Vector Tracing in Aspire and VCarve v12

Some Observations:

The goal of vector tracing (should) be to minimize the number of anchor points (nodes) in order to allow the underlying math to create the smoothest curves possible that trace the underlying image's edge.

In general, people have a tendency to place too many points to define an outline/ curve and end up with overly constrained vector images that are more difficult to manipulate and refine (especially if there is symmetry in the drawing) and can introduce artifacts when used to create 3D models (or components in Aspire).

There are very few tutorials on the "process" of doing this effectively. The old v11 "curve" tool lulled users into placing too many anchor points, in some cases way too many anchor points that become more difficult to fine tune.

Pros, especially those that are doing 2D tracing to ultimately create 3D models, use a simple set of principles to create the most precise vector tracings with as few anchor points as possible. Their method is also very time efficient once you learn to think in vectors. Every node in a 2D vector constrains the conversion to the 3D shape and odd artifacts (creases, twists, etc) can be introduced.

The Principles

1. Minimize the number of anchor points (nodes) placed
2. Do an initial tracing pass using straight line segments:
    - Only place one point at each end of a straight segment
    - Place two points (one at each end) to define the longest symmetrical chord on the underlying drawing
    - Use the “rule of 3” to define sharp corner where necessary
3. Do a refining pass to convert line nodes into curve nodes where needed
    - Use the curve nodes’ handles to create a curve that matches the underlying drawing
    - If necessary, tweak the position of the node on the underlying drawing to more precisely position it
    - Add additional anchor points only where needed, remove anchor points that are not needed

Some VCarve and Aspire v12 Tips

1. Memorize and use these six keyboard shortcuts to streamline the process:

S **N** **M**

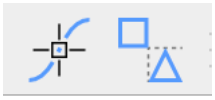
S - selection mode cursor
N - node editing cursor
M - move (or transform) cursor

And for the node editing mode, these key commands are very useful:

S smooth point
D delete point
I insert point

These are available on the context menu when you hover over a point with the node edit cursor.

2. Turn off geometry and smart snapping



   These tool buttons are on the upper right corner of the application window.

3. Use the Edit->Curve Fit Vectors command to tweak and usually simplify your curves even more. Choose the Bezier Curves option.