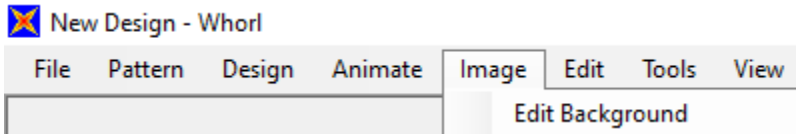


Whorl User Manual

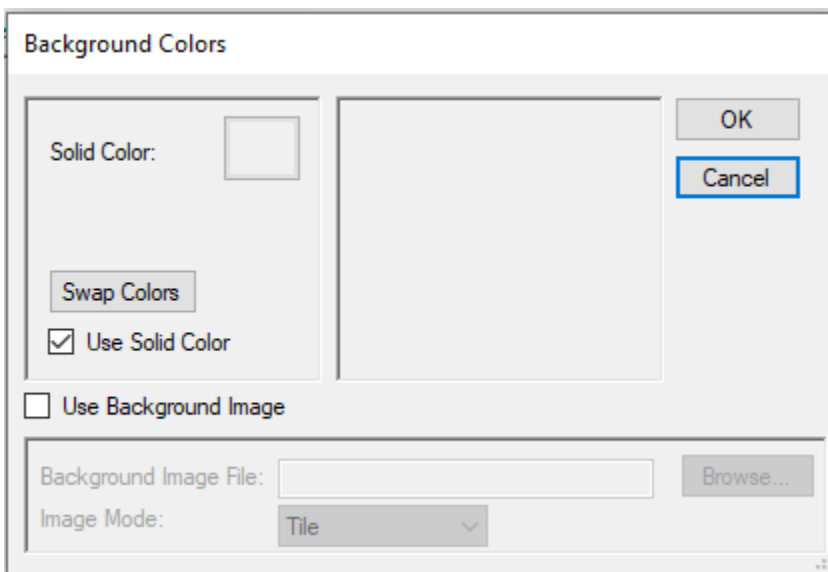
by Christopher Jay, Whorl's developer

Setting the Design's Background

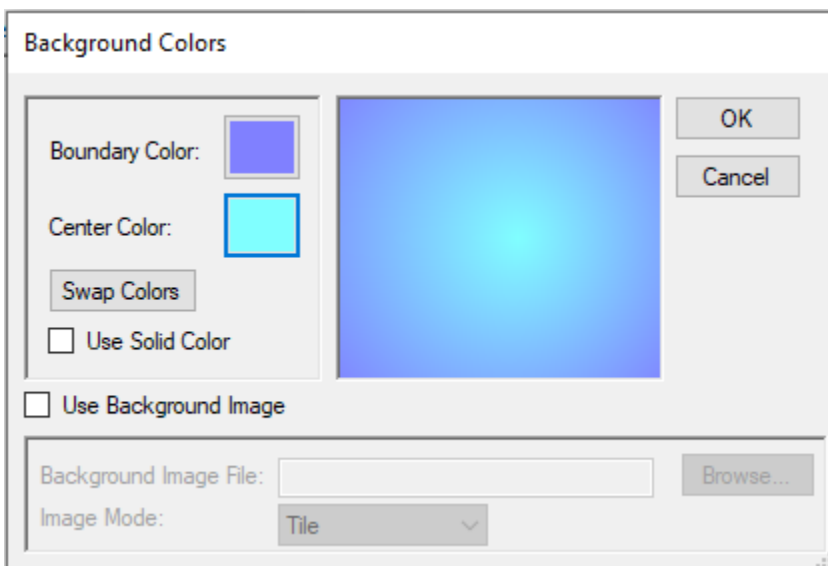
When you first open Whorl, the **Design Box**, which occupies most of the screen, is light gray; this is where you draw patterns. To change its color, click on Image -> Edit Background from the **main menu** (the menu at the top of the screen):



This dialog box appears:



For a solid background, click on the box to the right of Solid Color: and select a color. The larger preview box will show the color. For a gradated background, uncheck Use Solid Color:



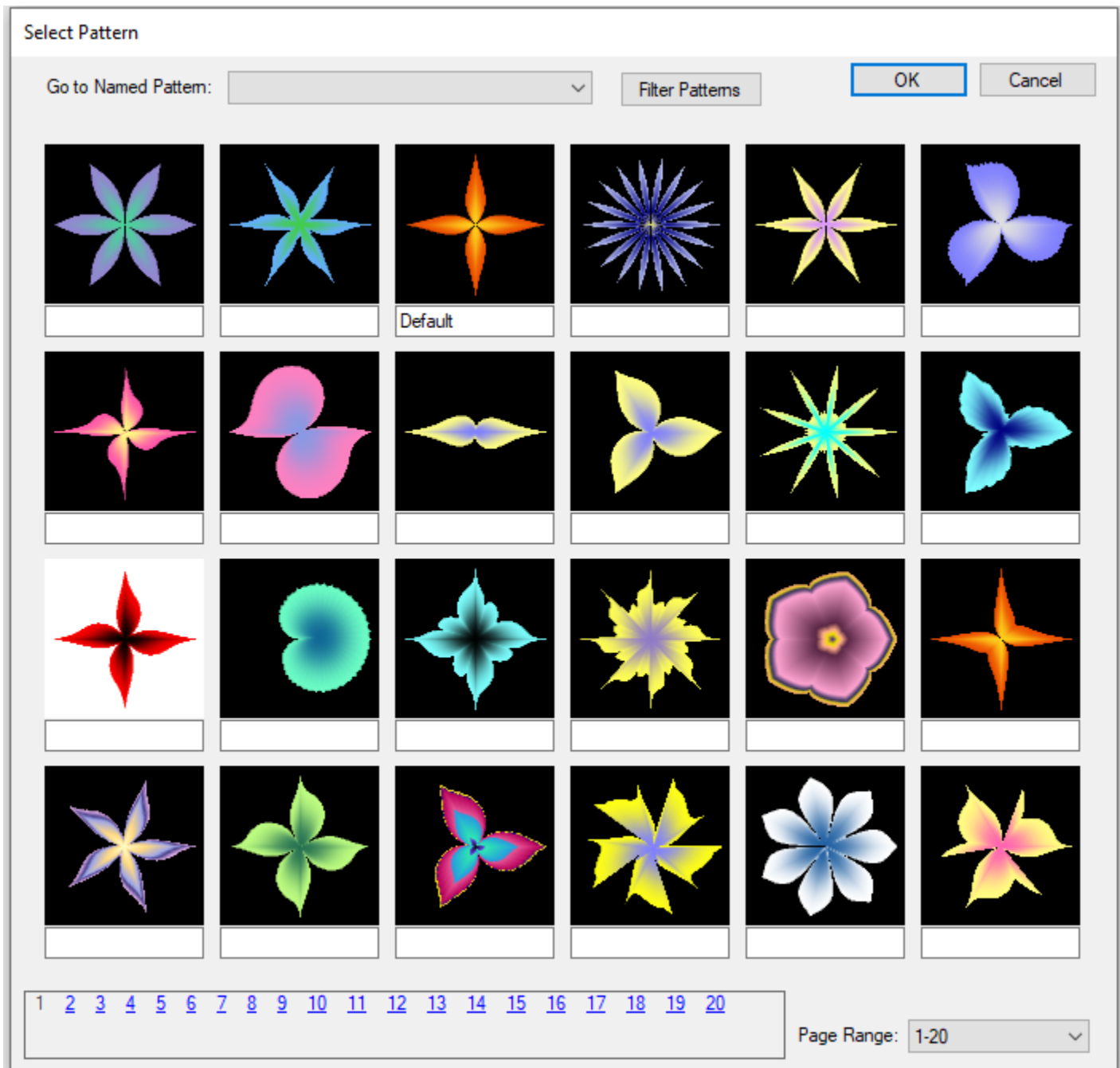
Set the Boundary and Center colors by clicking on their small boxes.

You can also use a saved image to tile or fill the background, by checking Use Background Image.

When you've chosen the background, click OK, and the main form's Design Box will change to have that background. You can change the background at any time.

Selecting Patterns

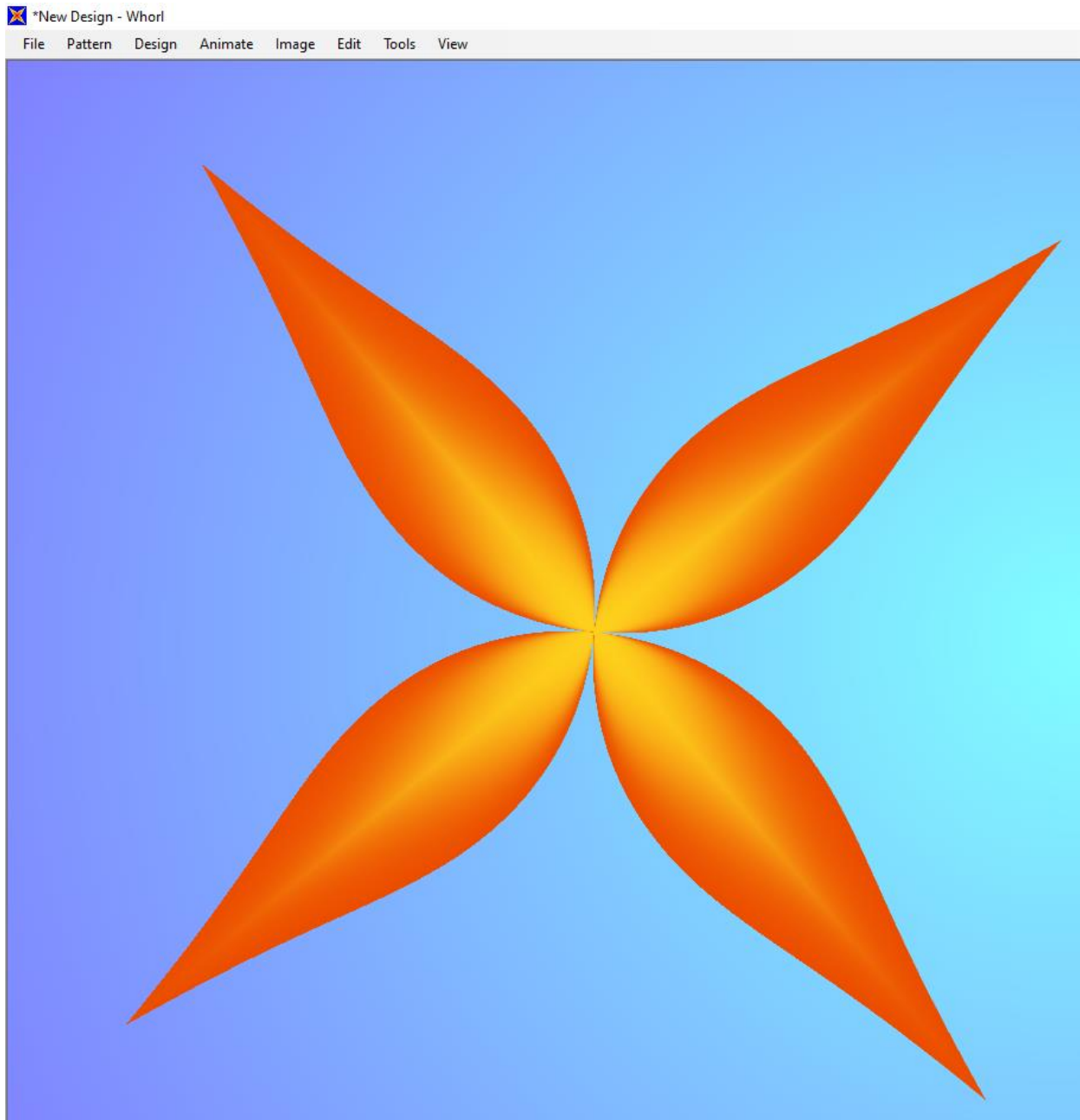
A **pattern** is a colored shape which you can draw on a design at your chosen size and rotation. To draw a pattern, you first need to choose one as the **default pattern**. This is the pattern that is drawn when you click and drag with the mouse. To choose a pattern, click on Pattern -> Choose Default Pattern from the main menu. The Select Pattern dialog box appears:



You select a pattern (e.g. the one labelled Default) by clicking its image, and clicking OK. To see more patterns, click a page number in the list at the bottom. To see a different range of pages, select from the Page Range dropdown.

Drawing a Pattern

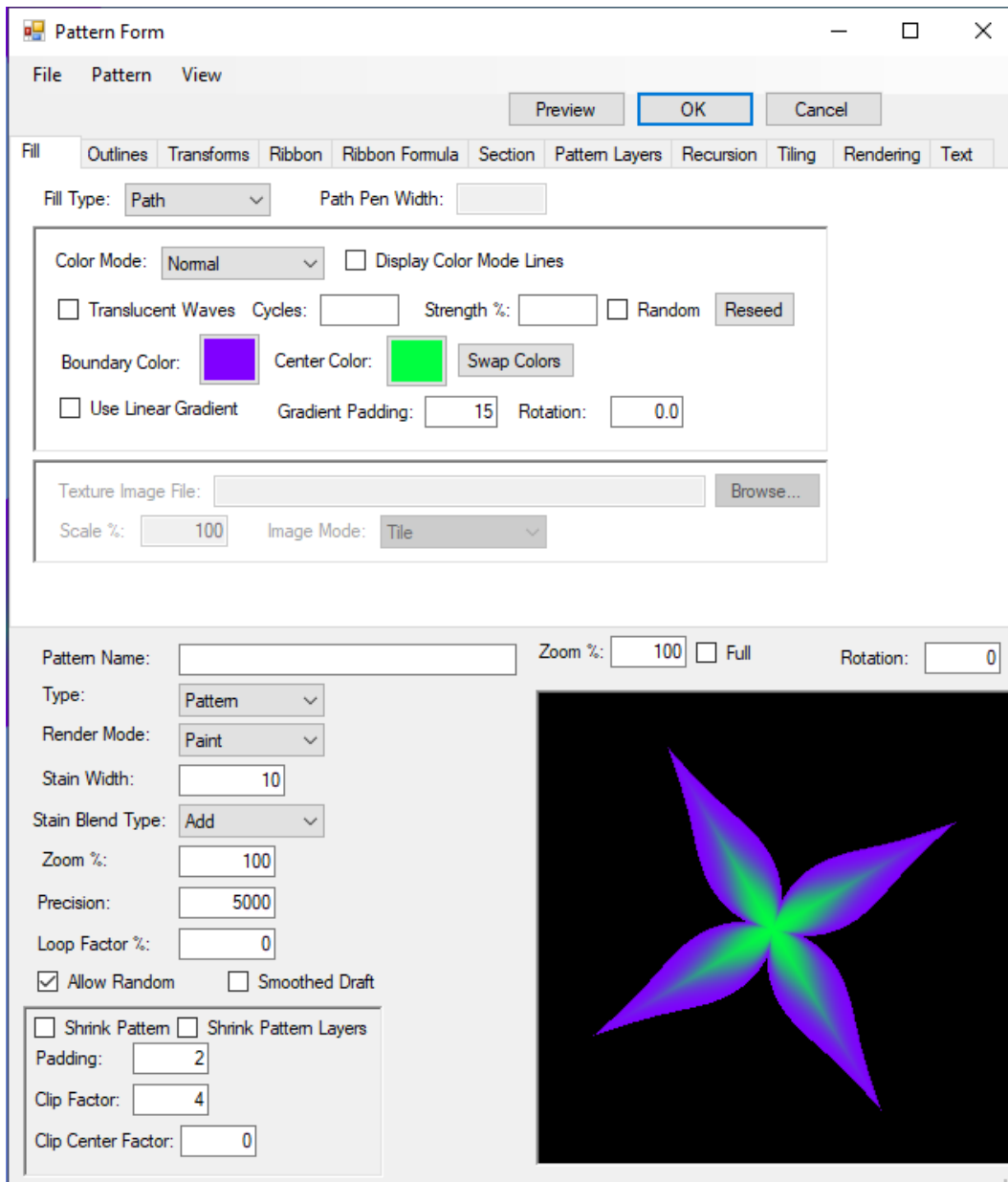
Once you've chosen a pattern, you draw it by clicking on the point where you want it centered, on the Design Box. Then drag with the mouse, and you'll see an outline of the pattern, without colors. As you drag the mouse this outline changes its shape and rotation. When you release the mouse button, the pattern is drawn:



You can draw as many patterns as you like, and they can overlap.

Changing a pattern's colors

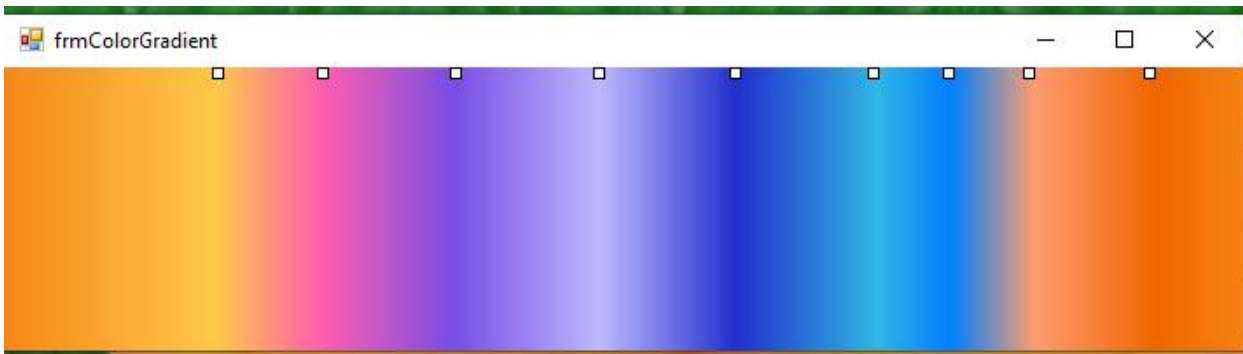
To change how a pattern is colored, right-click near the pattern's center, and click Edit Pattern from the popup menu. The **Pattern Form** dialog box appears:



Your pattern shows in the Preview Box, at the bottom right of the Pattern Form. As you change settings in this form, the preview pattern reflects them. The Pattern Form has many features, and near the top you'll see tabs, such as Fill, Outlines, and Transforms. To change colors, you want the Fill tab, which is the default. Click the box to the right of Boundary Color to change the outer color, and the box for Center Color to change the inner color. To allow more than 2 colors, set Color Mode to Radial. When you're finished, click OK, and the pattern in the main form will change to your chosen colors.

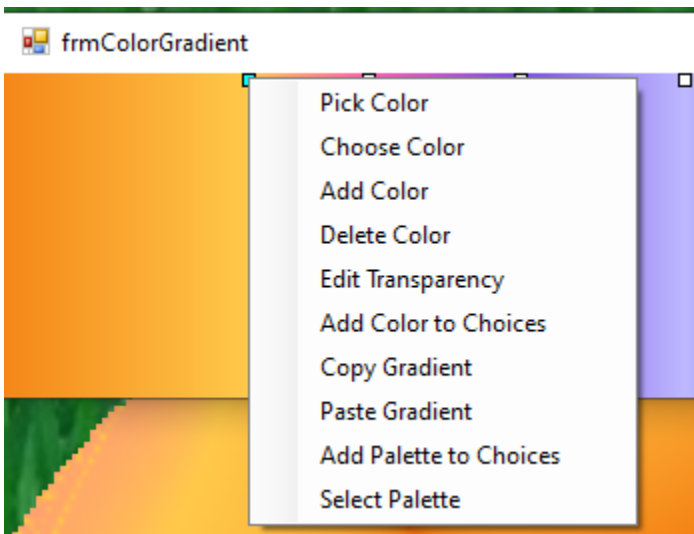
[A Quicker Way to Change a Pattern's Colors](#)

You can also right-click on a pattern (near its center) and click Edit Color Gradient from the popup menu. The color gradient form will appear:



As you make changes with this form, the coloring of the pattern on the main form will change.

To change a color, click on one of the small white anchor squares, and click Pick Color from the popup menu:



You can then edit the color, and click OK.

To add a color, right-click within the colors box at the horizontal position you want, and click Add Color. Note: You must first have set the pattern's Color Mode to Radial, which you do by editing the pattern (see **Changing a Pattern's Colors**). You'll see the same color editor dialog box, and can choose a color and click OK.

To delete a color, click on a small white anchor square, and click Delete Color.

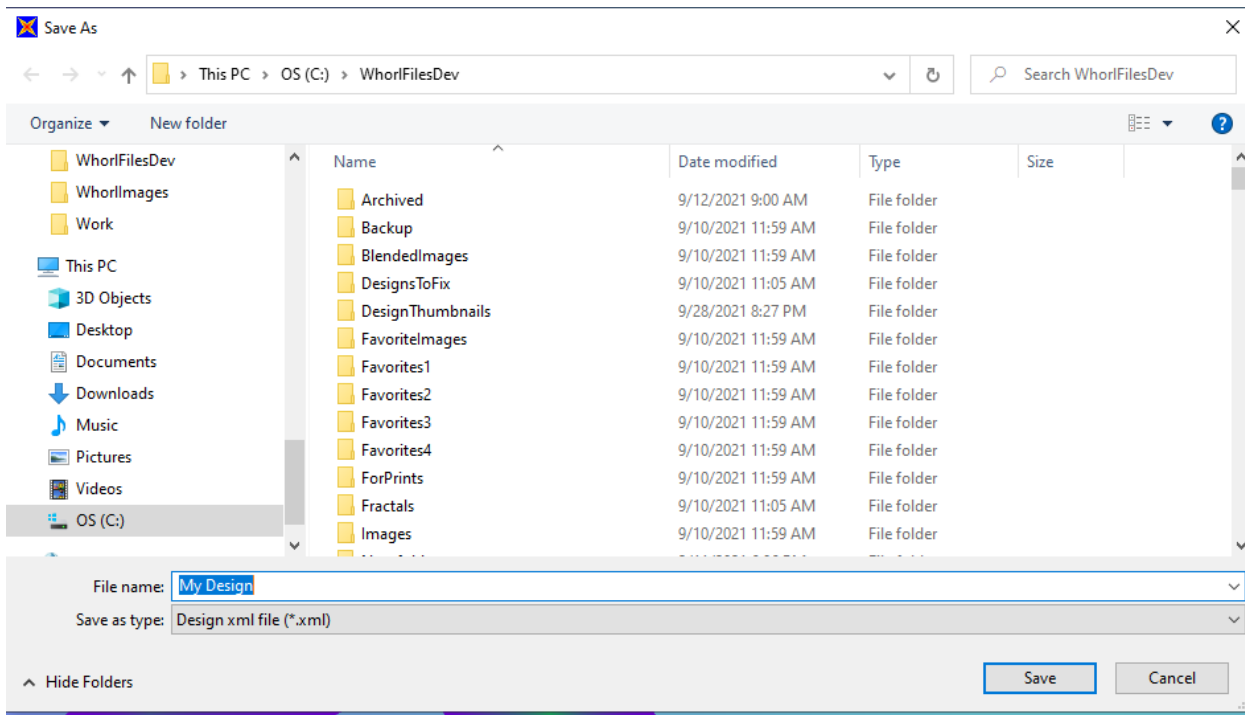
When you've finished, click the x in the top right of the form to stop editing colors.

Editing the Default Pattern before you draw it

To edit the Default Pattern, which you've chosen, click Pattern -> Edit Default Pattern from the main menu. When you change settings and click OK, the image in the Design Box won't change, but the default pattern will have your changes when you draw with it.

Saving a Design

To save the design (which is the picture you've drawn with patterns), click File -> Save Design. If you haven't saved yet, a dialog box appears, asking you for the file name and folder. Normally you won't want to change the folder. For File Name:, enter the name of your design without an extension, e.g., My Design:



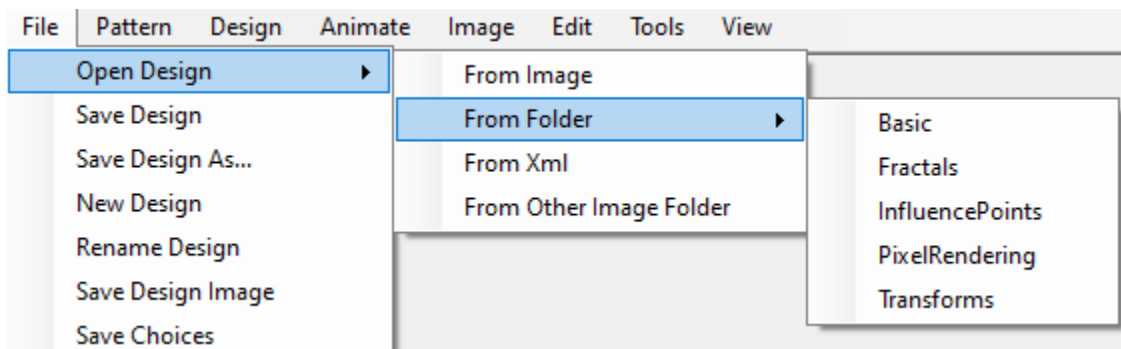
Click Save. If your file name already exists, you'll be prompted whether to overwrite the old file.

Note: If you save a design you've opened with File -> Open Design -> From Folder, it will not be saved in its folder, but in the normal folder which you access with File -> Open Design -> From Image.

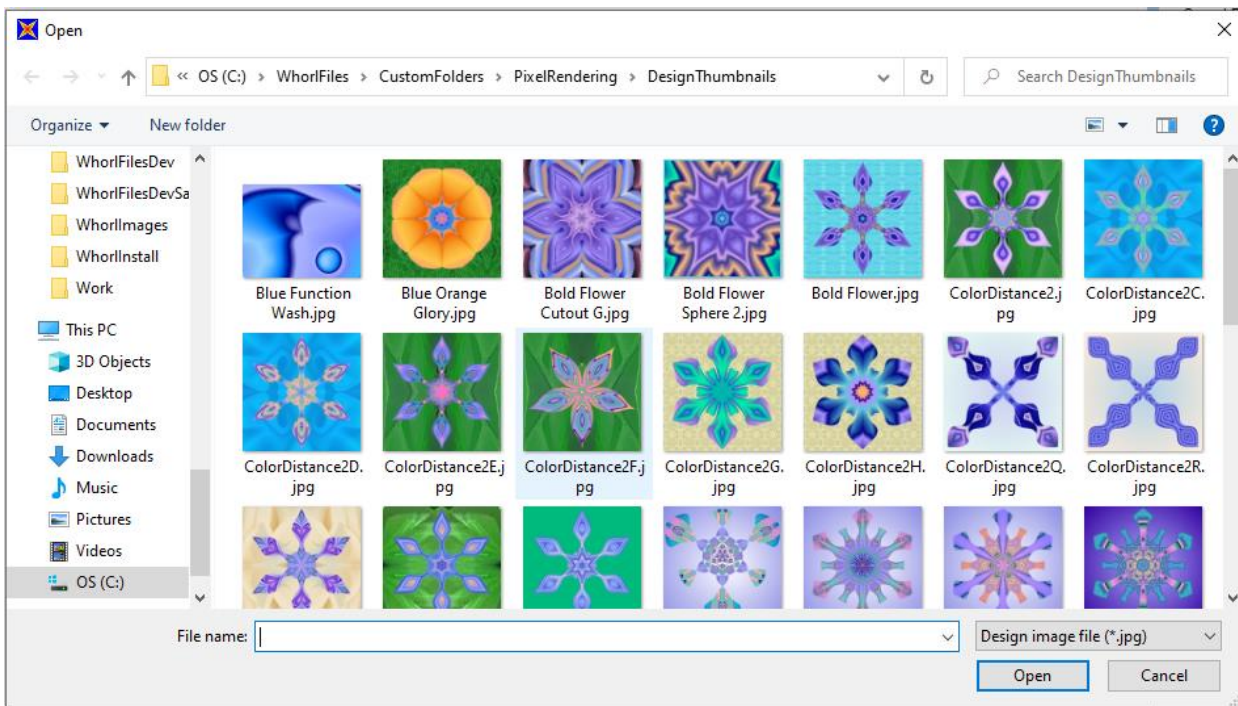
Opening a Saved Design

To open and display a design that you've saved, click on File -> Open Design -> From Image, from the main menu. Initially, you won't see any designs, until you've saved some.

To open a sample design, click on File -> Open Design -> From Folder, and then on a folder name, e.g. PixelRendering:

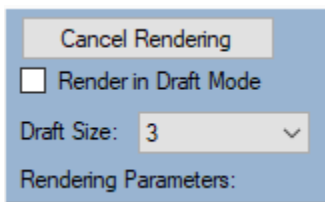


You'll see a dialog box with the saved files in that folder:




Click on the image for the design you'd like to open (e.g. Blue Orange Glory), and click Open.

For pixel rendered designs like this one, to see the highest definition image, uncheck Render in Draft Mode in the top right panel (with Draft Mode designs display more quickly):




The design will take a little time to redisplay.

Notes on Opening Designs:

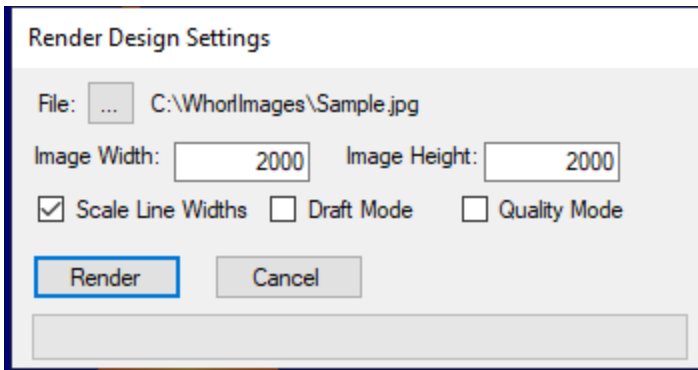
After you click an Open Design menu item, if you see file names instead of images, or the images aren't the size you'd like, click the Display Type dropdown: , and choose an icon size.

You can search for design files by their names, by entering text in the Search Design Thumbnails box, and clicking the magnifier icon. You can enter any part of a design name.

To sort the list of files differently, select Details from the  Display Type dropdown. Click on a column header (e.g. Date) to sort by that property. Then select an icon size from the Display Type dropdown, so you'll see the design images again. Windows will remember this change, so you won't have to do this step each time.

Saving a design's image to a file

To save the image displayed in the design box, you click Image -> Render Design from the Main Menu. (Note: it works better if you first save the design, as described above.) You'll see this form:



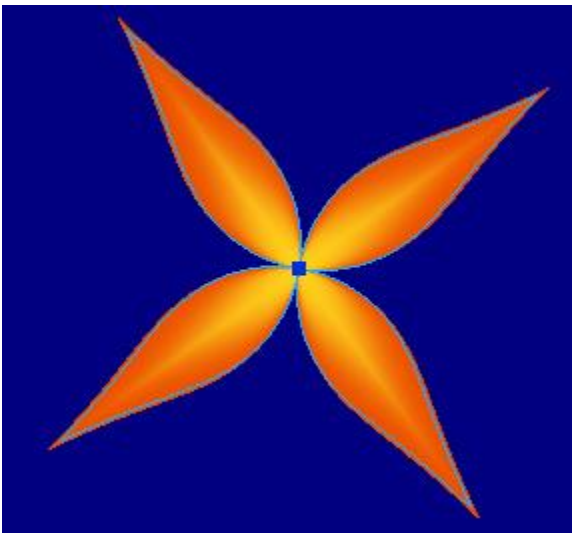
If the file folder or name is not what you want, click the ... button to the right of File:, browse to a folder, and enter a file name. You can use the extension .jpg, to create a JPEG file, or .png, for a PNG file.

The Image Width and Height are the size in pixels of the saved image. You can change the width or height, and the other value will change accordingly, to maintain the shape of the design.

If you check Quality Mode, the saved image will have higher definition, but will not be a larger file. You can do this if you see jagged edges (pixelation) in the image.

Selecting Patterns

To select a pattern (e.g., so you can move it), right click near the pattern's center, and click Select Pattern from the popup menu. The pattern's center is shown with a small square, and the pattern is outlined with a thin line:



You can select more than one pattern; to unselect one, right-click on it and choose Unselect Pattern.

Moving Patterns

To move patterns, select the patterns you wish to move, and click Pattern -> Move Selected Patterns from the main menu (not the popup menu). Then click anywhere in the Design Box, and drag with the mouse to move the patterns.

Redrawing a Pattern

To redraw a pattern at a different location, size or rotation, right-click the pattern, and click Pattern -> Redraw Pattern from the popup menu. Then click on the new center for the pattern in the Design Box, and draw the pattern as you would for a new one.

Changing a Pattern with Basic Outlines

A pattern's shape is composed of basic outlines, which are normally added together. You can change the Basic Outlines settings to change the number of petals a pattern has, or reshape it in other ways. To try this, edit a pattern you've drawn, and in the Pattern Form, click the Outlines tab:

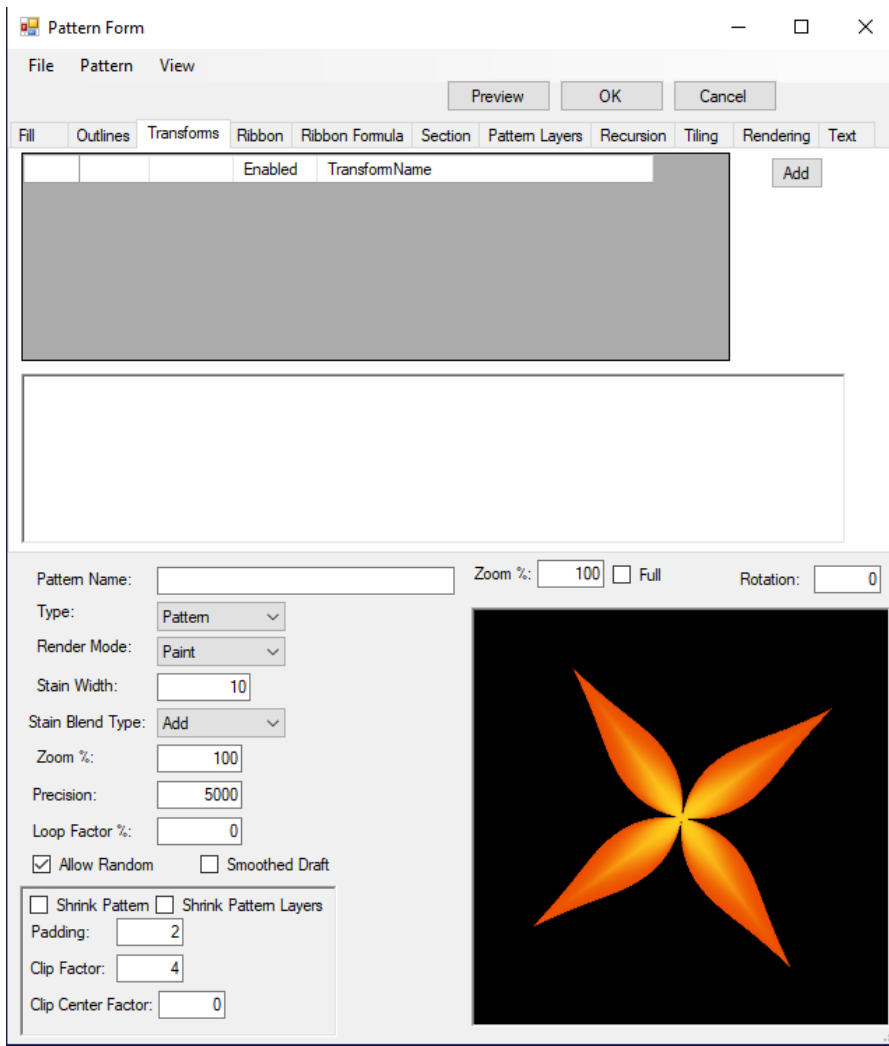
The screenshot shows the 'Pattern Form' dialog box with the 'Outlines' tab selected. The 'Operation' is set to 'Sum'. There are checkboxes for 'Cartesian Path' and 'Interpolate Points'. Below these is a table with columns: Type, Petals, Weight, Phase, Pointiness, Enabled, and two empty columns. The table contains three rows: 'Round' (4 petals, 0.5 weight, 0 phase, 2 pointiness, enabled), 'Pointed5' (4 petals, 1 weight, 90 phase, 4 pointiness, enabled), and an empty row with a '*' icon in the first column.

	Type	Petals	Weight	Phase	Pointiness	Enabled		
▶	Round	4	0.5	0	2	<input checked="" type="checkbox"/>	...	+/-
	Pointed5	4	1	90	4	<input checked="" type="checkbox"/>	...	+/-
*						<input type="checkbox"/>		

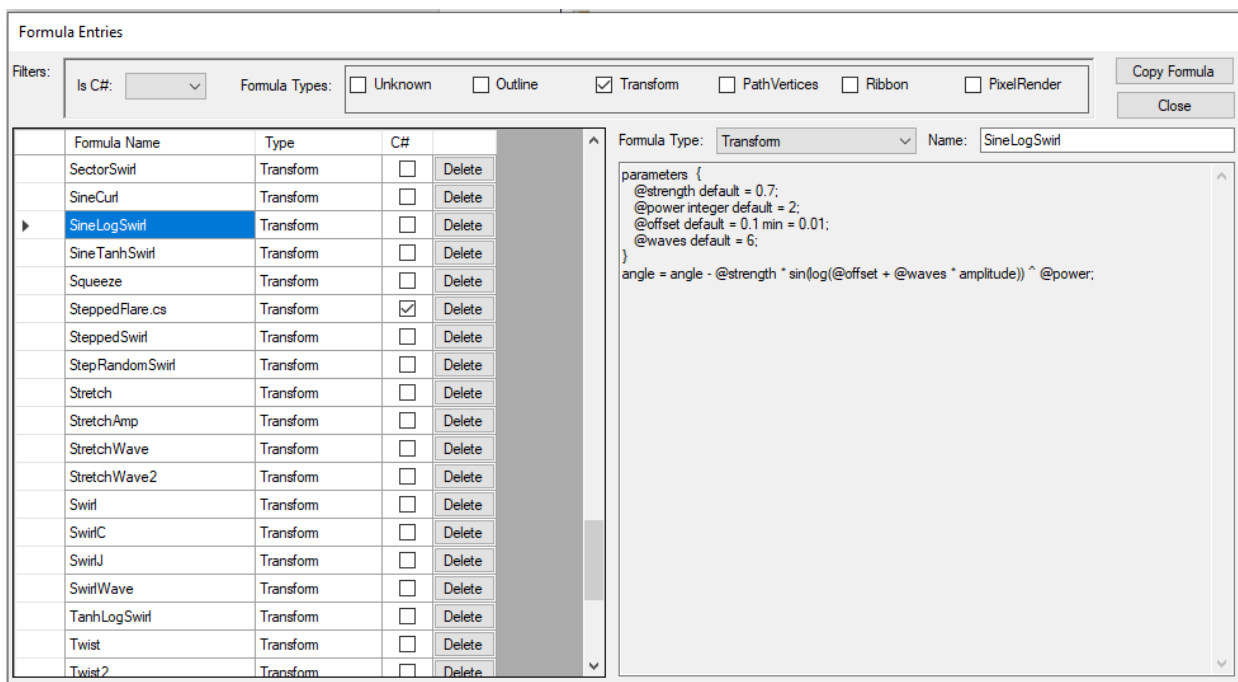
For this pattern there are 2 basic outlines, of types Round and Pointed 5. There are 4 petals for each outline. Normally the petals for different basic outlines are multiples of each other. For example, you could change the Petals for the Pointed 5 outline to 8 or 12, but if you change it to 5, the pattern will be asymmetrical (sometimes you might want that effect). When you change a Basic Outline's setting, click Preview to see the changes in the displayed pattern. You can also change the Weight setting for an outline, which determines its relative strength. The Pointiness setting applies to some types of Basic Outlines, though not to the Round type. The Phase setting can result in less symmetrical patterns if you change it. If you uncheck Enabled for an outline, it won't be included (this is like setting its Weight to 0).

Changing a Pattern with Transforms

Transforms are a feature of Whorl that let you change patterns' shapes. You can see designs that use transforms by choosing Open Design -> From Folder -> Transforms, from the main menu. To add a transform to a pattern, right-click the pattern, and click Edit Pattern from the popup menu. Then click the Transforms tab in the Pattern Form:



Click the Add button (to the right of Transform Name). Then click the Saved Formulas... link:



You'll see a scrollable list of formulas in the left half of the form. You can select any transform. Try scrolling down, and clicking on SineLogSwirl. Then click the Copy Formula button. In the formula form, click OK, to return to the Pattern Form:

The screenshot shows the 'Pattern Form' window with the 'Transforms' tab selected. A table lists transforms, with 'SineLogSwirl' selected. Below the table, parameters for the selected transform are shown: strength (0.7), power (2), offset (0.1), and waves (6). The bottom section contains various settings for the pattern, including Name, Type, Render Mode, Stain Width, Stain Blend Type, Zoom %, Precision, Loop Factor %, and checkboxes for 'Allow Random' and 'Smoothed Draft'. A preview window on the right shows a five-petaled flower pattern in orange and yellow on a black background.

Enabled	TransformName
<input checked="" type="checkbox"/>	SineLogSwirl

Parameters:

- strength: 0.7
- power: 2
- offset: 0.1
- waves: 6

Pattern Name: Zoom %: 100 ☐ Full Rotation: 0

Type: Pattern
Render Mode: Paint
Stain Width: 10
Stain Blend Type: Add
Zoom %: 100
Precision: 5000
Loop Factor %: 0
☒ Allow Random ☐ Smoothed Draft
☐ Shrink Pattern ☐ Shrink Pattern Layers
Padding: 2
Clip Factor: 4
Clip Center Factor: 0

Preview: A five-petaled flower pattern in orange and yellow on a black background.

The transform is added to the list, and you see SineLogSwirl in the Transform Name column. Beneath this is a box with parameters (I highlighted their labels in yellow), e.g. strength and power. Changing these will change the effect of the transform. Try changing strength to -0.7, and pressing the Enter key. The pattern shown in the preview box changes:

Pattern Form

File Pattern View

Preview OK Cancel

Fill Outlines Transforms Ribbon Ribbon Formula Section Pattern Layers Recursion Tiling Rendering Text

	Enabled	TransformName
▶ Edit Delete	<input checked="" type="checkbox"/>	SineLogSwirl

Add

strength i power i offset i

waves i

Pattern Name: Zoom %: ☐ Full Rotation:

Type: Render Mode:

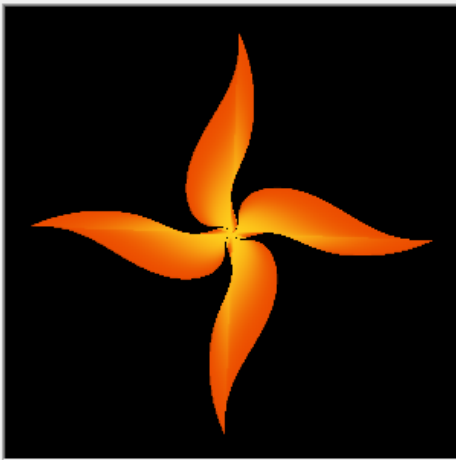
Stain Width: Stain Blend Type:

Zoom %: Precision: Loop Factor %:

☒ Allow Random ☐ Smoothed Draft

☐ Shrink Pattern ☐ Shrink Pattern Layers

Padding: Clip Factor: Clip Center Factor:



Try changing some of the other parameters; press Enter after you change a number. Some of the parameters have minimum or maximum values – a message will inform you if your change is out of bounds. When you're finished, click the OK button on the Pattern Form, and the pattern in the main form's Design Box will be updated.

To change parameter values, edit the pattern again and make the changes in the Pattern Form, then click OK.

To change the transform used, edit the pattern, click the Transforms tab if it's not shown, and click the Edit button to the left of the transform name. Then click Saved Formulas..., select a different Transform formula, click Copy Formula, and then OK. Try changing the transform to AngularStretch, and then change the 'power' parameter to 0.25.