



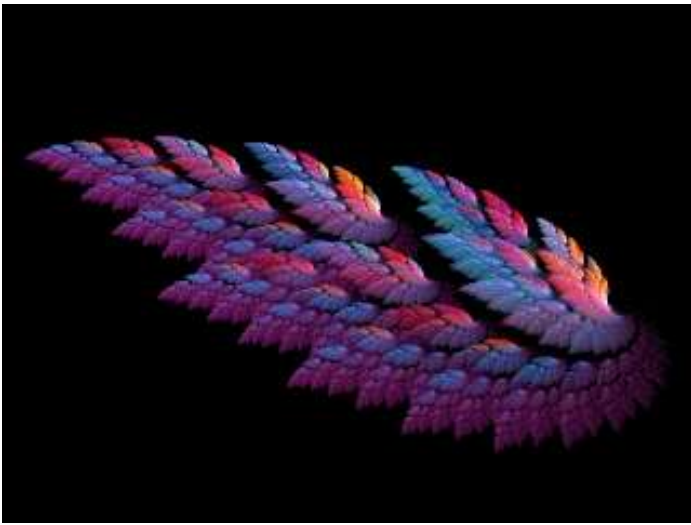
## Fractals: How to make a Computer-Generated Angel's Wing

by [Tararoys](#) on August 23, 2011

### Table of Contents

Fractals: How to make a Computer-Generated Angel's Wing .....	1
Intro: Fractals: How to make a Computer-Generated Angel's Wing .....	2
Step 1: The Main Screen .....	2
Step 2: Moving Your Fractal: The Transform Editor .....	3
Step 3: Making the Wing Shape .....	5
Step 4: Coloring the wing .....	8
Step 5: Rendering your Fractal .....	10
Step 6: Parameters .....	13
Step 7: Some Final Notes .....	14
Related Instructables .....	14

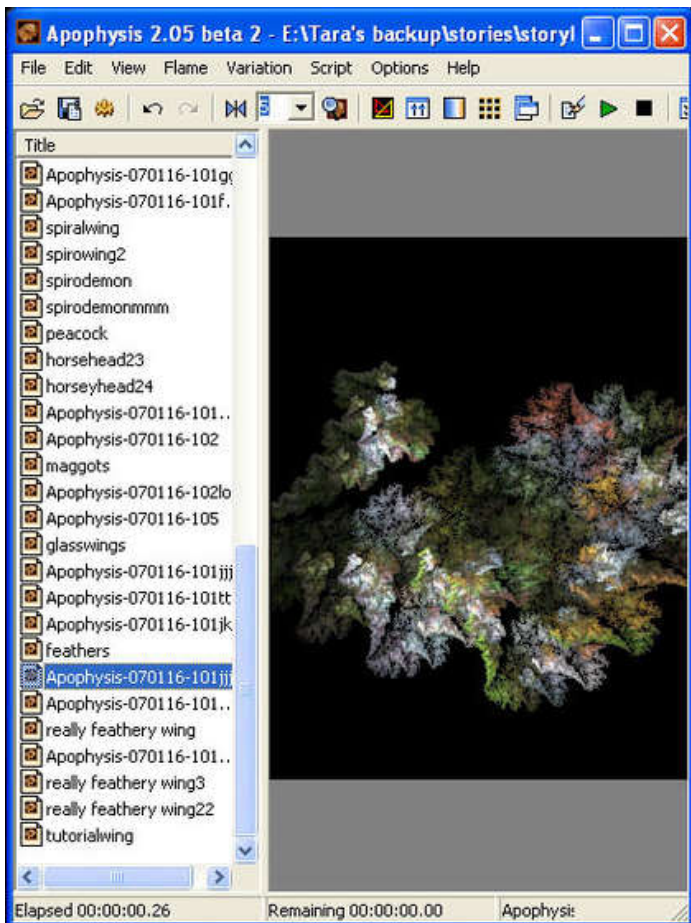
## Intro: Fractals: How to make a Computer-Generated Angel's Wing



### Step 1: The Main Screen

This Tutorial introduces all of the important aspects of the program by teaching how to make an angels wing. So, without further ado, let me present "How to Make An Angel's Wing" by yours truly, Tara Roys.

First, open up Apophysis. You will see three things of interest: the main screen, as shown above, which will hopefully be displaying a pretty fractal, the left-hand list of fractals, and a series of menus and buttons across the top. The main window displays a fractal. Ignore it for the moment. The left-hand list is a list of 100 randomly generated fractals. You can click on them and look in the main window to see if you see anything interesting. After that, turn your attention to the menus.



## Step 2: Moving Your Fractal: The Transform Editor

In the Main Window, click on the Transform Editor button (The one that looks like a little fx). A new window called the Transform Editor will open, as shown in picture 2.

When you open the transform editor, the first thing you'll see is probably a large black screen with some triangles and a grid on it..

### 1. Moving in the window

The first thing you'll want to learn is how to move around in this window.

Right-click and hold on the black grid. Your mouse will turn into a Translation symbol: two little double-headed arrows in the shape of a cross. Still holding the right mouse button down, move your mouse around. You'll drag the grid around. This lets you reposition your editor window so that you can concentrate on whatever part you want.

To zoom in and out of your editor window, scroll with the mouse wheel. Scrolling up will zoom in, whereas scrolling down will zoom out. If you don't have a mouse wheel, you can zoom by using the + and - keys across the top of your keyboard (not the ones on the number pad, but the ones that also double as underscore and equals).

### 2. Setting up a new fractal flame

The second thing you'll want to do is set up a new flame. In the upper left-hand corner of the transform editor, you will see the new blank flame button- it looks like a sheet of paper with a triangle on it. Click on it.

You will see a single red triangle in your transform editor.

The first thing you should note is the large black grid with the triangle. This triangle is called a transform, because changing it transforms the fractal into strange and different shapes. I shall call it a transform from now on.

Note: The words "transform" and "triangle" have different meanings in Apophysis. If you look on the right side of the transform editor, you'll notice that there is a tab that says 'triangle' and a tab that says 'transform.' Both tabs have stuff in them that you can press with your mouse or type in numbers that will move the triangle around. Both do it in slightly different ways that, unless you know the reasons behind them, will drive you crazy. Heck, I know the reasons behind them, and they still drive me crazy. But I'm getting ahead of myself: the reasons will be explained in another tutorial.

### 3. Moving the Whole Transform

Now that we have a transform, let's start moving it.

Hover your mouse over the red triangle until the move icon shows up.

Click and hold down the left mouse button to drag the triangle. When you click, two white axis lines will appear, as seen in picture 3.

Drag the transform. You will notice that two dull gray axis lines will follow the triangle, another pair of dull gray axis lines stay behind, as seen below. The lines that stay behind show where you were moving from, while the lines that follow the triangle tell where you are moving to.

### 4. The Reference Transform

Let go of the transform. The next thing to notice is the gray triangle we just uncovered. That gray triangle is called the reference transform. You'll learn more about why the reference transform is important in later tutorials. For right now, you'll use it to help measure where to put your other transforms. Where you put your transforms in relation to the grey reference transform is a big part of how you make the shape of the fractal.

You can't move the gray reference transform. However, you can move the red transform.

### 4. Scaling the Transform

Let's learn a couple more ways to move the red triangle with the mouse. Notice that the red triangle has two solid red lines and a dotted red line. Hover your mouse over the dotted red line until the scale icon appears beside the mouse pointer. The dotted line will also be highlighted. This means that you can make the transform bigger or smaller. Click and hold on it with the left mouse button and drag to make the transform bigger or smaller.

### 5. Rotating the Transform

Now hover your mouse over one of the solid red lines on the transform until the rotate icon appears. The line you are hovering over will also highlight. Click and hold with the left mouse button. A circle and two white axis lines will appear. The circle is centered around where the transform will rotate, as shown below.

Drag the mouse to rotate the transform.

### 6. Moving the Transform with the O point

The next thing to notice is that each point on the triangle is labeled. One is labeled O, one is labeled X, and one is labeled Y.

Hover your mouse over the O point until the translate icon shows up. The O point will highlight white. Left-click and hold on the O point. You will notice two pairs of axis lines appear.

These axis lines are slightly different than the lines you saw earlier when selecting the whole transform and moving it. First, one pair always stays on the X and Y axis, instead of staying behind where the transform used to be. The other pair follows the transform around as usual.

So why is there a difference between moving with the O point and moving the whole triangle? O is shorthand for origin. If you notice, the reference transform has an O point as well, and one pair of axis lines always goes through it. The reference transform's O point is the origin of the grid you are drawing your fractal on, and the red transform's O point shows how far from that origin your transform has moved, because that distance is important in the making of the fractal. When you use the O point to move the transform, Apophysis assumes that you want to know the distance between the reference transform's O point the red transform's O point, and puts the axis lines in to help show you that distance, as seen below.

By contrast, when you move the whole transform, Apophysis assumes you want to know where the red transform was before you started moving it, and so leaves a pair of axis lines to show where the red transform's O point used to be before you started moving it, as seen below.

## 7. Skewing the Transform With the X and Y Points

Now let's take a look at the other two points on the triangle: the X point and the Y point.

Let's start with the X point.

Hover your mouse over the X point until the translate icon shows up. The X point will highlight red. Left click and hold on the X point and start dragging it around. You'll notice two pairs of axis lines appear, and you'll also notice that only the x point moves--the whole transform does not move. This allows you to skew the transform.

Notice that one pair of axis lines goes through the O point on the transform, and other pair of axis lines goes through the X. This is because Apophysis thinks it is important for you to know the distance between the O point and the X point, because that distance is important when forming the fractal. Because of this Apophysis places the axis lines so that you can see the distance.

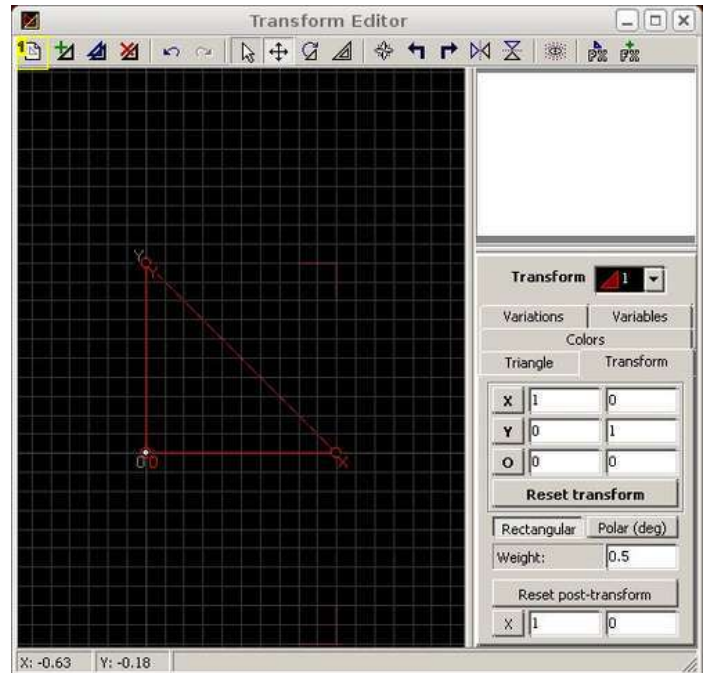
Moving the Y point acts exactly the same as moving the X point, with the sole exception that when you hover your mouse over the Y point it turns blue.

Now that we know how to move one transform, let's give ourselves a few more transforms to play with.



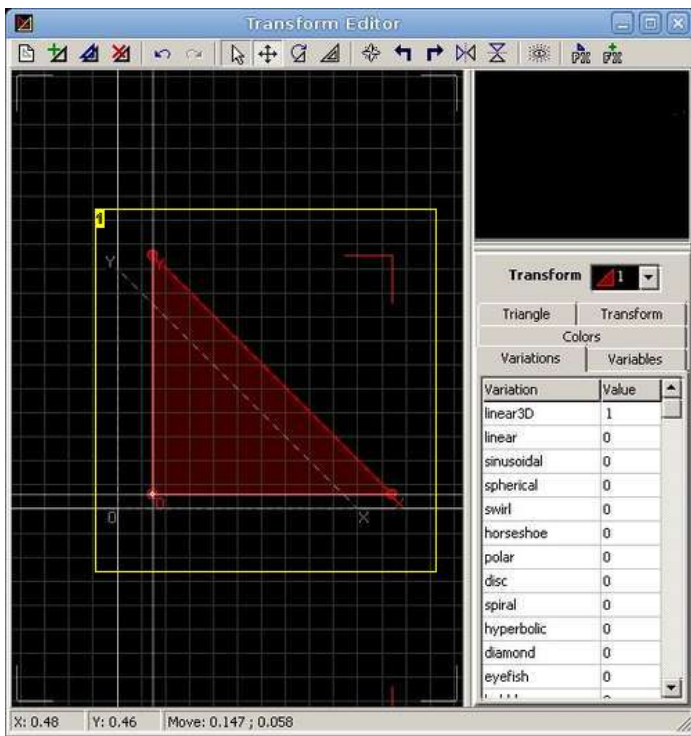
### Image Notes

1. Transform Editor
2. Renderer
3. Render Settings
4. New Fractal Flame
5. Open Fractal Flame
6. Save Fractal Flame
7. Changes how fractals in a file are listed on the left-hand side of the frame. This view shows the filenames.
8. Shows the fractals in the left-hand side as thumbnail images.
9. Undo
10. Redo
11. Resets the location of the fractal to the center of the screen
12. fullscreens the fractal
13. Changes the quality of the preview fractal in the main window. The higher this number, the slower the window is to update. So unless you have the uber multi-core computer of doom, I recommend setting this to 5, the lowest setting.
14. Camera options. This opens the adjustment window, where you can adjust everything about how the fractal looks in the main window.
15. Gradient editor: this lets you change the fractal's color
16. Ignore this button. It is useful for the first five minutes of your fractaling career, and stupid after that.
17. Brings up the image size dialog.
18. I have no idea what this is supposed to do.
19. Brings up the settings window
20. Makes background transparent
21. Shows guidelines in main window.
22. Script window. Lets you make fractals by coding them using Delphi, an obsolescent programming language that I have only EVER seen in this program.
23. Runs the script in the scripting window. This is a good way to crash apophysis if you don't know how to write a good script.
24. stops the script in the scripting window
25. Lets you pan the screen in the main window
26. lets you rotate the screen
27. Lets you zoom in. A good way to crash apophysis is to zoom in so far that it will take half an hour to render the image in the preview screen.
28. Zoom out



### Image Notes

1. New Blank Flame Button



### Image Notes

1. Note the highlighted triangle and the white axis lines. Also note the white dot in the lower left corner of the triangle. That is your center of rotation- when you rotate the triangle, that is the place it will rotate around.

## Step 3: Making the Wing Shape

### 8. The Transform Selection Dropdown Menu

Click on the red transform to select it.

On the right-hand side of the Transform Editor, you will see the Selected Transform Menu. If you click on the arrow, a drop-down menu will appear.

Right now the dropdown menu only has one transform, but as you add more transforms to your fractal the Selected Transform Menu will help you manage them.

### 9. Adding More Transforms

Up until now, our fractal has been a bit boring. In order to have a wing by the end of this, we need to add a few more transforms. Specifically, two more transforms. Go to the top of the Transform Editor and click on the add transform button. It is in the upper left-hand corner, and looks like a triangle with a green + sign over it. This will add a new transform on top of the reference triangle. You'll notice that it's yellow, and also notice that the Selected Transform Menu now shows another transform, as seen below.

Click the new transform button again. This will add another new transform, this time in green. You'll notice that you can no longer see the yellow transform because it is hidden by the green triangle.

This can sometimes cause problems you want to move the yellow transform with the mouse, because at first glance it seems like you have to move the green transform first. If you use just a mouse, you will have to move the green transform first. This does not really matter for this tutorial, but when working with later fractals there will be times when you want to move transforms that are hidden below other transforms. In that case, you will need to move the transforms using either the Transform tab or the Triangle tab.

Up until now, our fractal has been a bit boring- just a blank screen, or perhaps a blur. But now we get to the fun part, where we start seeing things!

### 10. Put It All Together

All right. You know how to move transforms. Now lets use them to make a pretty fractal.

Move your transforms into the arrangement shown in picture 1.

The closer you get to this exact arrangement, the more your fractal will look like a wing. You can see the image it is supposed to look like in the preview window in the upper right-hand corner of the fractal box.

### 11. Moving the Transform With the Transform Tab

Moving transforms with the mouse is fun, but you probably can't get the transforms into exactly the same positions as shown in last section's picture. To get exactly the same position, you need to type the locations in by hand. As a result, I'm going to teach you how to move the fractal with the Transform tab.

### 12. Transform Editor Tabs

Below the transform menu you will see a set of tabs.

Within these tabs you will find almost every option you need to control how your fractal works. These tabs will look slightly different in different versions of Apophysis, but as of this writing every version has a Triangle tab, a Transform Tab, a Color tab, a Variations tab, and a Variables tab. Some versions of Apophysis have a Xaos tab that is not pictured here because I am using screenshots from an older version of Apophysis. Future versions may have even more tabs as programmers decide to add more features. In this particular tutorial we are only going to talk about the Transform tab and the color tab.

### 13. The Transform Tab

Click on the Transform tab . The Transform tab will bring up a bunch of options shown in picture 2.

The only options we care about for the moment are the top set of X, Y and O options.

Here's where things begin to get a little tricky.

Select any transform. I'm going to select the first (red) transform, but any of transform will work for this demonstration.

Notice that the transform has three points: O, X, and Y, and there are three fields corresponding to each point.

Now for the slightly confusing part. The transform's O point is measured as distance from the Reference Transform's O point. So, in the second picture, Transform 1's O point is -0.407012 units over from the reference transform's O point and -0.151833 units up from the reference transform's O point.

So far so good. Let's take a look at the X and Y points. The X and Y points are measured from the current transform's O point, NOT from the reference triangle's O point. For example, in picture 2, the transform's X point is .609816 units over from the transform's O point and -0.551038 units up from the transform's O point.

The Y point of the red transform is also measured from the red transform's O point in exactly the same way as the X point.

All of this has an interesting effect. If you move the transform's O point around on the screen, and watch the numbers in the boxes change in the transform tab, only the values for the O point change.

So to use the transform tab value boxes keep in mind that the transform's O point is measured from the reference transform's O point, and the transform's X and Y points are measured from the transform's own O point.

#### 14. Putting it all together

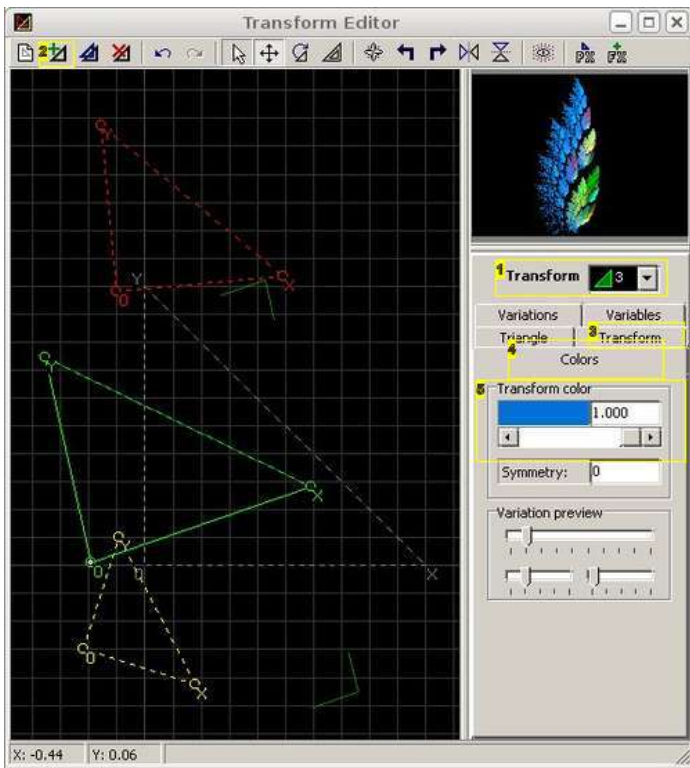
So, what does the transform tab give us, besides the chance to be really confused? Well, it will let you make exactly the same wing I made in this tutorial.

Select transform 1. and fill the values in picture 3 into the transform tab value boxes.

Select transform 2 and fill in values in picture 4 into transform 2's transform tab value boxes.

Select transform 3 and fill in the values in picture 5 into transform 3's transform tab value boxes.

Tada! You now have a wing shape!



#### Image Notes

1. Selected Transform Menu
2. Add Transform Button.
3. transform tab
4. The color tab
5. Move the color tab all the way over to 1 for transforms 1 and 3. Leave transforms 2 at zero.

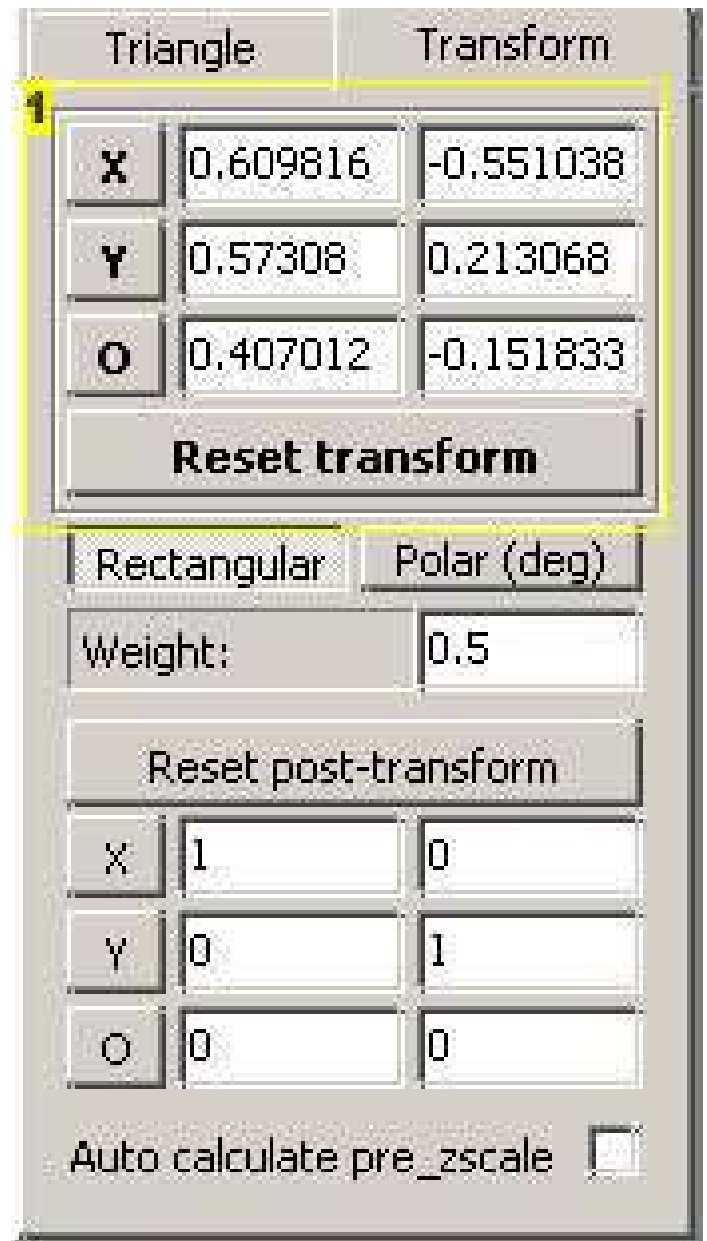
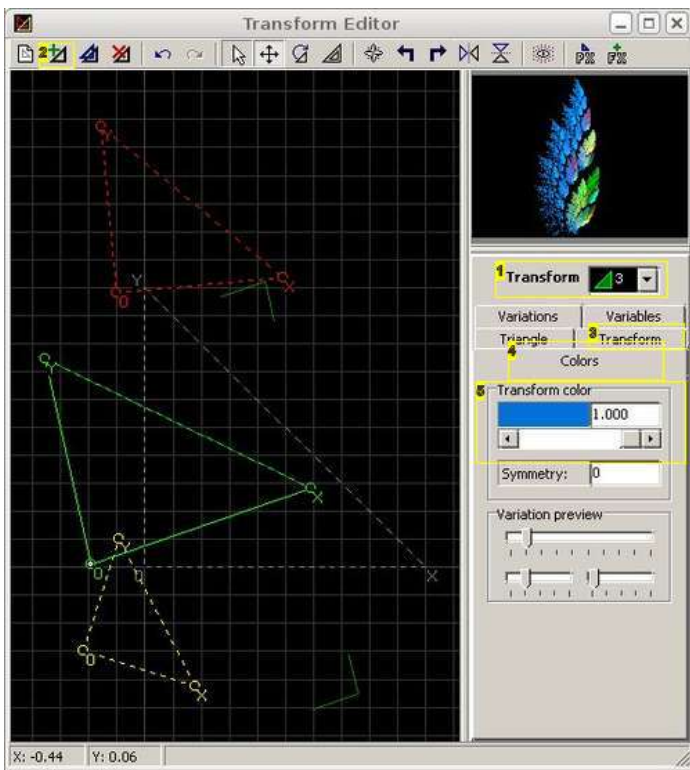


Image Notes  
1. These are the only options we care about for this tutorial.

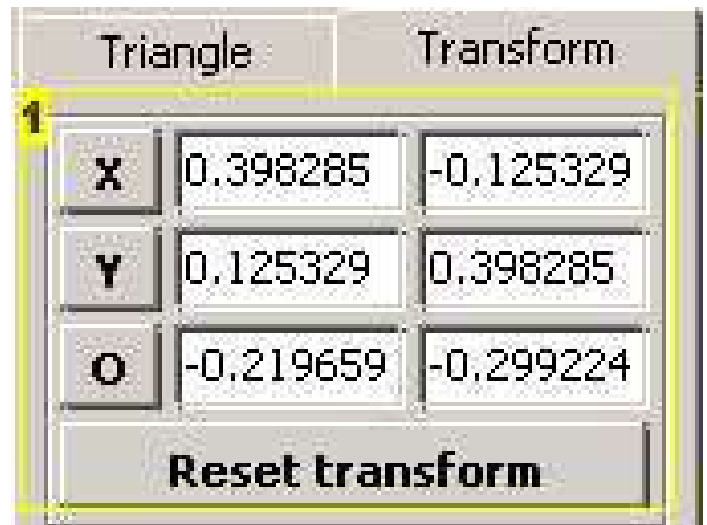
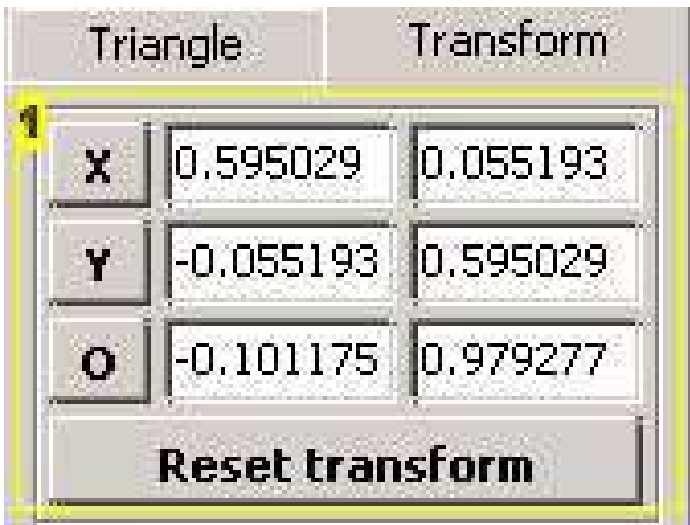
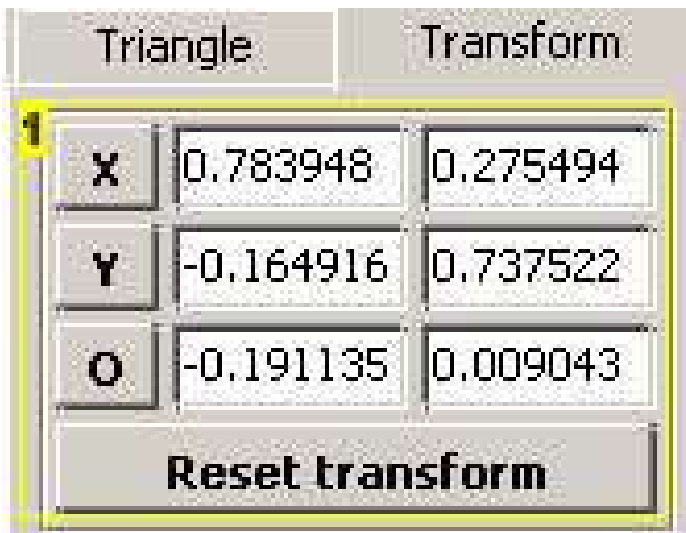


Image Notes

Image Notes

1. Transform 1 values

1. Transform 2 values



#### Image Notes

1. Transform 3 values

### Step 4: Coloring the wing

#### 1. Coloring Your Fractal

So now we have the shape of the fractal. Lets do something about the color. There are two main ways of controlling the fractal's color in Apophysis. The gradient controls what colors are used to color your fractal, and the color tab in the transform editor controls how the coloring is actually done. Right now I'm going to use whatever default gradient was randomly applied to your fractal, and tell you how to change it after we add more than one color to the fractal.

#### 2. The Color Tab

You can color it lots of different ways, but I'll show you my favorite, and in a later tutorial, I'll explain how the coloring actually works. For now, in the Transform Editor, on the right-hand side, select the Colors tab, as seen in picture 1.

Select transform 1, . Put the color slider all the way to the right. The value of the transform color will show 1.000.

Select transform 3, (the middle transform) . Put the color slider all the way to the right. The value of the transform color will show 1.000.

Leave transform two's color slider alone, and voila! We have my favorite way of coloring a wing.

If you don't like this particular way of coloring, play around with the sliders some more. For an explanation of why the fractals color the way they do, look in a later tutorial.

#### 3. The Gradient Editor

So, we now like the way the wing is colored, but what if we actually want to change the colors?

It's time to look at the gradient editor. Quit out of the transform editor and go back to the main apophysis window. Click on the gradient button- it's a button in the middle with six squares of different colors. . This will open up the gradient editor, shown in picture 3. Technically, the window you open is called the Adjust window and the gradient editor is the gradient tab within the adjust window, but I like to call it the gradient editor because that's what it is.

In the Gradient Menu, you can see the Gradient, which shows you what colors are being used to color your fractal.

You can also see the rotate slider. If you move the slider, you can watch the order of the colors change on your fractal.

But what if you want to completely change the color scheme? Then you need to look at the presets menu. Click on the arrow button to show the gradients in the preset menu.

I happen to like gradient 302 with a rotation of 72, so that's what I will pick to color my wing.

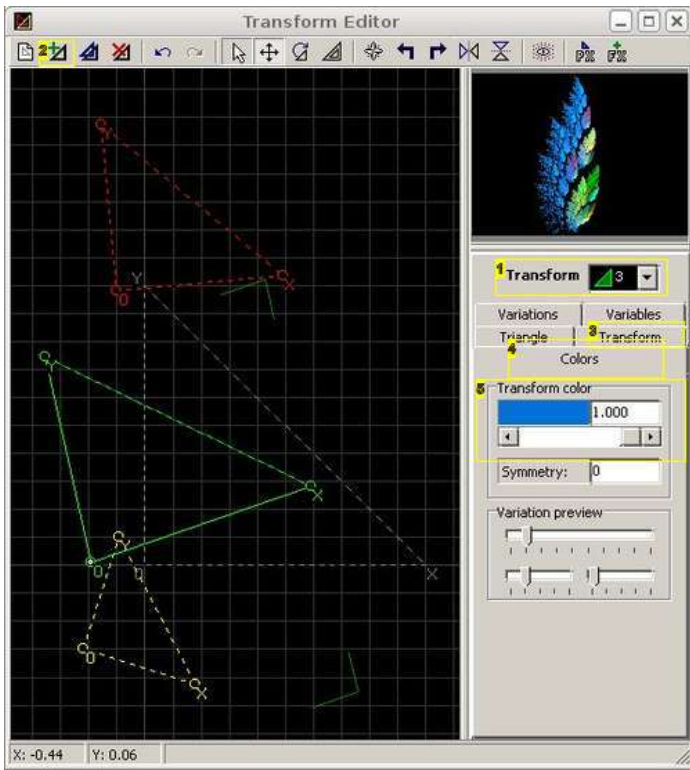
And that gives me the beautiful wing in picture 4!



#### Image Notes

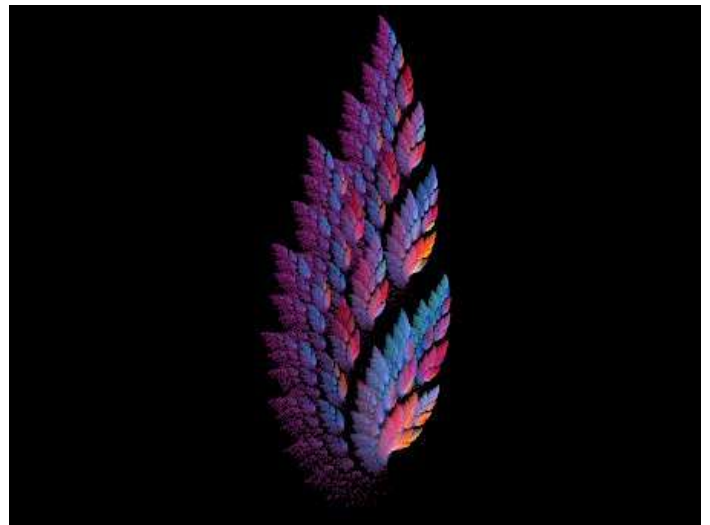
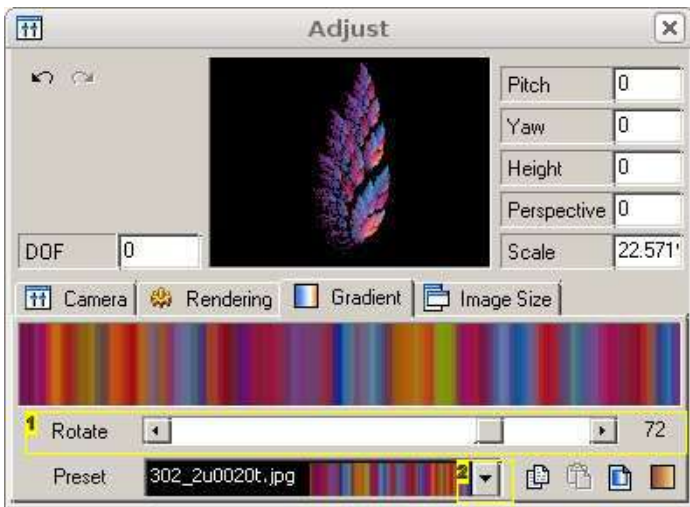
1. Transform Editor.
2. Gradient Editor
3. Adjust menu
4. Rotate Button
5. Translate Image





**Image Notes**

1. Selected Transform Menu
2. Add Transform Button.
3. transform tab
4. The color tab
5. Move the color tab all the way over to 1 for transforms 1 and 3. Leave transforms 2 at zero.



**Image Notes**

1. Rotate Slider
2. change menu here.

## Step 5: Rendering your Fractal

Now that you've made your fractal, you probably want to render it.

### 1. Framing your Fractal: Setting Up the Aspect Ratio

The first thing you'll want to do when setting up your fractal for rendering is determine exactly what size of picture you want to render. You'll then want the main window to show that size picture. This means we have to play with something called the aspect ratio.

If you don't know what an aspect ratio is, it's how wide an image is compared to how tall it is. In apophysis, we control the aspect ratio by setting the width and height of an image in pixels.

So let's do exactly that.

In the main window, on the top menu, click on the Adjust button . The button looks like a notepad with a pencil, and it's in the middle of the menu across the top. The adjust menu will show up.

Click on the Image Size tab . The image size dialog will show, as seen in picture 2.

Set width and the height of your image using the width and height box.

The width and height are in pixels. I set mine to 800 by 600, but you can set yours to different values if you want.

If you notice that every time you change the width, your height changes too, this is because the maintain aspect ratio box is checked. The maintain aspect ratio box makes sure that even if the size of the picture changes, the proportion of width to height doesn't change. If you want to change the height and width separately, uncheck the Maintain aspect ratio box.

The other thing on this dialog that you'll want to take a look at is the Resize Main Window box. If you check this box, it will make sure that the fractal image in your main window is resized to be exactly the same size the final render will be. Click Apply to see the new frame for your picture in the main window.\

The big advantage of setting the aspect ratio in the image size tab is that when you resize the main window, the preview window will still show the right aspect ratio, so you will still have a good idea of what your final picture is going to look like.

So, now that we know how to frame our image, let's see if we can't get the wing to look a bit prettier inside that frame.

### 2. Moving the Fractal Inside the Frame

You may have noticed that while your wing is very pretty, it is also a bit vertical. To show it off properly, it really needs to be horizontal. There are two ways to do this. First, you can do it in the main window.

Go to the main window, and select the rotate button. It is the curved arrow on the very right-hand side of the menu.

To rotate your wing, you need to select the rotate button

In the fractal window of your main screen, click and drag with your mouse. A rectangle outlined by a dotted line will show where your wing is going to rotate to.

Let go of the mouse, and your fractal will show up rotated in a few seconds.

### 3. Translation

So what do you do if your wing looks a little off-center?

In the main window, go up to the top menu and click on the Translate Image button . It is an arrow right next to the rotate button.

Then, in the main window, click and hold with the mouse and start dragging the image around until you have it where you want it, and let go of the mouse.

### 3. Zooming

If you want to zoom in closer to your fractal, go to the main menu's top menu bar and click on the zoom to rectangle button- the magnifying glass with a + in it right next to the rotate button.

The zoom to rectangle button zooms by having you draw a rectangle around the part you want to see and then matching the edges of the main window as closely as possible to that rectangle.

To use the zoom to rectangle button, click and hold in the main window where you want a corner of your selected rectangle to be, and then drag the mouse to draw the rectangle.

The main window will zoom in.

The top menu bar's rectangle zoom out button works like the rectangle zoom in button, but in reverse. I'll leave that to you to play with.

### 4. Move Your Fractal with the Camera menu

There is another, more precise way to rotate your fractal, and that is by using the Camera tab of the adjust menu. In the main window on the top menu bar click on the adjust button .

It will bring up the adjust menu with the Camera tab already selected.

To rotate your wing, simply move the Rotation slider, or type in the exact degrees of rotation you want in the dialog beside the rotation slider.

### 5. Translating with the Camera Slider

You can move the fractal's position with the X position slider and the Y position slider in the camera tab of the adjust menu.

However, there is a trick to using these sliders. See, these sliders only work the way you think they would work if the rotation slider is set to zero degrees of rotation. This is because the X axis is horizontal and the Y axis is vertical when the rotation is 0.

If you move the X slider, the wing moves left or right, and if you move the Y slider, the wing moves up or down.

<http://www.instructables.com/id/Fractals-How-to-make-a-Computer-Generated-Angels/>

However, if you move the rotation slider, the X and Y axis rotates as well. That means that when you move the X slider, the fractal will still move along the X axis, but since the X axis is rotated as well, your fractal is probably going to move in a diagonal line across the screen.

As a result, I find it easier to move the fractal with the translate image hand on the main screen.

## 6. Zooming

In the camera tab of the adjust menu, you can also zoom in on the image using the zoom slider. It will zoom in to wherever the center of the picture is.

## 7. Rendering Your Fractal

And now, all your hard work pays off, because we are now going to render the fractal! In the main window in the top menu bar, click on the Render button . The Render Window will come up.

### File Types and Saving Files

The first thing you need to do is set the Destination, which is where your final rendered image will be saved.

Click on the file browser button. The file browser window will open.

Browse around until you find a folder where you want to stash your images. Then give your picture a name in the file name field.

You can render your files as three different file types: a bitmap (.bmp) file, a PNG image (.png), or a jpg image (.jpg). However, this dialog box does not show those as an option- so you have to physically type in the file extension you want at the end of you filename.

The different file types do different things. Perhaps the most important difference is the difference between the PNG format and the other two formats.

The PNG format lets parts of the fractal be transparent. Specifically, it lets you render the fractal on a transparent background, which is very useful when you are going to be using the image together with several other other images (i.e. compositing the images together.) However, it will ONLY render on a transparent background, no matter what background color you set in the program. So if you want that pretty background, render it as a jpg by changing .png to .jpg.

And that leaves us with the bitmap format. Hardly anybody uses the BMP format, because the BMP format usually looks exactly like the .JPG format, and has more disadvantages. The disadvantage of using .BMP is that there is absolutely no compression on the image, so the file size is really really big, which makes it hard to store a lot of images. The advantage of using BMP is that there is no compression, so you don't get jpg compression artifacts in your fractal. So...use bmp if you are going to do a lot of manipulation in a photoshop program on your fractal. You'll get a slightly better image.

## 8. Setting the Size

Now we get to determine the size of the image. By default, Apophysis tries to render things at 1024 pixels by 760 pixels, which is the standard default resolution for computer displays and HDTV. If you want the size settings to match the settings you set in the image size tab of the Adjust menu, you need to change them.

Change the width to 800. If you have the maintain aspect ratio box checked, the height will automatically change to 600. If you want to change the height and weight separately, you'll need to uncheck the maintain aspect ratio box.

The larger you make the image size, the longer it will take to render, and the more memory you will need on your computer. The memory usage box keeps track of how much memory you will need for a particular size image, as well as for other setting's we'll get to in the next step.

If you make the image too big, however, you will run out of memory.

## 9. Rendering options

Which brings us to the Rendering options. There are three rendering options. Quality, Filter Radius, and Oversample.

As a general rule of thumb, the higher these values are, the more higher quality your fractal will be, and the more time it will take to render the fractal. A higher quality tends to make the fractal more smooth and less grainy, as does a higher oversample. I have no idea what the Filter Radius does, because it has not been adequately explained to me yet.

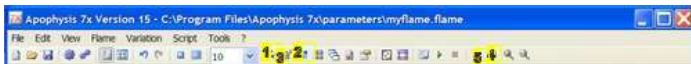
For rendering the wing, the default settings will do.

Clicking the Render Button

All that's left is to hit the Render button. So hit it!

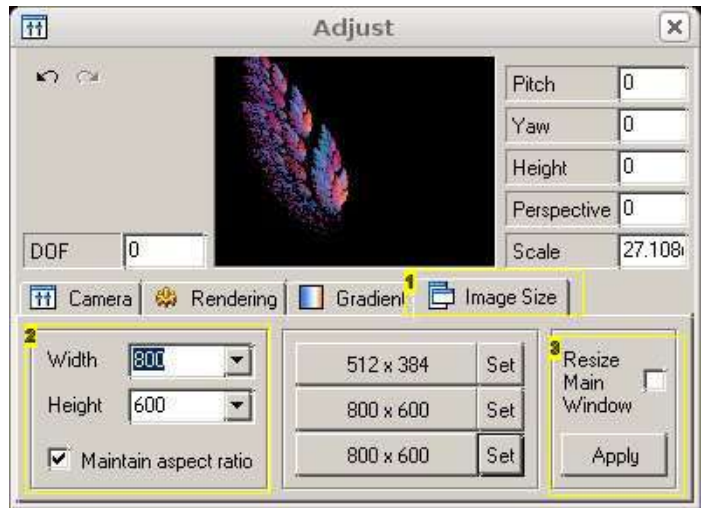
The rendering output window will show up, and give you information, a progress bar, and an estimated time of how long it will take.

When it's done, you'll have your beautiful wing!



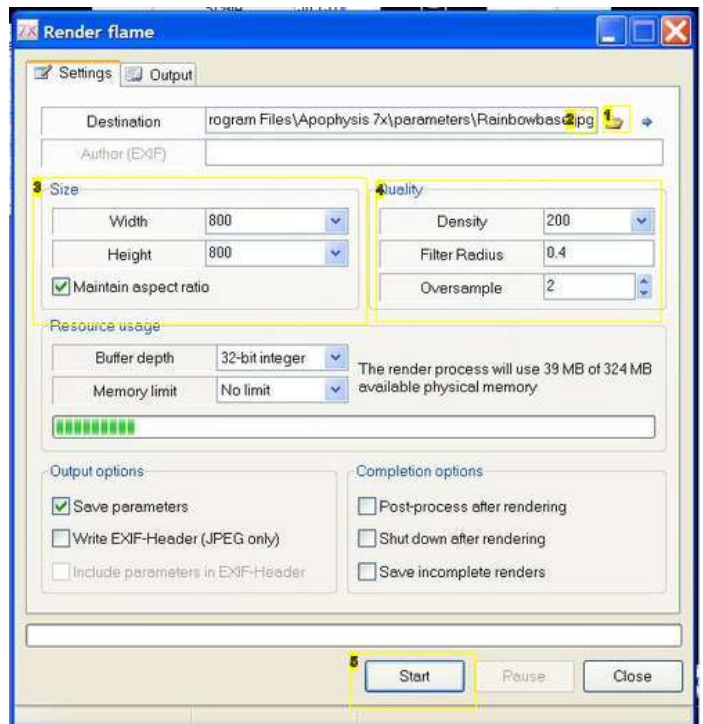
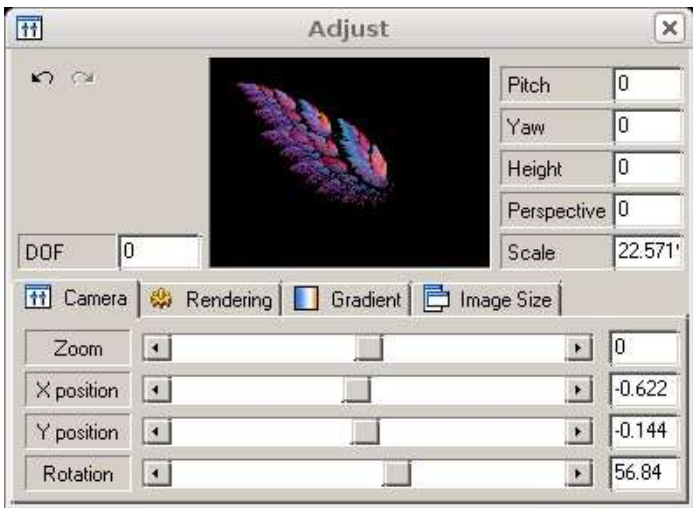
### Image Notes

1. Transform Editor.
2. Gradient Editor
3. Adjust menu
4. Rotate Button
5. Translate Image



#### Image Notes

1. Image size tab
2. Aspect ratio
3. You will also want to resize the main window so that you know what the final rendered image will look like.



#### Image Notes

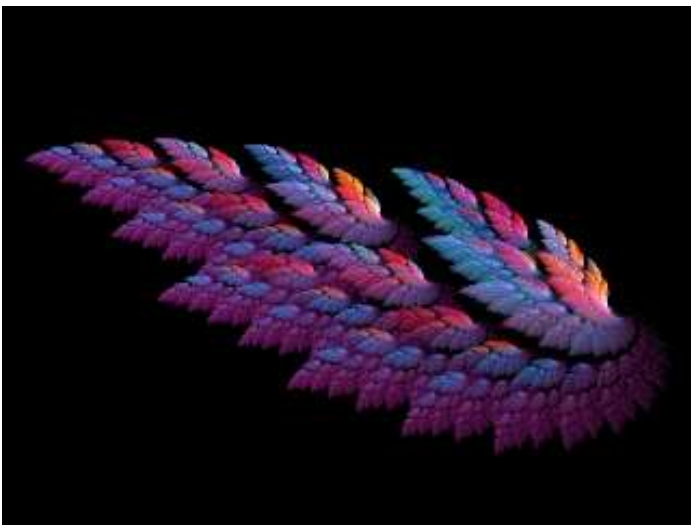
1. Pick a place for your render to go
2. Physically type .jpg at the end of your file instead of .png. If you render it as a png, you will have a transparent background. There is no indication on this screen that there are actually three ways to save your fractal- as a jpg, as a bmp, or as a png. If you just change the file extension, however, the renderer will output them in the right file type, even though there is not option to change it in the program.
3. Size of your fractal in pixels.
4. Render settings
5. Start the render.

## Step 6: Parameters

When you click on the save button in apophysis, your fractal gets saved as a set of parameters. The parameters are an xml text file that stores all of the settings for your fractal.

If you copy the text below, and go to the main apophysis window, click the edit menu, and select paste, it will paste the fractal into apophysis and you will see the angels wing without having to go through all of the steps of the tutorial. Isn't that nice?

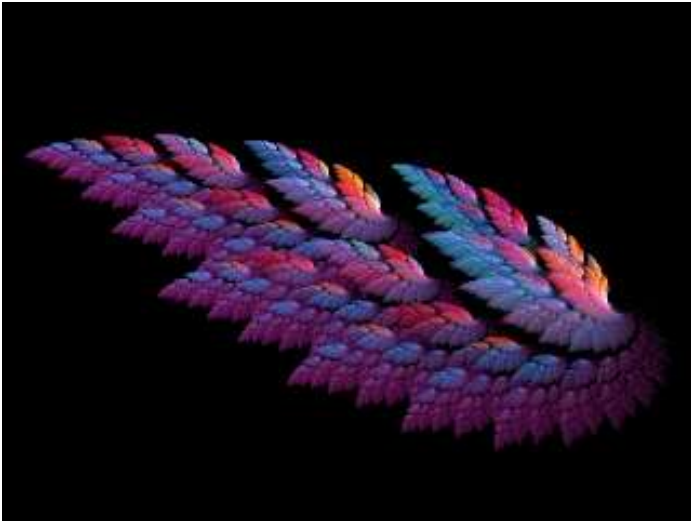
```
<flame name="wingtutorialcoloredfinal" version="Apophysis 2.06c 3D hack" size="640 480" center="-0.695032974464612 -0.703942547094069"
scale="215.144395447155" angle="13.6620071468373" rotate="-782.775349191345" oversample="1" filter="0.5" quality="50" background="0 0 0" brightness="4"
gamma="4" >
<xform weight="0.5" color="1" linear3D="1" coefs="0.595029 -0.055193 0.055193 0.595029 -0.101175 -0.979277" />
<xform weight="0.5" color="0" linear3D="1" coefs="0.398285 0.125329 -0.125329 0.398285 -0.219659 0.299224" />
<xform weight="0.5" color="1" linear3D="1" coefs="0.783948 -0.275494 0.164916 0.737522 -0.191135 -0.009043" />
<palette count="256" format="RGB">
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AD3705A71F239F1F20A0242296331E9E40268A4B15896217
8D5E0C8D5F0A916A0D9A721398722967593C6A5B4666464B
6A3C3F764737A54C24C15515C24A0DC64A0EC74312B03806
B9241EAE1F1996141E9A0D1DB1140BB73D0CAC5E1CAA6723
A36125A157587F5B75796B6B72566473565899502DA45021
933F359038627C356F7C508573588F6D5F9D656999676A95
616E9A626B96535A84416C59446171483C86582B7047307E
B23D1CA03D1E9F3C269E3C2F99292E94162E910E258E061C
7512176E1B2A68243D641C4A6015586114676313766A106F
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</flame>
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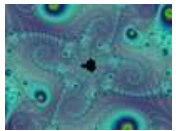
## Step 7: Some Final Notes

This is an updated version of my Introduction to Apophysis Tutorial. It, along with several other tutorials, can be found in my Apophysis User Manual.

If you have more questions about fractals and fractal art, I and many other fractal experts can be found hanging out on DeviantArt in the ApoShack. Feel free to drop by!



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