Scan2CAD features

Features marked Pro in the list below are available in the **Pro version** of Scan2CAD only.

Scan

Scan from inside Scan2CAD using TWAIN (Acquire).
Use any TWAIN-compliant scanner of any size.
Use any scanner of any size whose software saves standard raster files.
If you have a desktop scanner, you can scan large drawings as a series of "tiles" that you can assemble, merge and vectorize inside Scan2CAD: 1. Use Acquire to grab scanner-sized "tiles" from large drawings. 2. Alternatively, load tiles that have been saved as separate raster files. 3. Re-assemble the drawing using accurate move, deskew and merge tools. 4. Tidy up and vectorize the drawing in the normal way. 5. Save As DXF to the same size and scale as the original drawing.

Load and save raster images

Load and save: • BMP • CALS (Type 1 - .CAL, .CALS, .GP4, .CG4, .MIL) • GIF (not recommended) • IMG • JPEG (not recommended) • PCX • PNG • TIFF • GeoTIFF Scan2CAD does not support multi-layer/page TIFF files.
In theory the maximum raster image size that Scan2CAD will handle is 32,000 x 32,000 pixels. This equates approximately to a 13.3 foot x 13.3 foot or 4m x 4m drawing scanned at 200 dpi or an 8.8 foot x 8.8 foot or 2.7m x 2.7m drawing scanned at 300 dpi. For most drawings 200 or 300 dpi is optimal. In practice the maximum raster image size that Scan2CAD will handle is determined by your PC's system resources - for example the amount of physical and virtual RAM it has.
Load black and white, grayscale and color raster images - 1 Bit, 4 Bit, 8 Bit and 24 Bit.
Convert between raster file types - e.g. load a raster image as a BMP file and save it as a compressed TIFF file to save disk space.

View raster images

Zoom into a selected area; zoom about the cursor position; zoom about the screen center; zoom extents; step back through the last ten views.
Pan.

Display a grid of raster pixels.
View the image's color palette, the colors that are used in the palette and a histogram of the colors that are used in the palette.
View raster image statistics - file size, color depth, dpi.

Edit raster images - raster effects and clean up tools

Most raster effects and clean up tools are color aware and can be restricted to work on a single color.	Before	After
Automatically remove speckles caused by dirt, stains etc. (despeckle) or quickly erase dirty areas using area erase and flood fill.		
Fill holes.		
Thin lines.		
Thicken lines.		
Thicken pixels - useful for filling dithered lines.		
Smooth - removes "hairs" from "hairy-looking" images.		
Outline solid raster areas.		
Remove speckles of color to make colors more uniform.		
Detect edges between different colors.		
Negate or invert images to make black areas white and white areas black.		
Mirror images vertically or horizontally.		
Rotate images through 90, 180 or 270 degrees, by user-defined degrees or by fraction of a degree.		
Automatically straighten images to a reference line (deskew).		
Scale images in the X and or Y directions to make them larger or smaller.		
Increase or decrease brightness and contrast.		
Crop.		
Warp images to user-defined control points (rubber-sheeting).		

Edit raster images - raster draw and erase tools

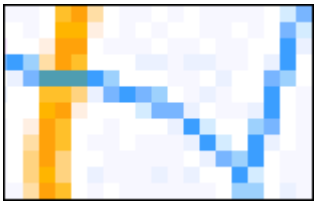
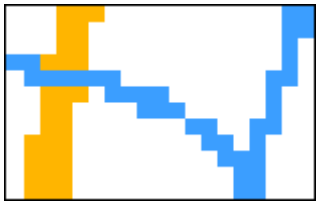
Set pen / eraser thickness and pen color.
Three cursor options - Graphic, Pointer or Guide Line (cross-hairs). Cursor visually shows pen thickness.

Draw or erase pixels (points), lines, ortho lines, rectangles, circles, arcs, Bezier curves, solid filled areas and freehand sketches.
Flood fill.
Enter TrueType font raster text - select font, size, embolden, italicize, move text into logo layouts.

Edit raster images - cut, copy, move and paste

Move areas of the raster image.
Cut, copy and paste within Scan2CAD.
Paste raster images from other applications.

Edit raster images - color palette editing tools

<table>
<tr><td></td><td>Before</td><td>After</td></tr>
<tr><td>Automatically reduce the number of colors used on the image - makes colors more uniform for color vectorization.</td><td rowspan="3">  </td><td rowspan="3">  </td></tr>
<tr><td>Manually reduce the number of colors used on the image. Display a histogram of colors to help choose which colors to reduce to.</td></tr>
<tr><td>Decrease color depth.</td></tr>
<tr><td colspan="3">Change one color on the raster image to another.</td></tr>
<tr><td colspan="3">Change the palette so that it matches the palette in your CAD program.</td></tr>
</table>

Vectorization - vector recognition

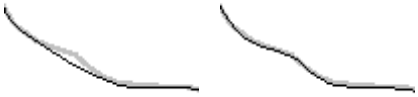
Identifies continuous lines, dash and dash dot lines, arrow lines, hatch lines, polylines, circles, arcs or Bezier curves and text.
Choose from ten supplied default conversion types for quick and easy results - use the one that best describes your drawing: • Architectural. • Electrical. • Mechanical. • CNC Profile. • Site Plan. • Contour Map. • Sketch (traces every detail of a raster image using many short lines). • Outline (outlines solid areas of black or color). • Scanline (creates an exact vector copy of the raster original. The vector image is made up of many closely spaced parallel horizontal lines). • User (your own user-defined settings).
Default conversion types give good results on most drawings but easy to use settings

let you control the conversion process if you want to. Settings include:

Center line tracking, outline tracking or both.

Center line | Outline

Control whether vectors follow the raster image loosely (produces less vectors) or closely (produces more vectors).



Loose | Close

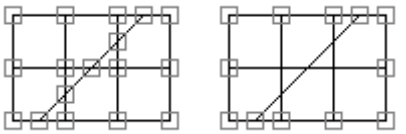
Specify a Gap Jump Distance - Scan2CAD jumps over any gaps in the raster image that are smaller than the value you specify, allowing continuous vectors to be produced over broken raster lines.

Gaps | Gaps jumped

Specify a Loose Ends Length - Scan2CAD removes "loose end" vectors shorter than the value you specify.

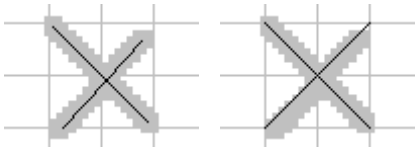
Loose ends | Loose ends removed

Choose to have vectors join or pass at intersections.



Join | Pass

Align the vectors to a grid.



Not aligned | Aligned

Snap angled lines that deviate slightly from 0 or 90 degrees to 0 or 90 degrees.
Snap angled lines that deviate slightly from 30 or 120 degrees to 30 or 120 degrees.
Snap angled lines that deviate slightly from 45 or 135 degrees to 45 or 135 degrees.
Snap angled lines that deviate slightly from 60 or 150 degrees to 60 or 150 degrees.

0 and 90 degree snap off | 0 and 90 degree snap on

Optionally identify dash and dash dot lines, arrow lines, hatch lines, polylines, circles, arcs and Bezier curves.

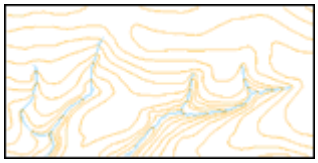
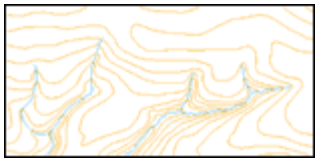
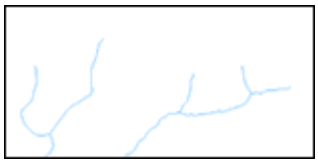
Dash line identification off | Dash line identification on

In the illustrations above the raster image is shown in gray and vectors are superimposed in black. Where relevant vector ends are enclosed in small squares.

Save your own conversion settings as default.

Convert the whole raster image, or just part of it. Convert different parts of the image using different conversion settings.

Convert vectors separately or at the same time as text.

	Raster	Vector
Pro Convert one, some or all the colors in a color raster image.		 or 

Vectorization - OCR text recognition and font training

Convert text using OCR - turns text into editable vector text rather than text made up of small lines.

Raster Vector

OCR conversion settings include:

- Set Character Rotation so text is recognized the right way up.
- Choose Character Set - Standard recognizes all characters, Number recognizes numbers and symbols only.
- Split touching characters - may improve text recognition where raster characters have bled into each other.

Convert text on the whole raster image, or just part of it. Convert text on different parts of the image using different OCR conversion settings.

Convert text separately or at the same time as other drawing elements.

Pro Train Scan2CAD to recognize a wider range of fonts, including your own non-standard (e.g. hand drawn, stencilled) fonts.

Vectorization - batch vectorization

Pro Specify multiple raster images for conversion at a convenient time - like during lunch or overnight when you are not using your PC.

Pro Batch process includes pre-conversion raster tidy up options - Speckle Removal, Hole Removal, Thicken Line, Thicken Pixels, Smooth.

Create vector TrueType font outlines

1. Select a font.
2. Write some text.
3. The text is converted to 100% accuracte vector outlines that you can export to your CAD or CNC program as DXF.

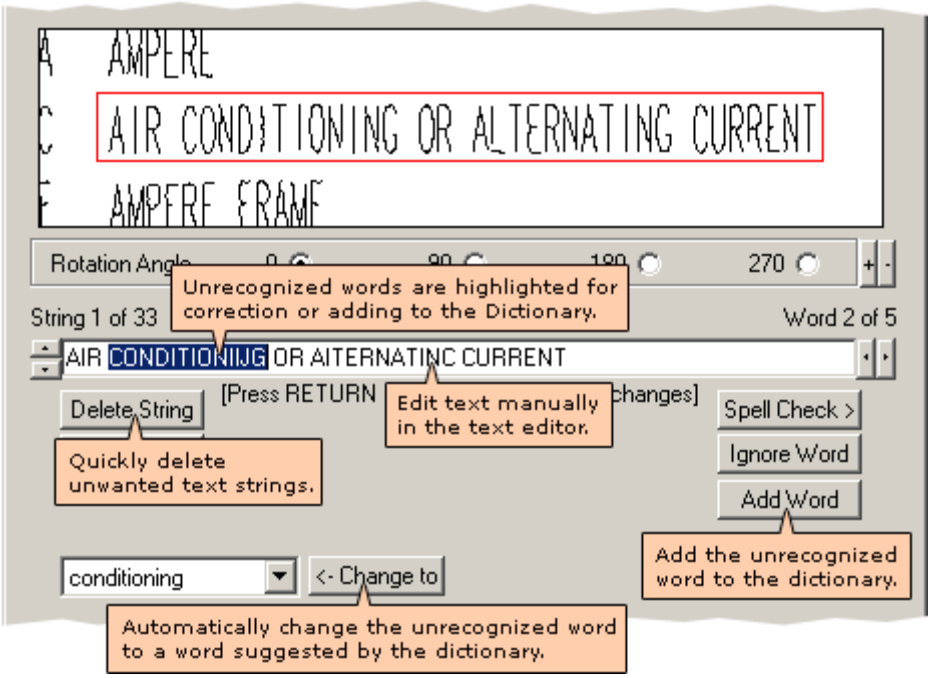
View vectors

Zoom into a selected area; zoom about the cursor position; zoom about the screen center; zoom extents; step back through your last ten views.
Pan.
Display a grid.
A single key or icon click displays the raster image only, vectors only or the vectors superimposed over the raster image (raster overlay).
Fade the raster image so you can see the superimposed vectors more clearly.
View vectors by color or by type. When viewed by type vectors are shown in different colors depending on what they are - continuous lines, dash or dash dot lines, arrow lines, hatch lines, polylines, circles, arcs, Bezier curves or text.
View vector extents by turning on grab points at vector ends or by highlighting an individual vector.
View vector ghosts - see the old position of vectors after you've edited them.
View vector statistics - number of vectors, time taken to do the vectorization.

Edit vectors

Vector editing tools are color aware and can be restricted to work on a single color.
Guide Line cursor - large, screen-wide cursor with cross hairs helps to align vectors to each other accurately.
Snap vectors to a grid.
Stretch vectors by dragging grab points at vector ends and arc mid points.
Reshape Bezier curves by dragging Bezier control points.
Click to snap together all the vector end points within a user-defined snap distance.
Split a line into two by clicking on it.
Join two vectors together by clicking on the node point between them.
Quickly convert vectors from one type to another by clicking on them: • Convert arcs to lines and lines to arcs. • Convert Bezier curves to lines and lines to Bezier curves • Convert polylines to lines and lines to polylines. • Convert continuous lines to dash, dash dot or arrow lines. • Convert dash or dash dot lines to continuous or arrow lines. • Convert arrow lines to continuous, dash or dash dot lines. • Convert hatch lines to continuous, dash or dash dot lines.
Pro Edit vector colors.

Edit vector text

Pro Spellcheck vectorized text for quick and easy editing. • Includes a 30,000 word UK and US Design Dictionary. • Add words common to your drawings to the Dictionary. • Create your own Dictionary in any language.   
Simply click on vector text to edit or delete it.
Edit text content, angle, size, origin, color.
Make all the text on the drawing or in a selected area the same height.
Move text.

Draw and erase vectors

Draw on new sheet or trace over raster image (raster overlay).
Set pen color.
Snap to grid.
Drawing tools include point, line, ortho line, rectangle, circle, arc, Bezier curve, freehand and text.
Erase vectors individually or in a block.

Save vectors

Output DXF files that you can read into any PC CAD, CNC or GIS program including all versions of AutoCAD and LT - no known compatability problems with any PC CAD program.
DXF can be saved to the same size and scale as the original paper drawing.
DXF can be saved with coordinates assigned to a known point.
Bezier curves can be saved in the DXF file as splines, arcs or polylines.
Pro Save color DXF files. Each color can be saved on a separate layer. Layers can be

matched to your CAD program's palette.
Output HPGL plot files.
Output WMF and EMF files.
Save text as an ASCII text file.

Printing

Print all or part of a raster or vector image to fit paper or to scale.

Command line

Pro Automate virtually any sequence of Scan2CAD commands.
Pro Run Scan2CAD from other applications.

Technical support and documentation

Optionally supplied on CD with a comprehensive printed manual.
Interactive video tutorials that run on your PC let you learn Scan2CAD in minutes.
Fast, free email and telephone technical support.

System requirements

Any PC running Windows '95, '98, ME, NT, 2000 or XP.
Minimum 32Mb RAM, but if you are going to be converting large or color raster files, the more RAM your PC has the better.
We recommend a minimum screen resolution of 800 x 600.