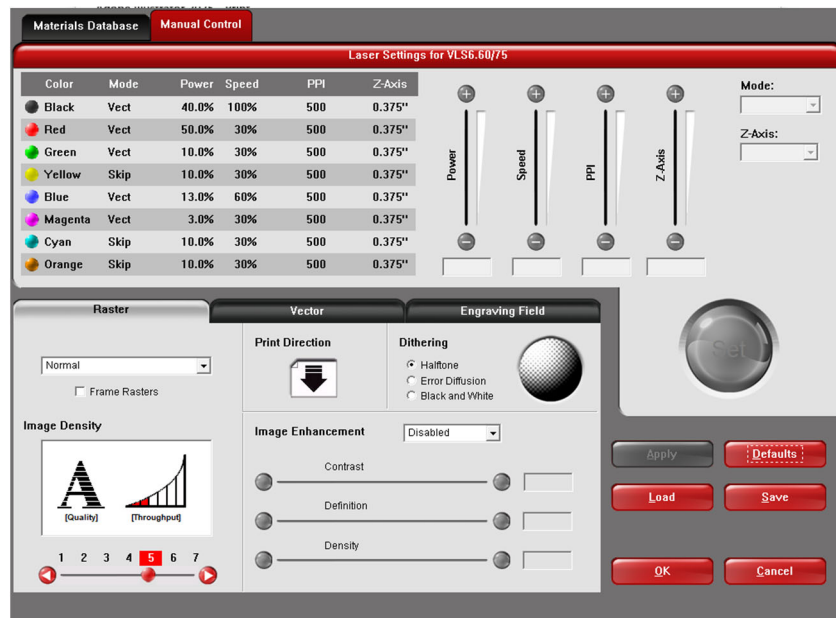
Click Preferences with the Print Setup dialog box opens.



Choose more settings.

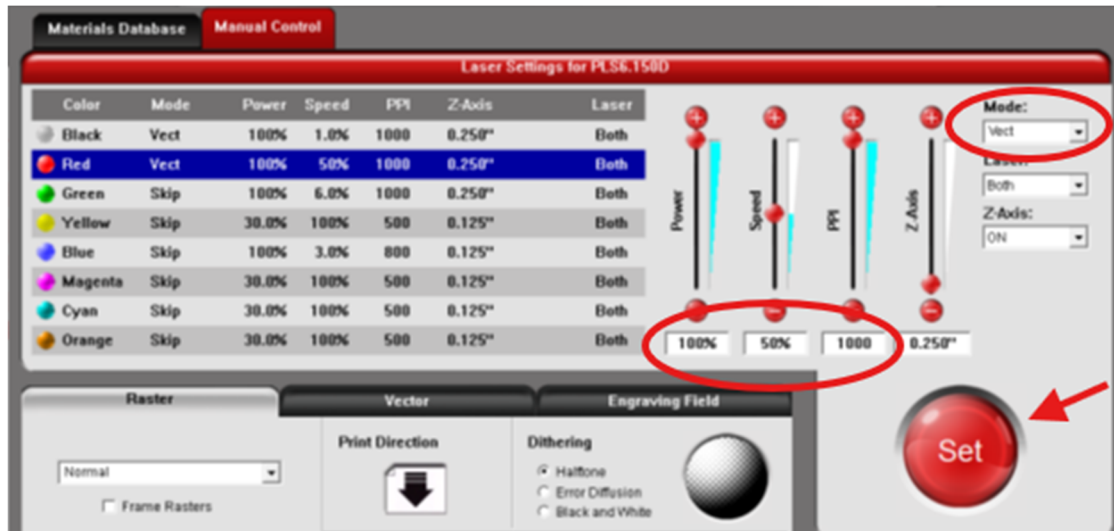


You will now be in the Laser Settings view. In this view you will see the same 8 colors that are in your RGB color swatch.



For each color you used in your document, the Mode needs to be set to Vect or Rast and the Power, Speed, and PPI values need to be set according to the sample cut card for the material you are cutting.

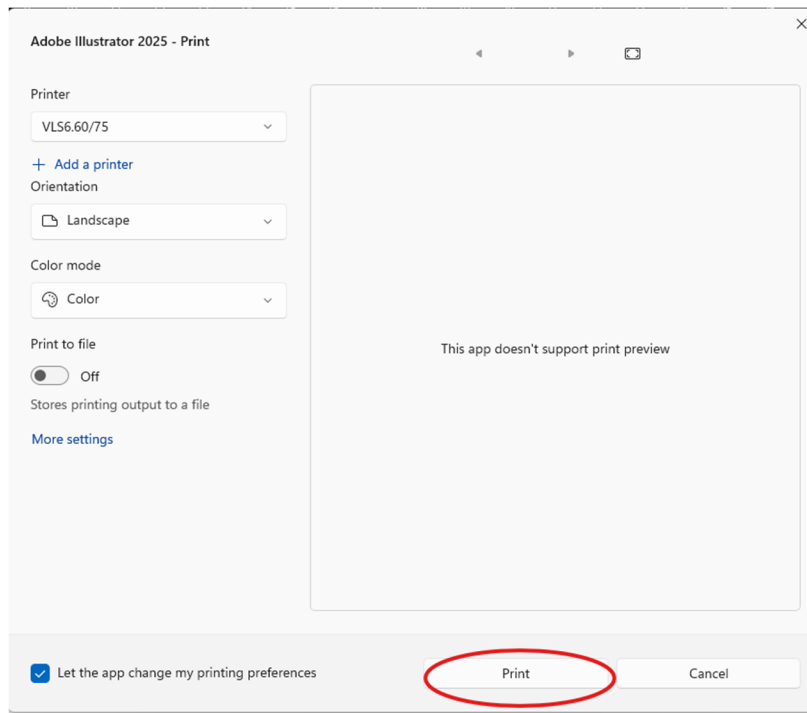
Select the first color you need in your document, then use the boxes at the right to configure the cut for the lines in that color. Be sure to click the Set button to save your changes.



For each color you do not want to cut, set the mode to skip, then click OK.

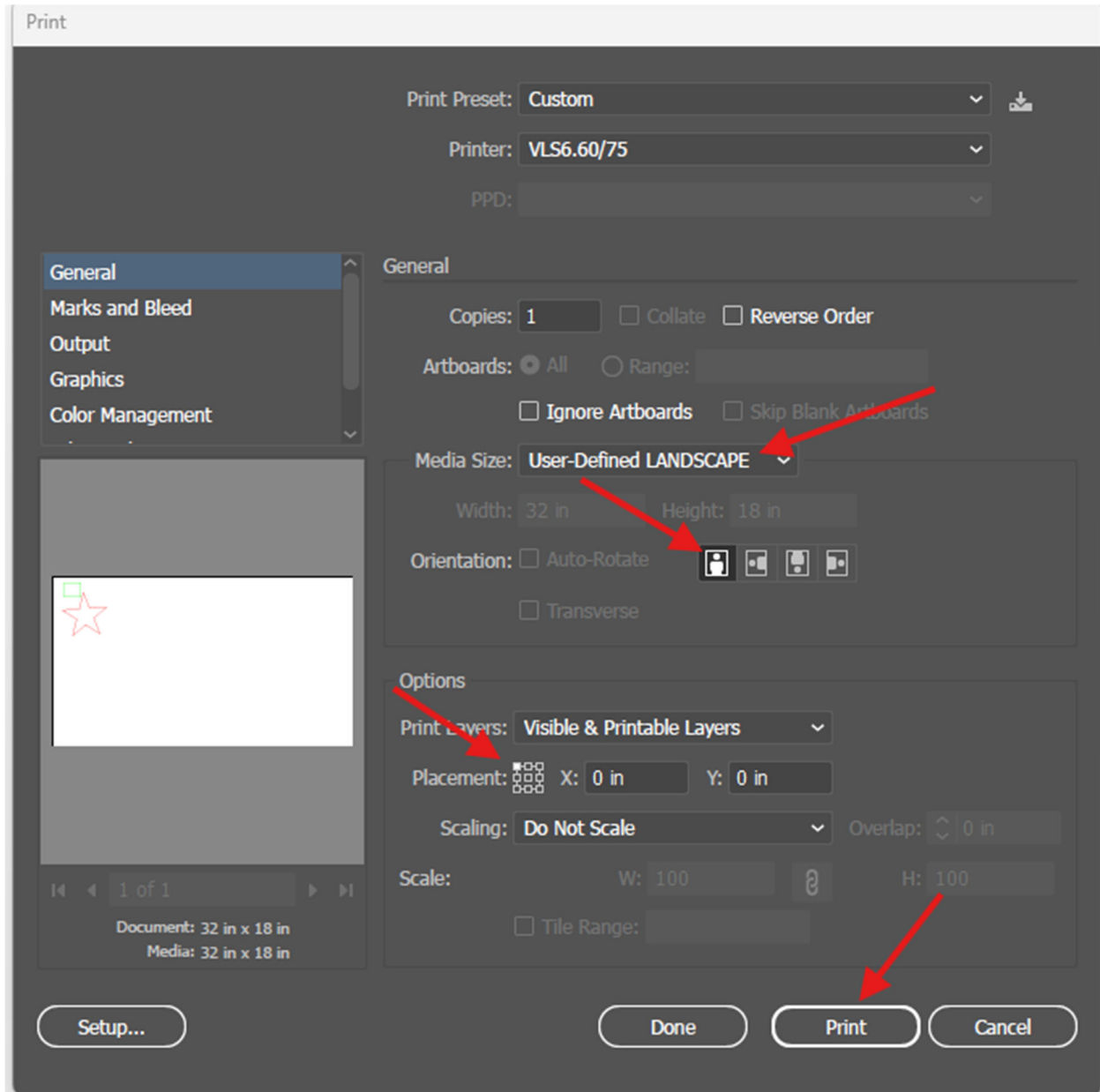


Click the Print button at the bottom of the Print Setup dialog box.



In the Print Dialog Box, complete the following:

- Under media size select User-Defined Landscape
- Set Orientation as Portrait
- Set placement in the upper left hand corner.



Once you have set the 3 items above, click Print.

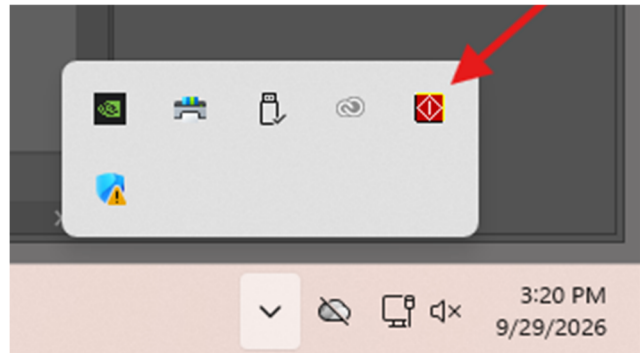
Open the Lid to the laser machine fully, making sure not to drop the lid before you let go of it.

Place your material in the bed of the laser making sure:

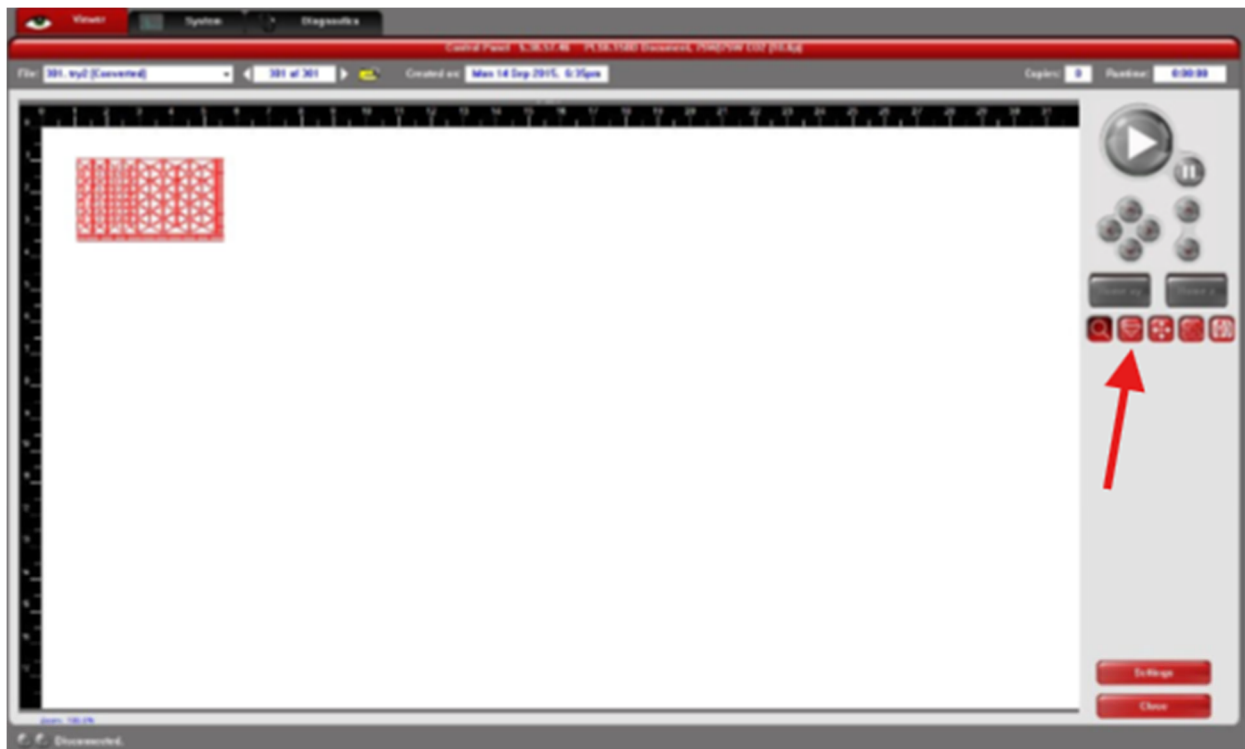
- That it lines up with the steel ruler on the top and left sides of the bed.
- That the height of your material will not interfere with the nose cone of the laser.
- That it does not hump up in the middle of the sheet or curl up sharply on the edges.

All of these situations will cause the nose cone to catch on your material and ruin your cut.

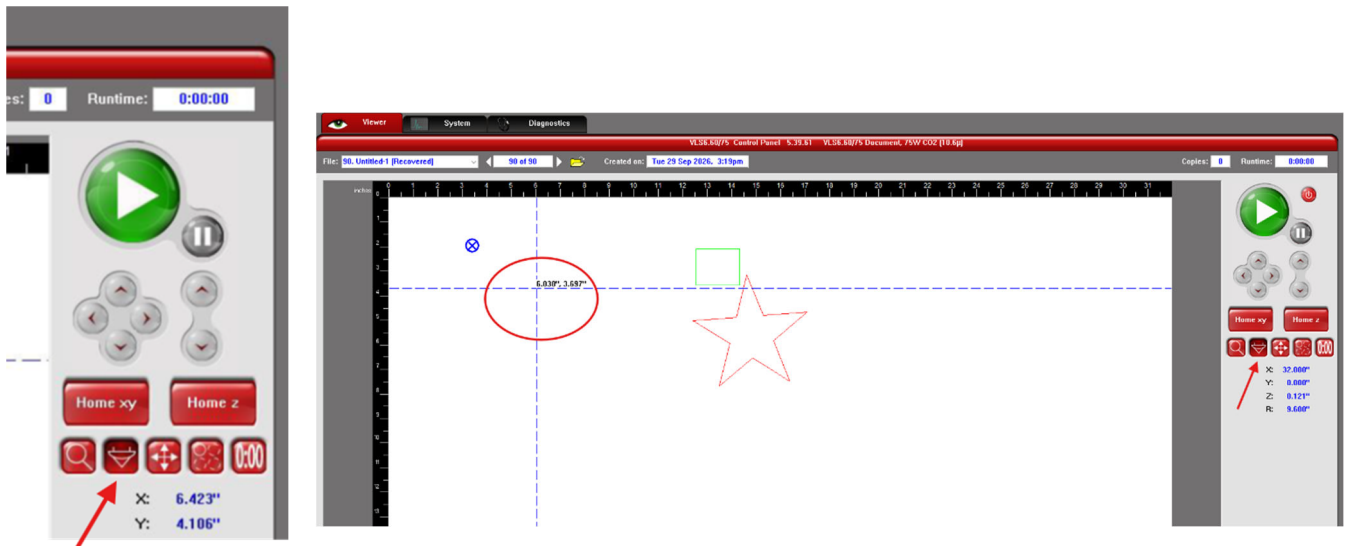
Click the Universal Laser Systems Control Panel icon in the lower right corner to open the control panel.



The Control Panel displays a virtual view of the laser machine bed and allows for calibration plus cut control.



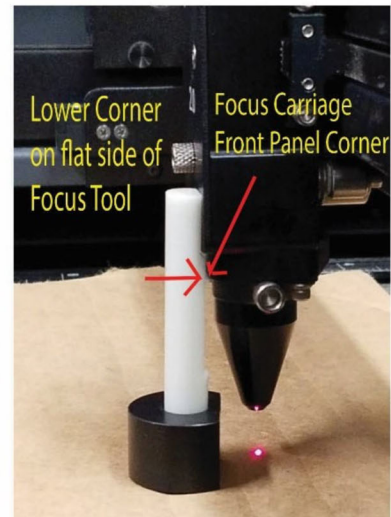
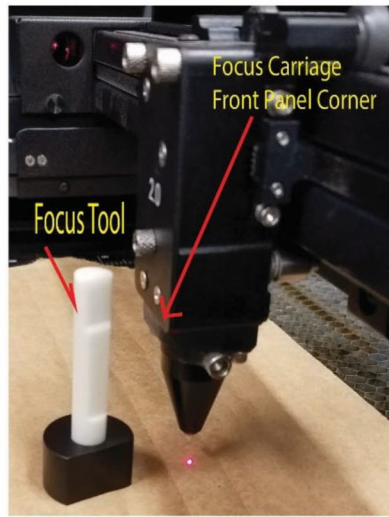
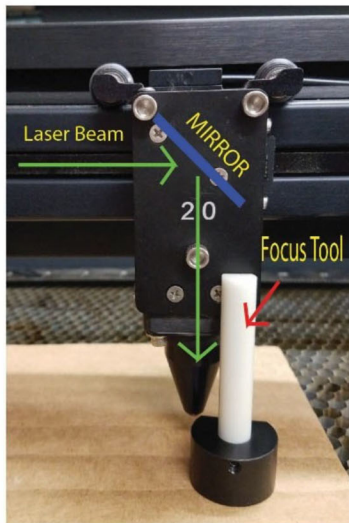
Click the Focus Icon on the right hand side of the screen, then click the location, near the middle over your material. The laser focus carriage will move to the location you have selected.



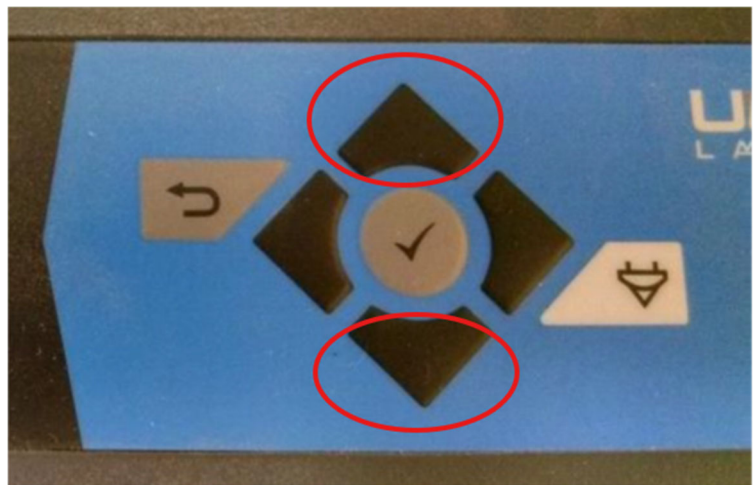
Find the black and white plastic focus tool on the right-hand shelf inside the laser machine.



Place the focus tool on top of the material, near the laser focus carriage. Select Z. from the menu on laser station A and B. for Laser Station C & D, no selection is needed.



Using the UP and/or DOWN buttons on the machine slowly raise the bed until the lower corner of the front panel on the focus carriage meets the bend on the focus tool. As you adjust the Z height up, you will see the focus tool start to tilt away from the focus carriage. Move the bed back down slightly until the tool sits perfectly flush with the front panel on the focus carriage. To see this accurately, you will need to view the focus carriage on the right side.



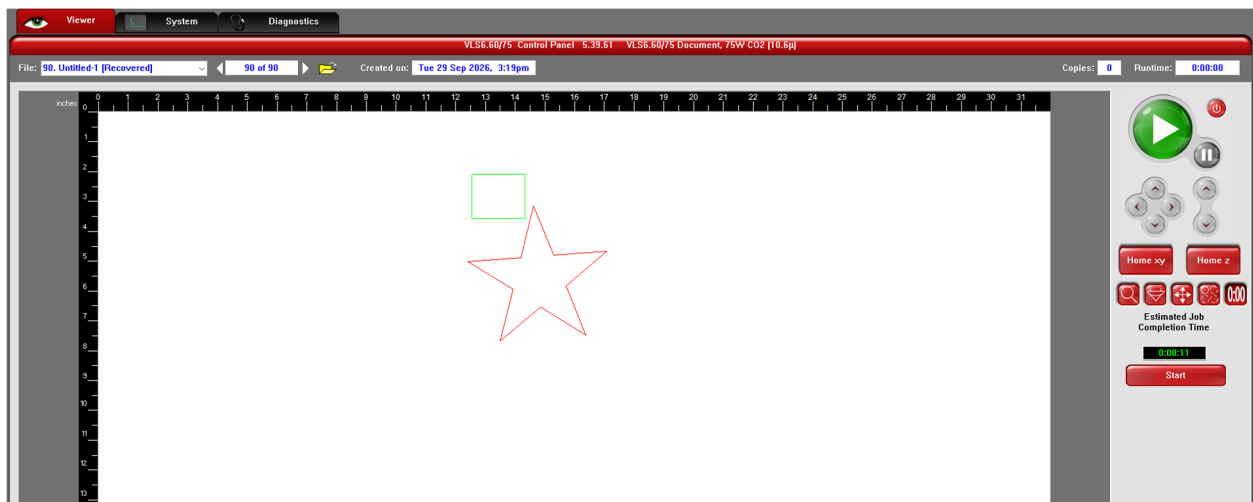
Pro Tip: For Lasers A and B, you can use the checkmark button to change the move increment per press of UP and DOWN buttons.



Close Lid.

Once you have sent your file to the laser and you see it there, take a few minutes to verify how long your laser cut will take.

Click on the time button as seen in left below. Next press Start



The cut in the above document will take 11 seconds to cut. this step is not required but it is helpful for those who have large detailed cut sheets.

Next, see Attendant so they can verify your settings and focus is correct.