



Vector vs Raster

Digitizing for the Ioline 300 System

Designs cut with the 300 System all start with digital art. It's important to understand, however, that not just any digital graphic file will do.

Cut files must be vector-based, not raster or bitmap. In other words, you can't scan a logo and expect to use the resulting file on the 300 System. This is because the Ioline machine cuts every line and dot it comes across in the file. Since raster images are comprised of thousands, if not millions, of pixels, the cutter would slice and dice your material to shreds. Not a pretty result.

It's possible to convert (digitize) a raster image—such as a photo or scanned logo—into vector art. Just be aware that such treatment normally results in some loss of file information.

The millions of colors in a photo must be reduced to a more manageable number for appliqué and embroidery. Thus, you won't see nearly the

detail in the vector graphic as you do in the photo (Fig. 1).

There are two ways to convert a raster image. You can trace the design by hand in a vector-based drawing program such as CorelDRAW!® or Adobe Illustrator®. Or, you can use a tracing program like Adobe's® CorelTrace® (Fig. 2).

The digital conversion essentially combines groups of pixels into cuttable outlines and "fill". That is, into areas that will later be filled with fabric.



This vector graphic was digitized using 3 colors.



Look closely at the raster image and you'll see that it's made up of millions of pixels of color.

Figure 1

Editing or creating custom designs

The quality of the vector file is key when you create vector images from scratch or modify stock art in a vector-based drawing program. The goal is to minimize the number of nodes (points) on line segments, as node count can affect the quality of the cut and the length of time it takes to cut a graphic (Fig. 3).

Raster (bitmap) image:

Digital images generated by a digital camera, a scanner or an illustration program. Raster images can be comprised of millions of colors, each represented by a single pixel or "dot". The number of dots per inch (resolution) is key for clarity. Too few, and the image appears grainy or fuzzy. The Ioline 300 System cuts every pixel in a graphic, rendering it impractical to cut raster images. Examples of raster image file types are: **BMP**, **TIFF**, **GIF**, and **JPEG** files.

Vector image:

Vector images are object-based rather than pixel-based. They're comprised of mathematically defined areas that are filled or outlined with color. Think spot color. That is designs that have hard color areas and exact, uniform color transitions or gradations. Vector images have an advantage over raster in that they can be infinitely scaled up or down with zero loss of image definition. Vector files are also a fraction of the size of raster images. Examples of vector image file types are: **EPS**, **AI**, **CDR** and **WMF**.

Tips

When converting a raster image to vector art, programs like CorelTrace® often produce more nodes than are practical to cut on the 300 System. It's usually necessary to manually delete unnecessary points in the traced design to optimize the graphic for cutting.

With some images, it may be faster to manually trace the photo. With others, a tracing program can save you time. There's no fast and hard rule for how to trace. Each situation is different and must be evaluated individually.



Figure 2

Always use the *Bezier Curve* tool (Fig. 3, a) instead of the *Freehand* tool (Fig. 3, b) in CorelDRAW!® when digitizing. The *Bezier Curve* tool uses fewer nodes (points) and creates a much smoother line than the *Freehand* tool.

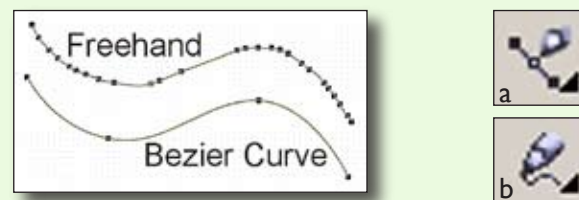


Figure 3