

Project Designer PRO Software Manual

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Important Information About Designer PRO 3 Upgrade

What is included in this manual?

This manual describes the exclusive features in Project Designer PRO 3 that are not part of Project Designer BASIC.

Why do I need Project Designer PRO 3?

All the newest tools & features are available only for Project Designer PRO 3.

How do I know if I have Project Designer PRO 3?

On your desktop you will have an icon that looks like the CarveWright machine done in blue and orange and will have the number 3 on the side of the machine icon. You will also have needed to purchase and register the license activation code.



Software Requirements for Project Designer PRO 3:

Windows Operating System:

- Microsoft Windows XP with Service Pack 2, Windows Vista, Windows 7 or Windows 8

- 512 MB of RAM for XP
- 1GB of RAM for Vista, Windows 7 or 8
- 75MB of available hard- disk space
- CD- ROM compatible drive (With active internet connection)
- Internet access for registration and updates
- Graphics card supporting OpenGL 2.1 with 256 MB of Video RAM or VRAM
- 1.2Ghz Dual Core Processor

Macintosh Operating System:

- Mac OS X version 10.3 or later
- Mac X11 Windowing System (removed from recent Mac OS Mountain Lion – downloadable here: <http://support.apple.com/kb/ht5293>)
- 512MB of RAM
- 75MB of available hard- disk space
- CD- ROM compatible drive (With active internet connection)
- Internet access for registration and updates

Before Purchasing Designer 3 Upgrade:

- To see the DEMO OF DESIGNER PRO 3 FEATURES, watch the INSTALLATION VIDEO and try the STEP-BY-STEP TUTORIAL, click here:
<http://support.carviewright.com/project-designer-pro-tutorials/>
- You can download the Designer PRO 3 software and play with the software as a Free Trial Version for 30-days. You will not be able to upload to a memory card, save or carve until purchased and registered.
- Designer BASIC (1.183+) and Designer PRO 3 (3.00x+) can both be installed on your computer, although only one version can run at a time.
- If your computer currently has a version of the Project Designer Software installed that is **Version 1.182 or earlier** (older), then you must first **REMOVE THAT INSTALLATION** through your Control Panel.
- Note that whichever software was installed last will be the default program used when double-clicking on projects, patterns, etc.
- If you OPEN & SAVE a project in a newer version, it is **NOT BACKWARDS COMPATIBLE** to 2.0X or earlier. Save back-up copies, if unsure.
- All previously purchased & activated patterns, projects and advanced software WILL work in 3.00x, once you have purchased and registered to your existing Customer Account.
- Designer PRO 3 is activated and treated as an add-on. It is non-transferable, if system is sold, however the Designer BASIC Software is transferable with machine registration.
- Message to customers with numerous projects or patterns:
 - If you use the OPEN WITH PREVIEW function, you may experience numerous crashes until all of the thumbnails for your ptn & mpc files have been created. These crashes may be the result of ptn or mpc files that were created with much earlier versions of the software.
 - It will create these thumbnails starting with each time you open a folder that contains these file types.
 - The crashes will stop once the preview thumbnail files are created.
 - It can be turned off under HELP > DISABLE FILE PREVIEWS.
 - This is not an issue for new CW customers that are just starting to build their collection of patterns & projects.

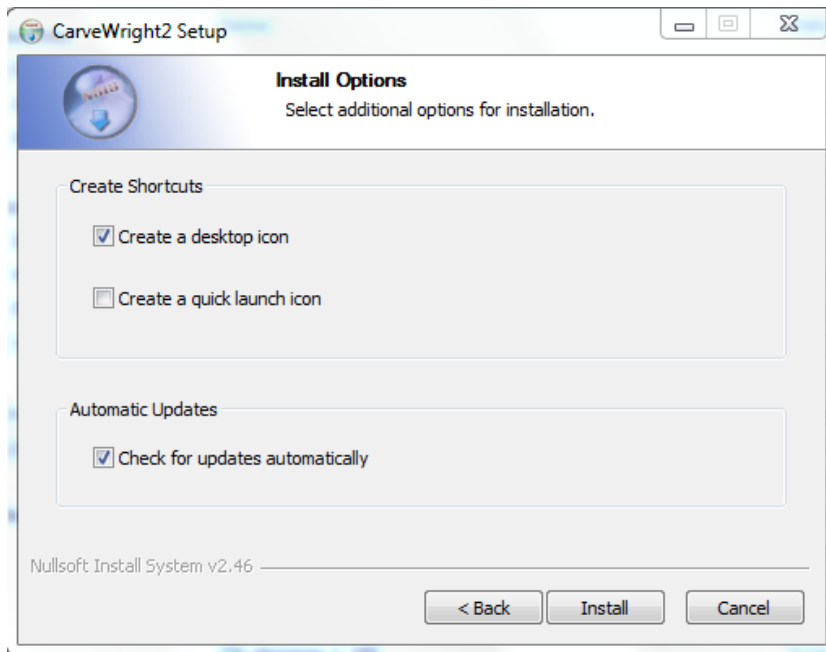
Installation & Registration of Designer PRO 3:

Go here for information on installation, registration & troubleshooting Designer PRO 3 software: <http://www.carviewright.com/update3/>

Designer PRO Features

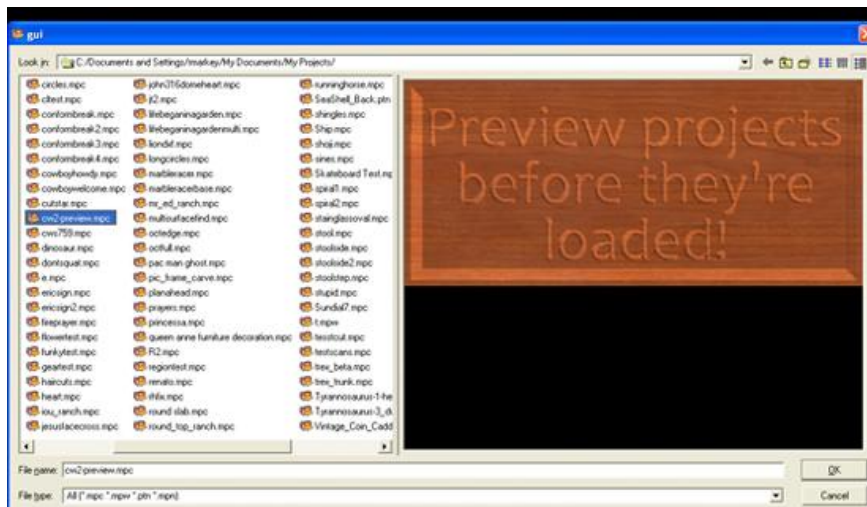
Refined Installer and Update Checking

The Project Designer PRO features a stream-lined installer for newer operating systems. During the installation process you will have the option to check for automatic updates to the Project Designer PRO software. This was added to ensure that you will always be able to stay up to date on the software. If you missed the option during installation it can be selected from inside the program. To do this simply go to the Help Menu at the



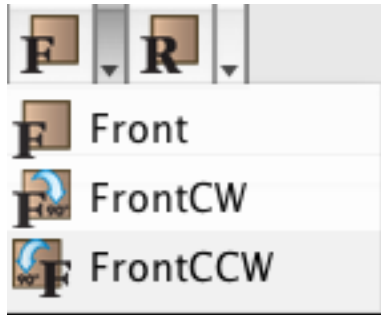
top of the screen and select the option Check for Update Automatically. If you don't want the program to connect and check to ensure you are on the most current version of the software on its own then you can leave it off and manually check for updates. To manually check for updates you will go to the Help Menu at the top of your screen and select the option Check for Updates.

Open with Preview



Open with Preview will allow you to preview projects you wish to use before opening them. To access this feature go to File and select the option Open with Preview. If you do not see this option you will need to go to the Help Menu at the top of your screen and select Enable File Previews.

Project Board View Options



option of Front/Rear CW for a clockwise rotation of the board and Front/Rear CCW for a counter clockwise rotation of the board.

In the BASIC version of the Designer program you have two options for board viewing, Front and Back. You could always use the Rotate Tool to change the view angle but only had the two options for a quick jump. Now you have the option to view both the front and rear view of the board at a 90° clockwise or counter-clockwise rotation. To select from these simply go to the standard F (front) and R (rear) view buttons and click on the arrow to the right of the button. A new menu will drop down and you will see the options for the standard front or rear, as well as the

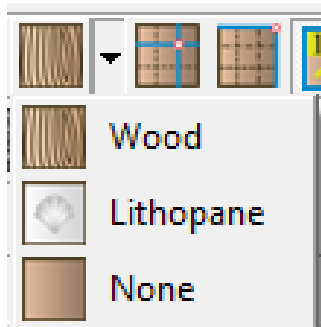


Custom Feather Option



We have upgraded the feathering options to allow you to set your own size for feathering. Instead of having to select from 0, 1/8", 1/4", or 1/2" you will now see the Feather: Custom option. This option can be set anywhere from .001" to 1".

Lithophane Viewer

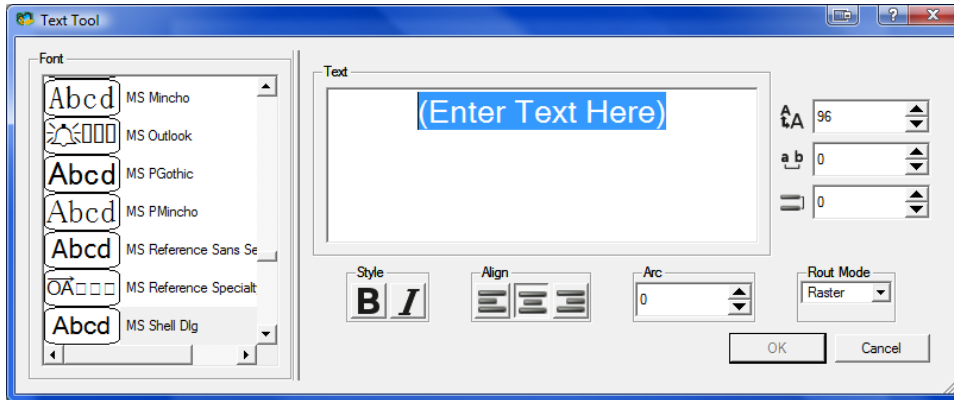


The Lithophane viewer option allows you to see how your project will look, if you were to create it as a lithophane. For those of you unfamiliar with lithophanes they are patterns or pictures carved into cast acrylic or another high density, high heat resistant plastic product (Corian). These are typically backlit to allow better viewing of the image. To switch to the Lithophane Viewer go to your material selector tool and you should see the Lithophane option. You will need to adjust your board settings to allow for the correct view. Most lithophanes are carved in 1/4" material but the machine is set to only allow a minimum 1/2" material. To get this to work you will need to build a sled so that you can get the correct material into the machine. This feature requires OpenGL 2.1 to be enabled. If you do not have OpenGL 2.1 or higher this option will not be visible to you.

Optimization of Centerline Add-on

If you have purchased and activated the Centerline add-on software, then you will see improvements in the software & machines handling of this feature. Centerline is NOT included as part of Designer 2.

Text Tool Controls



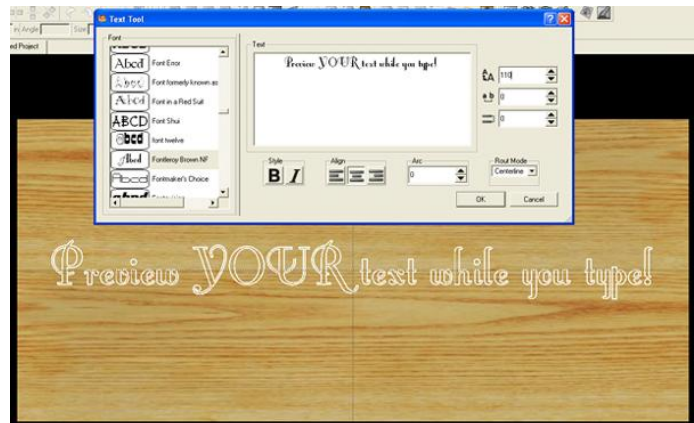
The Text Tool allows for more control over your fonts. You can set the size of each individual letter by highlighting the letter/letters wanted and adjusting the point size. You

can also adjust the kerning or letter spacing by highlighting the letters or words intended and changing the kerning number. The higher the kerning number the more spacing you will see between each letter. You can also adjust the line spacing which will change the space separating each line of text, with higher numbers creating a larger spacing.

****Remember the changes will only effect the letters, words or lines of text highlighted.****

Preview Text on Board

Preview text allows you to see how your text will look on the board as you type it in the Text Tool box. This makes it easier when selecting a font and adjusting the new text controls.



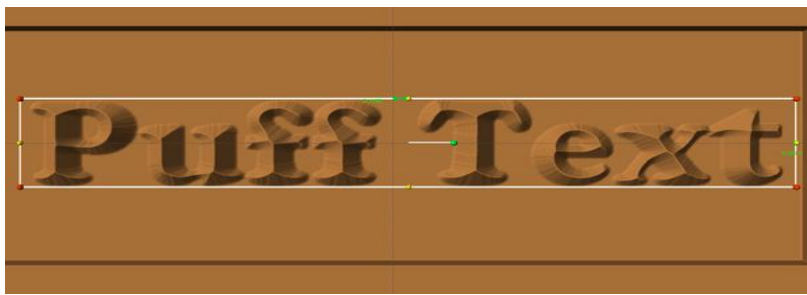
Decorate with Text Tool



The Text Tool allows you to apply text to an open path. In past versions of the designer software, you could only place text on the board in a straight line or arc. Now you can create an open path and assign text to follow the shape. To use this feature, first you will need

to create your shape that you want the text to follow. Once you have your shape placed on the board you will select the Decorate with Text Tool, which looks like a slanted letter T. This tool will work the same as the normal Text Tool for sizing, spacing, font selection, and rout mode.

Puffing Text

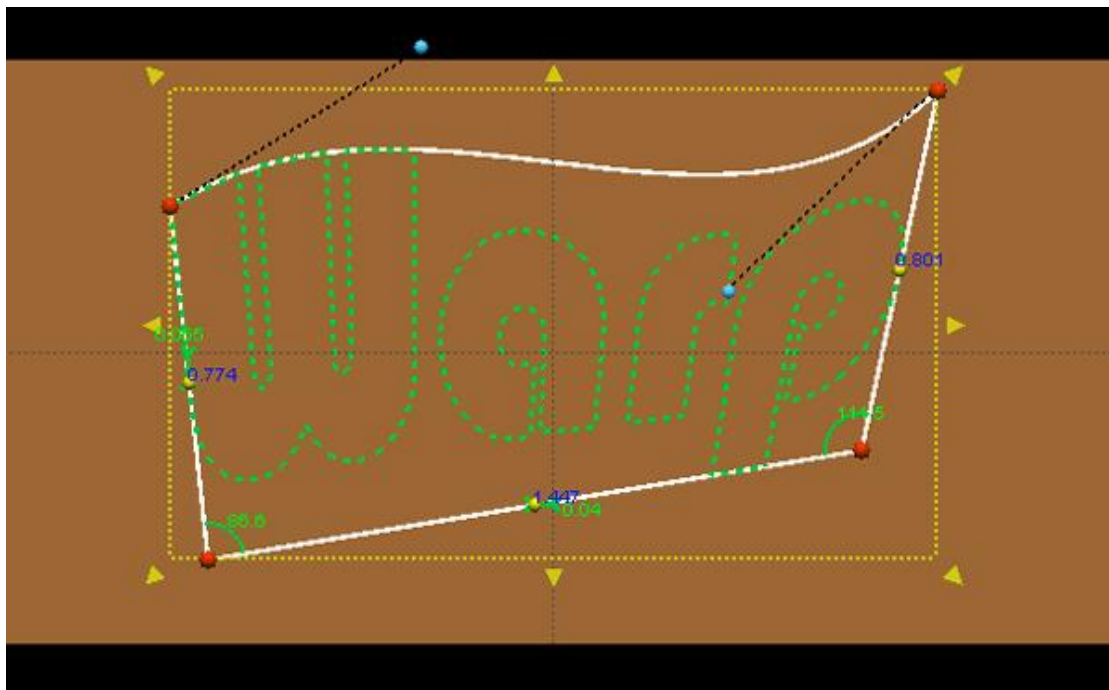


You now have the option to use puffing on text, as long as you have purchased and activated the 3D Pattern Modeling Suite. This option can be applied to any raster text using any of the 3D puffing options. To puff text



simply add your raster text to the board using either the plain text tool or decorate with text tool. Once you have your text placed on the board you will select the puffing tool and the puff that you want on your lettering. The puffing tool is a feature in 3d Pattern Modeling Suite add-on and NOT included as part of Designer 2.

Edit Envelope Tool

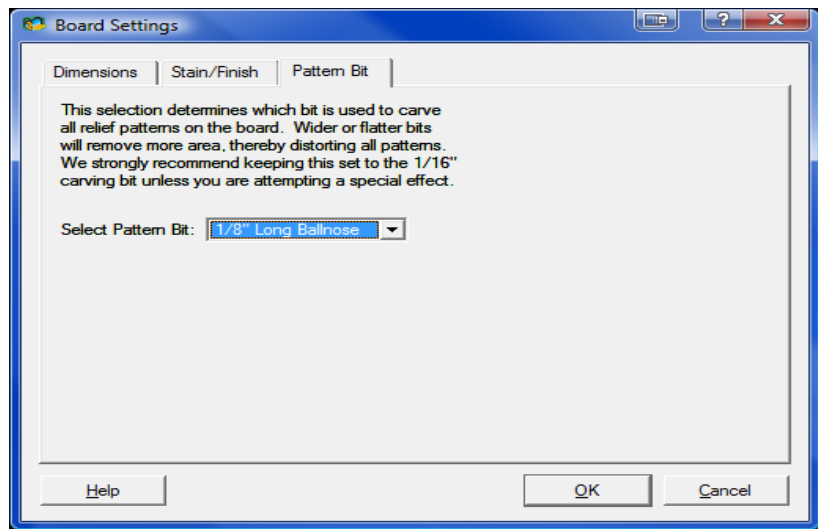


The Edit Envelope Tool allows you to warp the envelope or box of your text or patterns. By editing an envelope you can "conform" the shape of the element to fit the area you have in your project and not have to fit your project to the element. To edit the envelope for your project piece you will need to first layout your element on the board and then you will select the Edit Envelope Tool which looks like a skewed square with red dots in the corners. This tool can be found beside the Decorate with Text Tool and will open when clicked on. The tool will open in a new window and you will need to change the lines to splines or arches as needed to adjust the shape of the element. To change the lines, right-click on the line and select desired FORM. Then, manipulate the shape of the element for preferred effect.

Deep Carving

In version 2.004, we added support for our long bits allowing you to carve up to 2 1/8" or 2.125" deep. This is a vast difference in carving depth capabilities over our previous bits, which were limited to .8" deep based on their structure.

To change a RASTER bit, go to EDIT > BOARD SETTINGS > PATTERN BIT. This bit selection will apply to all raster carving on your project.



Font Notification

Designer will now let you know when you open a project, if the assigned font is not available and offer a substitution.

Floor Feather Option

This option smoothes out the bottom layer of pattern pixels for a cleaner feather. Default is on, but you can turn it off.



Dual Wood Grain Textures

Dual wood grain textures can be applied to your board using two different wood grains in a total of three different layers. OpenGL 2.1 or higher is required for this feature to be available. Go to Edit > Board Settings and set the layers.



Rotary Jig and Software

The Rotary Jig Software is an ADD-ON feature that is available for purchase. See <http://www.carvewright.com/accessories-page/rotary-jig/> for more information.

Flip Within Jig

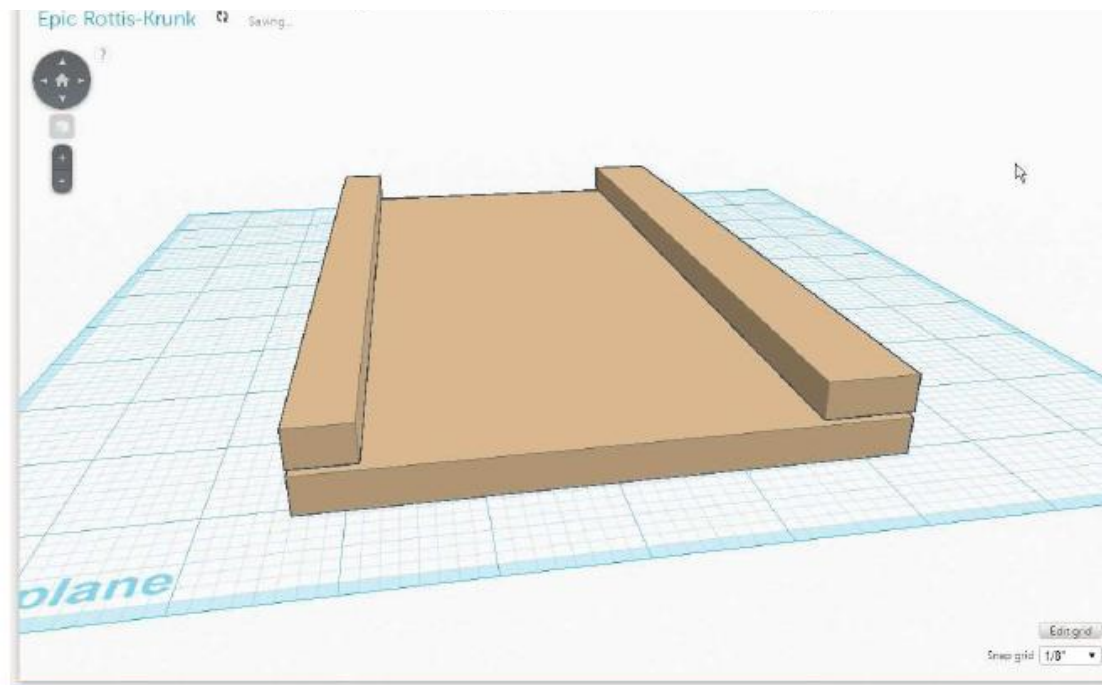
Software version 2.005 or newer is required.

Although the CarveWright system was designed to securely hold and track a board while carving, carrier boards, or jigs, as they are usually referred to, are used in an effort to minimize waste of expensive wood. Jigs can be build to “stay under rollers” all the time, making tracking and head positioning more consistent. Jigs are especially useful as they can provide a smoother tracking surface for carving boards that may not be ideally suited for the machine, such as slices from a tree trunk, or wood that would lose its character if it were planed & squared.

CarveWright firmware version 2.005 introduced a new feature for double-sided carves. Previously, double-sided projects did not work well with jigs, because they require the entire board to be flipped along the board's width. In this case, most users split projects in two – the front, and the rear. With this software release, the jig can now be accounted for when a board is flipped.

Previously, the firmware would calculate the position of the board after a flip, based on the dimensions of the board on the first side. This new feature requires the user to jog to position on both the front and back side of the board. No calculation is performed.

Here we have our jig. It's not very straight. The edges are different sizes. It's just like I would build it.



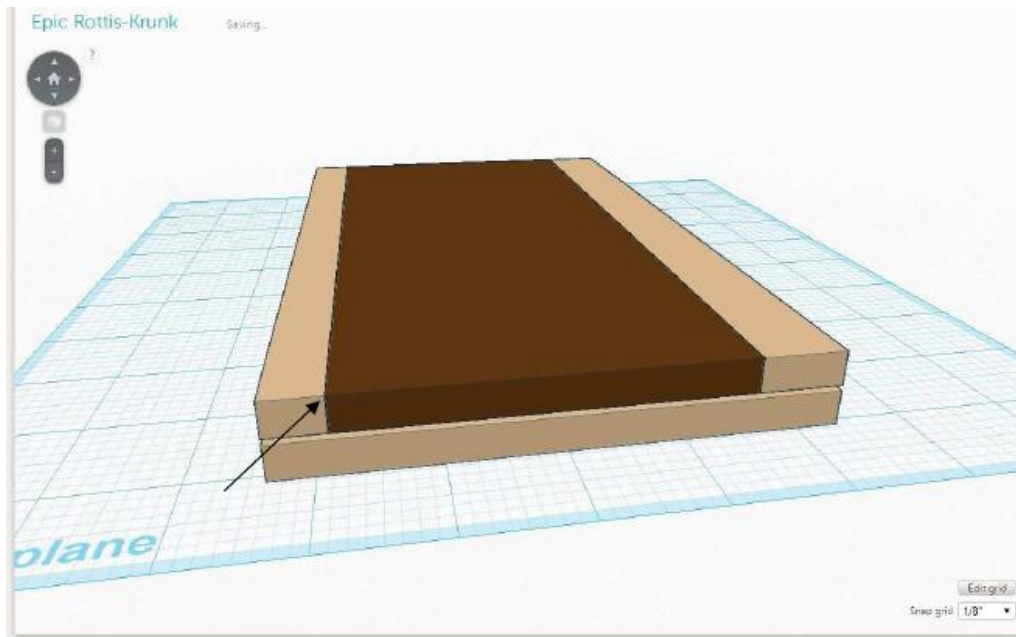
In the CarveWright Designer software, lay out your double-sided pattern, sized to the same size (or smaller) as the wood you will be carving. Upload your project, and take it to the machine.

Load your board into the jig, the jig into the machine, and start the project. It will ask to load the back of the board, just like all double-sided projects do.

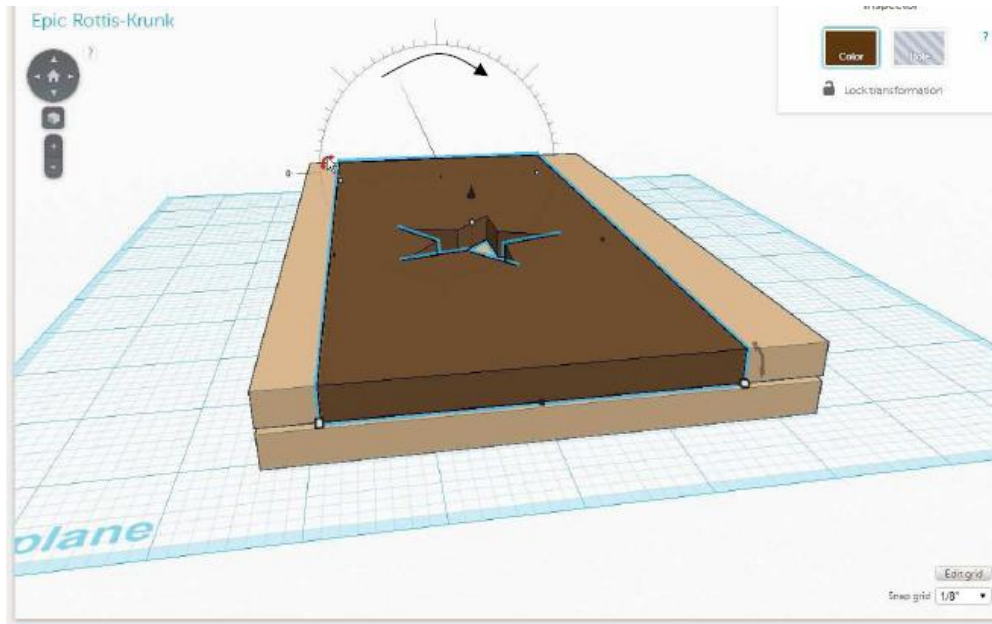
After it measures the board, if the size of the board is larger than the project board, the machine will ask:

Is this board in a jig?	
1) Yes	2) No

To flip the board within the jig, answer "Yes". The machine will ask you to jog to the corner, or the center. Select the "Corner" option. If you were looking at the machine from the front, it would be the left corner of the wood, closest to you, as noted in the picture.



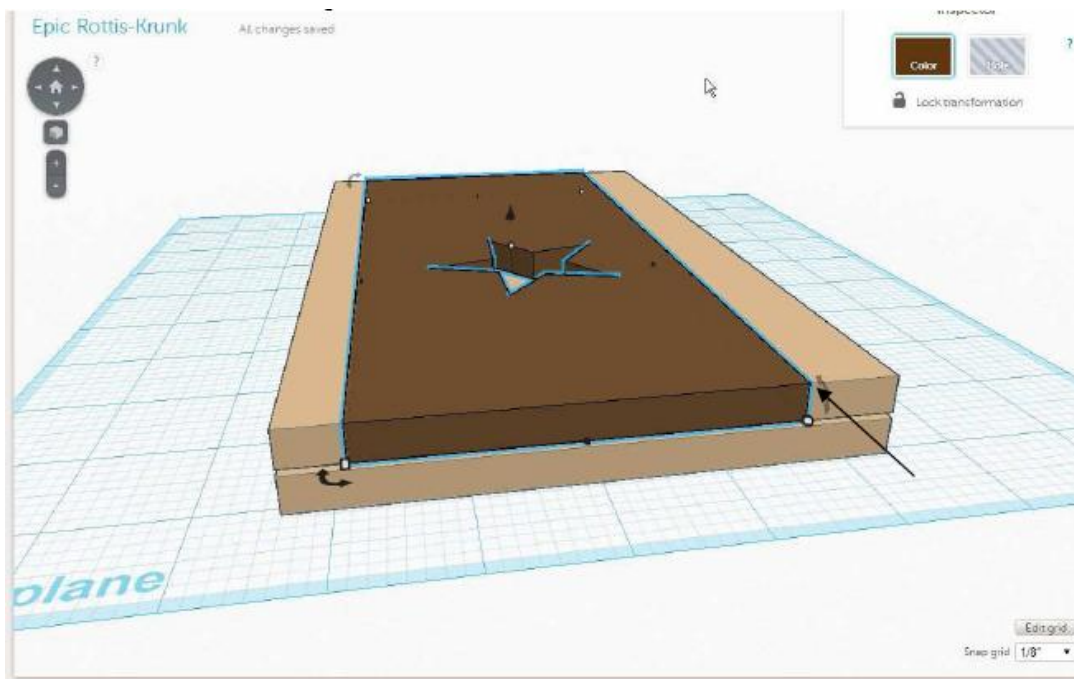
When the machine has carved your pattern, it will ask for you to flip the board to the "front" side. Raise the head, slide out the jig, and flip the board within the jig.



Reload the jig into the machine. The machine measures the jig again to make sure of its dimensions, then asks:

Jog to far front corner

Jog to the far corner, as shown in the picture. Finish the carve.



Materials Tool

The **Materials tool** is like our **Textures tool** in that it applies a set background to the area selected but is much more advanced. This tool has several new background options that can be selected from and can be manipulated to fit each individual project.

The **Materials Tool** can be used with any closed shape. If the new tool does not become available for a user created region, this typically can be attributed to end points not being connected.

The math behind the **Materials Tool** is based on Perlin Noise, created by Ken Perlin, which was originally created for the movie industry to generate realistic looking background textures. For more information on the techniques please click on the following link http://en.wikipedia.org/wiki/Perlin_noise.

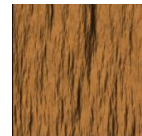
Background options

Currently there are ten default backgrounds:

- **Cloud Cover**



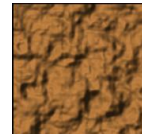
- **Sandstone**



- **Clouds**



- **Stoney**



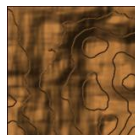
- **Concrete**



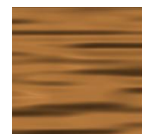
- **Tree Bark**



- **Default**



- **Water Surface**



- **Martian Landscape**



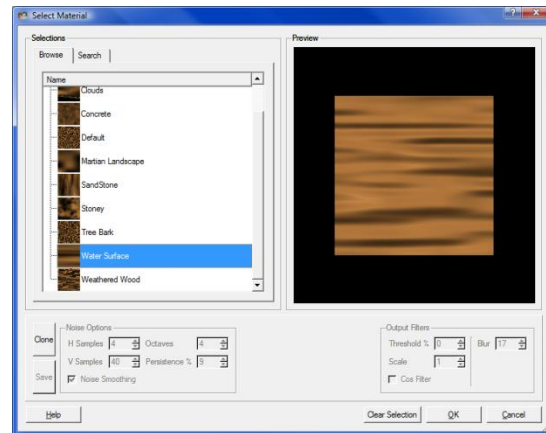
- **Weathered Wood**



Materials Menu Options

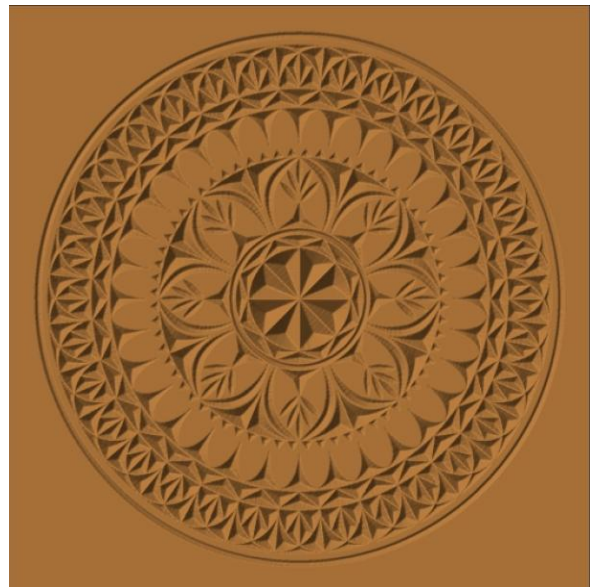
The menu can seem a little daunting at first but through reading and understand this manual it can be easily worked. There are several options that can be set on the backgrounds and they are **H Samples**, **V Samples**, **Octaves**, **Persistence %**, **Threshold**, **Scale**, **Blur**, **Noise Smoothing**, and **Cos Filter**. These options only become available on created backgrounds. To create a background, select the base background from the list of included backgrounds that best fits the project.

Once the background had been picked select the **Clone** option to create a new customizable option. Once the new background had been created it can be renamed so that it can easily be called from the list. After renaming the pattern it can be modified to fit the project. The rest of the options should be experimented with to gain an understanding of them.



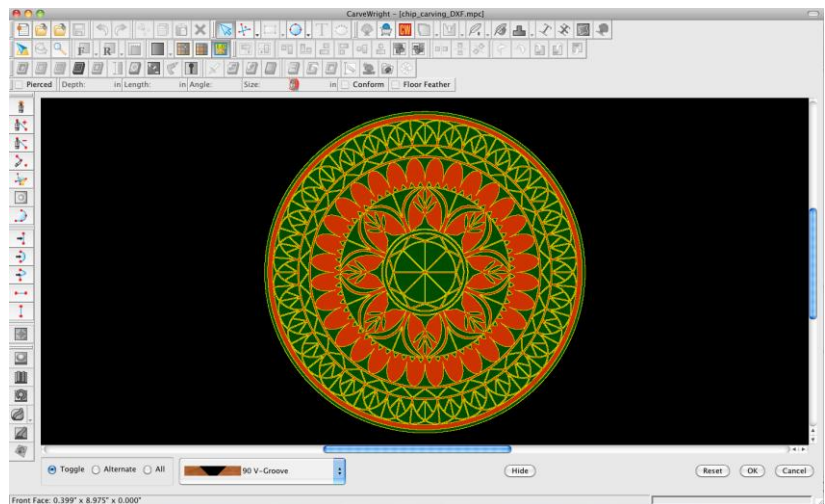
Make Vector Group

The Make Vector Group, introduced in Designer 3.0, is a tool that allows vector drawings to be carved with a V-bit which emulates the chip carving technique. These vector drawing can either be created in the Designer Software or imported DXF as files. To begin using the tool, first place the set of closed loop vectors on the board. All vectors must be closed and cannot intersect. If the regions intersect at any point, the tool will fail to open and an error message will be displayed (Members of a Vector Carving Group may not intersect). The intersecting vectors can be fixed or deleted in the Designer software and the Make Vector Group can be attempted again. If the any vectors are open, the tool will be gray and not accessible. Select all vectors desired for the design and group them



together using the **Group** function. Select the vectors in the newly created group and select the **Make Vector Group** icon. This will open a new window for the tool.

The first option to be set is the vector selection mode. This can be set to **Toggle**, **Alternate**, or **All**. **Toggle** allows each individual vector of the group to be selected or deselected, as needed. **Alternate** will select alternating vector loops, starting from the single vector loop selected by the user. **All** will select all of the vectors in the



group. Use the **All** selection mode in conjunction with the **Toggle** mode to create custom vector configurations. When selecting vectors, check to ensure that the regions are not too close together, or too thin, to avoid chip-out in the finished carving. Once the carve areas have been set, a bit will need to be selected. The default bit is the 90° V-bit, but the 60° V bit can also be selected. With a bit selected, press the OK button to apply the bit and view the resulting carving on the board. If alterations need to be made, select the group from the carving list and click the vector group icon to re-enter the tool. It is important to note that it is required that the tool be opened every time a change is made to the vector group. The carving will not automatically update until the tool is opened.

Pattern Along Trajectory Tool



Similar to the **Decorate with Text Tool**, the **Pattern Along Trajectory** tool will apply a repeating pattern of carved elements to a selected path on the project board. This tool allows for the creation of many exciting projects that have been difficult or impossible up until now. It is important to note the two ways in which the word pattern is used in this document. First, the **Pattern Along Trajectory** tool implies a pattern of repeating and evenly spaced elements (or instances) along a path. The elements used in this repeating pattern can also be referred to as patterns. These are the same patterns that can be found in the libraries that are used in the Designer software.

Creating a Trajectory

Conceptually this tool is very simple. First a path (or trajectory) is created and then up to two carvings are selected to be repeated along that path. The trajectory can be any line, spline, arc, circle, square, or path that can be drawn with the Designer tools. Trajectories do not have to be closed shapes or have straight lines. Start by drawing the

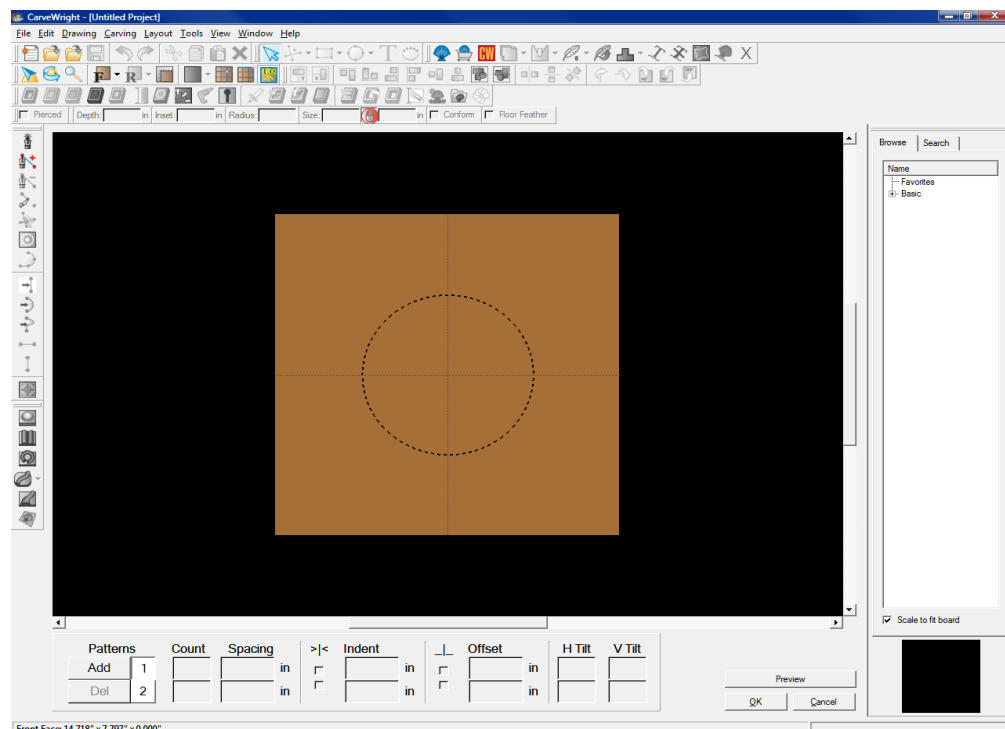
shape or path that the repeating pattern is to follow. The trajectory can be modified at any time, but modifying the shape or size of the path after the patterns have been applied can lead to changes in the spacing of the repeated carvings.

When drawing the trajectory it is important to note and remember what point was drawn first. This first point will always be the **start point** of your trajectory and will be the point on which the first instance is placed. All indenting measurements will also use this point as reference. For example, if a straight line trajectory was drawn from right-to-left, the start point of the trajectory would be its right endpoint and the first instance would be placed there. Conversely, if the trajectory was drawn from left-to-right then the trajectory start point would be placed at the left end.

Applying the Carving Elements to the Trajectory

Once the path is drawn and selected, enter the select **Pattern Along Trajectory** tool by clicking on the tilted orange shell icon. Another window will open showing the board with a dashed line representing the trajectory. The controls for positioning and spacing the carved elements along the trajectory are displayed along the bottom.

From here there are several inputs needed in order to fully specify the final pattern. We will summarize them here and then discuss them in greater detail later in this document.



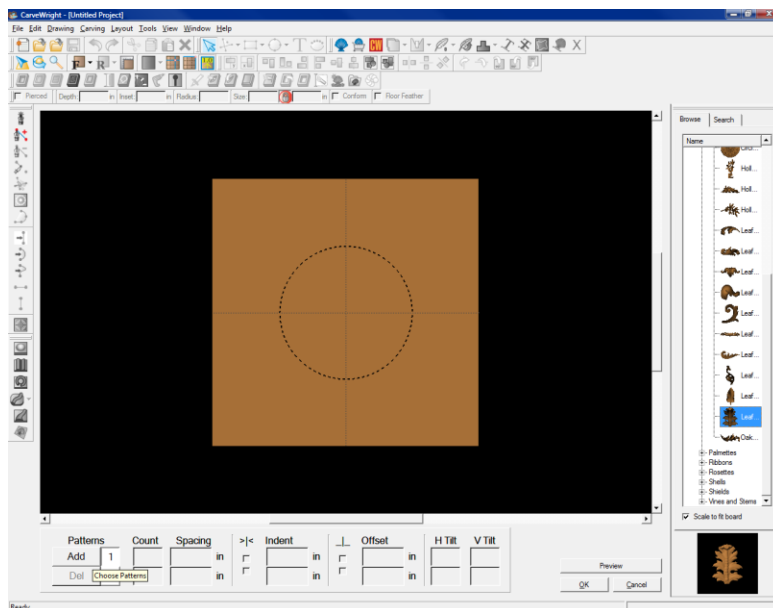
- 1) Select the pattern, or patterns, to apply to the trajectory from the pattern library.
- 2) Adjust the size of the pattern and the rotation angle.
- 3) Specify how many instances of each pattern will be placed on the trajectory. There are two ways of doing this. The first is by specifying the total number of instances and the second is by specifying the spacing between each instance. Given only one of these two inputs the software will calculate the other.
- 4) Specify where the final grouping of carvings should start along the trajectory. The options are to start the pattern at the trajectory start point or to center the entire grouping on the center point of the trajectory's length. This can be

thought of like text justification, where left justify pushes a string of characters to the left margin of a column and center justify centers the string in the column.

- 5) Set an indent value. If the pattern is **not** centered then there is an indent control that allows the pattern to be moved along the trajectory away from the start point.
- 6) Apply an offset distance to the pattern grouping either above or below the drawn trajectory path. Both positive and negative numbers are allowed in this field and determine whether the pattern will move above or below the path. It is important to note that a negative number will not always move the pattern in the same direction for every trajectory (sometimes it may move it above the line and sometime below).
- 7) Decide how the offset distance should be determined. There are two modes that will be discussed below, one using the original trajectory and spacing to set the position of the offset pattern and the second using an internally generated offset trajectory.
- 8) Set the tilt of the carvings into and out of the board. This is similar to the tilt feature in the Designer software and allows for interesting layering options.

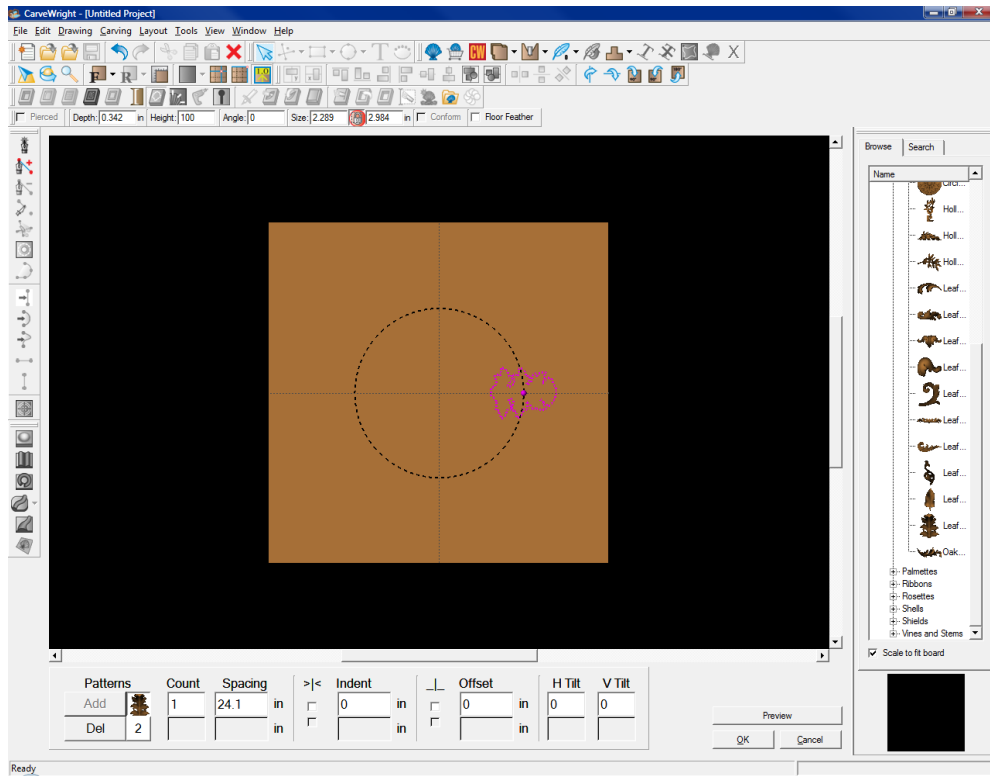
Applying a Pattern to the Trajectory

Begin by finding and highlighting the carved pattern to be added onto the trajectory from the library (just as would be done if a pattern was placed on the board in a typical fashion). Once the pattern has been selected, click the Add button in the bottom left corner of the screen. A small picture of the selected pattern will now be displayed next to the **Add** button. You can add up to two patterns to the trajectory by selecting a second pattern and hitting **Add** again.



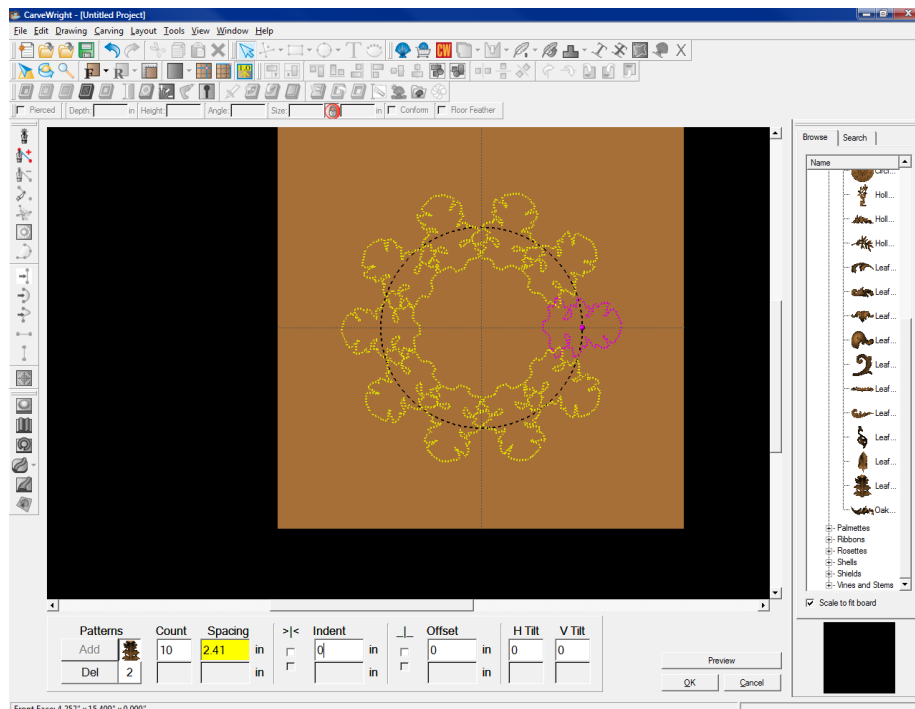
An outline of the pattern now appears along the trajectory. After the pattern has been added new options will become available. These options include **Count**, **Spacing**, **Center Patterns on Trajectory**, **Indent**, **Offsets Before Projection**, **Offset**, **H Tilt**, and **V Tilt**. Clicking and dragging the outline allows for placing the first instance in any location along the trajectory (right/left as well as above/below). The **Offset** and **Indent** features can also be used to alter the position of the

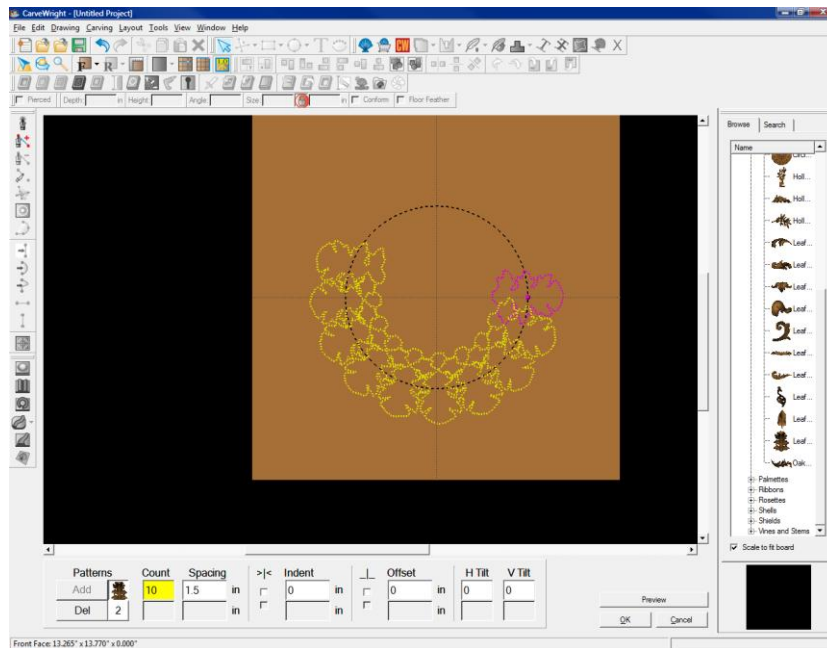
instances. The standard **Depth**, **Height**, **Angle**, and **Size** tools are also available but are discussed in other CarveWright documentation.



Specifying the Number of Instances in the Pattern

The number in the **Count** input field determines how many instances of a pattern will be placed along the trajectory (including the initial instance). The software calculates the length of the drawn trajectory and automatically calculated the spacing based on the number of instances entered.

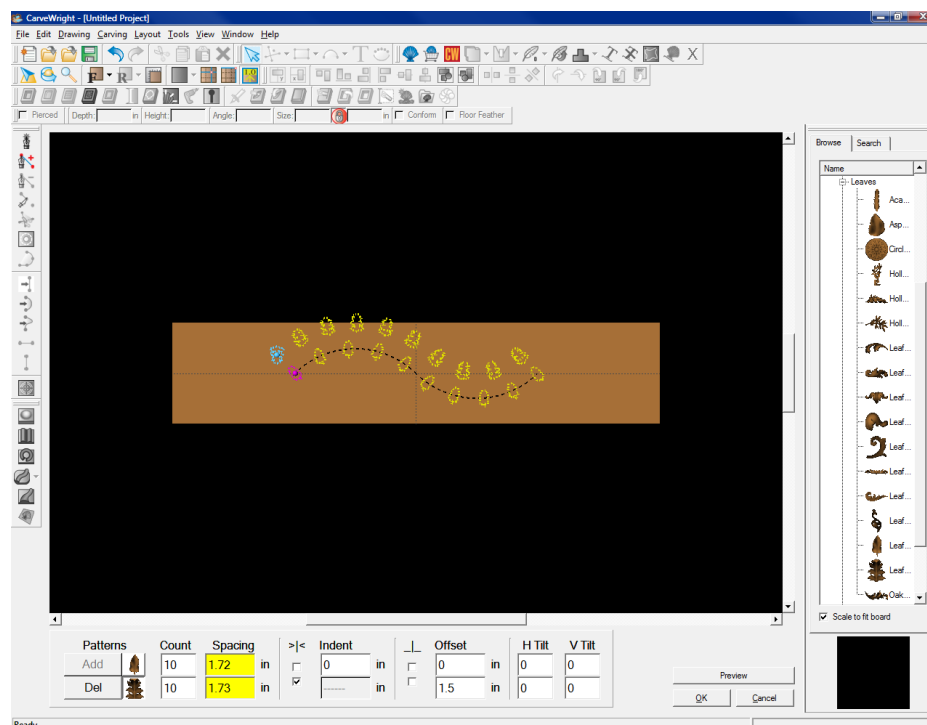




Conversely, if a number is entered into the **Spacing** input field, the number of pattern instances is adjusted based on how many can fit on the trajectory length with the given the spacing. The spacing can also be adjusted if a count is entered without altering the count as long as they can all fit on the trajectory (i.e. smaller spacing).

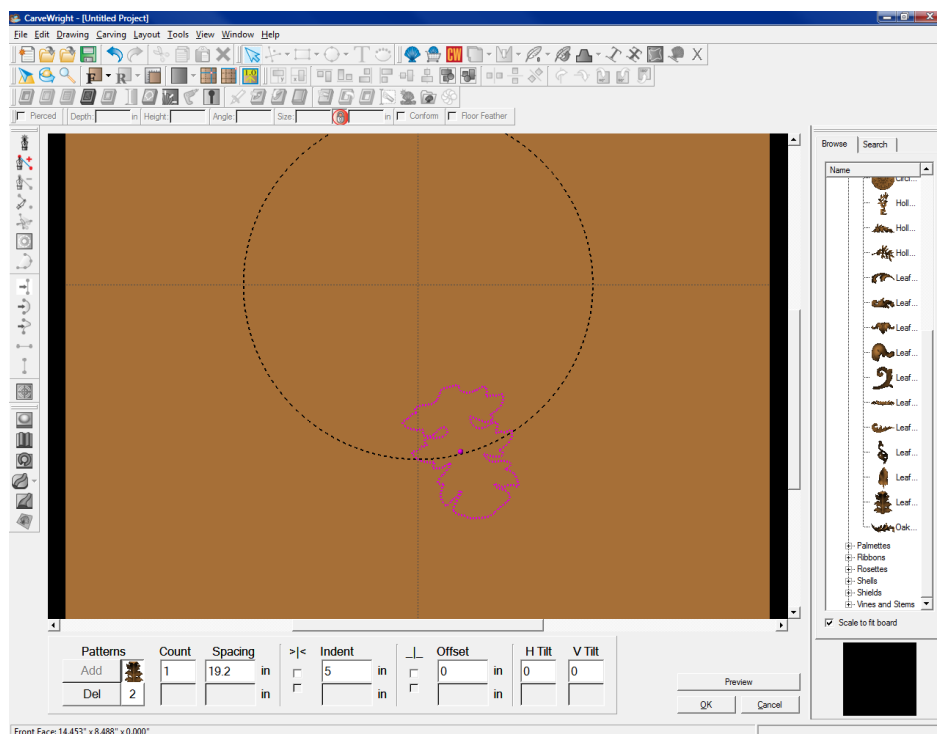
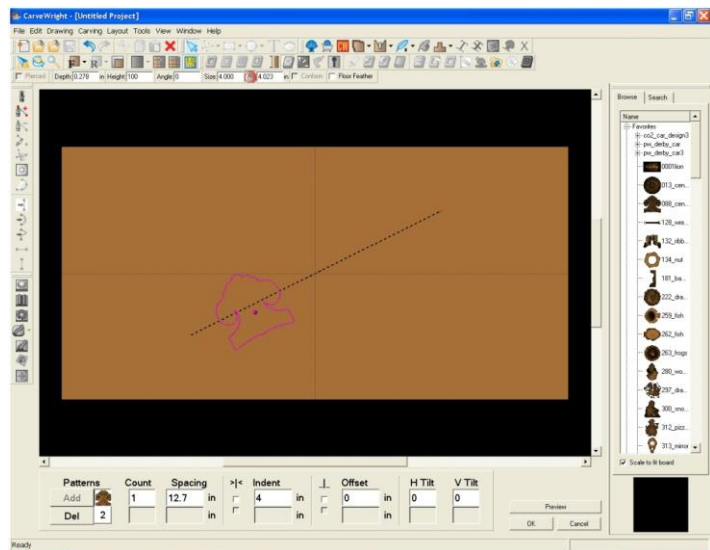
Specifying Where the Pattern Group is Placed on the Trajectory

The **Center Patterns on Trajectory** checkbox allows for the pattern group to be centered along the length of the trajectory. Normally the box is unchecked and will align the instances to start point of the trajectory. If however centering the instances on the trajectory is desired, simply check this box. This function also works when the instances are placed above or below the trajectory.



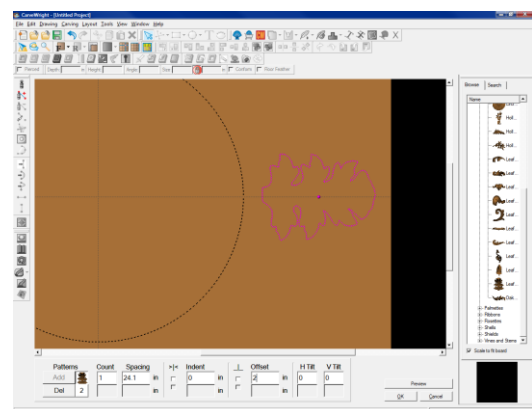
If the grouping is not centered, **Indent** allows for moving the pattern group along the trajectory. If the trajectory is open (e.g. a line or spline) the center of the first instance is placed on the starting point of the trajectory. Indenting the object will shift the pattern along the curve in the direction of the trajectory end point. Only positive numbers are allowed in the indent field.

On a circle, the initial instance will be positioned at three o' clock, and as the indent is increased the pattern moves clockwise around the circle.

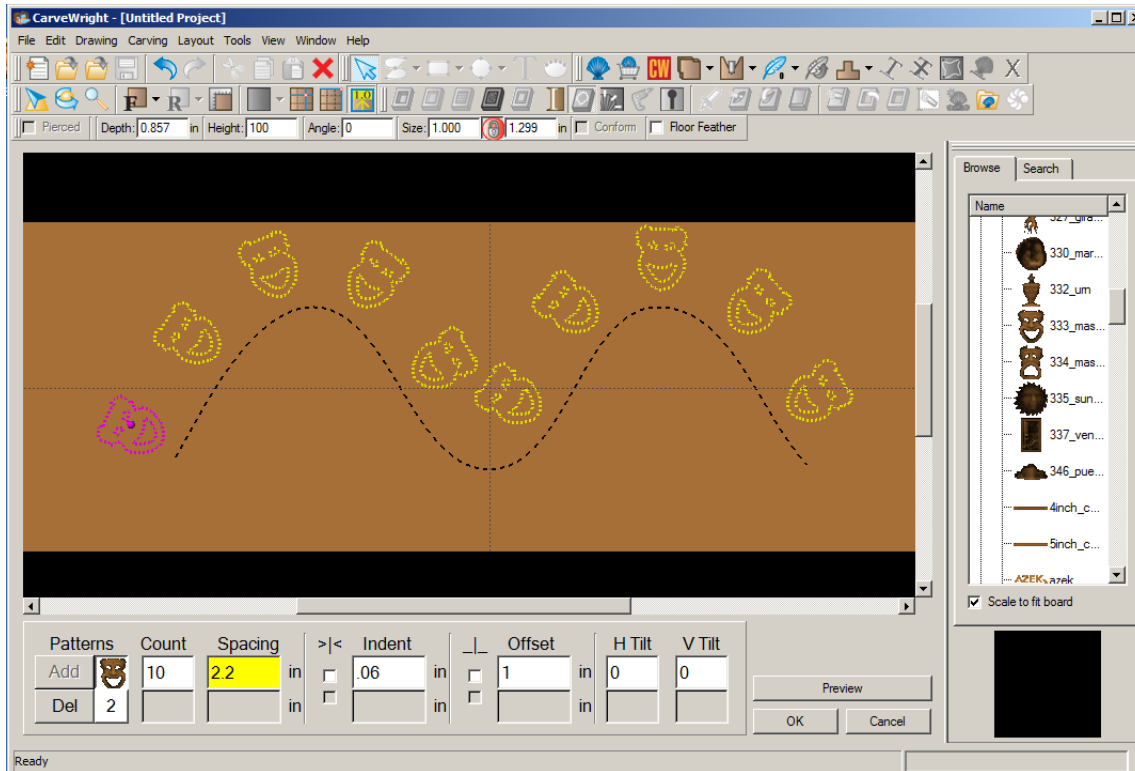


Specifying the Pattern Group Position Above or Below the Trajectory

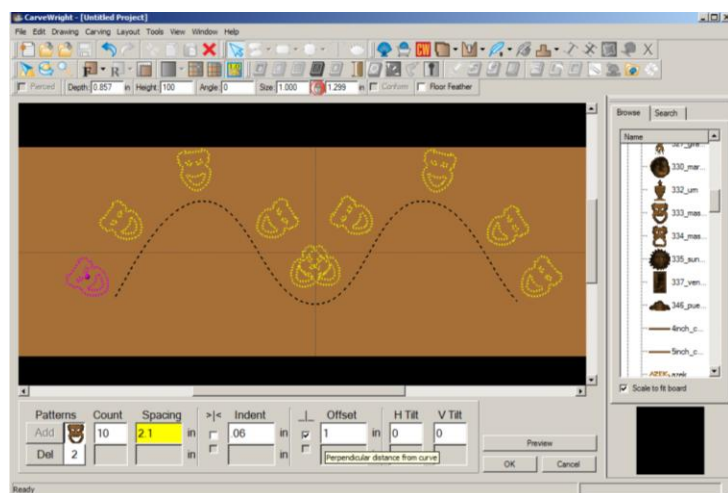
The **Offset** field determines how far the center of the pattern lies above or below the trajectory path. Positive and negative numbers are allowed in this field. In the case of an open trajectory (one with beginning and ending points), if an instance resides on either endpoint it can flip orientation if it is offset. If this happens simply indent the instance or change the spacing.



The **Offsets Before Projection** checkbox lets the user choose how to position of offset instances. Normally, the box is unchecked. In this case the software creates a new hidden trajectory path offset from the drawn trajectory by the entered amount. It then calculates the length of this new path, calculates the new spacing given the Count, and places the center of each instance along this path with the new spacing. As you can see the instances follow a perfectly offset path and have equal spacing.

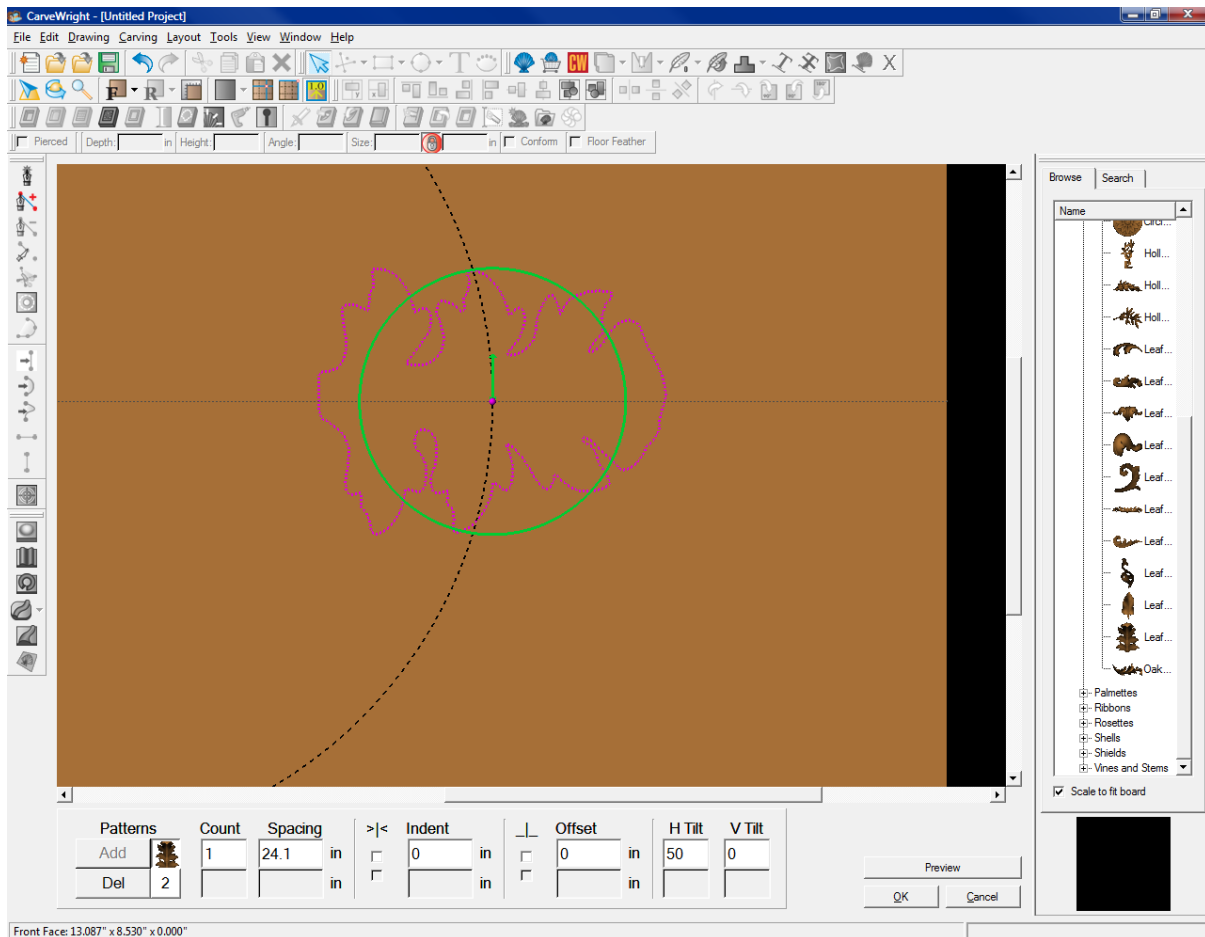


If the box is checked, the software simply moves along the drawn trajectory to the point determined by the spacing, calculates a normal to the path at this point and then moves exactly the offset distance along that normal to place the center of each instance. In this case you can see that in the parts of the trajectory with tight curvature, the instances are placed in different locations because of the slope of the normal to the curve at the location points.

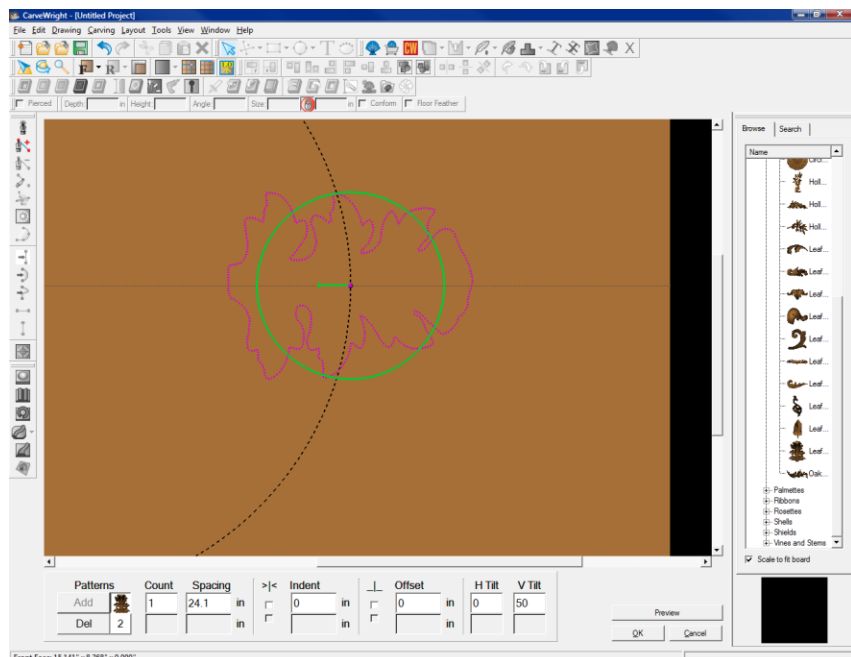


The difference between these two offset methods is usually only seen when the trajectory is very bumpy and folds back on itself. We encourage you to experiment with all of these options in as many different and interesting ways as you can.

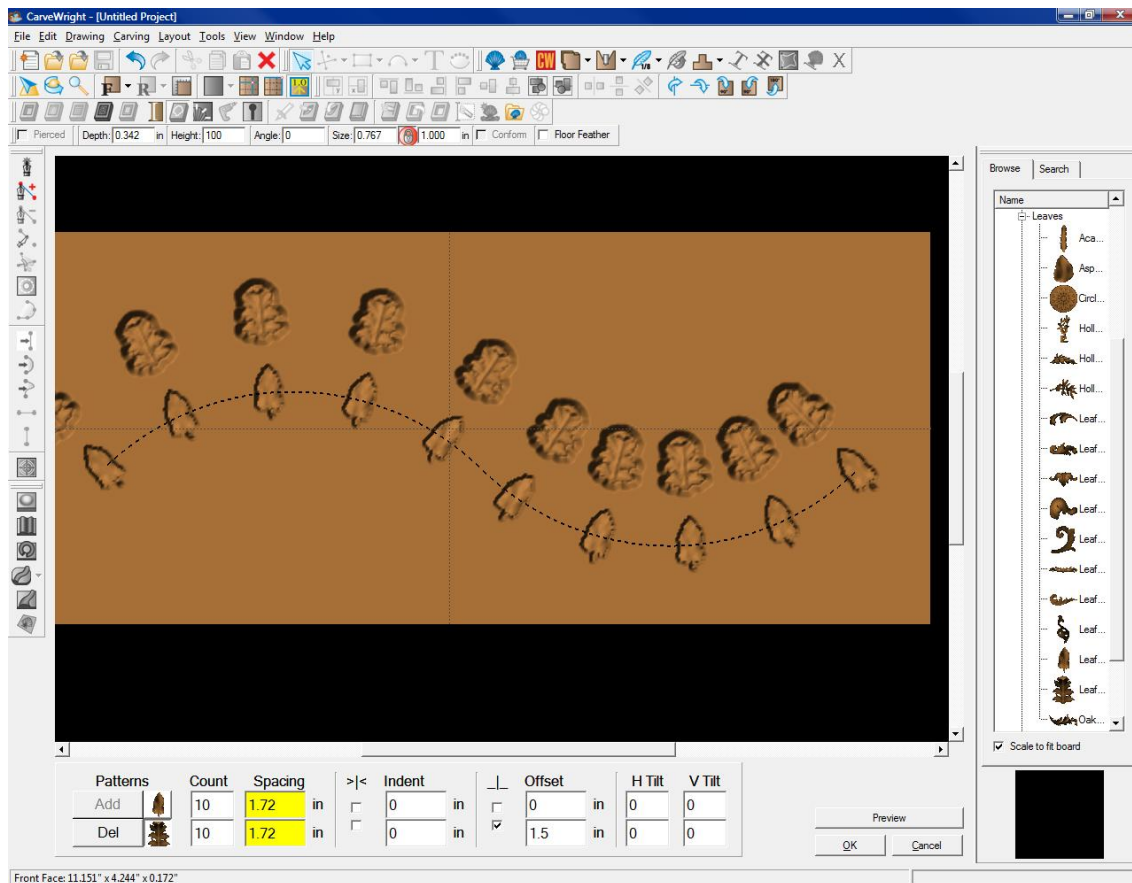
The **H Tilt** will tilt the pattern along its vertical axis into and out of the surface of the wood. The tilt indicator will be displayed by a green arrow inside a circle showing the direction of the tilt. On a circle starting at the original three o' clock position, the **H Tilt** with tilt the top of the pattern down into the wood.



Similarly, the **V Tilt** will tilt the pattern along its vertical axis (displayed by a green arrow inside a circle showing the direction of the tilt). On a circle starting at the original three o' clock position, the **V Tilt** will tilt the left side of the pattern down into the wood.



The **Preview** button will show the patterns being assigned to the trajectory as they will look when carved. This helps with spacing when considering feathering.



The **Depth, Height, Angle, and Size** tools will function the same as they would with a standard pattern addition. Once the patterns are set click the OK button and the pattern will be applied to the project and be ready to carve. To edit any part of the **Pattern Along Trajectory** parameters simply select one of the instance on the board and click the icon again.

Other Resources for Designer PRO

- At www.carverwright.com under SUPPORT search Project Designer PRO tutorials
- CarveWright Community Forum at www.carverwright.com under SUPPORT > COMMUNITY FORUM or at forum.carverwright.com under CarveWright Software > Designer (Upgrade) [http://forum.carverwright.com/forumdisplay.php?123-Designer-\(Upgrade\)](http://forum.carverwright.com/forumdisplay.php?123-Designer-(Upgrade))
- LHR Customer Support:

9:00 AM to 12:30 PM & 1:30 PM to 6:00 PM Central Standard Time

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