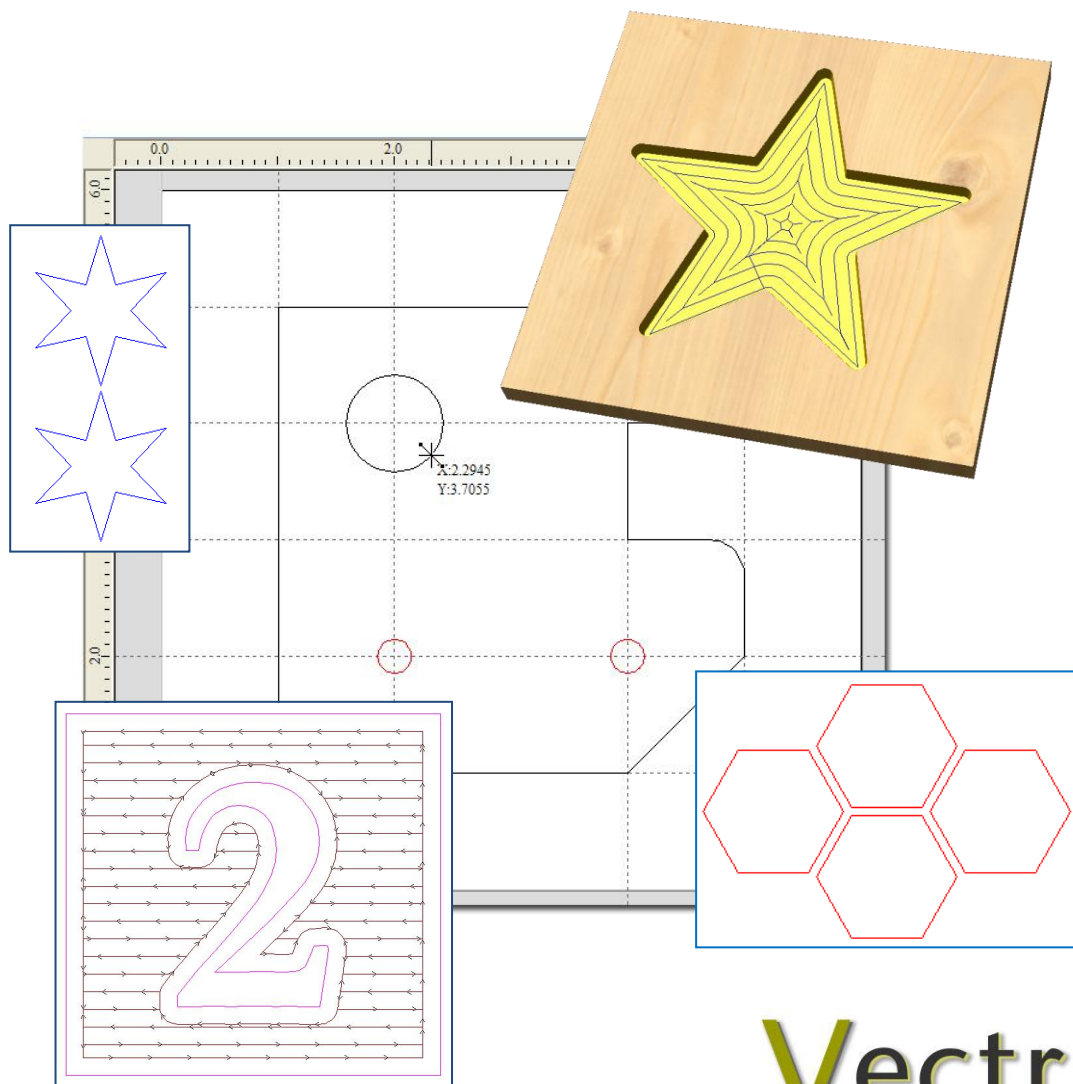


What's New In VCarve Pro 4.6



Vectric

VCarve Pro

Disclaimer

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© Vectric Ltd
Unit 2B Dunstall Court
Astwood Lane
Feckenham
B96 6QH
UK

www.vectric.com

E-mail info@vectric.com
Phone +44 (0) 1527 460 459
Fax +44 (0) 1527 460 459

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Introduction

After releasing VCarve Pro version 4.5 in November 2007 customers told us they didn't like the way the new 2D toolpath previews worked when opening files. As this was annoying users we decided it needed fixing and while doing this work we also decided to enhance the profile and pocketing toolpath functionality. More details can be found in this document.

VCarve Pro 4.5 included new layout and preview functionality that made designing and laying out projects much quicker, easier and more precise. New 2D Toolpath Preview options were also added to make toolpath verification significantly easier by instantly showing exactly where toolpaths will machine and where material will be left on the job.

Installation

Vetric will email you a link for you to download an Upgrade File that will install VCarve Pro version 4.6.

Click the Run button and the patch program will automatically detect and install the upgrade into your current VCarve Pro 4.0 or 4.5 folder structure.

Note If you have **NOT** installed the software in a folder **C:\Program Files\VCarve Pro 4.0** please contact the Vetric Support Team and additional instructions will be provided.

The Upgrade program will retain the Tool Database from your VCarve Pro 4.5 installation, so any additional / custom tools that have been added will also be available in version 4.6.

If you experience any difficulties or require assistance please e-mail - support@vetric.com

Important After installing the update to version 4.6 please check that the correct postprocessor is selected from the pull-down list on the Save Toolpaths form.

Backing Up the Tool Database

We recommend keeping a safe / backup copy of your Tool Database and this is done by taking a copy of the file saved in the folder shown below.

C:\Program Files\VCarve Pro 4.5\ToolDatabase\tools.tool_db

If you need assistance with this e-mail - support@vetric.com

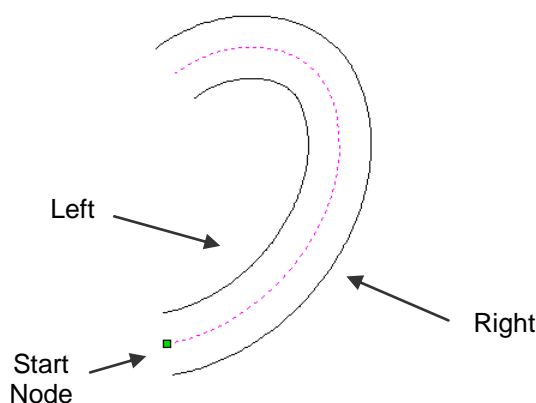
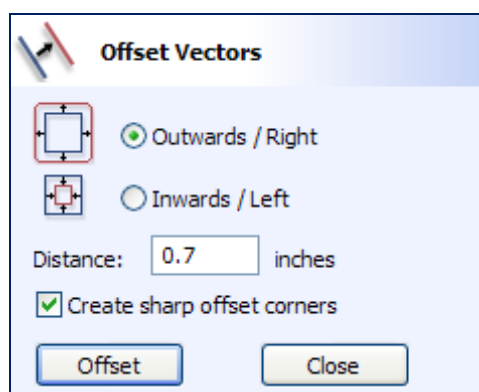
What's New in Version 4.6

After releasing VCarve Pro 4.5 a couple of usability issues surfaced that were primarily related to how the toolpath list and 2D / 3D visibility behaved when opening saved files. This behaviour was annoying so we decided to fix it and version 4.6 now remembers the visibility state when opening files.

While updating this behaviour we decided to take the opportunity to develop additional Profile and Pocket machining functionality that makes the software even more powerful and flexible. A summary of the new functionality in version 4.6 + the new features added in version 4.5 is listed below.

Offset Open Vectors

Open vectors / shapes can now be offset using the design tools in version 4.6. The new offset is created either to the Left or the Right of the selection using the start node as a reference to decide which is the correct side.



Note Pressing N for Node Editing mode shows a Green square for the start node. Looking along the selection from this point allows the Left and Right side to be determined.

Toolpath Visibility

In previous versions of VCarve Pro all toolpaths were automatically made visible in the 3D view when a file was opened, but this behaviour became a problem with version 4.5 because all associated 2D previews were also displayed. This resulted in users having to undraw many of their toolpaths before working on a project, which we felt was unacceptable software behaviour so this has been addressed in version 4.6.

When new toolpaths were calculated in version 4.5 the 2D preview would always be made visible and drawn in the 2D window, and this was also reported by customers to be annoying behaviour.

VCarve Pro 4.6 saves the visibility state for toolpaths so when a file is re-opened it behaves in the same way. And the 2D previews are only displayed if the option - **Show 2D Previews** is switched on

Profile Machining Enhancements (4.6)

The Profile Machining toolpath strategy has been enhanced to include new options for,

Adding Tabs when machining **On** open and closed shapes

Machining to the **Left or Right** of **Open vectors** and including **Tabs with Ramp** moves

This option to automatically compensate for the cutter radius on the Left or Right side of shapes is perfect for projects such as head-boards, where a curved profile maybe needed across the top of a sheet of material without cutting around the complete shape.

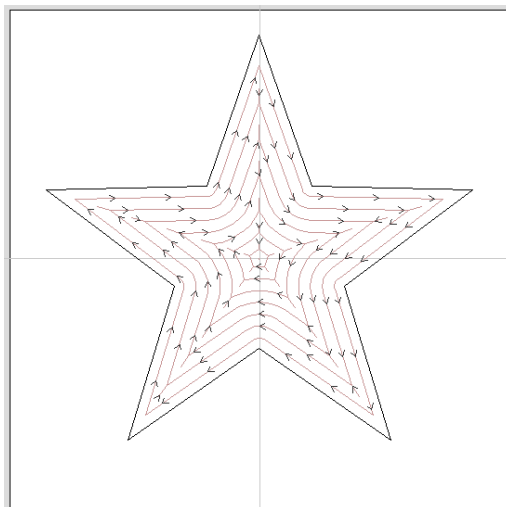
When Profile machining **On** selected vectors the **Cut Direction** now controls whether the cutter starts at the start node or at the opposite end of open shapes.

Conventional cutting along an Open shape starts at the start point

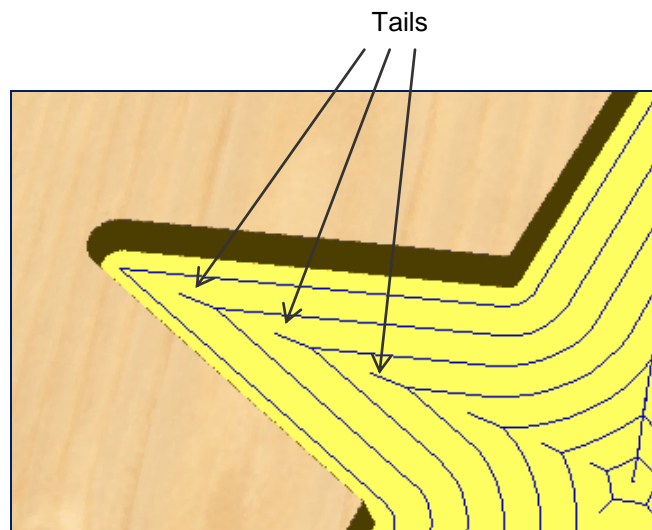
Climb cutting along an Open shape starts at the End point and cuts back to the start point.

Pocket Machining Enhancements (4.6)

A totally new Pocket Machining strategy has been developed for version 4.6 that allows stopovers greater than 50% to be used. When stepovers greater than 50% are used small 'Tails' (see images below) are automatically added to corner regions of toolpaths. The 'Tails' ensure the cutter removes all unwanted material as quickly as possible and typically reduces cutting times by at least 20% - 30%.



2D Toolpath Preview



3D view showing Toolpath 'Tails'

The Tails are automatically added to Pocket and Flat Bottom VCarving / Engraving toolpaths.

Pocket machining toolpaths were previously limited to a maximum stepover of 50% of the cutter diameter, to ensure material was not left in corner regions on projects. This resulted in unnecessarily long machining times when machining soft materials.

It is important to note that stepover distance is often controlled by the material being machined and the type of cutter being used. Hard / Tough materials usually require smaller stopovers whereas softer materials can often take advantage of the larger stopovers available in VCarve Pro 4.6.

Miscellaneous Enhancements

The option to send toolpaths directly to Mach3 (version 2.61 or newer) has been added in 4.6. This saves having to keep opening the toolpaths in Mach3. The Mach3 postp's now include the Direct output option.

When opening or importing PDF documents that contain multiple pages - Word processor / design documents, new layers are automatically created for each page in the file. Previously all pages were created on a single layer making it very difficult to work with these types of files.

When exporting DXF files the correct units (Inches / Metric) are now written into the file.

For a list of the bug-fixes in version 4.6 see the Readme.txt file.

What's New in Version 4.5

The new tools in VCarve Pro 4.5 have been added to make designing and laying out projects much easier, quicker and more precise. Most of the new functionality is found in the 2D window where tools such as Rulers and Guide Lines plus accurate Snapping options are perfect for accurate drawing and object placement.

The high quality Toolpath Preview has been enhanced to show the toolpaths in the 2D Window and see instantly what the toolpaths will and won't actually cut.

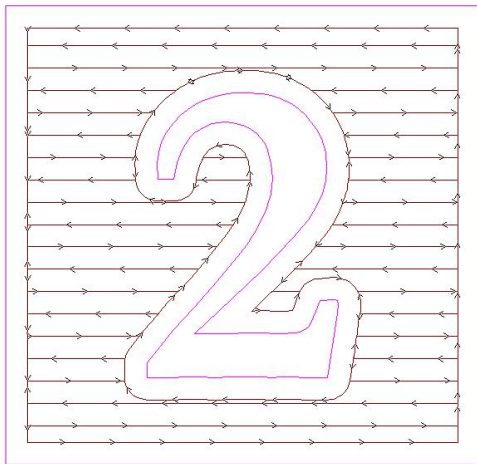
New Toolpath Preview Options

Although the high quality colour shaded 3D Toolpath preview options in VCarve Pro give fantastic results that are perfect for printing and customer approvals etc. It can sometimes be difficult to determine whether a toolpath is cutting Outside / Inside / On a line.

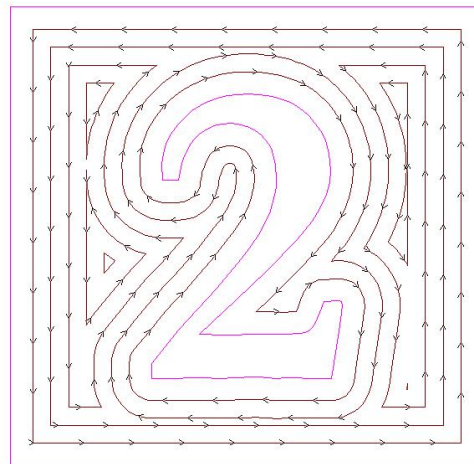
The New 2D Preview options show exactly where toolpaths will cut relative to the vectors. The 2D preview can be selected to draw the vector lines to represent the centre point of the cutter or to show in solid colour the complete area that the cutter represents relative to the vectors. This shows where the cutter will leave material on the job – for example leaving fillets in corners that the cutter cannot get into.

2D Wireframe Toolpath Preview

The Wireframe 2D Toolpath shows arrows to indicate the cutting direction and can be used to preview all calculated toolpaths in the 2D window.



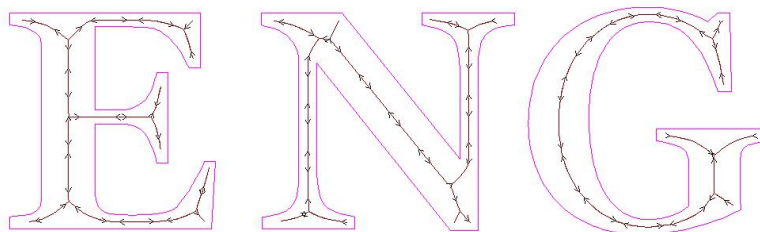
Raster Pocket Toolpath



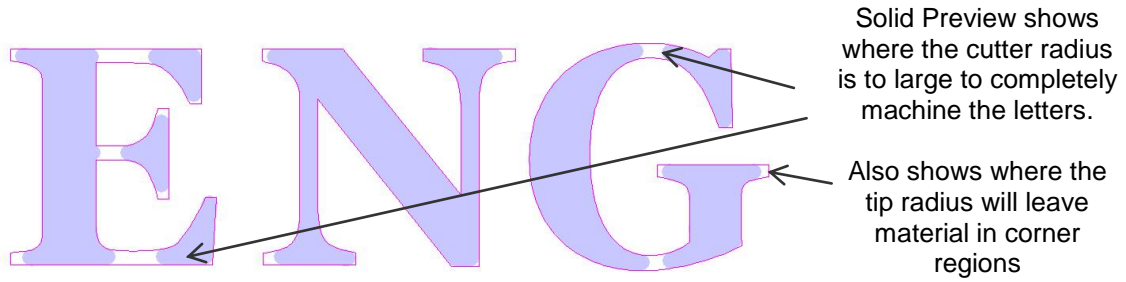
Offset Pocket Toolpath

2D Solid Toolpath Preview

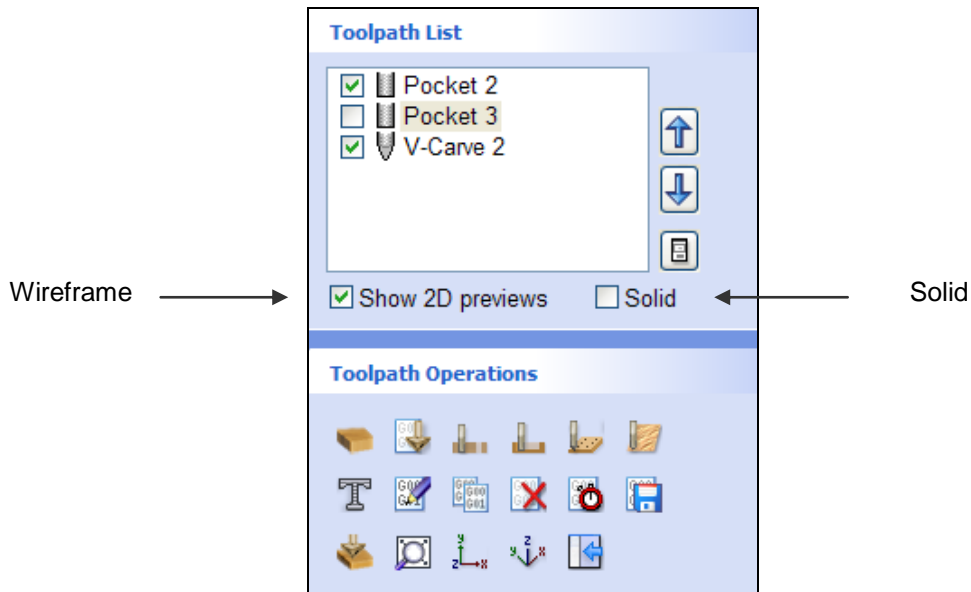
The solid 2D Toolpath preview shows exactly where material will be removed and instantly shows where material will be left because the cutter is too large to fit through the selected vectors.



Wireframe Preview for
Engraving / VCarving
Toolpath

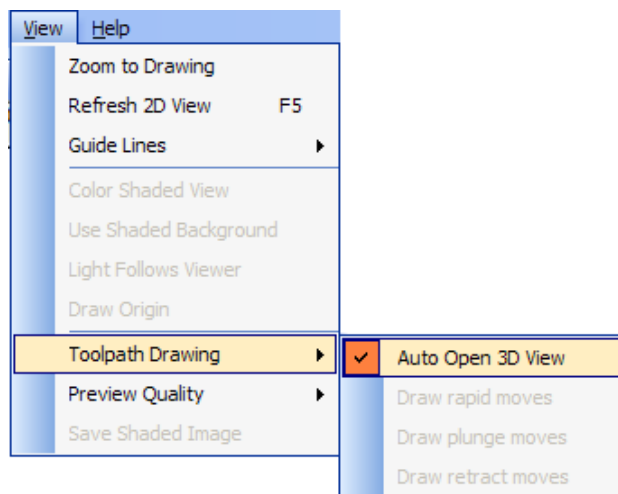


The visibility of 2D toolpath previews is controlled using the Toolpath List Manager to display or hide any calculated toolpaths in the 3D window.



Auto Open 3D View

A new option has been added that enables the 2D view to remain open after calculating toolpaths, instead of automatically opening the 3D view, which is the way previous versions of the software behaved. This is quite useful for experienced users who may be calculating multiple toolpaths and don't always wish to keep the 3D view.



New Design and Layout Tools

Additional layout and drawing tools have been added to the Drawing Tab on the Left side of the interface and this document explains what these enhancements are.

2D View

Rulers, Guide Lines, a Snap Grid and Toolpath Previews are now all available in the 2D View

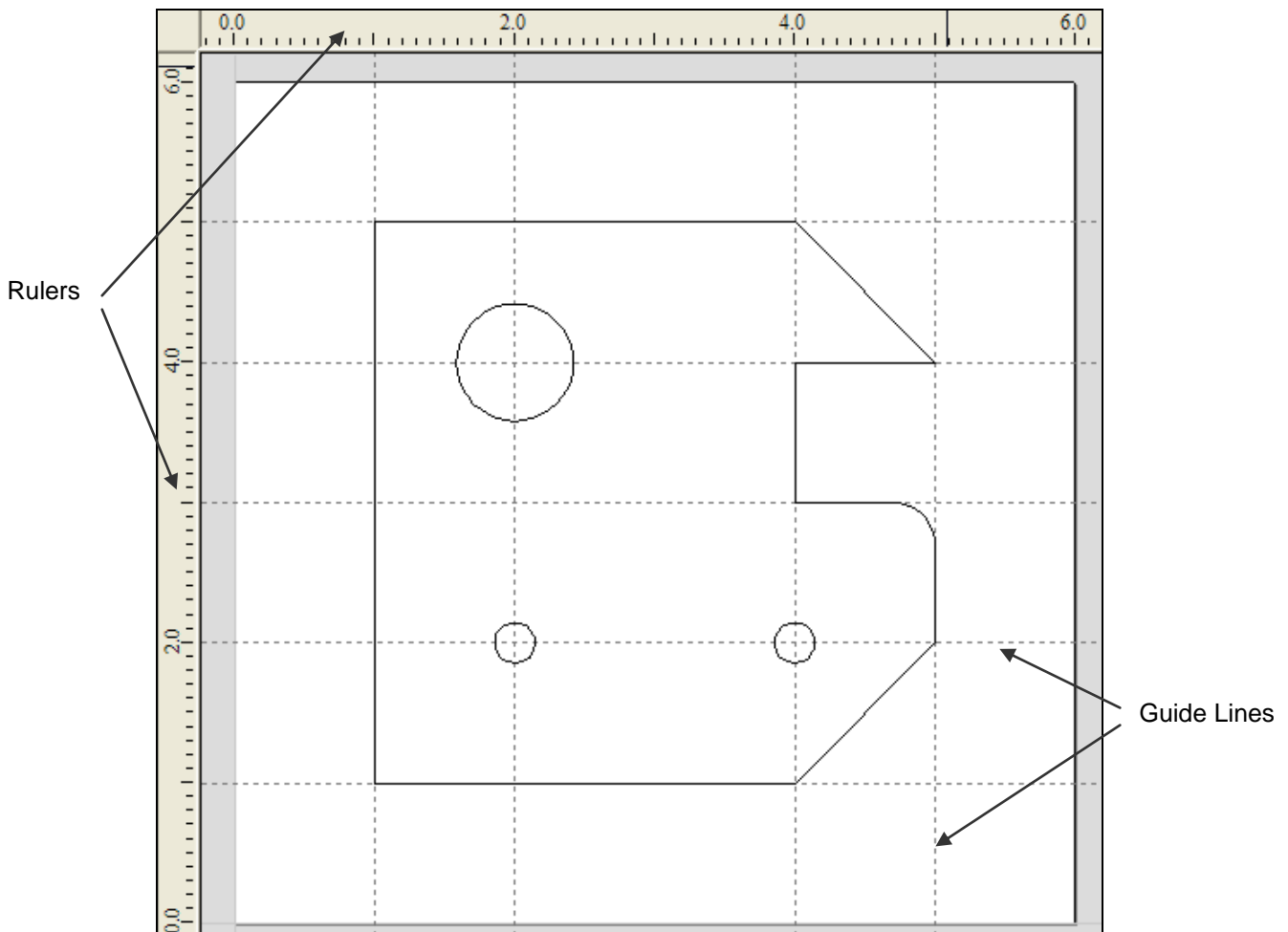
Rulers

Horizontal and Vertical Rulers have been added to the 2D window that give immediate view of the job size and make it much easier to layout designs.

Zooming in / out changes the unit values displayed on the rulers with units in 10ths.

$10'' > 1'' > 0.1'' > 0.01'' > 0.001''$

$100\text{mm} > 10\text{mm} > 1\text{mm} > 0.1\text{mm}$

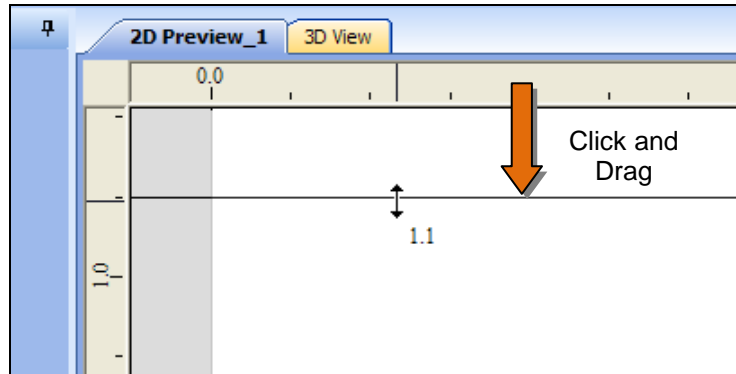


Rulers and Guide Lines make drawing shapes much easier

Guidelines

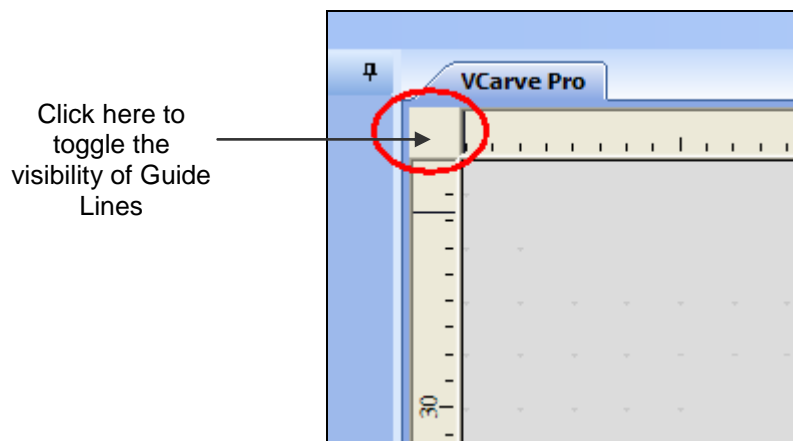
Guide Lines make sketching designs quick and easy and are also very useful for drawing and aligning objects relative to each other.

Guidelines are added by **Clicking and dragging** (left mouse button) a guide off the rulers. The position of the Guide Line is displayed next to the cursor while dragging it to the required position.



The guides automatically snap to the whole units displayed on the ruler making it very easy to position a guide at the required location.

To show or hide the Guide Lines in the 2D window click in the **Top Left corner of the window** where the vertical and horizontal rulers meet.



Guide lines are deleted by clicking and dragging each guide line off the 2D window back onto the rulers.

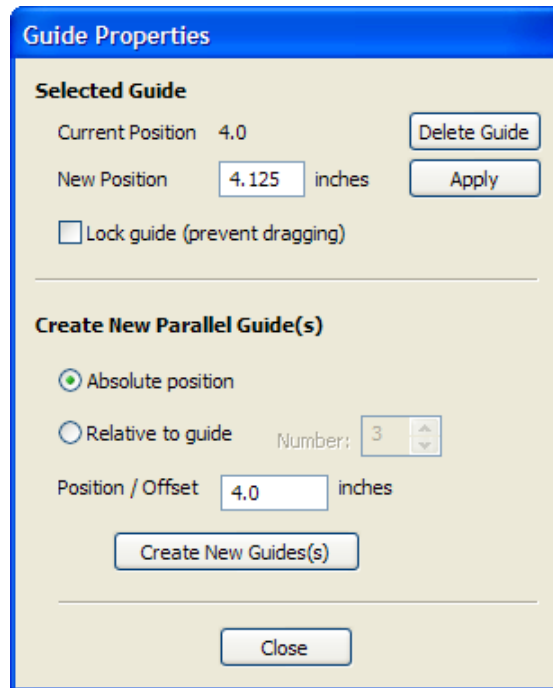
All Guide lines can be deleted using the Main Menu option,

View > Guide Lines > Delete All Guides

To Move, Delete, Lock or Add more Guide Lines place cursor over the guide and click the,

Right mouse button

Position / Delete / Lock
Guide Lines



Create new
Guide Lines

The Guide Properties menu is displayed giving options to,

- Delete the selected guide
- Move the guide it to a new position
- Lock the guide in position to stop it being accidentally moved
- Add additional Guide lines at Absolute positions or at an incremental distance

Guide Lines can also be added interactively relative to an existing Guide by,

- Holding the **Ctrl** key and **Click and drag**, moving the new guide to the required position
- The incremental distance from the original guide is shown next to the cursor
- Releasing the Ctrl key while dragging to position a guide displays the absolute position

Snap Grid

A Snap Grid can now be added to the 2D window to help when drawing and laying out designs. The Snap Grid is switched on / off and the grid size specified by,

- Pressing **F4**
- Selecting **Edit > Snap Options**

When drawing or moving objects the default mode is to snap to the grid points.

Snapping can be overridden / temporarily disabled by holding the Shift key

Snapping Options

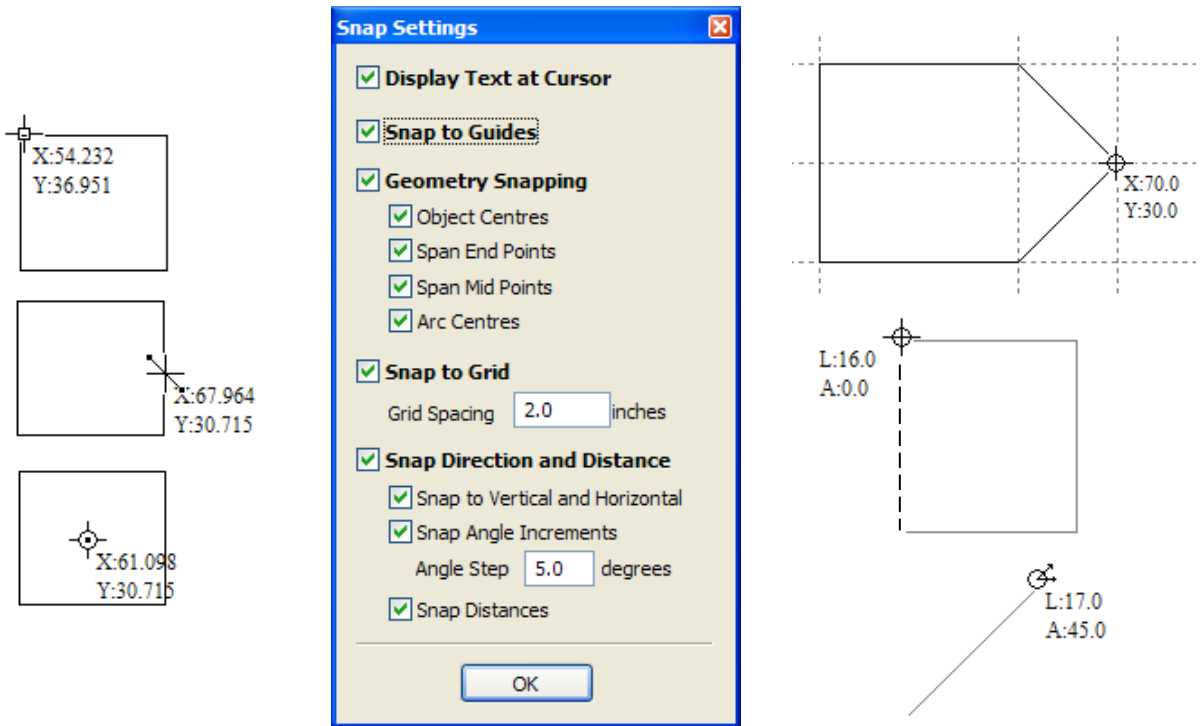
The new snapping options automatically work when drawing shapes or positioning objects. The cursor changes to show the various snap options.

When drawing the cursor will snap to,

- End points, Mid-points, Arc centers and centers of objects
- Horizontally, Vertically and the specified Angle and Distance
- Guide lines and the intersection of Guides

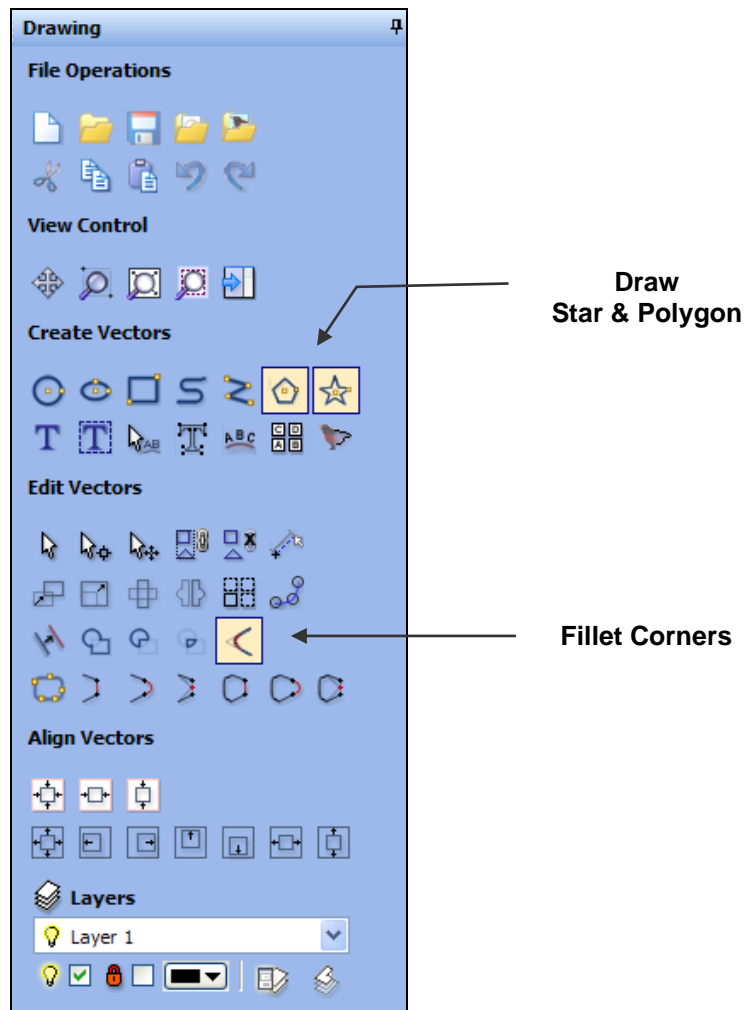
Snapping can be overridden / temporarily disabled by holding the Shift key

The Snapping Settings can be configured using the by Pressing **F4** or selecting **Edit > Snap Options**



Drawing Tab

The drawing tools have been updated with new icons for the new functionality.

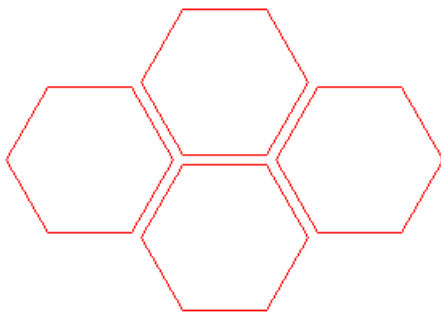
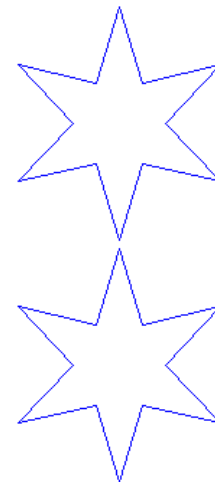


Draw Stars and Polygons

Star and polygon shaped vectors can quickly and easily be drawn directly in VCarve Pro by clicking and dragging with the left mouse button.

Click and Drag
or type
Coordinates for
the middle of the
shape

The Inner radius is
specified as a % of
the Outer radius



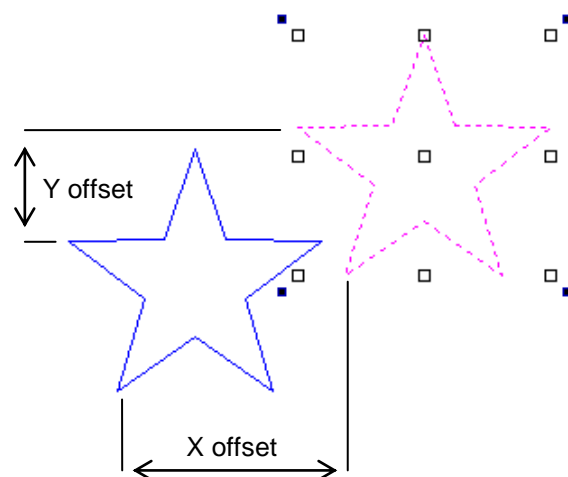
Click and Drag
or type
Coordinates for
the middle of the
shape

Note The properties of a Star or Polygon can be changed by clicking the appropriate Draw icon.

Move Vectors

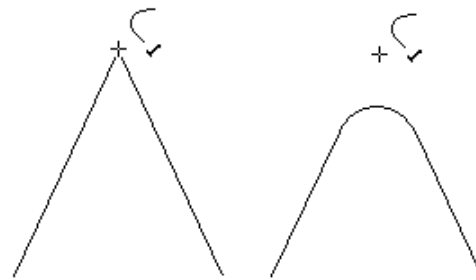
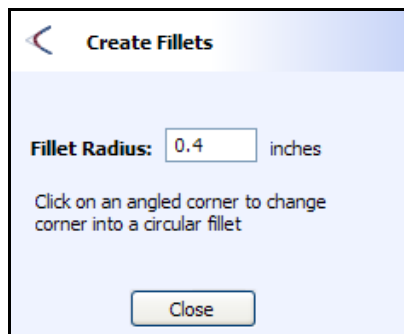
The move vectors form has been enhanced to include the option for moving vectors to an absolute position on the material or simply by an incremental distance.

New
Relative Move
option



Fillet Corners

The new filleting tool allows corner fillet radiuses to be added at the corners or connecting lines.



The cursor changes to show whether a fillet can be added to a point, showing a ✓ Tick when a fillet can be added at the selected point.

Notes Fillets can only be added where connecting lines meet

Fillets cannot be added where Bezier's or Arcs meet or join lines.

Drag Copy – Keyboard Shortcut

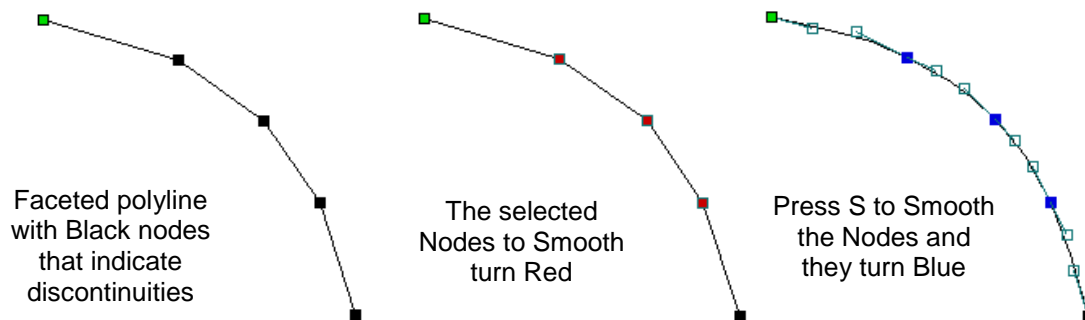
Vectors can be copied interactively by holding the Ctrl key and dragging with the Left mouse button.

Click twice to select the vector and start the transform mode. Then holding the Ctrl key and dragging with the Left mouse button places a copy of the selection every time the left mouse button is released.

Node Editing Options

Multiple nodes can be smoothed – changed from black to blue nodes using the keyboard shortcuts.

Select the Node Editing Tool or press N to start node editing. Select the node(s) to smooth, place the cursor over the node and press the letter S.



Support

If you need assistance or have any questions about the new features in VCarve Pro version 4.5 please use the following options to contact the Vectric Support Team.

E-mail the Support Team

support@vectric.com

Visit the Vectric User Forum

www.vectric.com/forum