



Introduction to Inkscape for the Epilog Laser Engraver

Creating shapes and lines for raster engraving and vector cutting

Based on a document from the Champaign-Urbana Community Fab Lab

By Jeff Ginger | v1.6 | 06.2014

Updated for the Tulane MakerSpace

By Cedric Walker | v1.1 | 2015 08

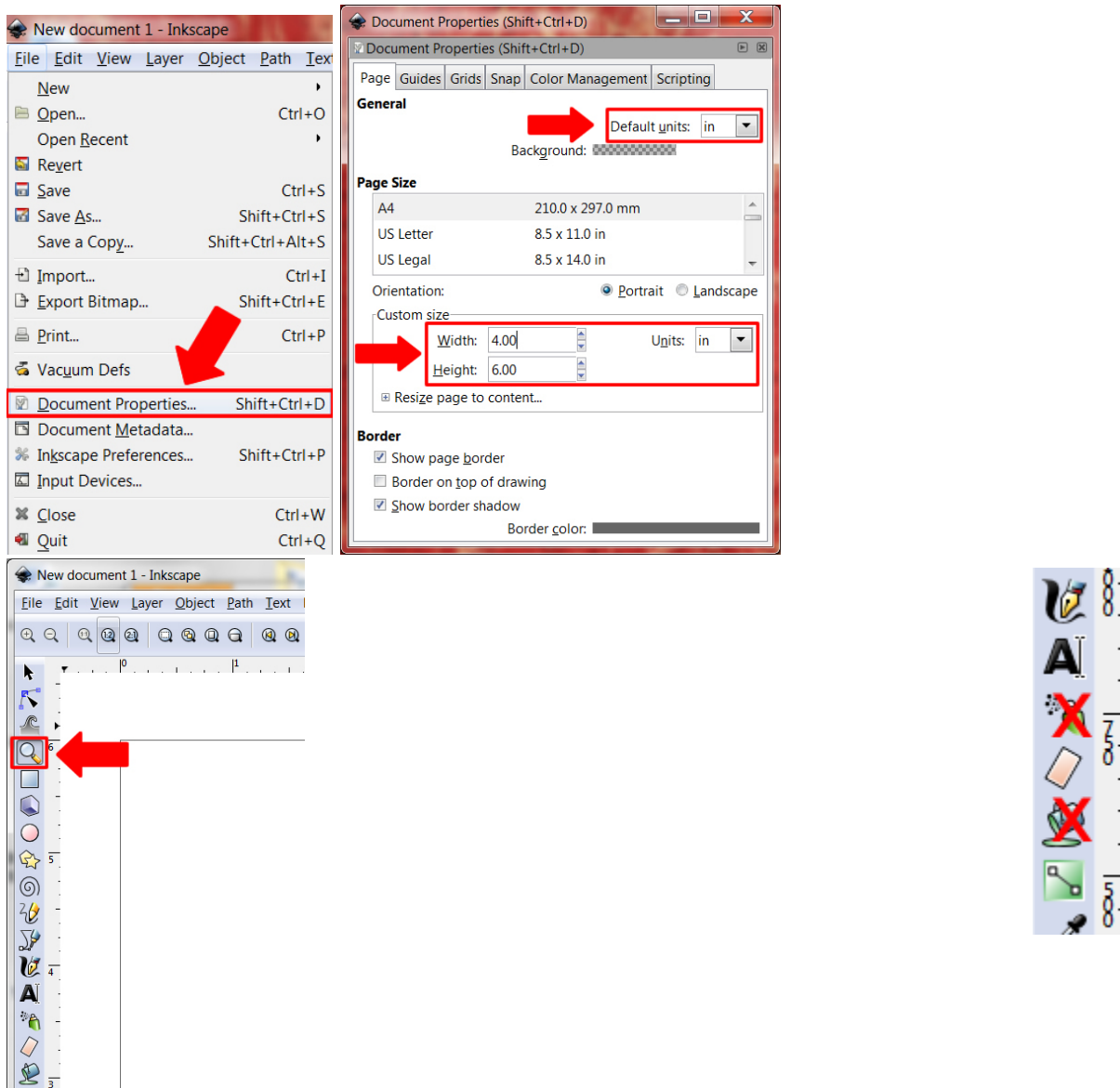


Download and install Inkscape from inkscape.org. Launch it from the desktop or start menu -

use the  icon.

1) Setup Your Document







First we'll want to match our overall document size to our material size. Do this by selecting *Document Properties* (Shift-Ctrl-D) off of the File Menu. Make sure to **set it to inches** and **pick your dimensions**. Now, zoom in so your working space fills most of the screen.



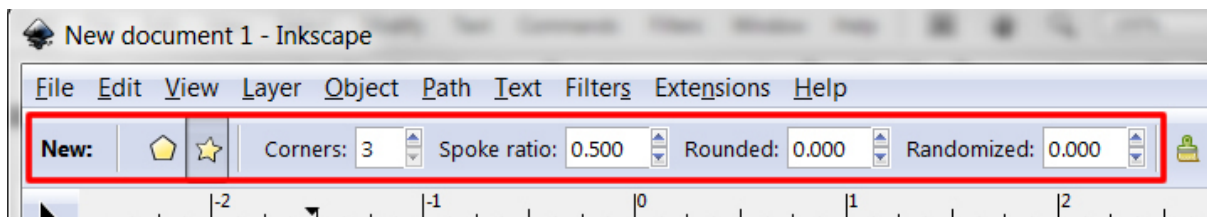
The Tulane laser cutter (a 50 watt Epilog Helix with a 24" x 18" bed) can take a maximum size sheet of material the full size of the bed. For the first project, we'll use the Northeast (second) quadrant so specify a *width = 12 inches* and *height = 9 inches*. This will print in "landscape"

mode.


2) Draw Shapes and Lines


You can make many kinds of projects just by drawing, transforming and combining shapes or lines. You will want to alternate between the    tools to make shapes. You can also draw freehand lines with the  and  tools. Avoid the spray can and paint bucket. The bezier curves and straight lines tool  will act like a connect-the-dots tool by default.

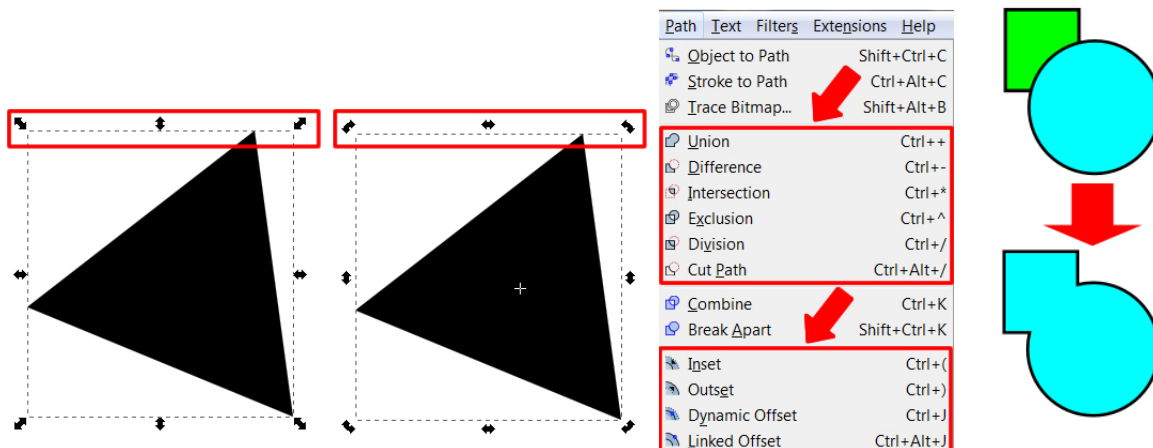
Take a few minutes to play with each tool to see how they work. You'll notice when you select a given tool, you'll be given options for it up at the top:




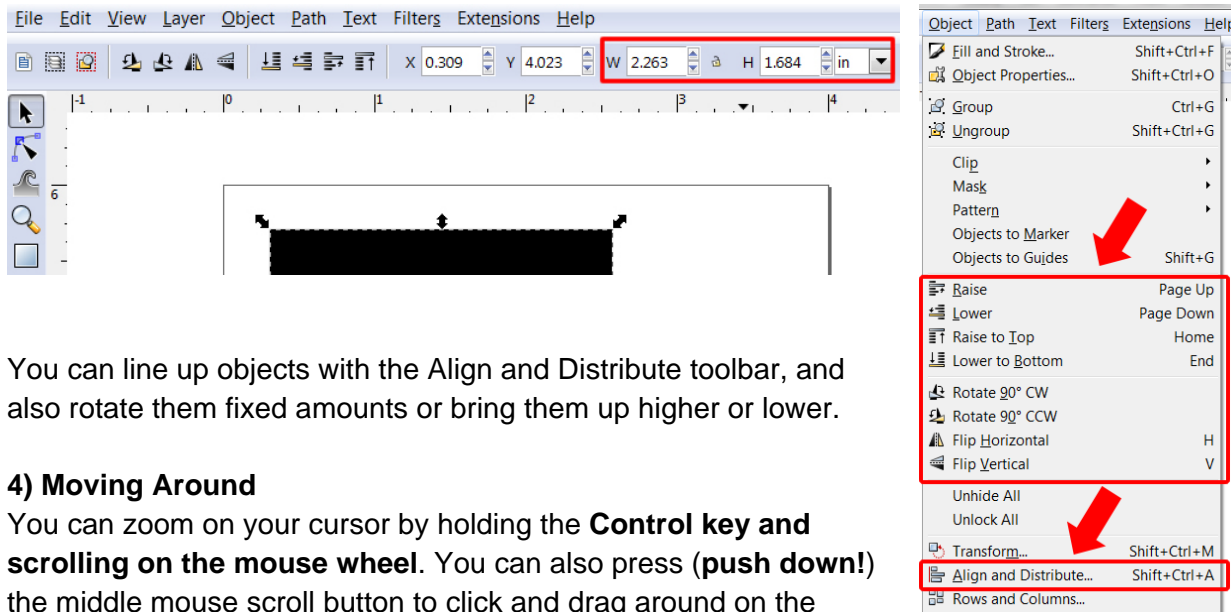
3) Your Best Friend

Your best friend is the pointer tool  - you will use this tool to select objects, move them around and apply transformations. You can select an object to delete it by clicking on it (it will highlight with dotted lines, like the triangles below) and hitting the delete key.

When you select a shape with the  tool you will also be able to modify its size with the arrows on the dotted line surrounding it. **If you want to size an object proportionately hold down the control key.** You can left click on it one more time to change the arrows to skew or rotate the shape. Thicken or thin a single shape or line with the outset tools under path, and merge or combine shapes with a variety of path tools. **Try selecting two objects by holding down shift** and then combining them with an intersection or union.



You can check the size of nearly any object by selecting it with the  tool:





You can line up objects with the Align and Distribute toolbar, and also rotate them fixed amounts or bring them up higher or lower.

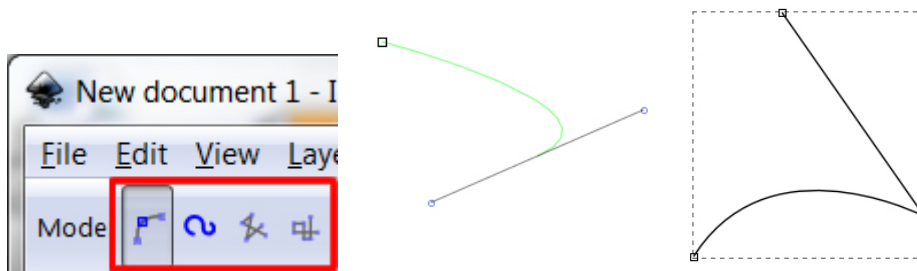
4) Moving Around


You can zoom on your cursor by holding the **Control key and scrolling on the mouse wheel**. You can also press (**push down!**) the middle mouse scroll button to click and drag around on the canvas with a hand tool (like space bar in Adobe).

5) Curved Lines



With some practice you can also draw curved lines with Inkscape. Pick the  tool and make sure it is set to curved lines at the top. Left click once in your workspace to make your start point and **left-click and hold** to make an end point as well as curve. As you move your mouse

around the curve will change shape. Left-click one more time on your start point  OR right-click to finish your curved line shape.



You can draw and combine straight lines in a similar fashion by connecting  nodes to one another.

6) Adding and Editing Text

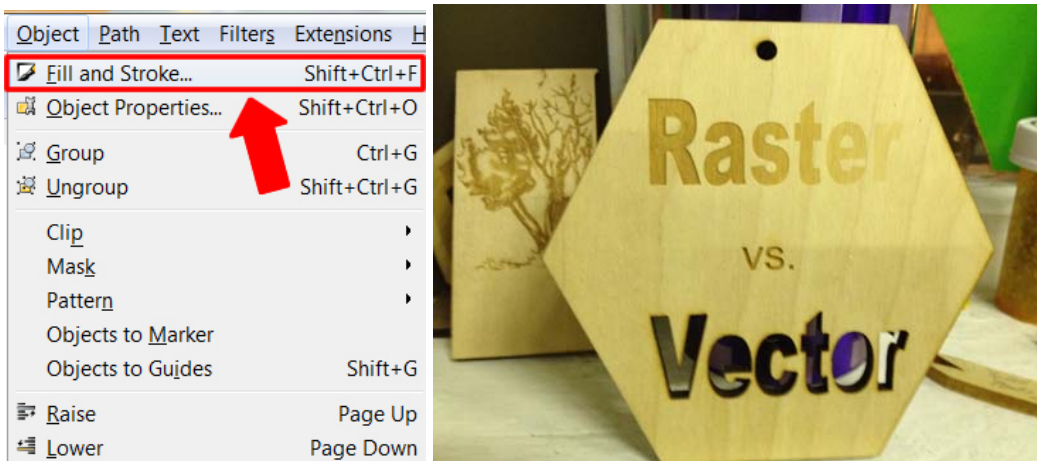
Add text to your project with the  tool. Your font type, size and alignment options will appear up at the top while you are writing. Click on the text again with the  tool to edit it later.

7) Raster vs. Vector





You can open the Fill and Stroke (Shift-Ctrl-F) menu to adjust the color of your shape or add an outline.

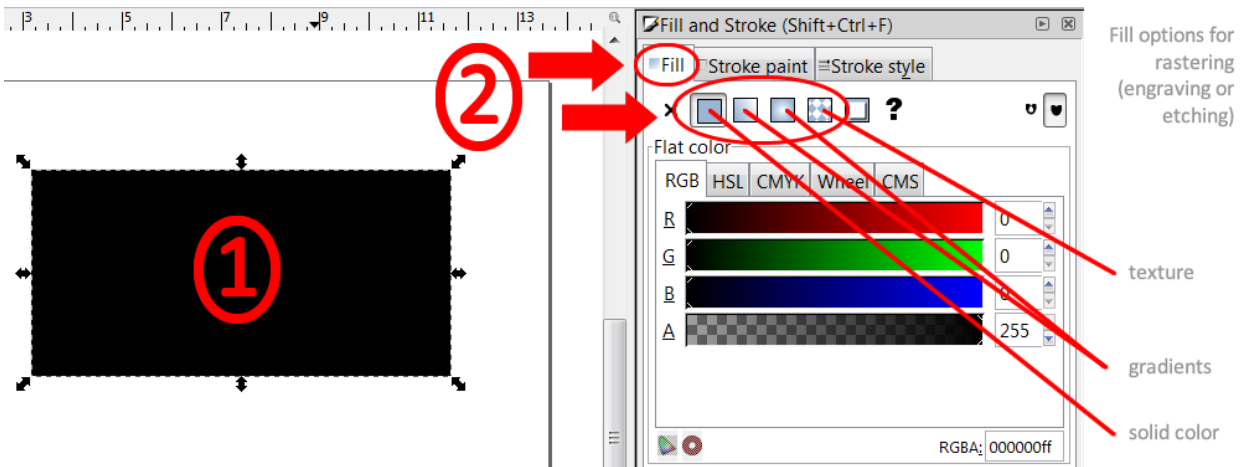
- *color doesn't matter – the laser cutter operates in grayscale.*
- *Raster vs. Vector applies to the Epilog Laser only and not to the 3d printers.*

If you draw a **solid** shape or a thick line the end product will be etched or engraved (it will use the “raster” settings on the laser). If you make a **line 0.001 inches thick** it will be cut out (it will use the “vector” settings on laser).






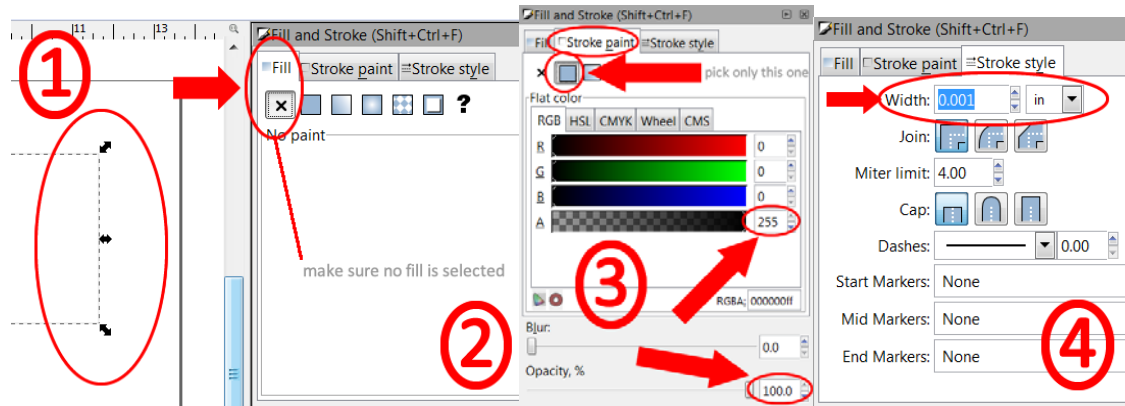
To Raster (engrave)

To make an object that will be etched or engraved pick one of the    tools or the  tool and draw or type something. In Fill and Stroke (Shift+Ctrl+F) set it to be filled:



To Vector (cut)

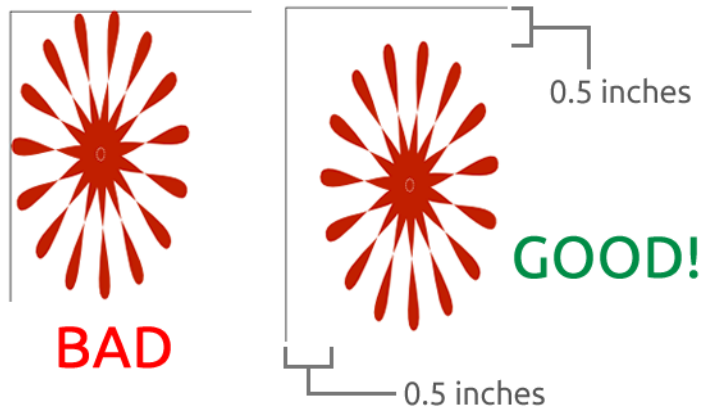
To make an object or text that will be cut out first draw or type it with one of the    **A** tools and then select it. Follow the pictures in sequence:



NEVER APPLY ANY OPACITY OR ALPHA CHANGES IF YOU WANT TO VECTOR CUT!!
Leave Opacity at 100% and A at 225.

8) Printer Buffer!

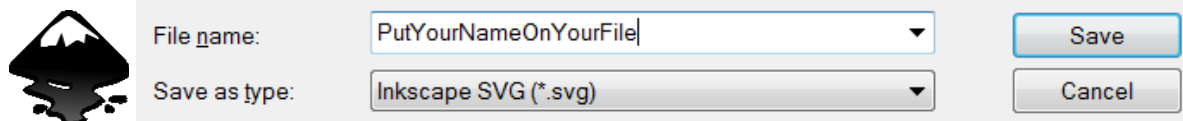
Give the laser printer a little error room. Try to keep your design at least a quarter inch away from the edges of your document:



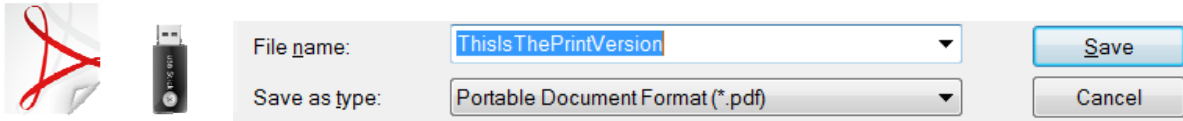
9) Saving Your File

You will need to save your file in several formats:

Save your source file so you can work on it easily in the future – SVG is the format name:

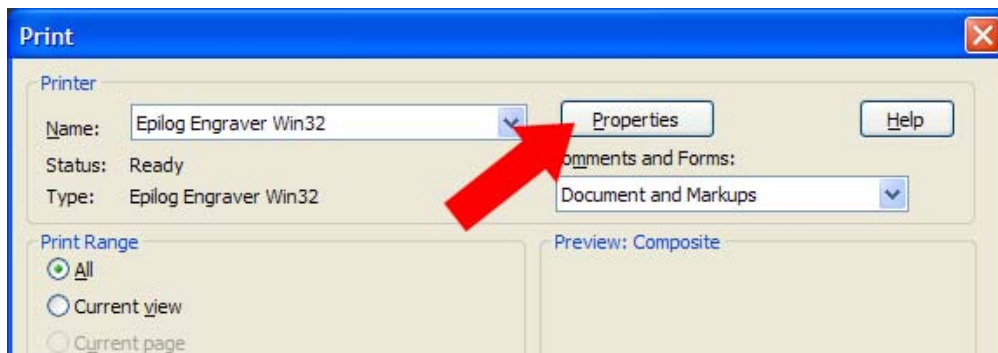


Save your file for printing on the epilog laser by making it a PDF. You can save it to a USB drive and take it over to the printer computer:

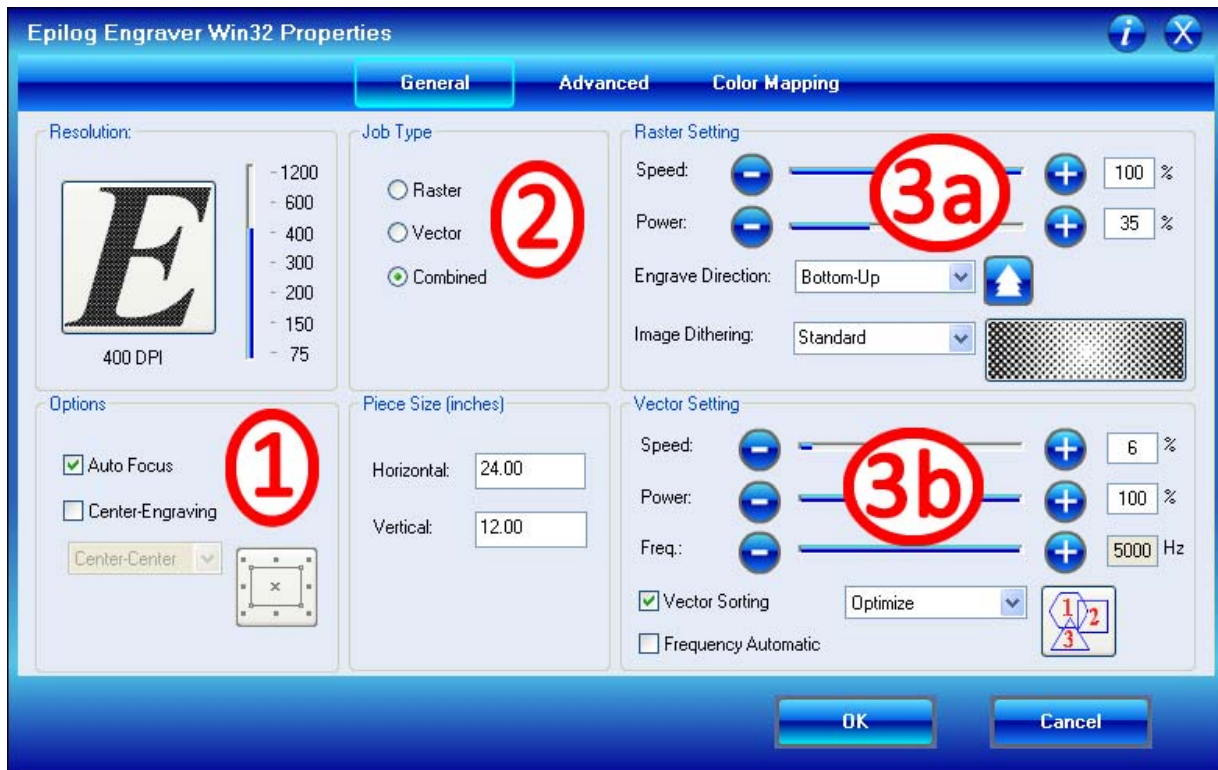


10) Printing on the Epilog Laser Engraver

Using the computer connected to the laser cutter, open your PDF. In Acrobat, go to print and select properties:



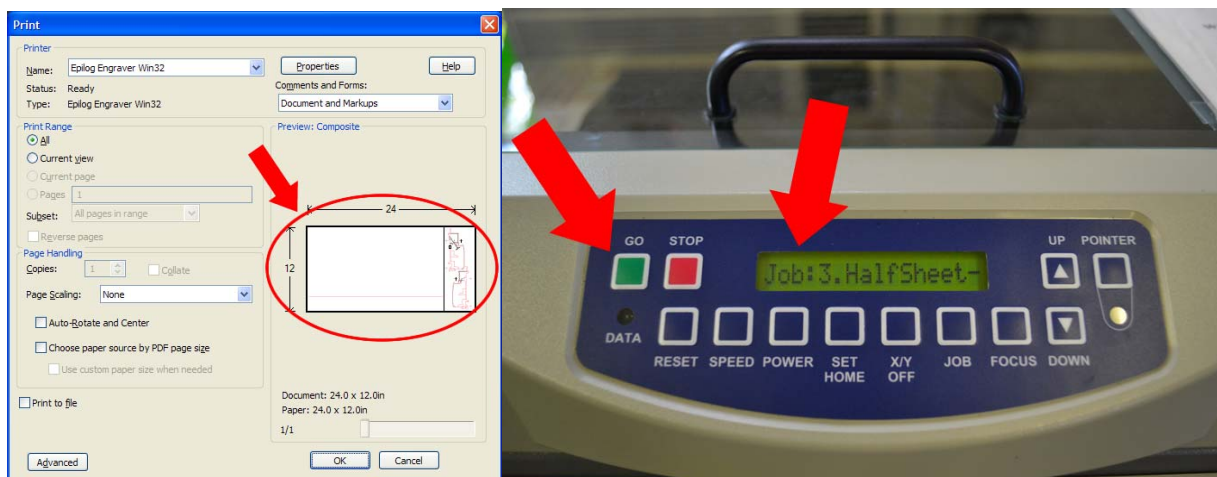
Consult the [laser engraver cut settings](#) sheet for your material (don't be afraid to use a ruler to check thickness!) and adjust the appropriate settings for speed (x2), power (x2) and frequency:



Place your material in the upper left of the laser engraver bed. **BEFORE YOU HIT PRINT** make sure to **turn on the ventilation system**. Ask the instructor to show you how.

You should hear loud hissing and fan whirring sounds!

Make sure your project looks correct on the print preview and that your job appears on the Epilog display. When you're ready hit the green print button:



STAY NEXT TO THE LASER WHILE PRINTING. Or find someone who can switch watching for you if you have to leave for some reason. Once your design is completed give it a minute to cool off and then inspect it to make sure it worked!

change history

1.0 edited from Illinois original

1.1 added Tulane logo 28 Aug 2015