

VCarvePro

Aspire

Getting Started

A quick start guide for
VCarve Pro & Aspire
users

Vetric Ltd.

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Tutorial - Intermediate Level

Importing 3D Toolpaths

Getting Started with Aspire & VCarve Pro

Disclaimer

All CNC machines (routing, engraving, and milling) are potentially dangerous and because Vectric Ltd has no control over how the software described in this manual might be used. Vectric Ltd or any associated Resellers cannot accept responsibility for any loss or damage to the work piece, machine or any individual, howsoever caused by misusing the software. Extreme care should always be taken and the output from the software thoroughly checked before sending it to a CNC machine.

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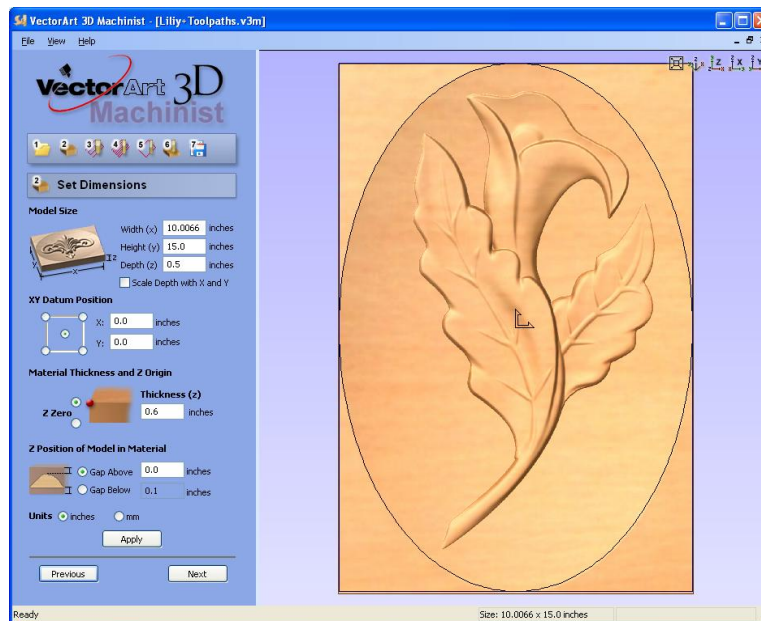
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Introduction

This Intermediate Level Tutorial explains how 3D designs from the Cut3D and Vector Art 3D Machinist software can be imported and added to VCarve Pro / Aspire projects. The notes assume that you understand how to select, draw text and calculate toolpaths, and only covers the key points required to import toolpaths.



3D Clipart model in the Free Vector Art 3D Machinist Software

Getting Help






If you need assistance when using the software there are 5 primary places to look.

1. **Program Help File** - From the Main menu select Help
2. **Video Tutorials** - These are supplied on the installation CD or can be downloaded from the Vectric website.
3. **User Forum** - The Vectric user forum at www.vectric.com/forum is a very useful resource for information on VCarve Pro along with materials, cutters etc. and also to share knowledge and experiences.
4. **E-mail Support:** - The Vectric Support Team at support@vectric.com
5. **Frequently Asked Questions (FAQ)** - The support area on the Vectric web site at www.vectric.com maintains a list of the most frequently asked questions along with the answers.

View Controls






The View Control options available when working in the 2D Design and 3D Preview windows are,

2D Design Window

	Zoom Interactive	Mouse with Middle Wheel – Push / Pull
	Zoom Box	Click top left corner Click bottom right corner
	Pan	Click and hold the Left mouse button – Esc to cancel Shortcut: Click and drag the Middle mouse button
	Zoom Extents	Zooms to show material limits in the 2D window
	Zoom Selected	Click to select an object or objects Zooms to the bounding box of the selections

Note Mouse with Middle Wheel can be used to interactively zoom in / out.

3D Window

	3D Twiddle	Click and drag Left mouse button in the 3D window
	Zoom	Right mouse button – Push / Pull Mouse with Middle Wheel – Push / Pull
	Pan	Click and drag Right mouse button + Ctrl Click and drag Right and Left mouse button
	Plan View	Looks directly down the Z axis onto the design in 3D window
	Isometric View	Shows the model in a 3D isometric view in the 3D window

Note Pressing **F2 & F3** will toggle between displaying the **2D & 3D windows**

Introduction

This tutorial will explain how 3D toolpaths from Cut3D or the Vector Art 3D Machinist software can be imported into VCarve Pro / Aspire and added to an existing design. The finished door panel shown below in Figure 1 is approximately 20" (510mm) wide by 26" (660mm) high. This design is based on the Cabinet Door project that is available from the VCarve Pro install folder and the Free 3D model from the Vector Art 3D web site.

For more details on 3D Clipart and Vector Art 3D see the web site - www.vectorart3d.com

Important The 3D Lily clipart design has been opened, rotated and sized to around 10" wide " and 15" high using the Free Vector Art 3D Machinist software. The appropriate toolpaths calculated and the complete file saved ready for importing into VCarve Pro.

Notes The 3D toolpaths cannot be scaled once imported into VCarve Pro. You must set the correct for the 3D designs before importing them. In this example the following cutters will be used.

A 0.250" (6mm) diameter End Mill to Rough machine the Lily leaving 0.060" on the job

A 0.125" (3mm) diameter Ball Nose cutter for the Finish 3D toolpaths cutting to size.

An Ogee cutter or 1/4" (6mm) diameter End Mill cutter to cut around the frame




The 5 key stages in preparing toolpaths for the picture frame shown above are,

1. Opening the Cabinet Door panel from the Samples folder.
2. Import the 3D toolpaths and position as required
3. Profile a decorative border or a simple cut out toolpath
4. Preview the completed job
5. Save the Toolpaths

Note: This tutorial uses files that can be used to machine sample files on your own CNC machine.

1. Opening the Cabinet Door Design

The vector artwork can be directly opened and the material size specified.

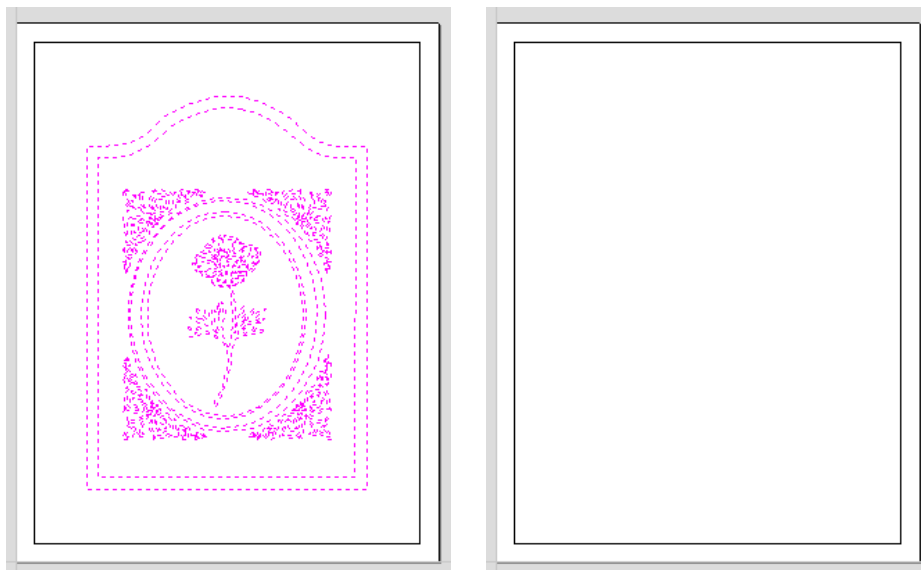
1. From the Startup Tasks tab toolbar click on the Open file  icon and select the file,
C: Program Files\Aspire or VCarve Pro\Sample Files\Cabinet_Door.crv

This design is Material dimensions are 22" wide x 28" high x 1" thick

The Z Zero origin for setting the datum for the tool is on the Material surface.

The XY Origin will be the bottom Left corner of the job.

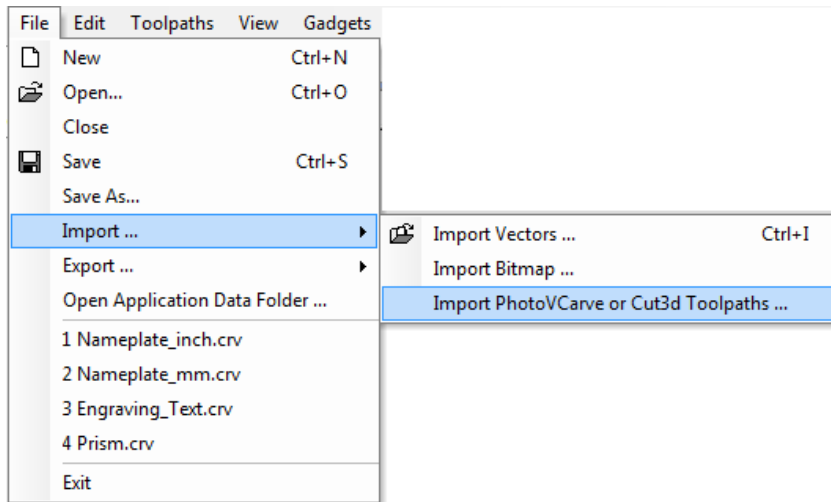
Delete the unwanted vectors in the design by dragging to select and pressing the Delete key.



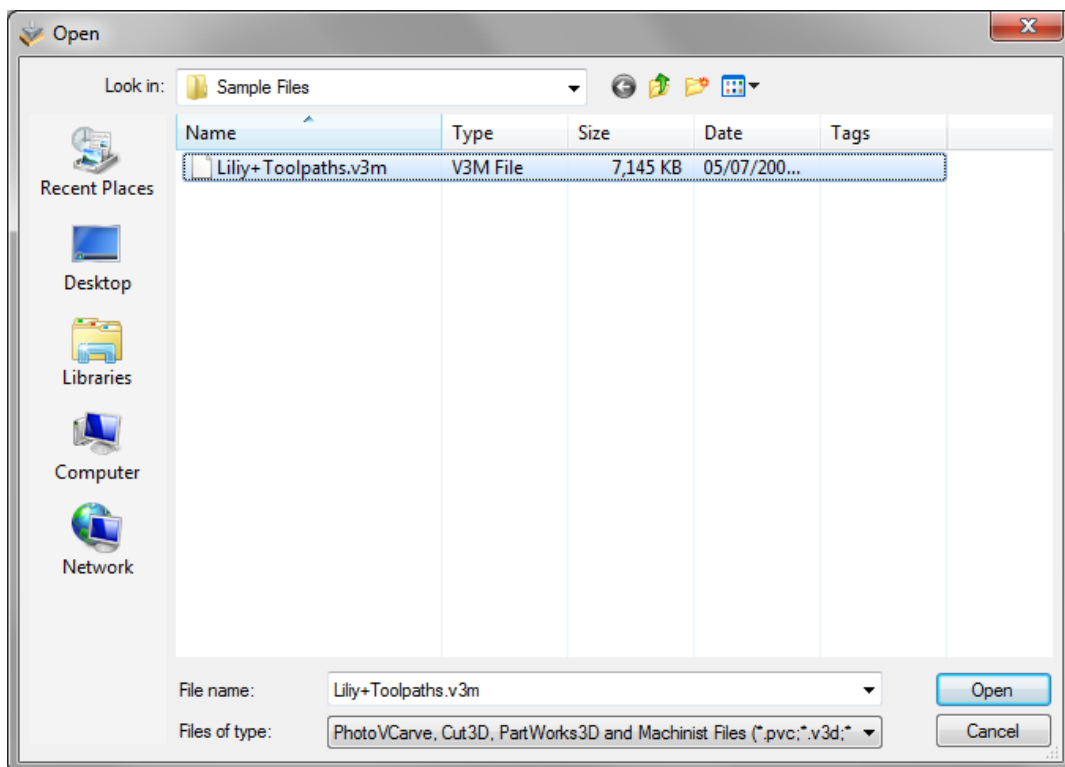
Leaving the single rectangle shown above

2. Import the 3D Clipart Toolpaths

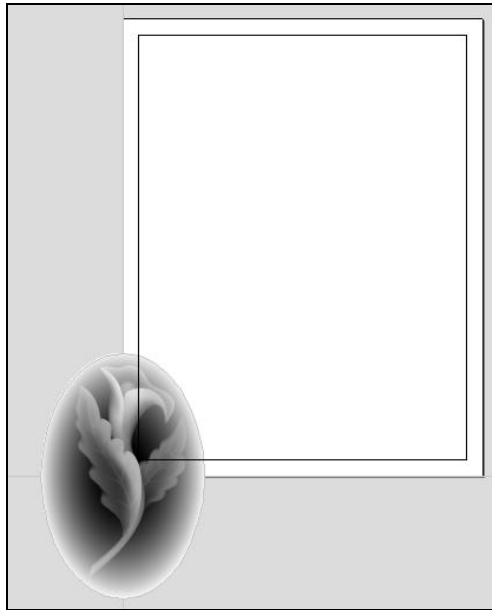
2. From the .File menu Import from a File icon.



Select the Vector Art 3D Machinist file (.V3M) or Cut3D (.V3D) file you wish to place on the door panel.




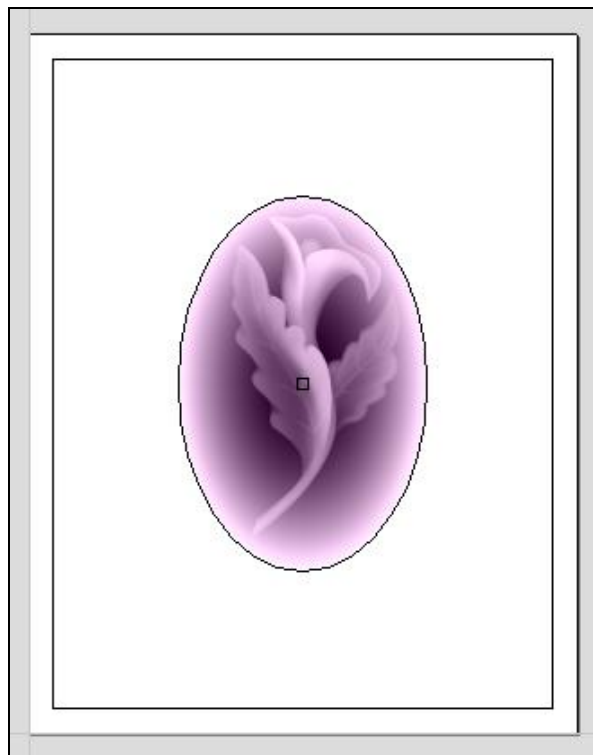
3. A Grayscale image of the design appears in the 2D Window.



4. Click to Left mouse Twice on the grayscale image to select and the image turns a Light Blue.



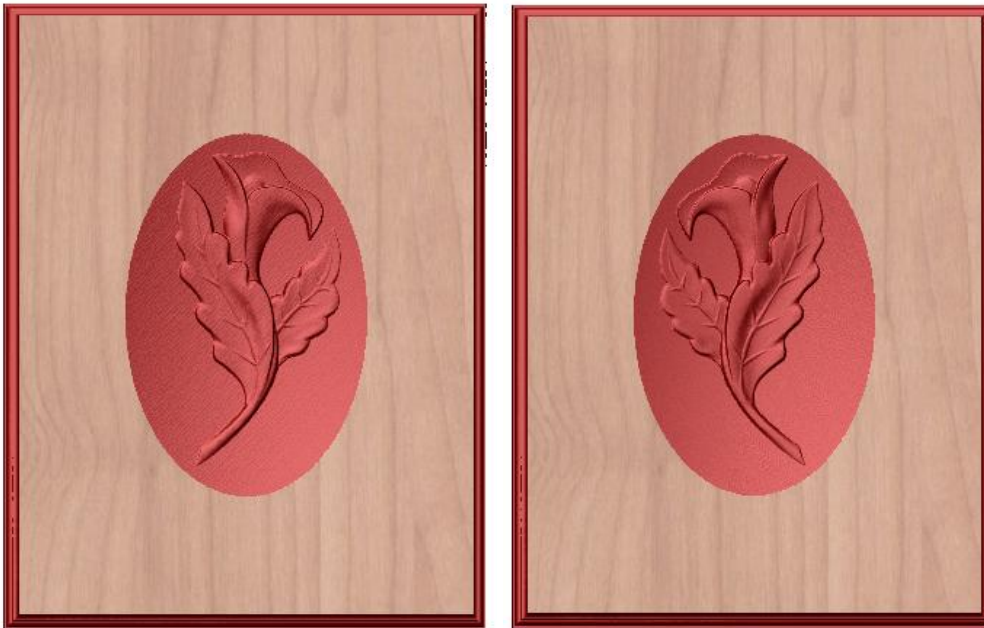
Use the alignment tool Center in Material  to move the grayscale image and the corresponding 3D toolpaths will be moved to the same position in the 3D window.




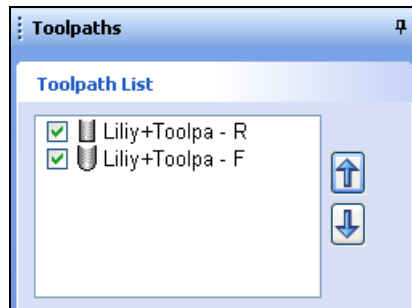
Remember that Multiple 3D Toolpath designs can be imported into a single VCarve Pro design.

The designs can be moved and mirrored as required. For example, the Lily on the 2 panels below has simply been mirrored to make a matching pair of doors.

5. Click the Mirror  icon and Flip Horizontal option 





6. Click the Switch to Toolpaths Tab  icon. This closes the Drawing Tab and opens the Toolpaths Tab on the right side of the interface. The 2 Toolpaths for the imported Cut3D / Vector Art 3D Machinist designs are displayed in the Toolpath List.



The - **R** in the filename indicates this is a Roughing Toolpath


The - **F** in the filename indicates this is a Finishing Toolpath

7. Click on the Setup Material  icon and specify the Rapid Clearance Gap (the height above the job that the tool can move at maximum feedrate). .
8. Calculate any additional toolpaths such as a Molded Edge form or a simple cut out using the Profile Toolpaths options.

In this example an Ogee cutter has been profiled  around the border of the design followed by a **1/4" End Mill** to cut the framed picture from the material.

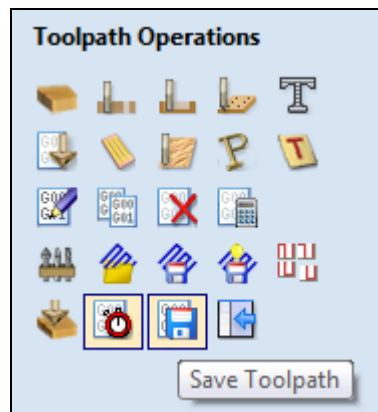
4. Previewing the Job

A simulation of the toolpaths cutting into the material can now be shown in the 3D Window

9. Click the Preview All Toolpaths  icon and each tool will be shown cutting into the material.
10. Experiment with different Material types and Fill colors to display the Preview image in the

5. Estimate Cutting Times and Save Toolpaths

11. The Estimated cutting time and Save Toolpath options are available from the Toolpath Operations area on the Toolpath tab.



12. The Toolpaths are saved by clicking the Save  icon.

13. Click to select each toolpath in the Toolpath List and Save each file with a new name.

14. If you have a CNC machine that has an Automatic Tool Changer (ATC), each toolpath must be specified using a different Tool Number before the toolpaths can then be saved into a single file.

Note: The 3D Clipart File and machining software are both Free and can be downloaded from the Vector Art 3D web site - www.vectorart3d.com