

# Getting Started With VCarve Pro 4

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**Tutorial**  
**Tracing and Machining Images**

**V**ectric

# VCarve Pro

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## Disclaimer

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This tutorial explains step-by-step how to design and machine a VCarved Sign starting with a raster image file.

**Summary**

Many projects start out as an scanned image from a business card or brochure or digital photograph that the customer wishes to transform into a new company sign. This is often quite a challenge because the scanned data cannot be CNC machined without first creating vector boundaries.

There are software products like InkScape and Corel Trace that create vectors that can then be exported / saved in a format that can be imported or opened in VCarve Pro. Alternatively, you can import and trace the raster image directly into VCarve Pro and this tutorial explains how this is done.



Original Raster Jpeg Image file



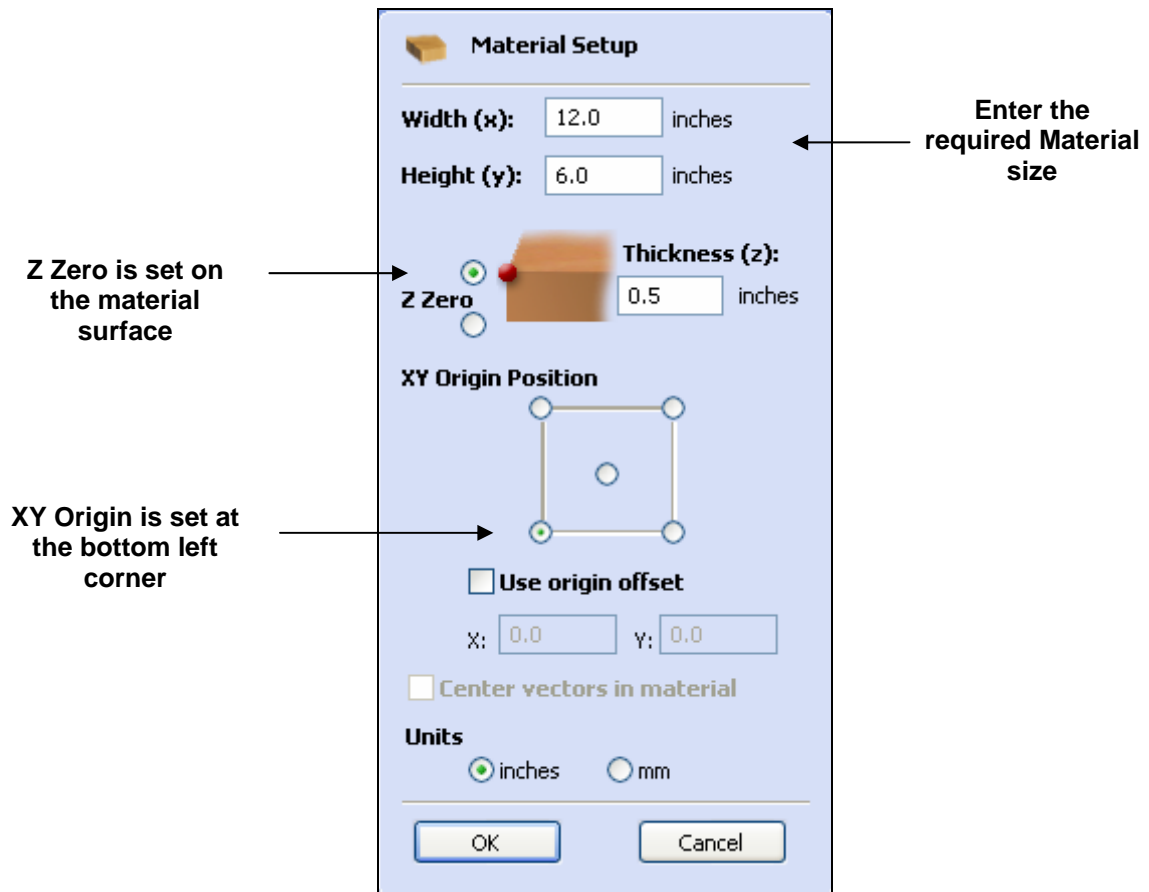
3D Preview precise carved sign

**Note** The Raster image file is available from the /**Sample Files** folder

# 1. Create a New Job and Import the Image File

Create a New job and specify the **Material Size = the Sheet size** you wish to machine the sign from.


For example you may have 12" x 6" (300mm x 150mm) 1/2" thick sheet of wood.

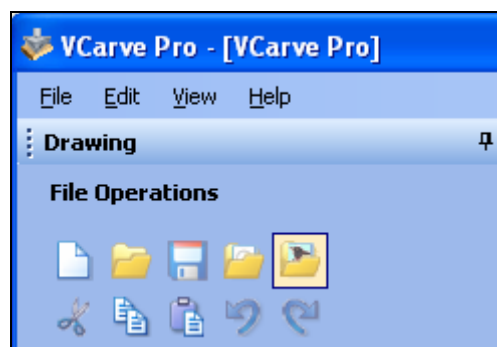


The material size will be shown in the 2D window as you enter the Width and Height.

**Note** The X0 Y0 Origin is set in the bottom left corner of the material.

Click the **OK** button and the

From the File Operations menu select the Import Bitmap for Tracing  icon.



File Operations menu

**Note**           JPG, BMP, TIF, GIF and PNG files can be imported

Navigate to the /**Sample Files** folder and select the file named - Velocette.jpg

C:\Program Files\VCarve Pro 4.0\Sample Files\Velocette.jpg

The image will be shown slightly washed-out in the 2D window as shown below.




Click Left mouse button on the image to select it and it will be displayed in black and white



With the image selected the size can be specified and this can be done by,

Clicking twice on the image to start the interactive sizing mode and clicking and dragging on one of the corner handles to modify the size.

Clicking the Scale selected vectors  icon and entering the required size as shown below

Enter Width = 10"  
The Height will be scaled

**Edit Vectors**

**Set Size**

Anchor

Width (X) 10.0 inches


Height (Y) 4.0375 inches

Link XY

Apply Close

Click the **Apply** button and the image will be scaled to the correct size.

## 2. Trace the Image

With the image selected click on the Fit Vectors to Bitmap  icon and the form will open.

**Create Vectors**

**Trace Bitmap**

Type of tracing to use

Color

Black / White

Number of Colors / Threshold

Min Max

0.80

Set Threshold to be 0.80

loose = Smooth fit and fewer nodes

Tight = Many small lines and nodes

10 Pixels stops vectors being traced around small blocks of pixels

**Corner Fit** Default Corner Fit

Loose Tight

80%

**Noise Filter** Default Noise

1 Pixel 10 Pixels

4

Replace existing vectors


Fit Vectors Close

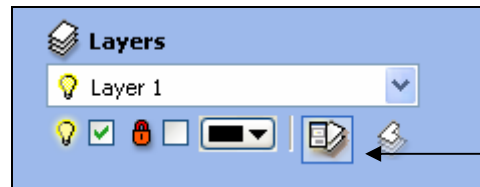
Select the Black / White option

1 Pixel traces every pixel in the image

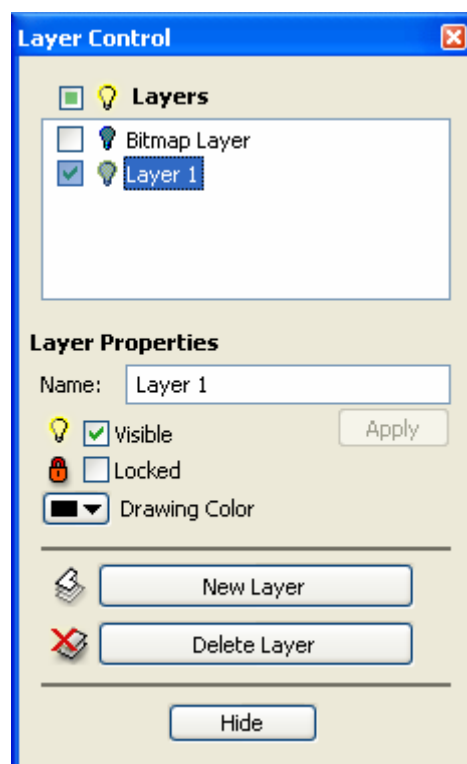
Click the **Fit Vectors button** and the image will automatically be traced to create vectors in the 2D window. Experiment with the Threshold slider, Corner Fit and Noise Filter controls to see the effects they have on the vectors created.

Click the **Close button** to close the Form and return to the Drawing Tools Tab.

In the bottom left corner of the screen is the Layer Control Manager .




Layer Control Manager



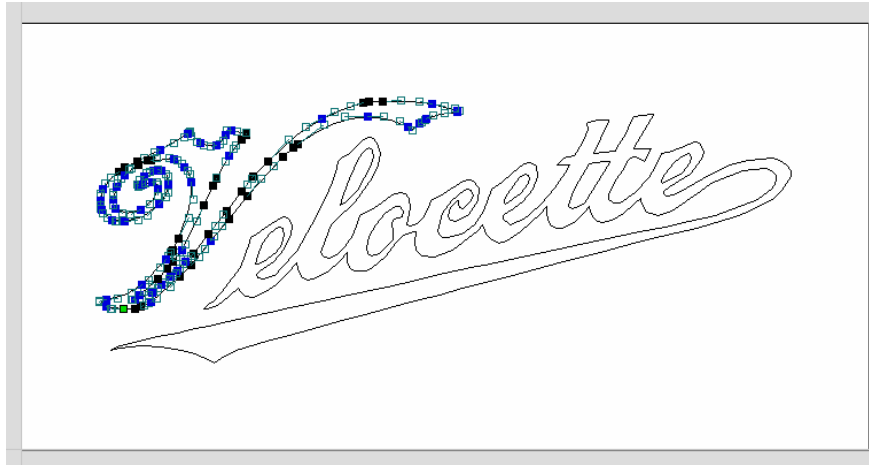
Turn off the **Bitmap Layer** and the raster image will disappear from the 2D window.

Then select **Layer 1** as this is the layer that any new vectors will then be drawn on.

Click the **Hide button** to close the Layer Control manager.

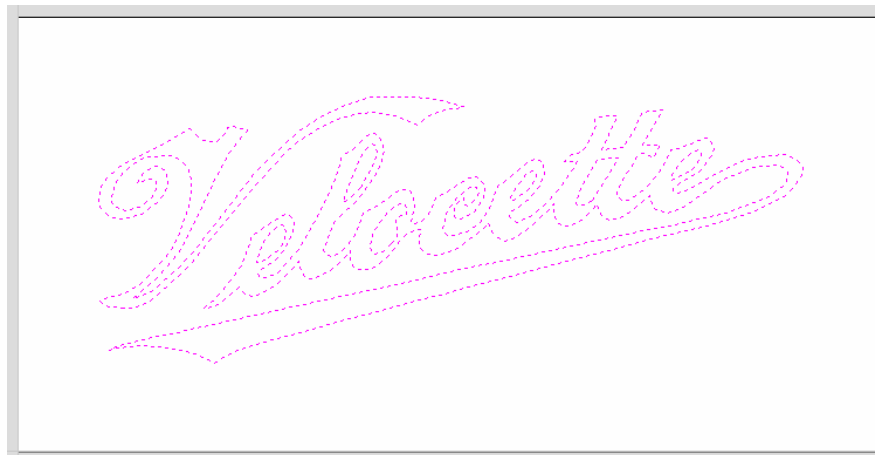
Select the **Node Editing selection Tool**  or press 'N' and click on the vectors to show the nodes as shown below.






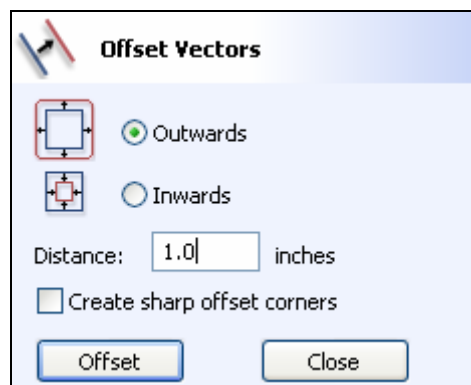
Press **Esc** twice or click the **Right mouse button** twice to cancel the Node Editing mode and return to **Selection mode**.

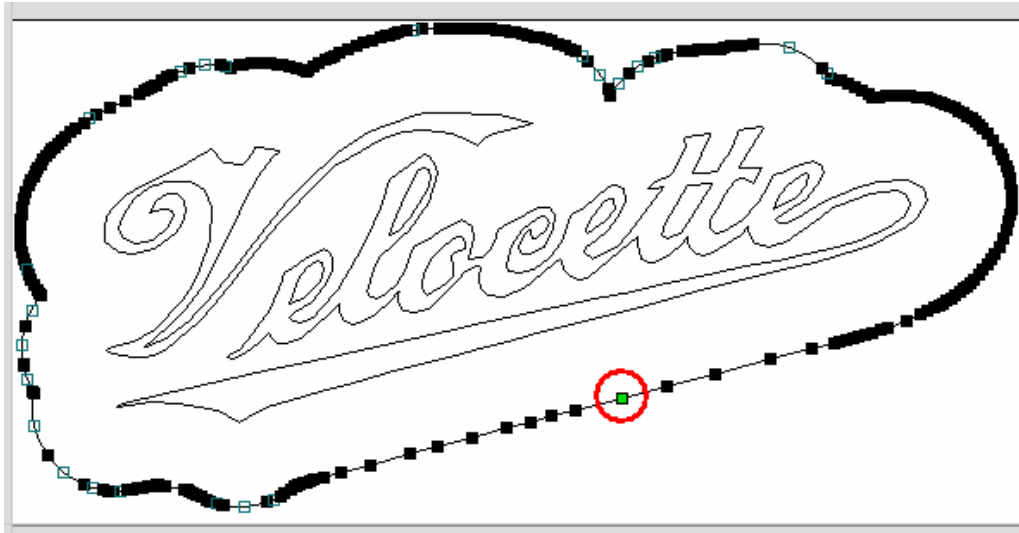
**Drag and select all the vectors** in the design or use the keyboard shortcut **Ctrl +A**. The selected vectors are drawn as dotted purple lines in the 2D window as shown below.



Selected vectors drawn in dotted purple

Select the **Offset vectors**  icon and offset the vectors **Outwards** by **1"**





Select the new outer vector and press 'N' to start Node Editing as shown above.

Place the cursor over the node shown above (along the straight region), click the **Right mouse button** and select **Make Start Point** or press **P**. This is where the profile toolpath will start machining.

The node will turn **Green** to indicate this is the **Start Point** for machining.

The design is now ready for machining.

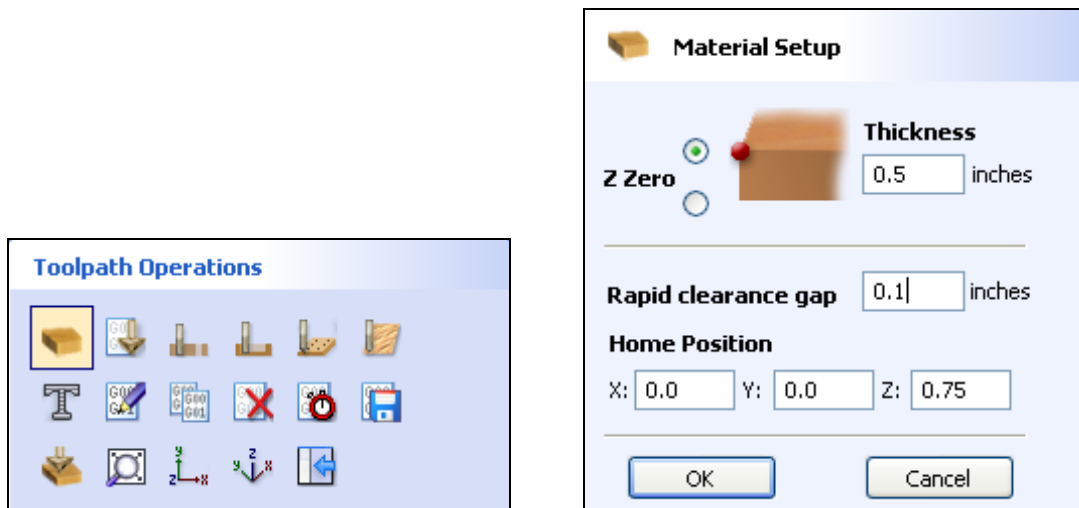


From the **View Control** section click on the icon to **Switch to the Toolpaths Tab** that closes the left hand interface and opens the toolpath options on the Right Side of the screen.

This automatically **closes** the **Drawing Tab** and **opens** the **Toolpath Tab** on the **Right** side of the screen as shown below.

### 3. Setup the Material

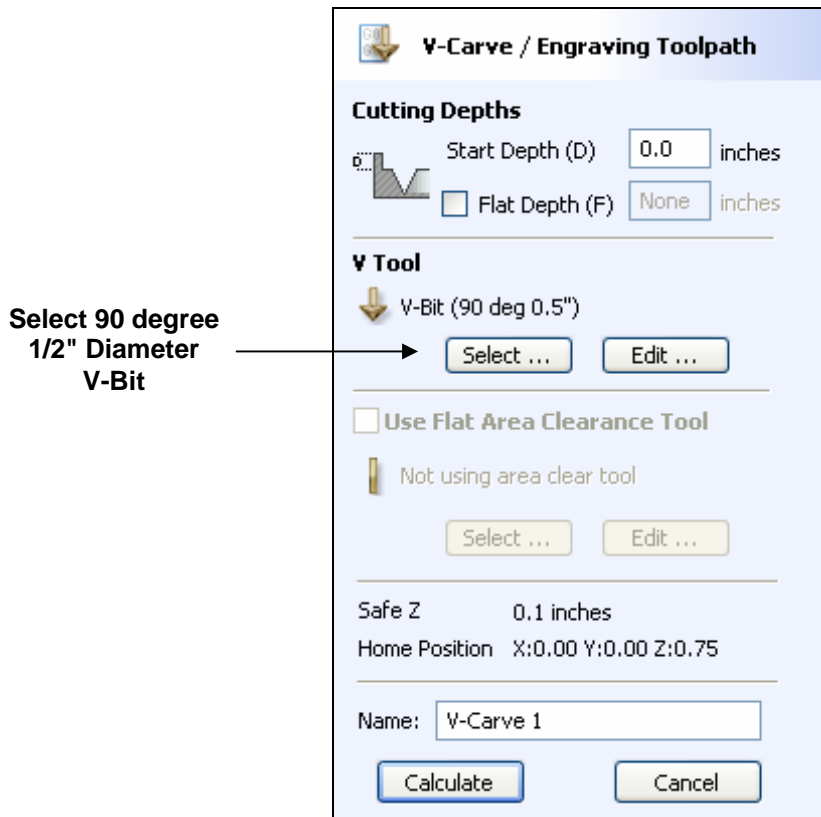
Select all the vectors that make up the Master Template by clicking and dragging to select the vectors. Open the Setup Material form and make sure the Thickness and parameters are correct.



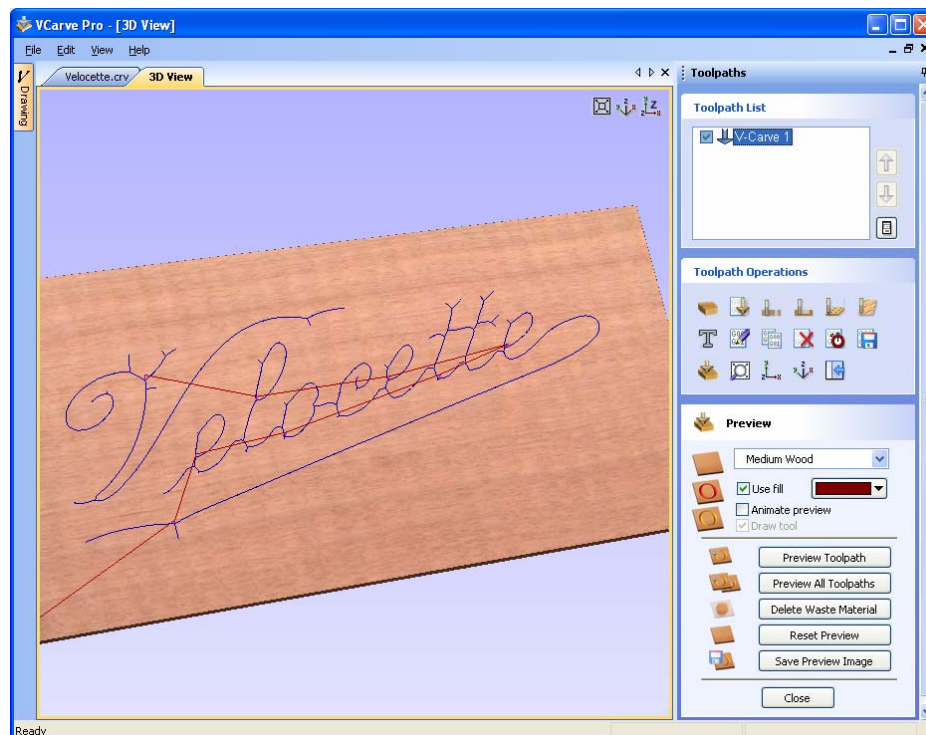
Material Setup form

#### 4. Calculate a VCarved Toolpath

Click on the Create VCarve / Engraving Toolpath and Select a suitable cutter from the Tool Database (or setup your own cutter details). In this example we are using a 1/2" diameter 90 Degree VBit to machine the logo design.



Click the **Calculate** button and the toolpath will be drawn in the 3D view as shown below.



The Preview form is automatically opened and clicking the Preview Toolpath button simulates the toolpath showing how the job will look when machined.

Experiment with the various Material types and Fill colours



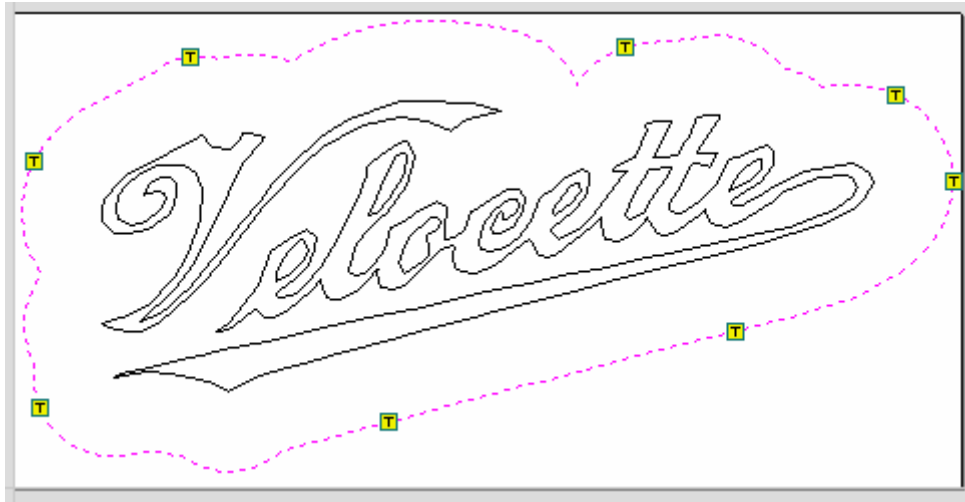
Colour shaded 3D Preview

Click and drag Left mouse to twiddle the 3D model

Click and Push / Pull the Right mouse button to Zoom - or middle roller mouse button

Click and drag Left + Right mouse buttons together to Pan

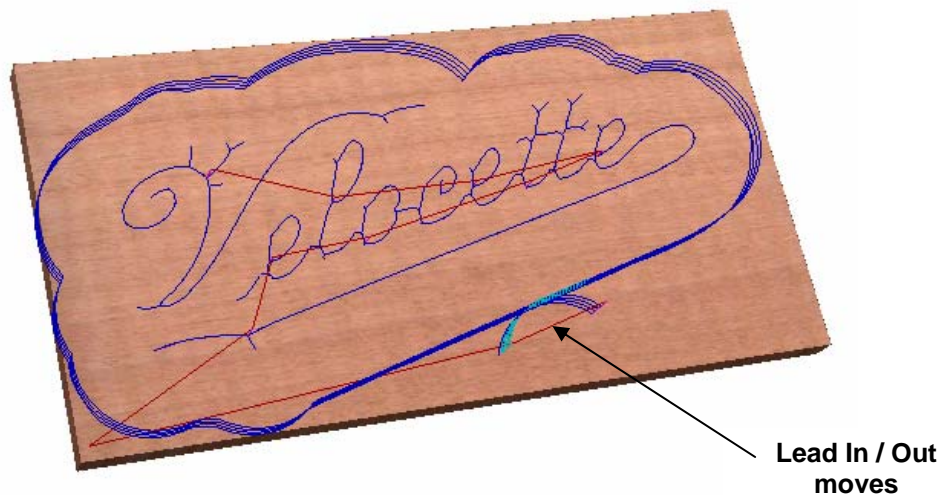




Click **Left mouse** button to place Tabs around the design

**Note** The Cutting parameters - speeds and feedrates should be set for the material being machined.


Click the Calculate button and the result will be shown in the 3D window.

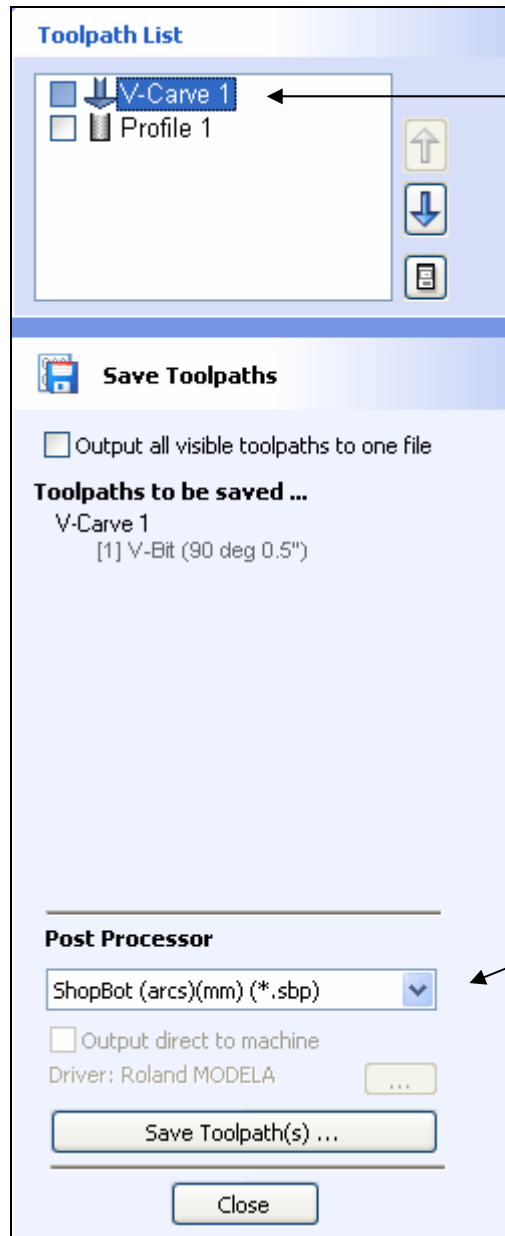


3D window showing the 3 toolpaths

## 6. Saving Toolpaths and Estimating the cutting times

After calculating the toolpaths the final stage is to Save them ready for machining.

Save the Toolpaths by clicking the **Save Toolpath**  icon.



Select each Toolpath and Save the file ready for engraving

Click the **Save Toolpaths** button to save the selected Toolpath.

**Important**

Take extreme care to ensure the material and cutter are setup correctly before running the toolpaths on the engraving machine.

**Notes**

Toolpaths that use the same cutter can be output to the machine together by making the toolpaths **Visible** and checking the option to **Output all visible toolpaths to one file**.

Calculated toolpaths can be edited by,



Clicking the **Edit Toolpath** icon or **Double clicking** on the name of the Toolpath name in the Toolpath List.

If you have any questions or need assistance

E-mail - [support@vectric.com](mailto:support@vectric.com)

Visit the Vectric User Forum - [www.vectric.com/forum](http://www.vectric.com/forum)