



Design Tips Newsletter

Vector-to-Raster

Edition 3
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Vector to Raster is an often overlooked Cutting Shop feature that can shorten your clean-up time dramatically. It can also turn a single line drawing into an outlined drawing, which is very useful when making outline art from sketched drawings.

A raster file is a file that consists of square dots. The dots may be black and white, gray scale or colors. If you have a raster file on your screen and would like to add vectors to that raster file you can save both the raster and vectors to a new raster file. If that drawing is saved as a CSP file you will have a drawing that consists of lines and arcs. This file can be printed, saved to all raster, and/or re-vectorized.

Converting a file from vectors to raster is contrary to what Cutting Shop was originally designed to do however there are times when the fastest way to get a good vector file is to first create a raster image and then revectorize, a process that typically takes 2 or 3 minutes.

I've often found Vector to Raster to be very useful when I have received a vector file that was produced by a low-end raster to vector conversion program that has created massively excessive short line segments. Optimization often works wonders but there are times that the best result is achieved by converting the file to a raster image and then revectorizing. Having a raster file to compare your optimized vector file is also very helpful, ensuring that your optimizing is not overly aggressive.

Fast Clean-up

The following image is part of a much larger DXF drawing that consists of 1353 short lines. These oval shaped objects are approximately .05 inches wide, and .03 inches high. The line segments range from .0012 to .0109 inches long. Optimizing these tiny line segments does not work very well; the ovals tend to bulge, so this is a good drawing to rasterize.



The first step is to turn off Show Points (F2), otherwise the points will be rasterized creating a raster file that has many roundish bumps. We want a raster file that is smooth like the following image.

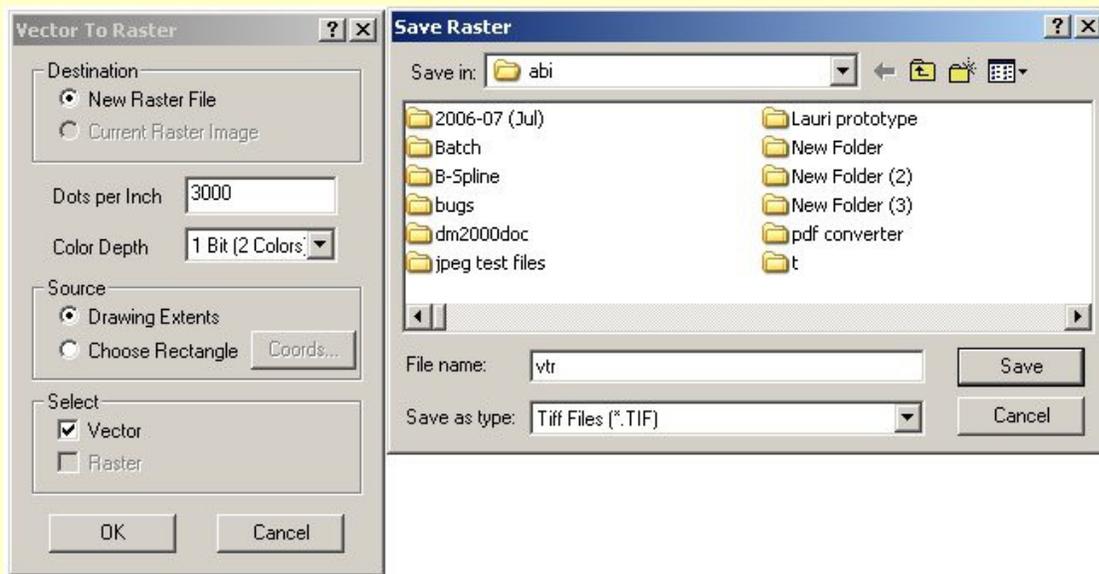


Vector-to-Raster converts vectors (lines, arcs and circles) to a new raster file; it is found on the drop down menu FILE.

To create a new raster file from the drop down menu select **File/Vector to raster**. Generally you will want to set Dots Per Inch to 300. However because this drawing has very small entities this drawing will have to be rasterized at 3000 DPI; otherwise the tiny details will disappear.

Most Cutting Shop users have the PF model, which will convert an image up to 3400 dots wide. If you have the PF model and tried to import this image which is 6 inches across, for a total of 18000 dots wide, you will get the following message “image too wide.” The LF model is required when converting images wider than 3400 dots wide.

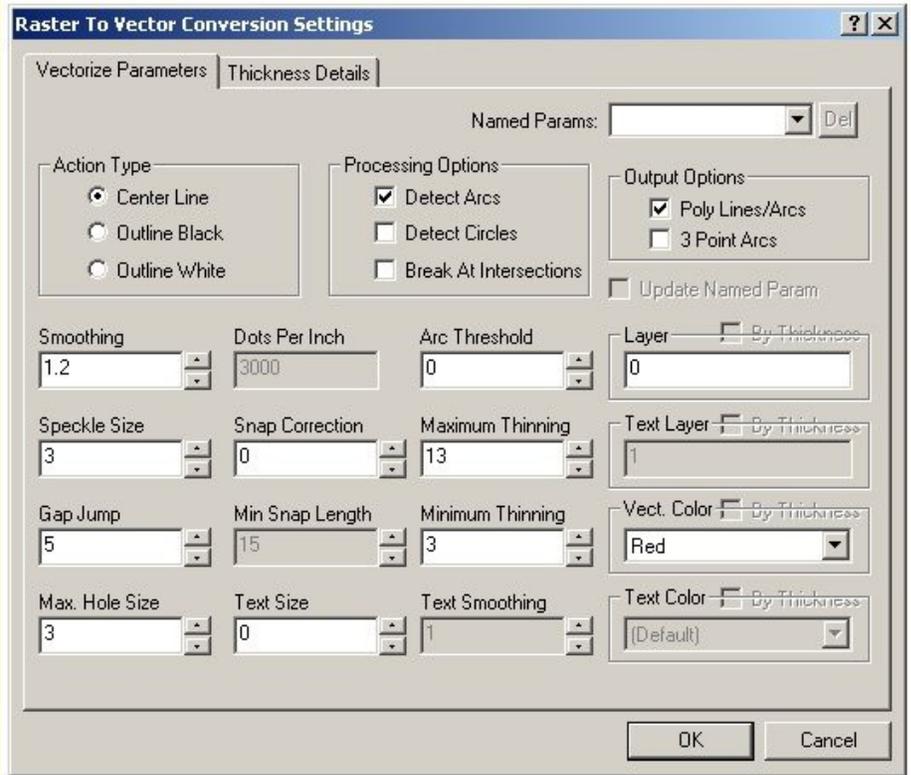
Save your new raster file, start another drawing and import the new raster file.



Below is a zoomed up portion of the resulting raster file.



As always, when vectorizing turn on Show Points (F2), so that it is clear that are what you were expecting. In this example I have kept Smoothing low because of the tiny size of the features.



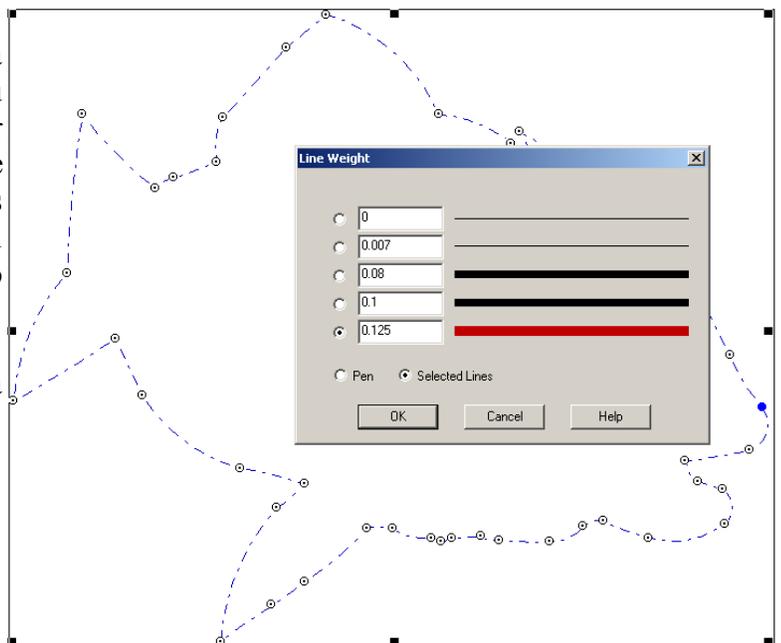
Below is a portion of the vectorized new raster file. End points are shown as small bulls-eyes, the raster file is shown in the color teal, there are now 867 entities in the completed file, a reduction of 486 entities.



Great for Mosaic and Stained Glass applications.

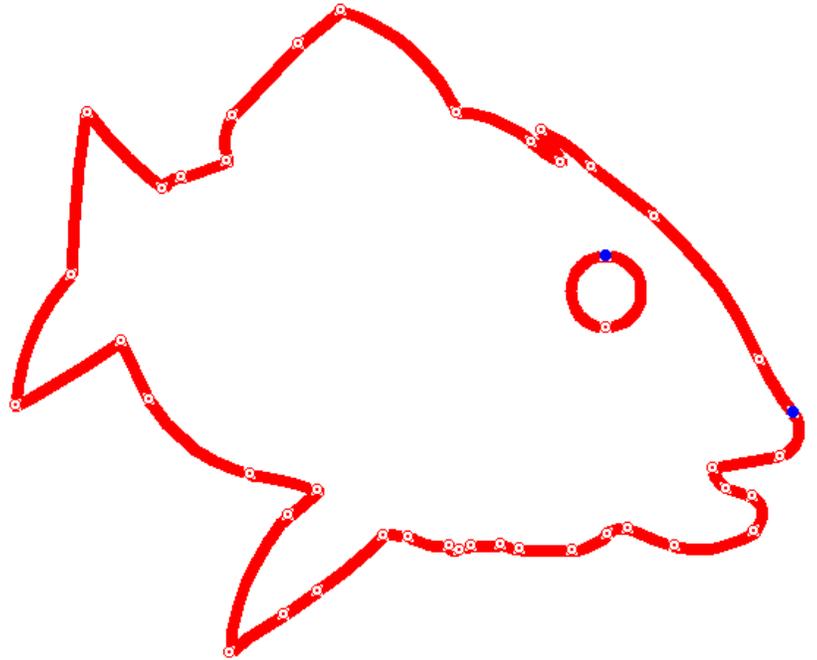
There are times when it is very useful to outline a single line drawing; this is particularly true if you have a design that you want to use in a mosaic or stained glass application. Outlining can be done with the Offset tool, however, if your drawing is very complicated or you have many parts, you will find it is faster and easier to convert the drawing to a raster file and then outline it.

Here the center-line, vector drawing is shown as a selected polyline, with Show Points ON (F4).



The first step is to thicken the line weight. Since I want a 1/8 inch width of metal when the drawing is cut, I set the line weight to .125.

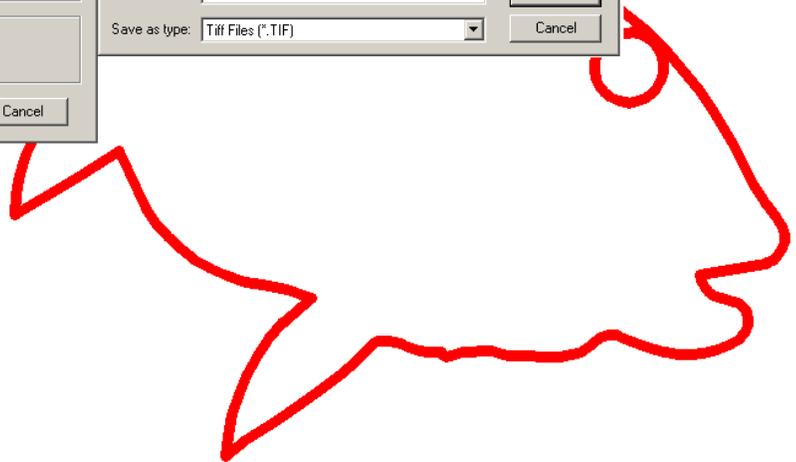
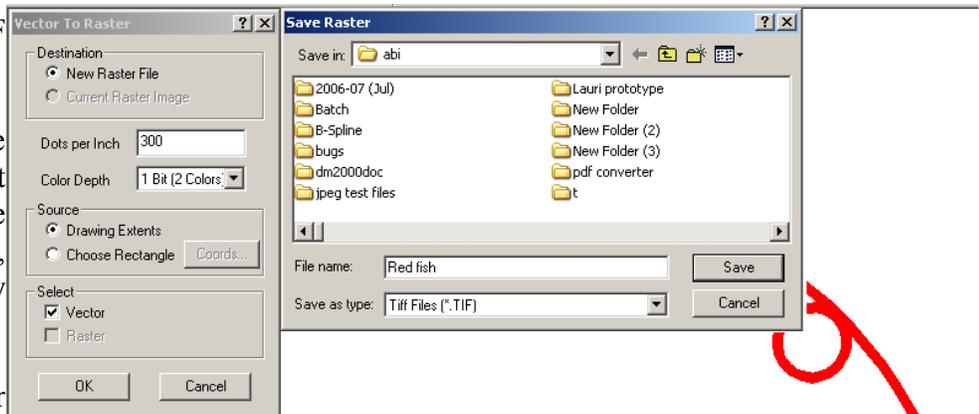
Here is the vector drawing with the heavy line showing and Show Points ON



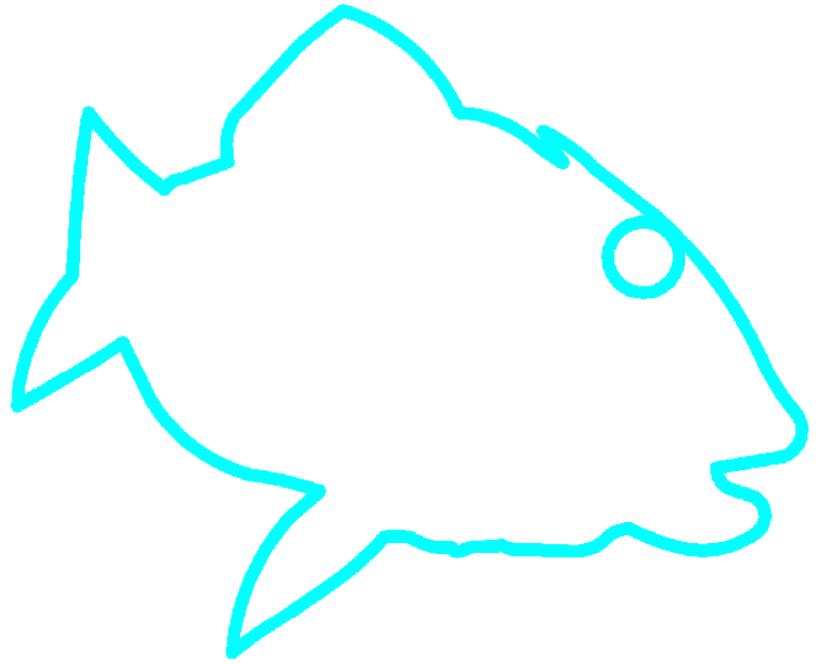
The points have been turned OFF (F4) in this image.

Because the eye will be a hole within a hole, something that is not desirable, I have moved the circle so that it overlaps part of the body, and will become part of the body when it is rasterized.

Now save the drawing to a raster file.



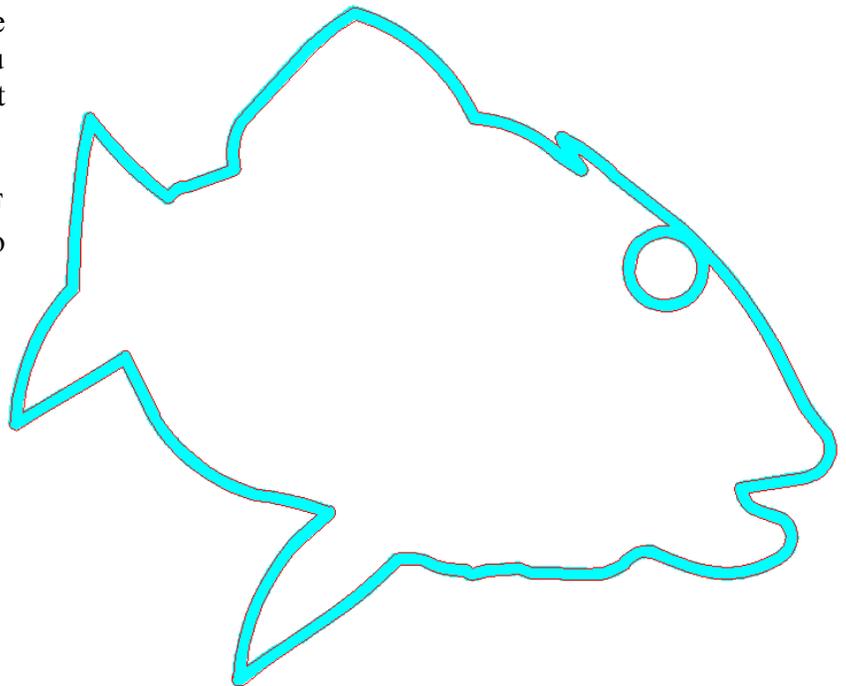
Next import the raster file, shown here in the color teal, and vectorize the image.



Here is the completed vector file with the raster image also showing, in this case you can imagine the finished product looking just like this.

All you've got to do now is save your DXF or other vector format, and you are ready to import the file into your machining program.

Check out other Design Tips on our website.



Cutting Shop v4.5

I have used Cutting Shop v4.5 to create the above examples. For more information about Cutting Shop check out the movies on our web site or call us with your questions..

Contact us



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