

Just an Still no sign of the

BY LIDKA SCHUCH

“And this is our company’s logo,” says your client one day, pulling a dirty, crumpled business card from his pocket. “Just put in on the computer and use it on our new stationery...and the banner for the trade show booth...and the T-shirts for our employees. And we’ll need a new brochure, and I want the logo to kind of stick out of this picture of the bridge we built...”

Overjoyed with the multitude of projects you say, okay, fine, that’s included in the price.

Your client is gone by the time you realize that his logo is a fine line drawing of a bridge, and his company’s name is ‘Bridge Construction Unlimited Inc’, set in a serif typeface...

Oops, you may have just committed yourself to a long night of work with no pay.

BITMAPS AND VECTORS

Let’s start from the beginning. Why couldn’t you just scan your client’s logo, work on it in *Adobe Photoshop* to make it look better, drop it into a layout, and scale it to whatever dimensions you need? Well, of course, there are more reasons than one.

The first is that every scan is a bitmap, and scaling bitmaps up in size adversely affects quality. In the vector-based page layout or drawing program you will no doubt use for final layout, scaling a bitmap simply means increasing or decreasing the bitmap’s resolution by the same factor. So if you need to use the same logo on a small business card and on a large banner, you would need two scans with two different pixel dimensions, and the logo for the banner would be a much larger file.

Another problem you’ll encounter when using scanned line art in layouts is that non-Adobe page layout programs do not understand *Photoshop*’s transparency. And, unless a vector clipping path is used, neither do other bitmap-based file formats used for printing (such as TIFF and EPS). So if, for example, you want to position a logo on a multi-colored background, you’ll have to draw a clipping path around it to create transparency—and if you have to do that, you might as well trace this logo into resolution-

independent scalable vector paths and eliminate potential problems with sizing or transparency.

SO WHAT’S THE BEST WAY TO TRACE AN OBJECT?

We set out to investigate what products are currently available for tracing. Because we work with *Adobe Illustrator* and the Pen tool extensively and expertly, we usually rely on *Illustrator*’s native Auto Trace tool and then fine-tune the trace with the Pen tool.

Once in a while, if the artwork requires line recognition or centreline tracing, we use *Adobe Streamline*. And we still end up fiddling with the trace either in *Illustrator* or in *Streamline* to finish it perfectly. But we hoped that perhaps there was a better way.

As samples for our tests, we used a Wild World Fund logo (an average logo consisting of simple line art and a few letters) and the Bridge Construction Unlimited Inc logo from *Illustrator*’s Samples folder, which includes a fine line drawing of a bridge (“artwork from hell”). Illustrators don’t often need to trace photographic images; however, most graphic designers and technicians routinely trace logos and other line drawings in the course of handling jobs, which is why we focused on converting bitmap line art into vector.

AUTO TRACING IN ILLUSTRATOR

Let’s start with what you can do with *Illustrator* itself. The **Auto Trace** tool is located on the Tools palette (figure 1) and its options are in the Type and Auto Tracing section of the Preferences dialog window (figure 2).

If you check the **Template** check box in the Place dialog window (figure 3), the image will automatically be placed on a separate locked and greyed out layer visible not only in **Preview** viewing mode but also in **Outline** mode (if you forget, you can always double-click on the layer with the placed image and open the **Layer Option** dialog window, but you will have to manually add a new layer for the traced paths). The new layer will be added automatically on top of the Template layer (figure 4).

outline?

perfect tracing tool

AND MONA IDRIS

The rest is a breeze. Select the Auto Trace tool and click on the contrast areas, starting with the largest shape. You usually have to adjust the curves a bit with the curve editing tools, but Auto Trace still does a pretty good job with simple outlines (figure 5).

However the controls for Auto Trace are very limited—it can only outline shapes. If you need to trace a fine line drawing such as the Bridge logo, you have to use a program or a plug-in that allows tracing with centreline recognition. This is when you would have to start looking for help elsewhere.

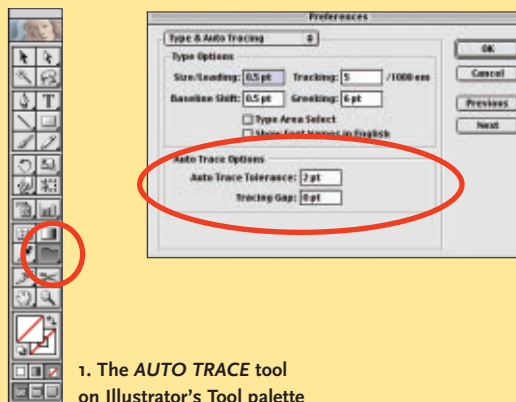
IN SEARCH OF TRACING PROGRAMS OR PLUG-INS

We spent a solid two days scouring the Internet for inexpensive standalone tracing software and/or plug-ins for *Illustrator*.

Aside from *Adobe Streamline* (priced at about \$200) or professional sign-making packages ranging from \$2500 to as high as \$7500 or more (such as *ScanVec* or *Cad-link*), we could only find one standalone tracing application, plus one auto-tracing plug-in for *Illustrator* (still in beta). If there are any more out there, they're well-hidden in a maze of lousy websites, annoying pop-up windows and dead-end leads.

First let's talk about the plug-in.

PrismTrace is a spinoff from a package called *LogoSpruce* by Comnet (www.com-net-network.co.jp). *LogoSpruce* was original-



1. The **AUTO TRACE** tool on Illustrator's Tool palette

2. The settings for Illustrator's Auto Trace tool are located in the Preferences dialog window. **TOLERANCE** specifies how close the path will be drawn to the original bitmap image. The smaller the tolerance, the more anchor points the path will have. Remember, the fewer the points, the easier it is to adjust the curvature of the segments. Tracing Gap settings of more than zero will close any gaps smaller than the point value you type in. This is great for poor quality originals with broken lines.



3 and 4. Check the **TEMPLATE** box in the Place dialog window to automatically grey out and lock the original bitmap. Template mode also allows you to see the image in the Outline view.

5. The panda traced with Illustrator's native Auto Trace tool with the **DEFAULT TOLERANCE** setting of 2 points produced 6 good looking paths with 62 anchor points. Adjusting the Tolerance settings to a value of 3 reduced the number of points to 49.



Lidka's five tips for better tracing

- **USE A LOOSE TOLERANCE SETTING** Remember that the lower the tolerance setting, the closer the paths will follow the bitmap original. Since bitmaps are made from square pixels, a tolerance setting which is too low will produce a path which follows these square pixels and has too many anchor points. The more points you have, the shorter the segments between them and the more difficult it is to edit the curve. Also, more anchor points make your document more complex and increase the chance of problems with output.
- **SCAN LARGE AND SCALE DOWN** If you're going to trace in Illustrator, scan the original as large as possible, then scale it down. This will make the line edges smoother and allow the Auto Trace tool to produce simpler paths with fewer anchor points.
- **IMPROVE THE QUALITY OF SCANS BEFORE TRACING** If you have a really poor quality original (with broken continuous lines and jagged edges), scan it in greyscale or RGB color mode, not as 1-bit black and white art. In Photoshop apply Gaussian Blur. Use low setting for pixel radius, just enough to diffuse unwanted jagged line edges. Then reduce the blurred line edges by using the Input sliders in the Levels dialog window.
- **ACCESS ALL CURVE EDITING TOOLS FROM THE PEN TOOL** In Illustrator, you can access all curve editing tools from just the pen tool. Holding down the Option (Mac) or Alt (Windows) key changes it into the Convert Anchor Point tool. Holding down the Command (Mac) or Control (Windows) key changes it into the selection tool last selected. Remember to use the direct selection tool (white arrow) before selecting the pen tool. You may delete an anchor point by placing the pen tool over the existing point and clicking when you see the pen "minus" icon. Add an anchor point by placing the pen tool anywhere over the drawn path and clicking once you see it changing into the pen "plus" symbol.
- **DON'T TRACE TYPE** Don't trace type unless it's absolutely necessary! Letter forms (especially serifs and scripts) are complex curves and it takes an enormous amount of time and effort to trace a long company name (such as Bridge Construction Unlimited, Inc) into vector paths. So always try to match the typeface first. Get as close as possible and then make outlines and adjust a few lines. And always keep the original text as text and make outlines from a copy. Remember that making outlines turns text into objects and is not reversible.



Text traced with Illustrator's Auto Trace tool.

Find a similar typeface, scale, kern and track text until you get it as close as possible to the original bitmap.

Change a copy of the text to outlines and edit it with curve editing tools.

ly conceived as a CAD-based set of tools for accurately drawing line segments. Among its many useful functions are five manual tracing tools, although we weren't excited by them since they're really just drawing tools based on a different idea than *Illustrator*.

However *PrismTrace* seems promising, as long as the bugs get ironed out. This *Illustrator* plug-in adds the **Trace** command to the Object pulldown menu (figure 6), which opens the palette with options for automatic tracing (figure 7). It did an adequate job on a greyscale image (figure 8); there were numerous points and paths, but it looked a lot better than the same sunflower image traced in *Streamline*.

On line art, however, *PrismTrace* simply didn't work right at all. It added unwanted lines to the trace of the "Bridge" logo, and when saved as an EPS file and imported to *QuarkXPress*, the preview looked very strange. And trying to open the original file in *Illustrator* resulted in an error message.

Tracing the panda image didn't go too well either. No matter what settings we used, Panda was drawn with 1,621 (!) anchor points (figure 9). Editing a path with that many points is a physical impossibility, and printing it could be another challenge.

Nor did tracing a color image produce very good results. Performance was extremely slow, and the traced artwork looked like an unidentifiable greyscale image.

If Comnet adds line recognition, outline and centreline features, and a preview button, and gets all the functions working properly—and the price is less than *Streamline*—*PrismTrace* could be a winner.

AN ALTERNATIVE STANDALONE TRACING APP

Our second find was *Silhouette* (www.silhouetteonline.com), a \$429 standalone program combining autotrace features with a set of classic and CAD curve editing tools.

The **Vectorization Setup** dialog window (figure 10) doesn't offer too many options (no centreline or line recognition features), but we have to admit that not only did *Silhouette* do a bangup job of tracing the WWF panda (figure 11), it also produced a much cleaner trace of the bridge logo than *Streamline* (figure 12).

But we were disappointed that *Silhouette* is missing centreline and line recognition tracing methods, and the fact that we were forced to save each vector trace as EPS in order to use it in *Illustrator* was less efficient than a simple copy-and-paste. As well, classic Bezier curve editing tools (e.g. **Add** and **Delete an Anchor Point**, **Convert Anchor Point**, and **Selection** tools) are not accessible with a one-key or one-modifier key command, which adds a lot of unnecessary mousing to the editing process.

At twice the price of *Streamline*, *Silhouette* seems overall to offer only marginal advantages over Adobe's product.

WHICH BRINGS US BACK TO ADOBE STREAMLINE

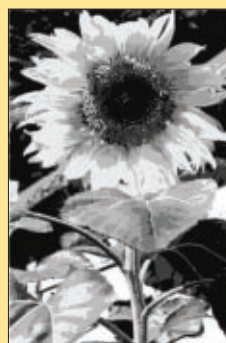
Streamline, Adobe's standalone program for converting bitmap color and greyscale images or black and white line art into vector



6. The **TRACE** command in Comnet's auto-trace plug-in **PRISMTRACE** (beta version) appears on the Object pulldown menu and opens up the Trace Options palette.



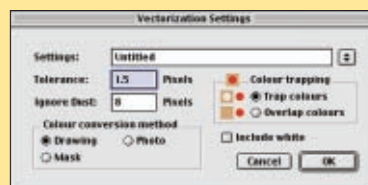
7. PrismTrace's autotrace option palette.



8. This **GREYSCALE** image traced with PrismTrace doesn't look too bad.



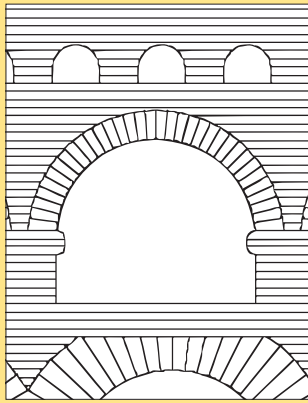
9. Artwork traced with the PrismTrace plug-in (beta) with its default setting produced 6 **PATHS** with a whopping 1,621 anchor points.



10. Silhouette's **VECTORIZATION SETUP** dialog window with tracing options doesn't look too impressive, but the program does a very good job.



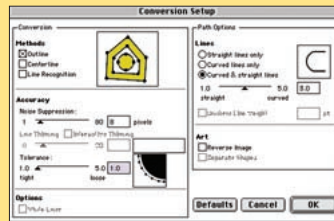
11. Silhouette's trace using the default setting produced 64 **ANCHOR POINTS**; its outline is slightly more accurate than Illustrator or *Streamline*.



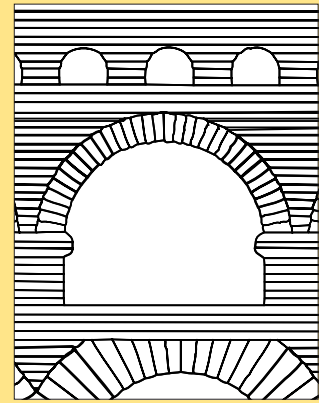
12. This Bridge logo traced using Silhouette's default settings looks good, but the only outlining method available produced **CLOSED PATHS** instead of open paths.



13. Adobe Streamline with its tolerance setting of 3 points produced 6 reasonably **ACCURATE PATHS** with 52 anchor points.



14. There are plenty of controls in Streamline's **CONVERSION SETUP** dialog window.



15. Tracing the Bridge logo using the recommended **LINE RECOGNITION** and **CENTERLINE** options in Streamline produced closed and open paths, but the doubling and tripling of line weights compromises the integrity of the outline.

paths, has tools for improving the quality of an original bitmap even before you begin converting it. As in *Photoshop*, you can find the Marquee tool, Magic Wand, Lasso and Eraser. There are also handy and familiar controls for Brightness, Contrast and Gamma Levels.

We traced the WWF logo using *Streamline*'s black and white conversion options (figure 13), starting with adjustments in the **Conversion Setup** dialog box (figure 14). Referring to the user guide, we found that the recommended tolerance setting was the default setting of 3.0. A loose setting creates fewer anchor points and longer line segments, resulting in a smoother looking image.

It took *Streamline* all of two seconds to trace this logo, although it required minor tweaking with curve editing tools. But what's nice is that these tools work just like *Illustrator*'s drawing tools—Add Anchor Point, Delete Anchor Point, Convert Anchor Point and Selection tools can all be accessed with just one modifier key from the regular pen tool.

Next, we traced the logo created for our "client", Bridge Constructors Unlimited Inc.

Streamline converts using three methods.

Outline converts images containing lines that vary in weight and objects with filled areas. This method should be used for color or greyscale images.

Centerline is intended for straight or curved lines that are of consistent stroke widths. This method always converts images to black and white paths.

Line Recognition converts images with only horizontal or vertical lines such as charts, blueprints and technical illustrations. The Bridge Constructors logo was converted using the centerline method and the line recognition method combined.

The type of path which *Streamline* creates depends on the conversion method used. Outline creates closed and filled compound paths. Centerline and Line Recognition create open and

closed stroked paths. The tricky part is knowing which conversion methods to combine and when to do so.

Streamline's manual is very well written but the recommended settings are not always foolproof. Even using the recommended conversion settings in the manual to outline our bridge logo, the result was not perfect (figure 15). It takes practice to develop an eye for *Streamline*'s settings, depending on the artwork. And if you want the trace to be really perfect, you'll still use curve editing tools for final touchup.

But getting the traced art back to *Illustrator* is easy. You can copy and paste it or drag the paths from *Streamline* to *Illustrator*.

FINAL NOTES

In the end, our search for the ideal tracing solution came up short. *Illustrator*'s Auto Trace tool is very useful and does a respectable job on simple outline tracing, but its controls are far too limited; for anything complex we still need more sophisticated options.

Maybe the time has come for Adobe to simply build *Streamline* into *Illustrator*—after all, *CorelDraw* has had a pretty decent AutoTrace module for many years. Given all the new features which were incorporated into the recent version 10 release of *Illustrator*, you would think that a basic necessity for illustrators like tracing would have warranted an upgrade as well.

In the meantime, there's still no autotrace tool on the market that produces perfect results every time. It looks like proficiency with the pen tool will remain an indispensable skill for some time to come. ☹

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