Converting bitmap (especially downloaded) images to vector.

Bitmap (or raster) images are composed of a series of tiny dots called pixels. This is what most downloaded images are made of.

Vector images are not based on pixel patterns, but instead use mathematical formulas to draw accurate fine lines and curves that can be combined to create an image from geometric objects such as circles and polygons.

If you're a laser owner, your clients may send you their logos or artwork in JPEG format. To get a good final result, however, you may want to trace it to convert it to a vector graphic. Tracing can be done in CorelDraw, Adobe Illustrator, or another vector program of your choice.

The tracing function in these packages will enable you to automatically trace a pixel-based image and convert it into vectors that closely mimic the original bitmap. Why would you want to do this? Simply put, vectors provide more flexibility, editing options, and more often than not, better engraving quality.

Converting a JPG to a vector in simple terms means converting all the pixels in the image to shapes based on colour and shades.

So imagine this : there may be hundreds of shapes and layers formed when you trace a colour image or an image with gradients in it. This particular trace result will not be clean and hence requires further attention and preparation before lasering.

You then need to clean up your design by weeding out unwanted shapes, deleting overlapping lines and joints, and welding shapes or polygons together.

The reason you want to do this is that your laser operating software (in this case RDWorks) will see all the lines and objects within your artwork - and send them to the laser - creating unwanted multiple cuts or engraves.

See the example of a quick trace result in Figure 1. on the left. This will require you to weed out all duplicated objects by selection, and delete them to avoid issues.

In order to check if an object is duplicated within RDWorks, you click on an individual item/object/shape or letter and if it remains black in colour it means there is another identical object directly below it. If it changes colour to red, it means it's the only copy/item and will engrave properly or cut only once.

See example of an indication that particular letter has other similar layers beneath it in Figure 2, and then after deleting duplicates in Figure 3.

This can be a tedious process but if the client has provided you with a low resolution image then you will have to clean up your artwork first so that the laser will output a good result.
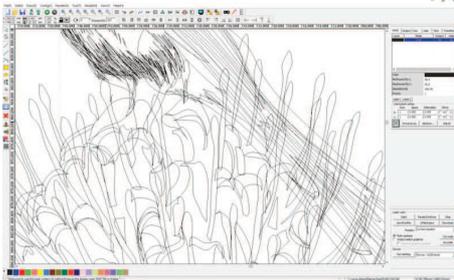

Figure 1. Typical example of a quick trace result. (This particular artwork required welding - and deleting unnecessary objects.)
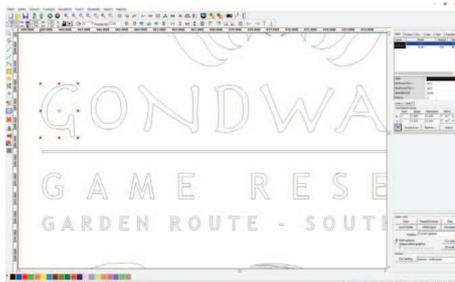

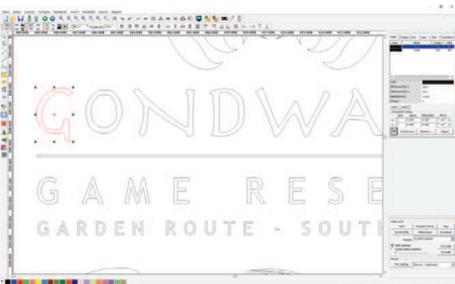**Figure 2.** An indication that a selected letter has similar layers beneath it.

Figure 3. How it should look after deleting any duplicated layers.

**CLIENT'S FILE
SPEED:300MM/S
POWER: 20%**

**IMPROVED FILE
SPEED:300MM/S
POWER: 20%**

**IMPROVED FILE
SPEED:300MM/S
POWER: 30%**

Often, untouched traced files will not work with RDWorks because the tracing process leaves outlines - and text defaults to outlines - often not Hairline but .200 or even .353, depending on your default settings - which should be Hairline by the way.

Also when sending files to RDWorks, a much better result is obtained if fonts are converted to curves first and also, if the text is from a script-type font you must 'weld' it to avoid overlaps.

If you are dealing with client files, the best solution would be to ask them to send their artwork in vector format - but, you still need to check if their trace was done properly. High resolution images often trace better but only if they are composed of solid colours. And it is a different scenario if the image has drop shadows and gradients.

If you have one of our smaller machines that uses the Corellaser plugin to CorelDraw, you may encounter a different set of issues addressed in our Corellaser Tips document on the Perfect Laser website - or on one of the numerous instructional videos we have on our YouTube channels - links are on our website.

Corellaser was designed originally as an engraving software for rubber stamps - but it can also cut vectors. In engraving mode, it will simply engrave anything that is displayed on the screen the best way it can.

RDWorks is a much more advanced operating software which allows you to do so much more with the artwork that's on the screen. For instance, it allows you to have various layers within the same artwork and set different/specific/desired parameters for each layer and you can just send the job once.

You can also decide if you want to turn on/off certain layers, redo certain layers by switching off the other layers and leaving that particular layer on without worrying about whether the machine will remember exactly where it's supposed to engrave or cut regardless of how many layers you have.

Obviously this comes at a cost, it means you must clearly define what you want the laser to output. For instance, within Corellaser you can define a line's thickness by just adding weight to that line and just engrave - but if you're going to use the same design on a machine using RDWorks, you need to define that thickness by converting the outline to an object.

RDWorks standard settings are a bit complex, and unfortunately not forgiving, and what you put in is what you get out. But once you understand the various functions and settings for your advanced machine, the output will be amazing.