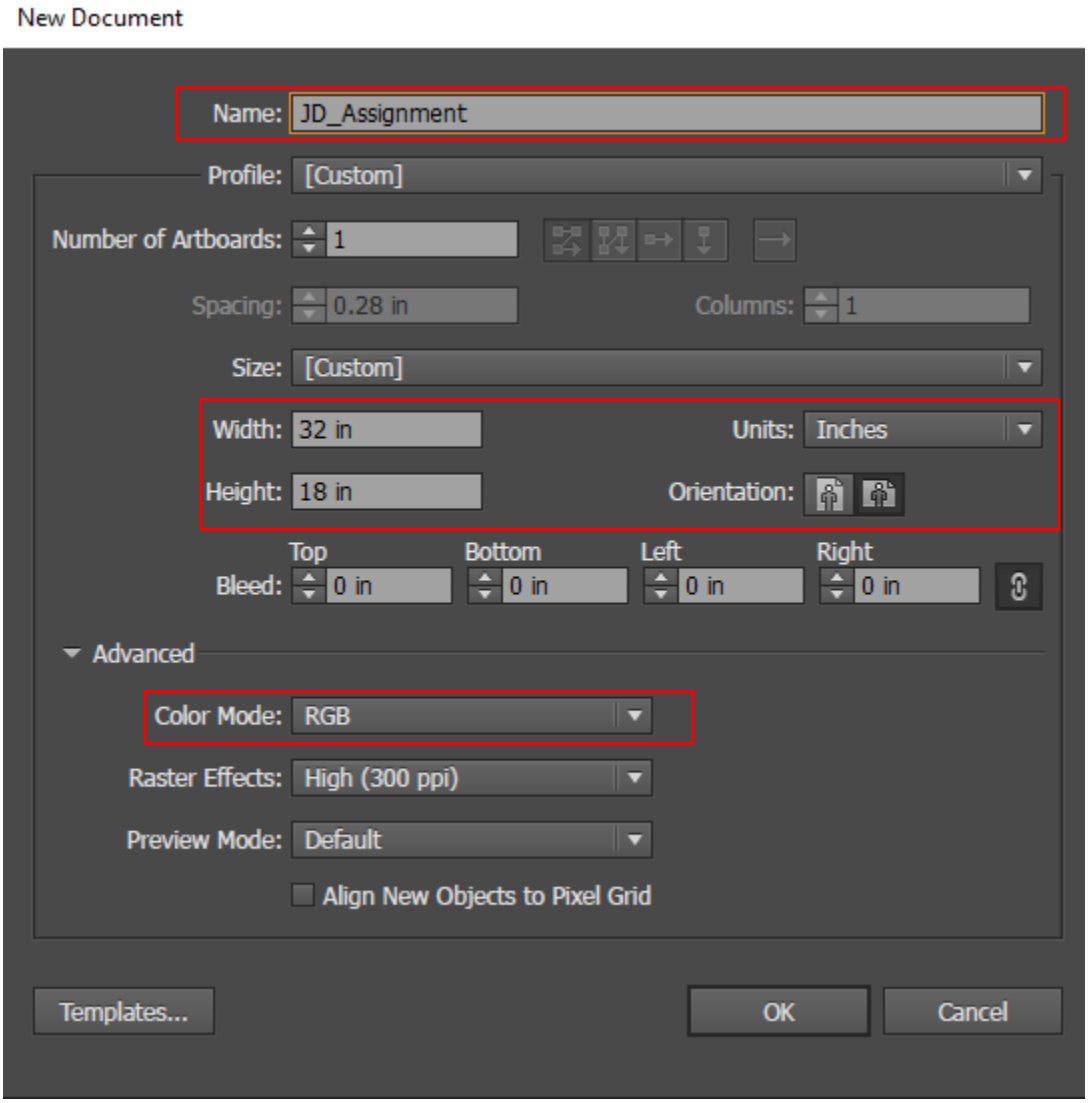
CSUSB

Department of Art & Design

Laser File Prep Guide for Illustrator

Creating a Document for the ULS laser cutter.



When creating a new file, name the file per the professor's instructions if any.

The file must be in inches with a size of 32 x 18 inches or smaller. The working size of the laser cutter is 32 inches wide by 18 inches in height therefore, the size of the files cannot exceed this limitation.

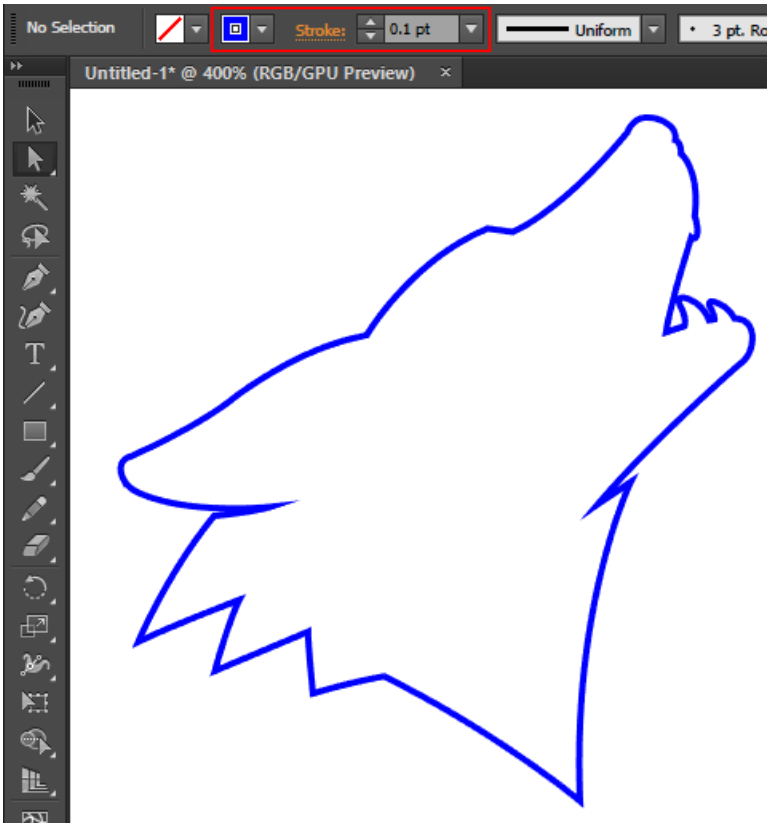
Color mode should be set to RGB as the laser system reads the stroke and fill color of the file to determine the operation to be performed.

Vector Cutting

When performing a Vector Cut, the stroke of the shape must be set to RGB Red with a stroke size of 0.1. This will result in the image being cutout completely from the material. (image here has larger stroke for clarity. It will appear like a faint line when set to the proper stroke of 0.1)

Vector Engraving

Vector engraving is like a Vector Cut except the laser does not cut all the way through. Instead it scores the material slightly. For this operation, the stroke color should be RGB Blue with a 0.1 size also. (image here has larger stroke for clarity. It will appear like a faint line when set to the proper stroke of 0.1)



Raster

Rastering is the process of the machine moving back and forth pulsing the laser to vaporize the material and leave an image behind. It does not cut through the material. It leaves a shallow grove. A raster should be Black. The image below uses the fill option to fill the object with the color Black. The Stroke should also be black and any size or left as NONE. If the stroke is set-up as a Vector Cut, it will be cut out after the rastering. Anything Black will raster. Results will vary depending on material.

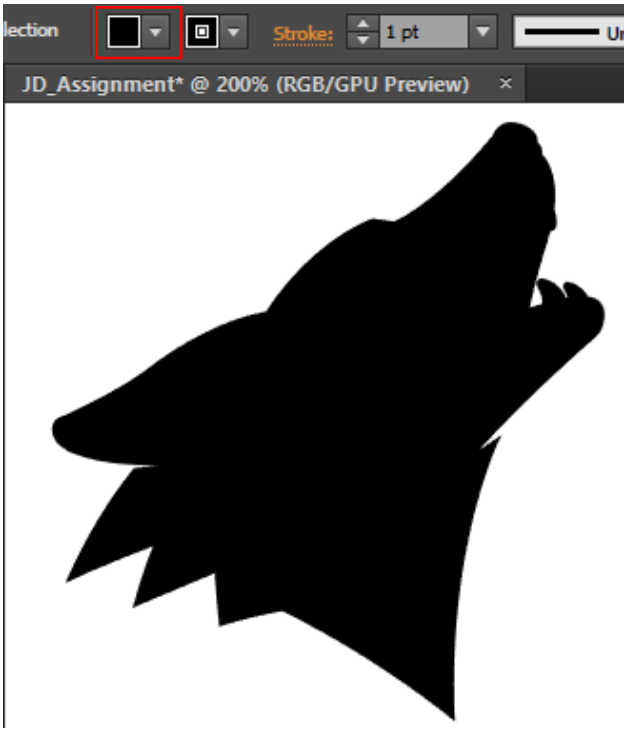
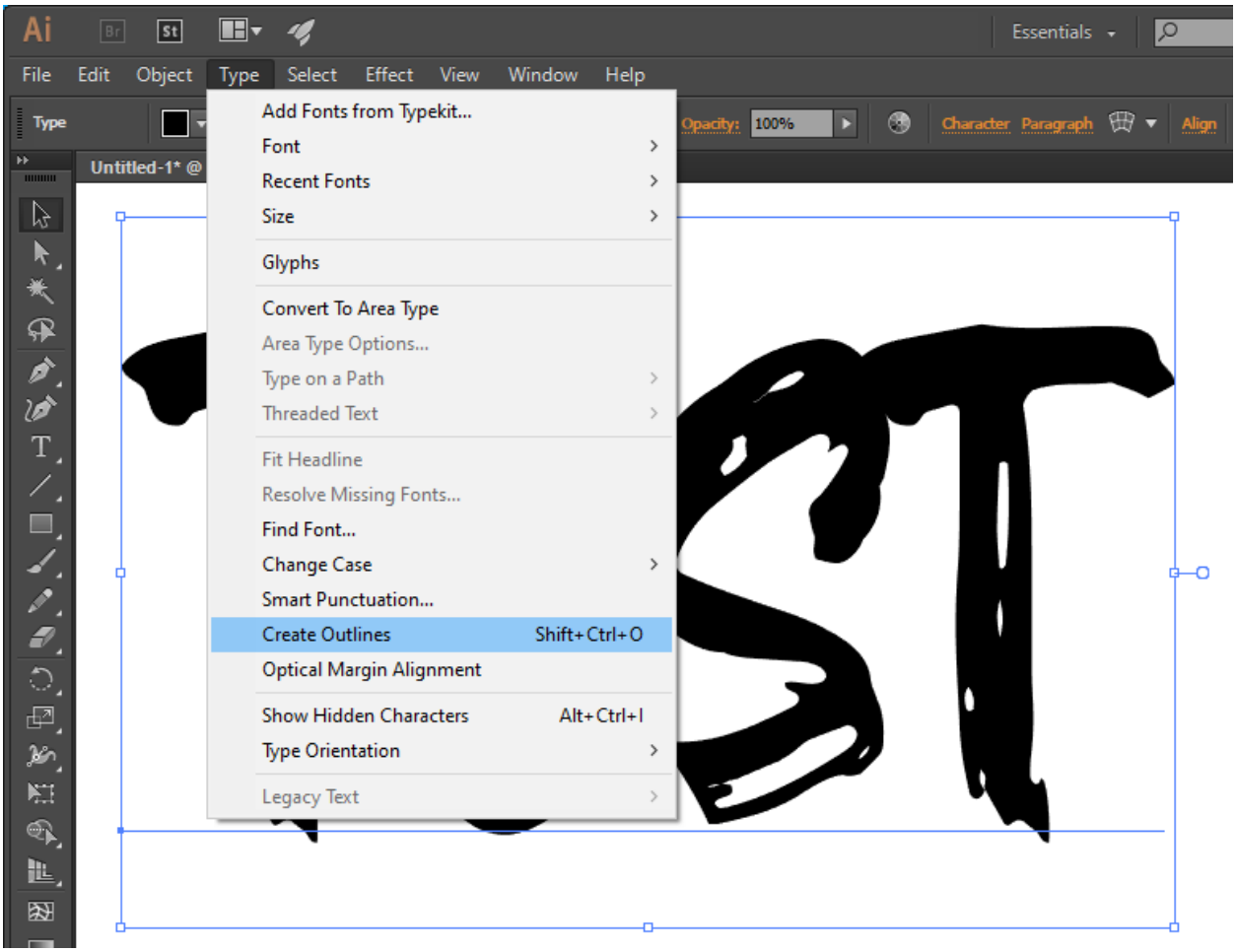


Image Engraving

For image engraving, you need an image that is in black and white or grayscale. The laser will vary the pulse to engrave the image. Any image can be used if it is converted to grayscale or black and white. If a colored image is converted to grayscale or black and white, pay attention to what is black and white. The darker color will be what is engraved, and the lighter colors will remain raised. The image can be inverted if the opposite effect is desired. Results will vary depending on material and variation of the grayscale. Hues with minimal difference might burn the same and will not have a visible difference.

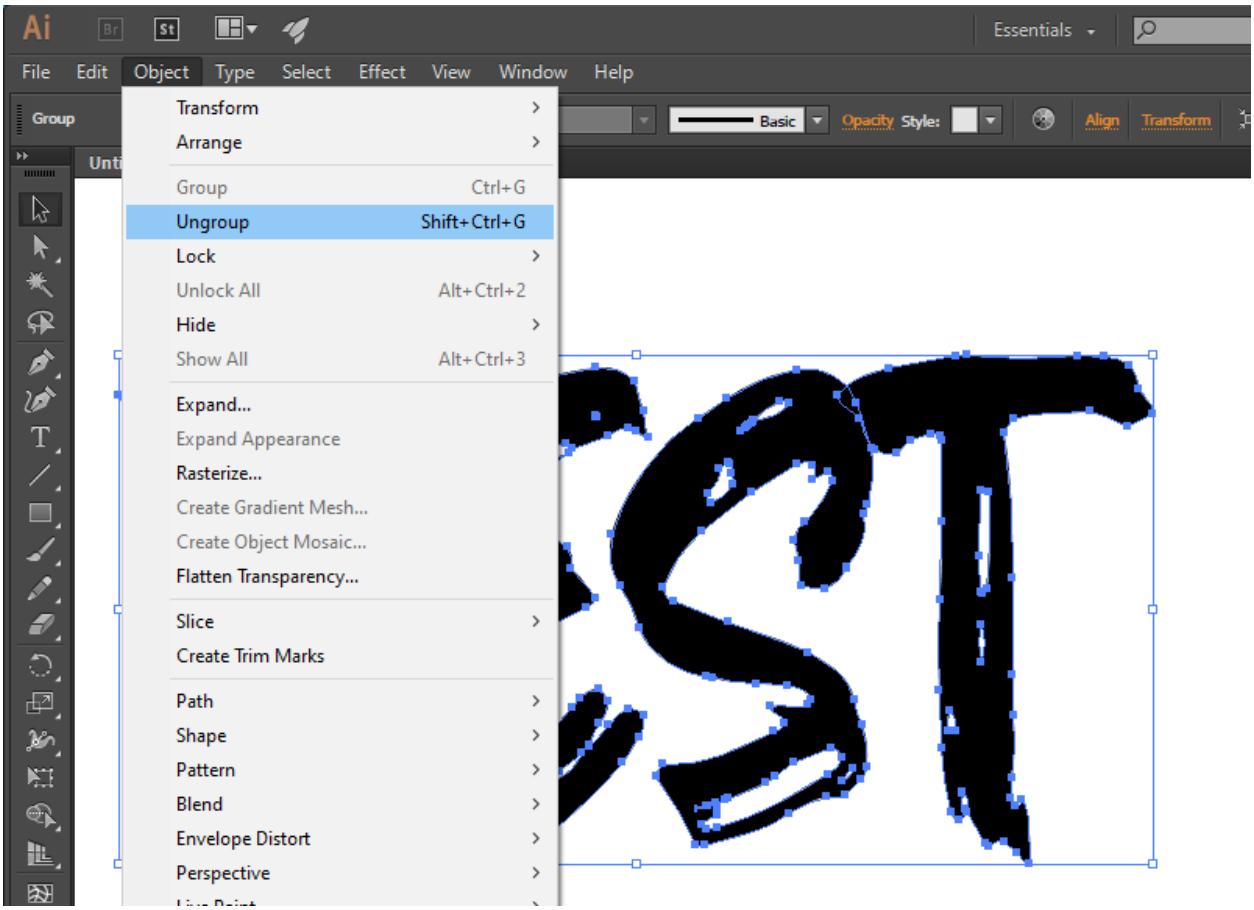
Working with Fonts

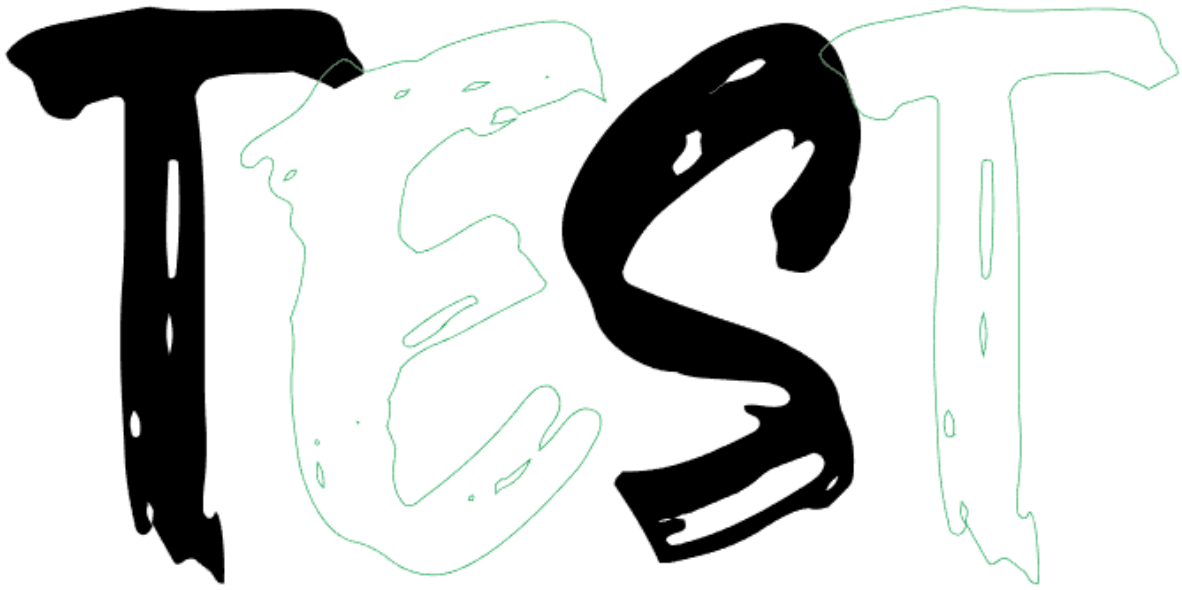
When working with fonts there are a few considerations to take. Not all computers have the same fonts. Previous versions of Illustrator might also lack fonts that newer versions have. To prevent a file from not working properly due to the font, it is best to create an outline of the text to convert it from a font to a vector. To convert it to a vector – select the text by clicking it, press the **Type** tab and select the “Create Outlines” option.



This will effectively trace the font and create a vector object. When saved after doing this, the object is no longer treated as a font and therefore any machine that can open an illustrator file will not complain about missing a font.

This also allows you to individually work on each letter. To do this, select the text object, (this should select the entire thing), press on the **Object** tab and select the “Ungroup” option. This will ungroup the selection and allow you to work with each path individually.


Ai
Essentials
File
Edit
Object
Type
Select
Effect
View
Window
Help
Group
Basic
Opacity
Style:
Align
Transform
Transform
Arrange
Group Ctrl+G
Ungroup Shift+Ctrl+G
Lock
Unlock All Alt+Ctrl+2
Hide
Show All Alt+Ctrl+3
Expand...
Expand Appearance
Rasterize...
Create Gradient Mesh...
Create Object Mosaic...
Flatten Transparency...
Slice
Create Trim Marks
Path
Shape
Pattern
Blend
Envelope Distort
Perspective



The key point to take away with fonts is to always turn them into a vector by choosing the “create outline” option once done or in order to work with each letter individually so all versions of illustrator or any computer can read the file without any font problems.

NOTE: All operations can be performed in the same file. A file can contain an image to be engraved, vector engraved, and cut. White shapes can be used to cover black areas that are not wanted in the finished product as the machine will not read anything white or anything underneath it unless it is a cut line. Cut lines cannot be covered up.