# Adobe Illustrator and Laser Cutting

A guide to get you started with Adobe Illustrator and laser cutting!

1. Launching Adobe Illustrator and Creating a New Canvas

Start by opening the program and creating a new document (File > New). Enter the document name and dimensions. It is essential to make the dimensions match the dimensions of the physical material that you'll be cutting/engraving.
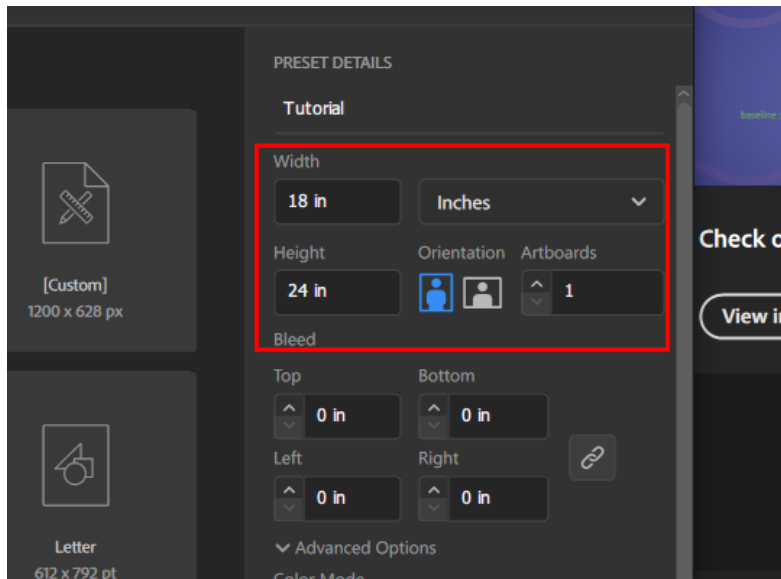

Next set your measurement units to inches or millimeters. You want your artwork to be sized exactly as you want it on the material.
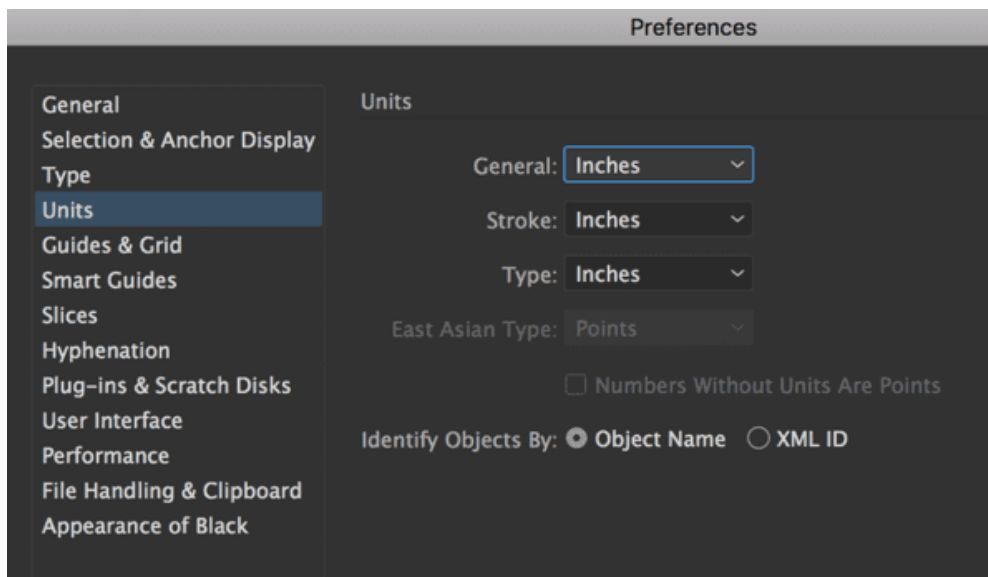
2. Using Illustrator Tools

The most common tools that you'll likely use in Illustrator are the Shape tools, Line tool, and Text tool. These tools can be easily accessed via the sidebar. It's recommended to spend some time with these tools to prepare yourself for future creative projects.
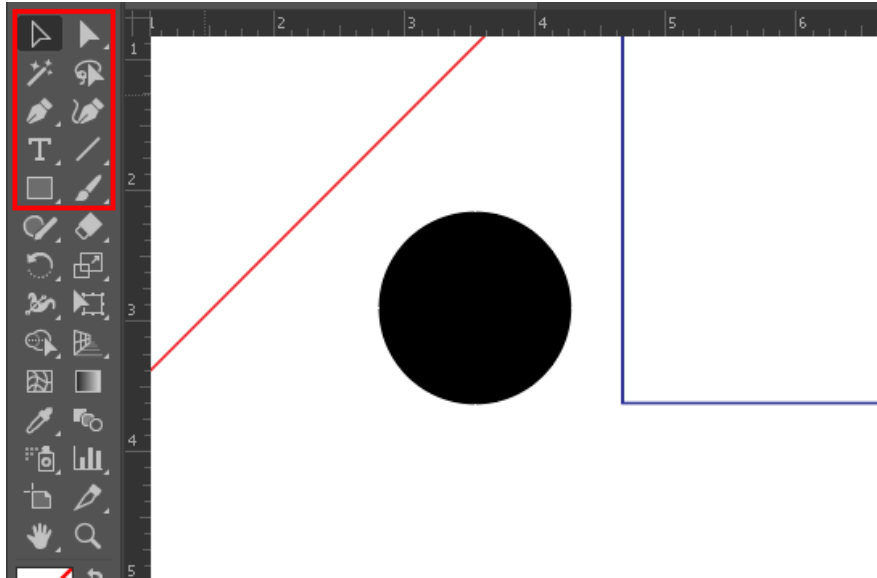

3. Setting correct stroke width, color, and fill

When preparing files for laser cutting, there are some machine-specific and industry standard constraints. For any vector lines or shapes, it is recommended the stroke width must be set to .025. This will allow the cutter to interpret these lines as paths for the laser to follow. For any raster engravings, the shape must have a fill. This fill must be set to greyscale, with full black being the deepest engraving (full white being no engraving at all).
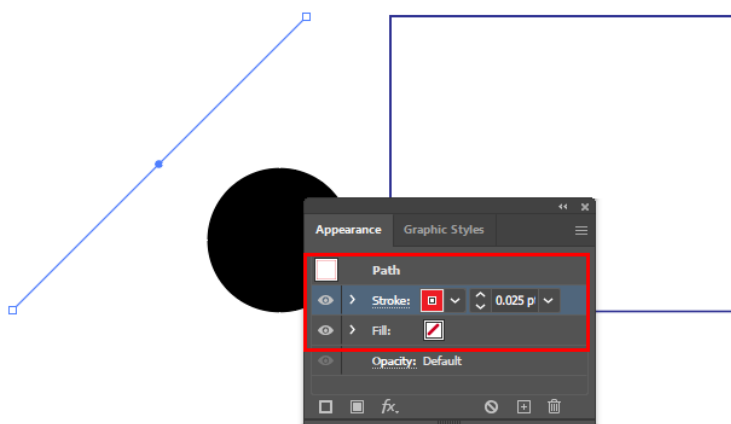
For legibility, it is recommended that you follow industry standard color guidelines for your laser cutting file. The guidelines are as follows:

- RGB Red – Cutting lines
- RGB Blue – Engraving lines
- RGB Black – Rastering shapes/images
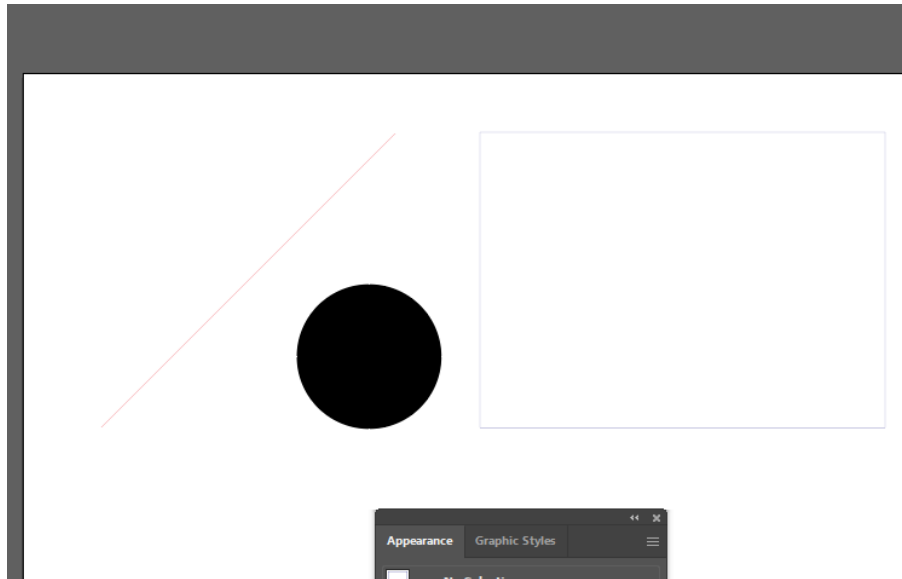
4. Rastering Images

If you have any pixel-based images that you'd like to add to your file, just make sure those images are converted to greyscale and have a high contrast! Contrast can be adjusted in Photoshop and imported into Illustrator.
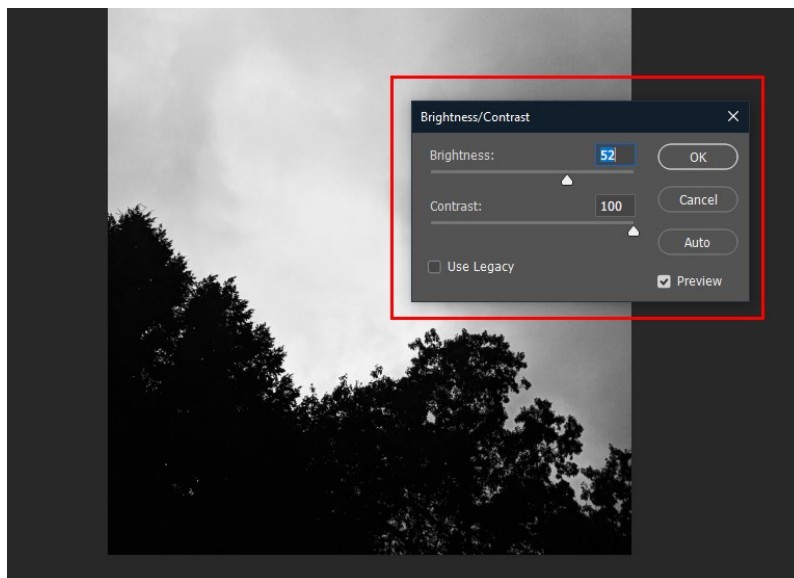
5. Common issues and Solutions

Occasionally you may run into an issue where the laser is going over your cutting/engraving lines multiple times. This can result in a less-than-optimal edge, or even possible melting. This issue can be easily resolved by making sure you do not have lines overlapping each other. Use the Selection tool to make sure your lines aren't doubling up. You may also find yourself submitting a file, and nothing will cut. This is most likely due to your stroke width. Always double check your stroke width to make sure the laser is recognizing the .025 stroke.

Resizing artwork at the laser cutter is clunky and inaccurate. You will want to make sure your artwork is sized in inches so that is the size you want cut/engraved. Double check the size of your artwork before heading to the laser cutter.
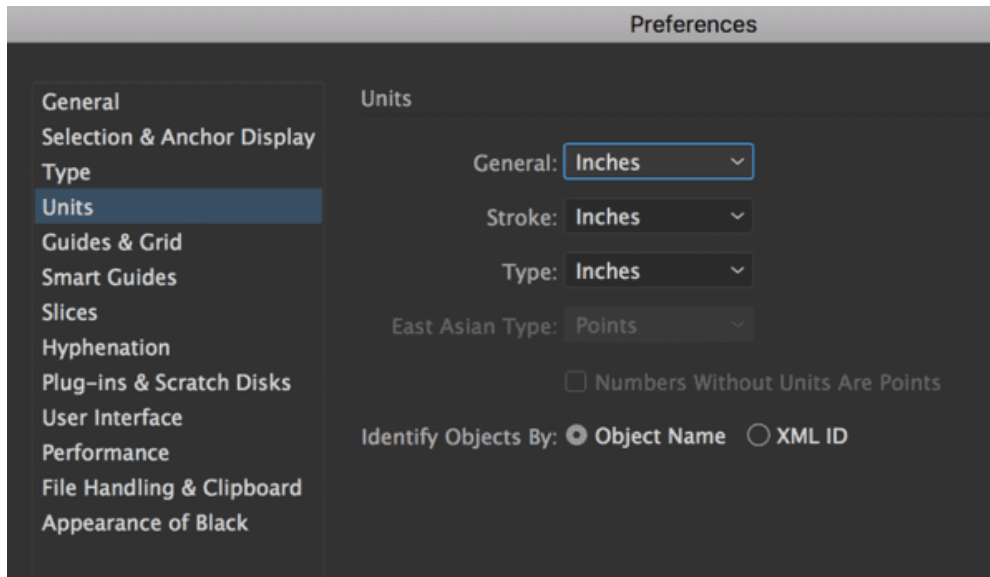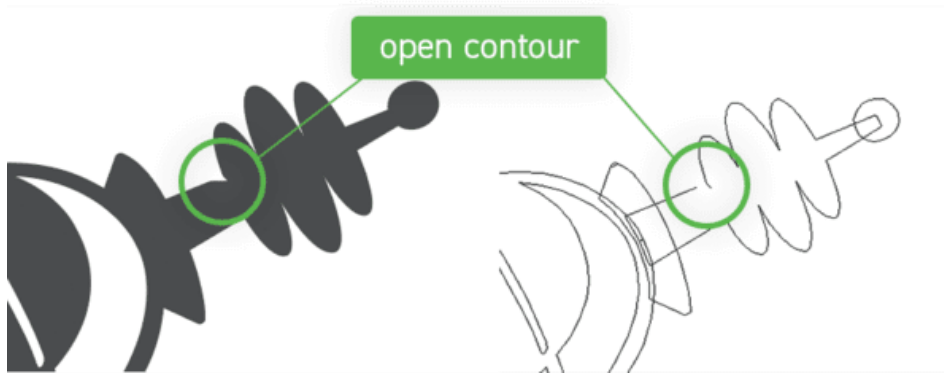

6. Outline View

We also suggest viewing your design in "outline view" mode multiple times during the process of designing your parts for laser-cutting. This will make it easier to catch empty objects or stray points that could potentially create problems down the road.
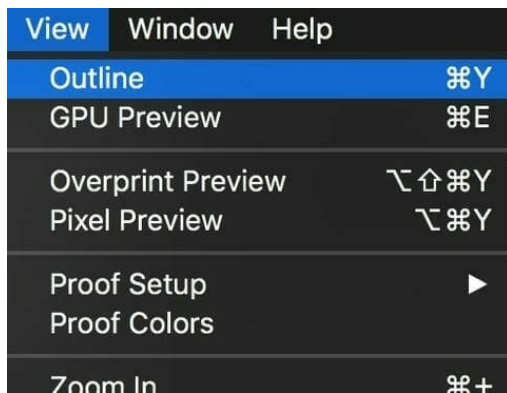
Watch for open contours in the outline mode, especially if the line is intended to be cut.


Make sure you design your parts as a single object, and not multiple shapes overlapping each other. Make use of your "Pathfinder Palette" to combine (sometimes referred to as "welding") or exclude multiple objects. You may want to do a Google search for a tutorial on Welding and Merging Shapes in Illustrator.

Finally, make sure your design does not have any intersecting lines. Intersecting lines or lines that cross each other typically will not laser cut.

7. Clean Up

Before you export your file as a PDF or SVG file format, be sure to remove everything that is not going to be laser-cut. This includes empty shapes, boxes, stray points, and text areas. If you click on your Select Menu, and hover over "Object," you'll see a list of things you can select. We suggest selecting each of the following: "Clipping Masks," "Stray Points," and "All Text Objects."

By selecting these options, you will better be able to spot stray geometry that could cause errors when laser cutting.
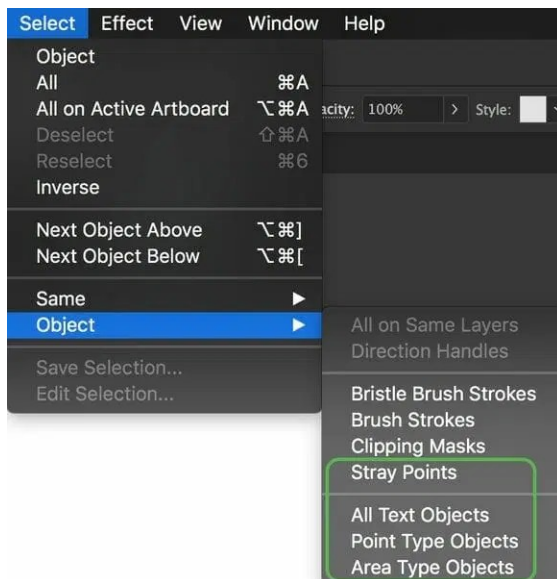
To find duplicate objects or empty shapes, select a single object and move it slightly. View in "outline" mode and you'll quickly see if you have any double lines or extra objects. Duplicate objects are sometimes created when using Pathfinder tools such as "combine" or "exclude." Make sure all your objects are on the same layer.
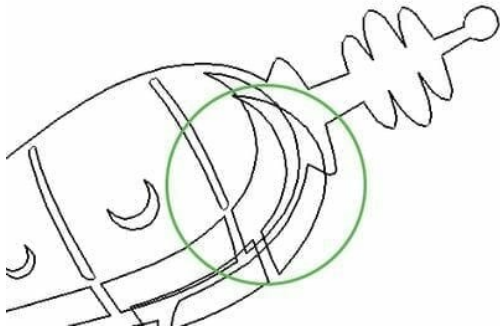
9. Save as .PDF or .SVG

Finally, you should save your file as a .PDF or a .SVG file. The computers at the laser cutter will not have Adobe Illustrator. Saving it as either a PDF or SVG file type will allow you to open the file and send it to the laser.

Use the File menu and select Export to save as either a PDF or SVG file.