

# Apophysis for Beginners Part 1

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## Part 1 – Learning the Program

This tutorial will walk you through some of the basics of the Open Source fractal software, [Apophysis](#). This is designed especially for beginners. A lot of new Apophysis users ask me to help them configure their settings and options within the program and in the past I have helped walk them through things like applying scripts and creating batch renders. I will write many more tutorials explaining some of the program's ins-and-outs, my favorite variations and how to get particular results.

This is Part 1, in which we'll discuss basic commands, shortcuts and the Translation Editor tool found in Apophysis. It might help for you to have the program open while you read this tutorial for reference sake, but I should warn you now that you will not be able to achieve the same exact results. Don't think of it as a 1, 2, 3 step process to making a fractal flame, but use this more as a guide to help you learn about the programs many features.

When creating fractal imagery, I usually start out with a plan in mind, but I rarely end up with exactly what I envisioned, if ever. That's why the whole process is called "fractal exploration". We can give the computer some basic instructions, which help to determine the structure of a fractal flame, but I believe Patrick Gosch, (aka Hallucinaut) said it best by saying, "I don't think anyone knows the full potential of Apophysis." It is, indeed, a powerful program with many avenues to explore. It's important to understand that even though we would like to be complete control of the outcome, mistakes and accidents are often a welcome surprise. Always endeavor to try new ideas! When it comes to fractal exploration, there aren't any rules! Pull triangles, change variables, add scripts, heck, add multiple scripts! The point is to find something unique, something beautiful. The possibilities are endless. Keep in mind that you can always undo what you've done if you don't like it.

Ready? Let's begin by learning some keyboard shortcuts. Psst... you may want to print the next page!

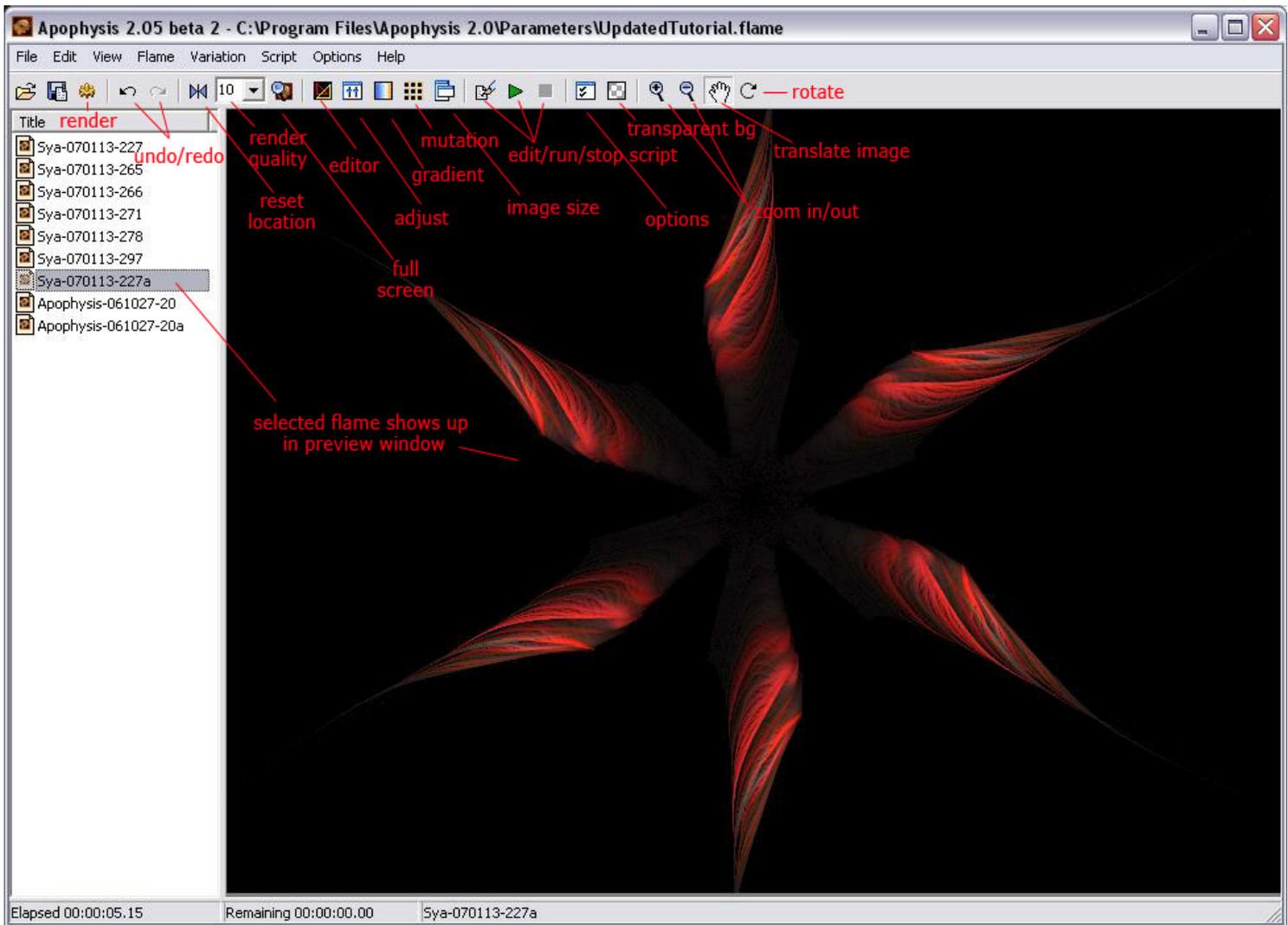
## **Basic Apophysis Commands:**

Ctrl+Z = Undo  
Ctrl+Y = Redo  
Ctrl+B = Create new batch  
Ctrl+S = Save parameters  
Shift+Ctrl+S = Save all parameters  
Ctrl + P = Options window  
Ctrl+O = Open Flame  
Ctrl+C = Copy  
Ctrl+A = Opens the Adjustment window  
Ctrl+C = Copy  
Ctrl+U = Copy as UPR  
Ctrl+R = Opens Apo's Internal Render window  
Ctrl+X = Export Flame  
Ctrl+E = Open script  
Ctrl+D = Edit script  
Ctrl+H = Stops the script from running  
Ctrl+N = Randomize color values

F3 = Full Screen  
F4 = Opens Transform Editor  
F5 = Adjust  
F6 = Opens Gradient window  
F7 = Opens the Mutation window  
F9 = Run script  
F11 = Applies random variation  
F12 = Reset location (to show entire flame)  
F1 = HELP FILES (read them. Seriously.)  
Alt+F4 = Exit

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**Your Notes:**



## Options Settings:

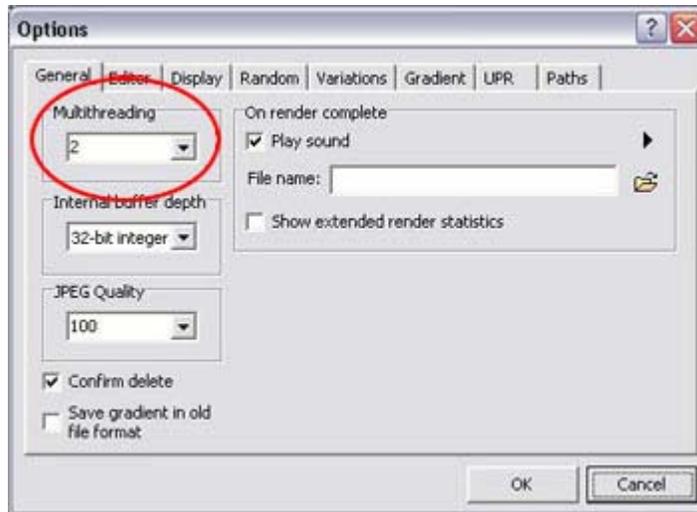
Click Options in the toolbar, and choose Options from the drop down menu. Most of my settings have remained the same for a very long time because I am used to them and they work for me. You can certainly use the same settings if you like, but I encourage you to find the settings that work best for you. There's more information about these options in the help files.

In this tutorial, the tabs of particular interest are the following:

- General
- Editor
- Display
- Random
- Variations
- Paths

For the purposes of this tutorial, we will not need to change the settings under the other tabs, so leave them as they are by default for now.

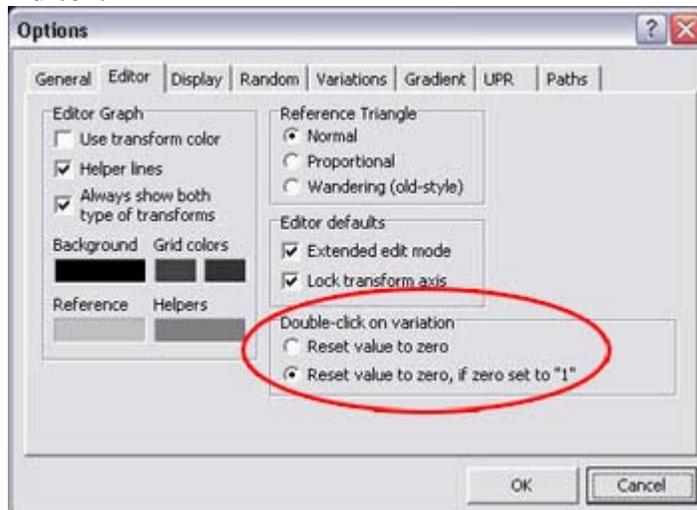
## General:



My settings here are mostly default but I changed Multithreading to 2 and I suggest you do too. Regardless of whether or not your computer has a dual processor, you should see an improvement in render time. I've heard it can be between 8-10% faster.

You might like to hear a notification beep when you're render has completed. If so, tick the Play Sound box and choose your sound file (or keep the default).

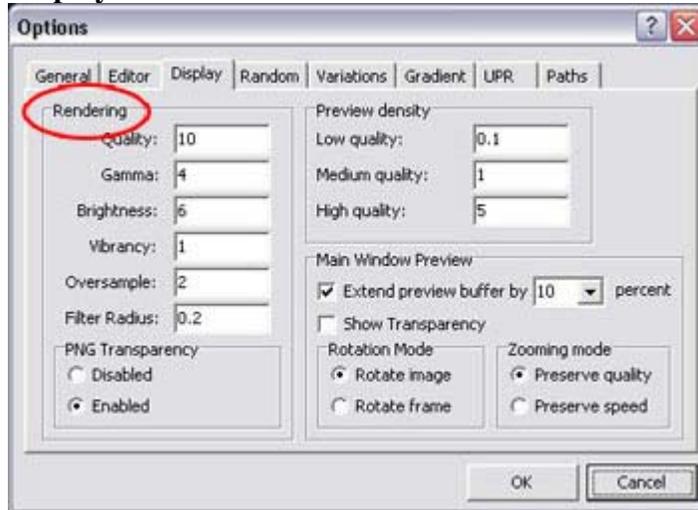
## Editor:



These settings pertain to the 2D plane of the Transform Editor, which is just a matter of personal taste. You may want to apply settings and open the editor to see how it looks. Some people find it easier to work on a light surface, some prefer to work on a black surface. I prefer seeing a grid, though earlier versions of the software did not have this feature. Play around with these settings until the editor feels right to you.

Under Double-click on variation, tick the radio button next to "Reset value to zero, if zero set to "1"

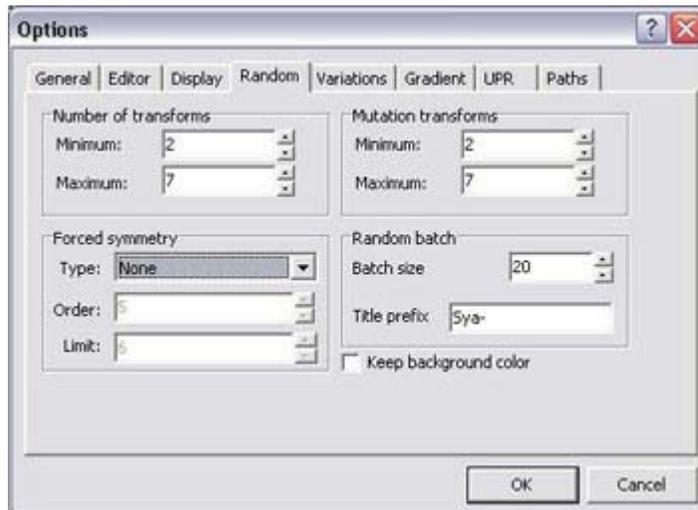
## Display:



This is how your fractal is displayed while you are working. This is also personal preference. I like to have a nice view of my fractal without having to wait forever for it to finish processing each time I make a change. It's really up to you to find the right balance between your computer's capabilities and your patience. I keep most of the default settings, but change the Rendering Quality to 10, Brightness to 6, Oversample is set to 2 and Filter Radius is 0.2

I suggest keeping Show Transparency unticked while you work and only turn it on in instances when you want to see what the flame looks like on a checkerboard without a background. You just can't get a full appreciation for the colors and shapes without some form of solid background color behind the flame. Black works for me.

## Random:



These settings pertain to creating random batches (I'll go into more detail in a bit). Apophysis allows you to choose certain presets so you have a better chance of getting what you want in the midst of all that random chaos.

Number of Transforms pertains to the number of transform triangles the program will randomly create when you make new batches. I like to have a minimum of 2 and a maximum of 5, though I sometimes go as high as 7 depending on the variation.

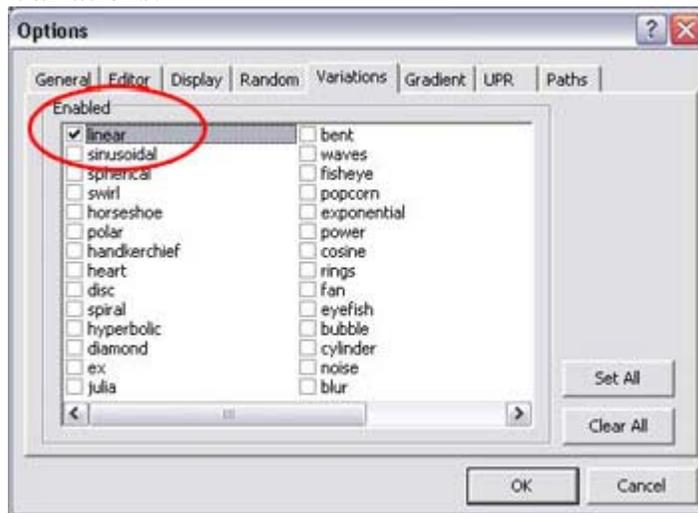
Mutation transforms pertains to the number of transforms used in Mutation when the “Same no. of transforms” option is turned off. I usually make this the same as the other, with a minimum of 2 and max of 7. I will cover the Mutation window in more detail in Part 2.

I encourage you to change all of the settings under this tab while exploring, but the option I change the most is the Forced symmetry settings. Change this often and enjoy the different results!

I usually use my nickname as the flame prefix but you can change it to anything you like.

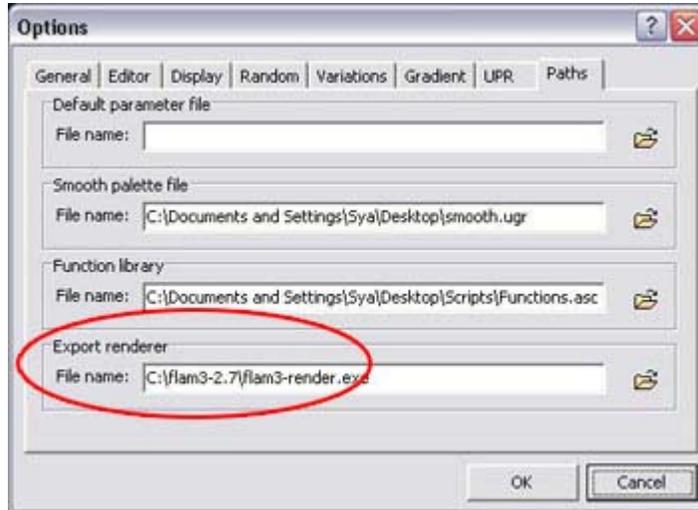
I prefer dealing with smaller batch sizes, so I change this setting from 100 to 20. Again, it’s completely up to you.

### Variations:



I usually have only a few variations ticked at once but I often tell those just starting out that they should stick to the linear variation at first until they get familiar with the basic functions of the program. When you get a better understanding of how Apophysis works, gradually replace it with other variations or add more. In the zip file, I have provided a pack of basic linear flames, each with only 2 transforms for you to experiment with.

## Paths:



You can set up a default parameter file if you like, but I haven't ever utilized this. Keep the Smooth palette file and Function library files the same for now.

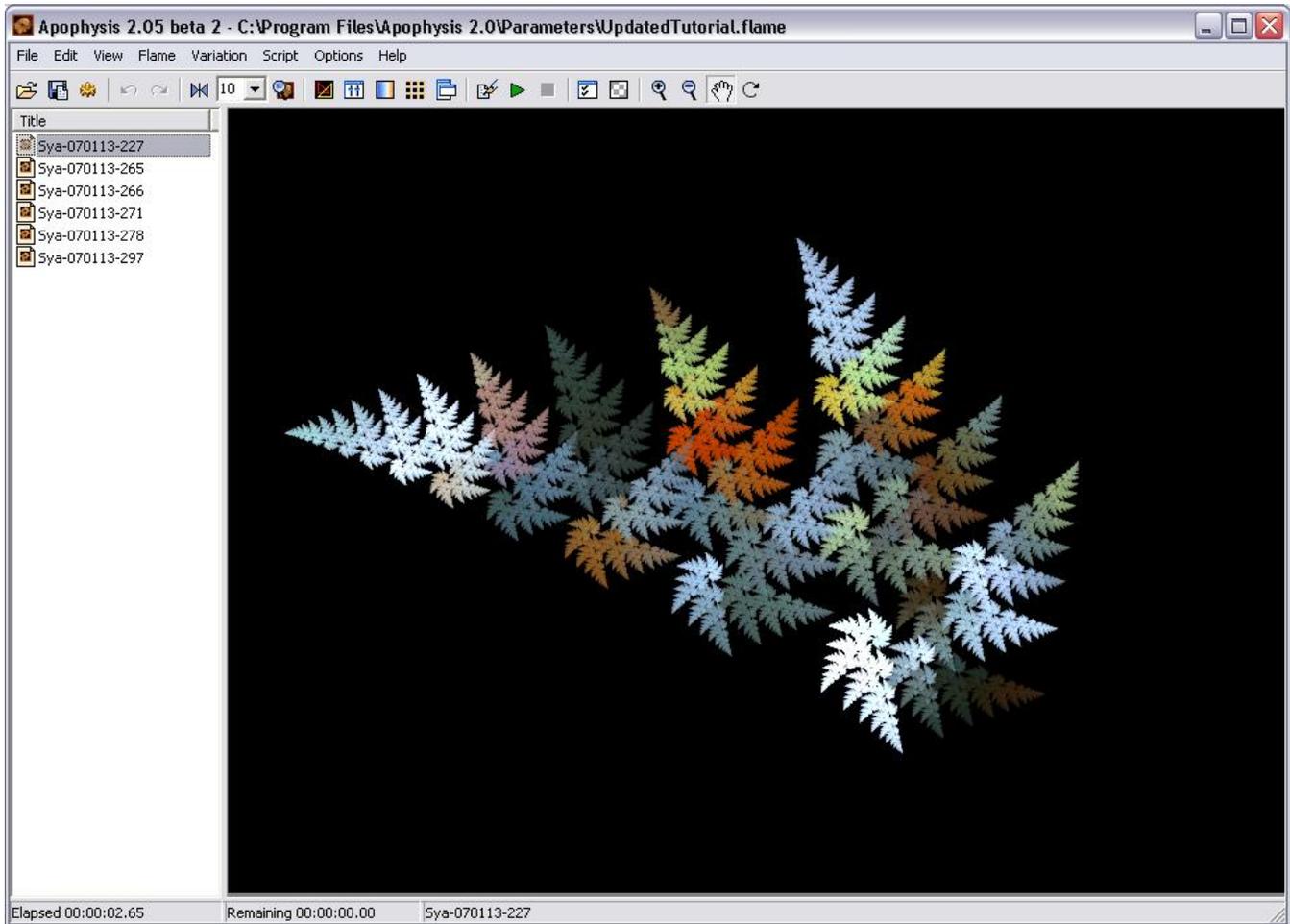
The last field is the Export renderer. In the past we had to use HQI if we wanted to render a PNG sans background, but that has now changed to [Flam3](#). New versions of Apophysis have updated the built in rendering component, so you might not ever need to use it. However, if you plan to use Flam3, even if it's only once in a while, direct Apophysis to the file where it has been installed on your computer

I'll go over the details of rendering with both Apophysis and Flam3 in Part 2, so for now, click OK to close out of the Options window.

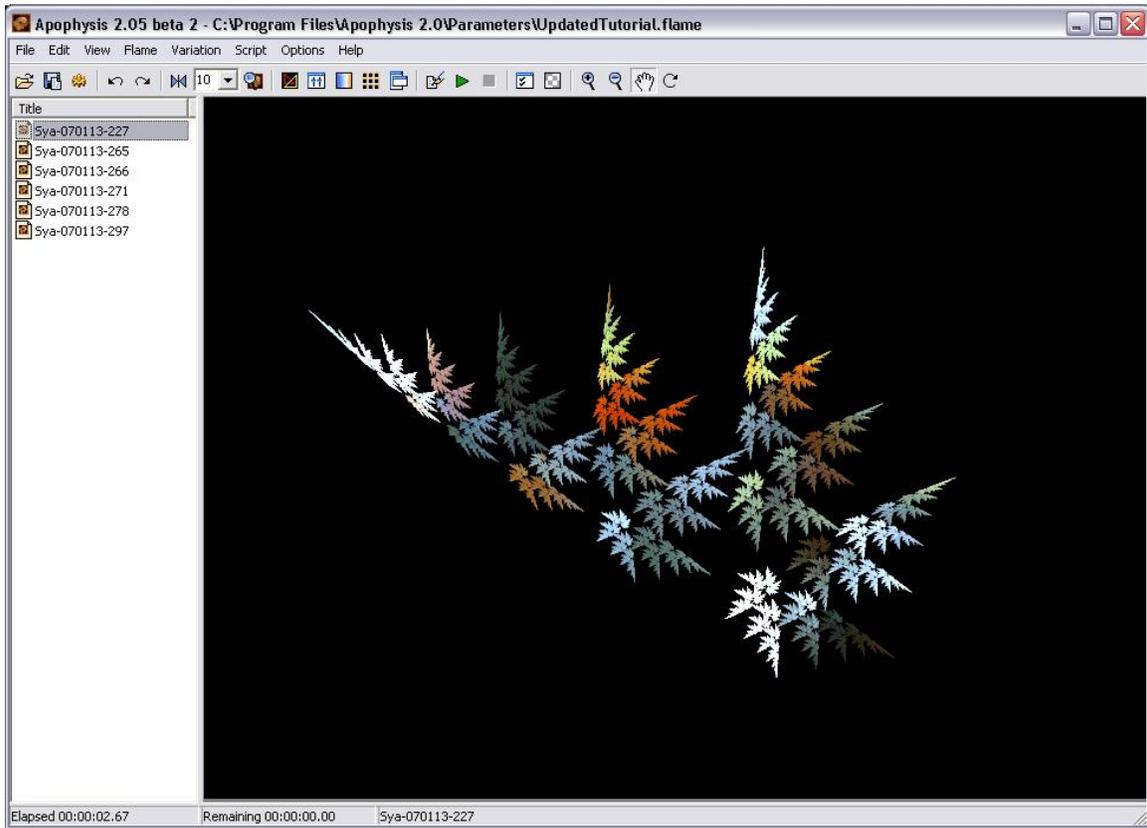
## Creation! Batches and Transforms:

Next, hit Ctrl+B to create a new batch of flames.

If you chose only the Linear variation in the Options menu, you will see a batch full of flames has been created and each transform in the Transform Editor is Linear with a value of 1. They won't be exactly like the one pictured below, but if you'd like to follow along, I've included this flame and a few other linear flames in the zip [found here](#).



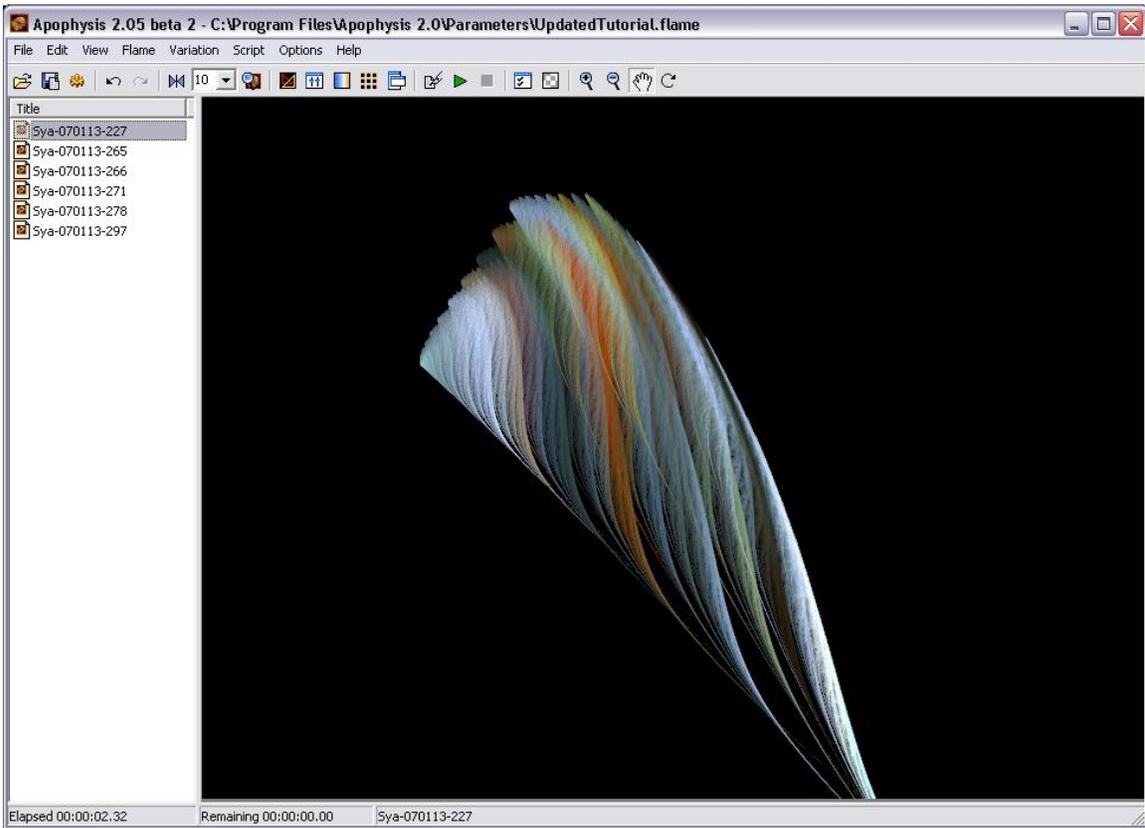
If you would like to see what this transform configuration looks like as a different variation, find "Variation" in the toolbar and choose one. In this instance, I chose "Cylinder" and it slightly altered the appearance of our flame. Some of the other variations will provide wildly differing results.



### **The Transform Editor:**

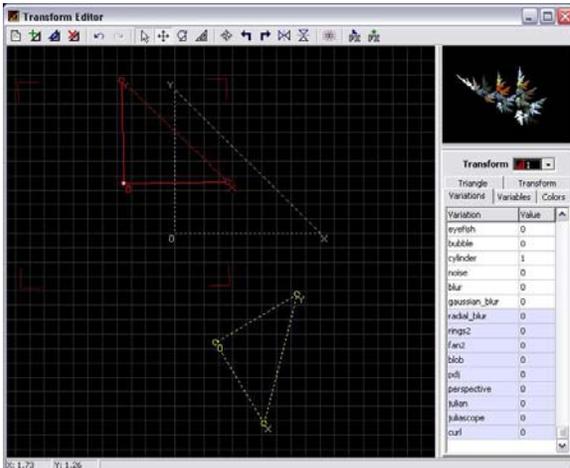
Hit F4 to open the Transform Editor.

I just want you to see just how different the transforms have become. Go ahead, click on a triangle and move it around the grid and watch what happens in the preview on the right...

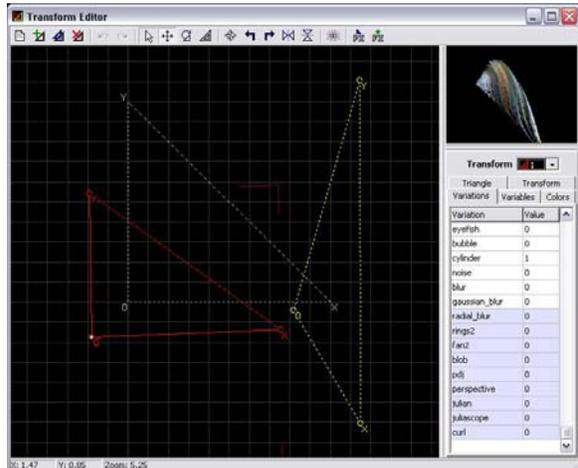


This formation above occurred just by moving and reshaping the transform triangles in the Transform Editor like so:

Before



After



You can manipulate these triangles all you want. Move them around the grid to see how the two transforms interact with one another.

With transform 1 selected, choose the “Variations” tab and scroll down until you find the “cylinder” variation.

Click in the value field with your mouse and change the 1 to 0.7 to see what happens. Then try this... click your mouse in the variation field and drag your mouse from side to side. See how it increases and decreases the numerical value?

Now double click on the variation to make the value revert to 0.

Double click again change it back to 1. Remember that Options setting? (You can turn this feature on and off under the... you got it, the Editor tab)

### **Fun with transforms:**

Now lets walk through some of the Transform Editor’s features.



This is the toolbar as of Apophysis 2.05 beta 2.

- The first button creates a new flame from scratch.
- The second button creates a new linear triangle.
- The third duplicates the selected triangle
- The fourth deletes the selected triangle

Then you have your Undo and Redo buttons and the rest I encourage you play around with. Then you have a move tool, a rotate tool, flip horizontally/vertically, etc. I will show you some handy shortcuts to make these tasks quicker.

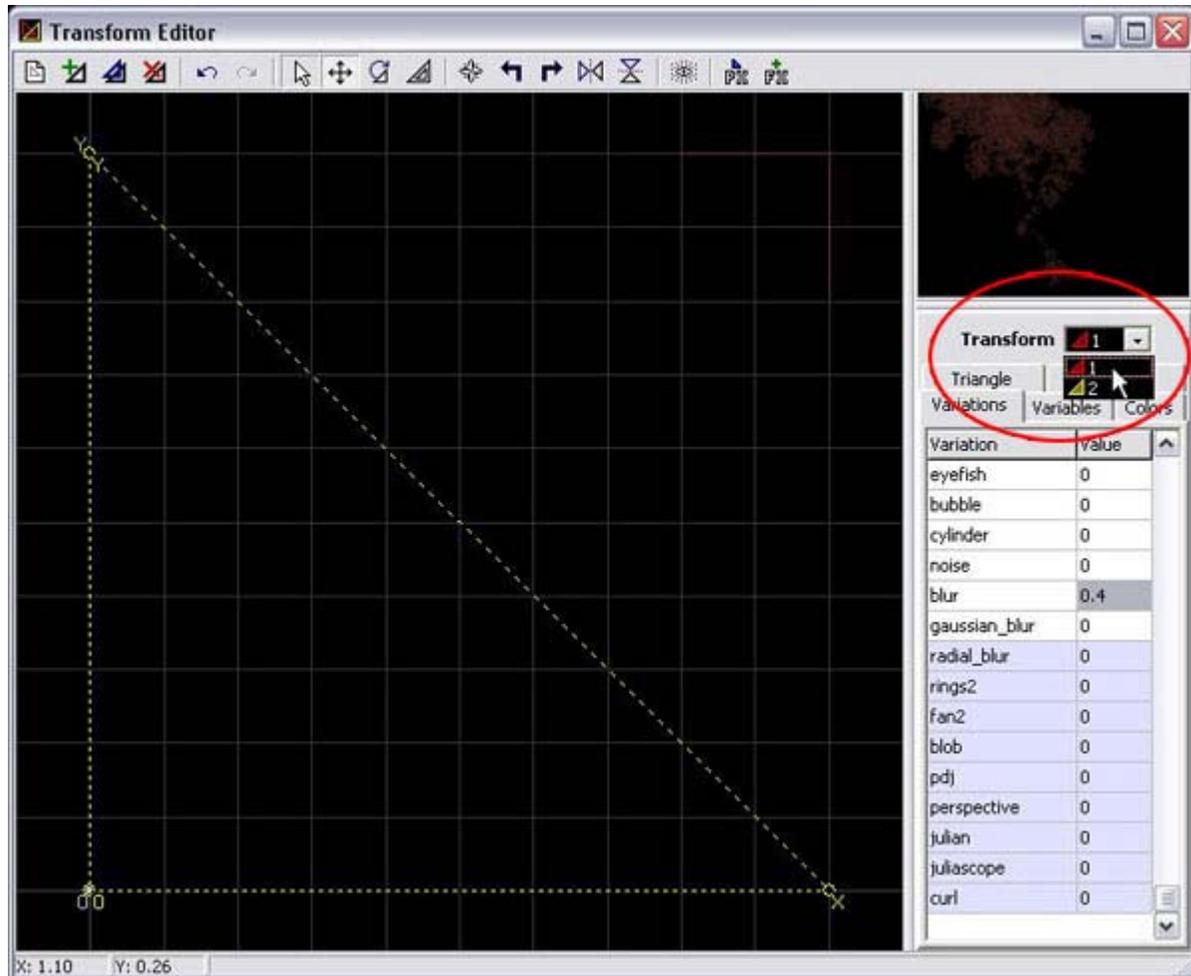
Since you’re just learning, I will not go into the details and particulars of each variation, but will leave it up to you to continue your education by reading more tutorials and most importantly, with some fun hands-on learning.

Click the first button to create a new flame. It will create two linear transforms, one on top of the other.

Select the first transform and then click on the Variations tab.

Double click the Linear value to change it to 0.

Scroll down to Blur and give it a value of .4

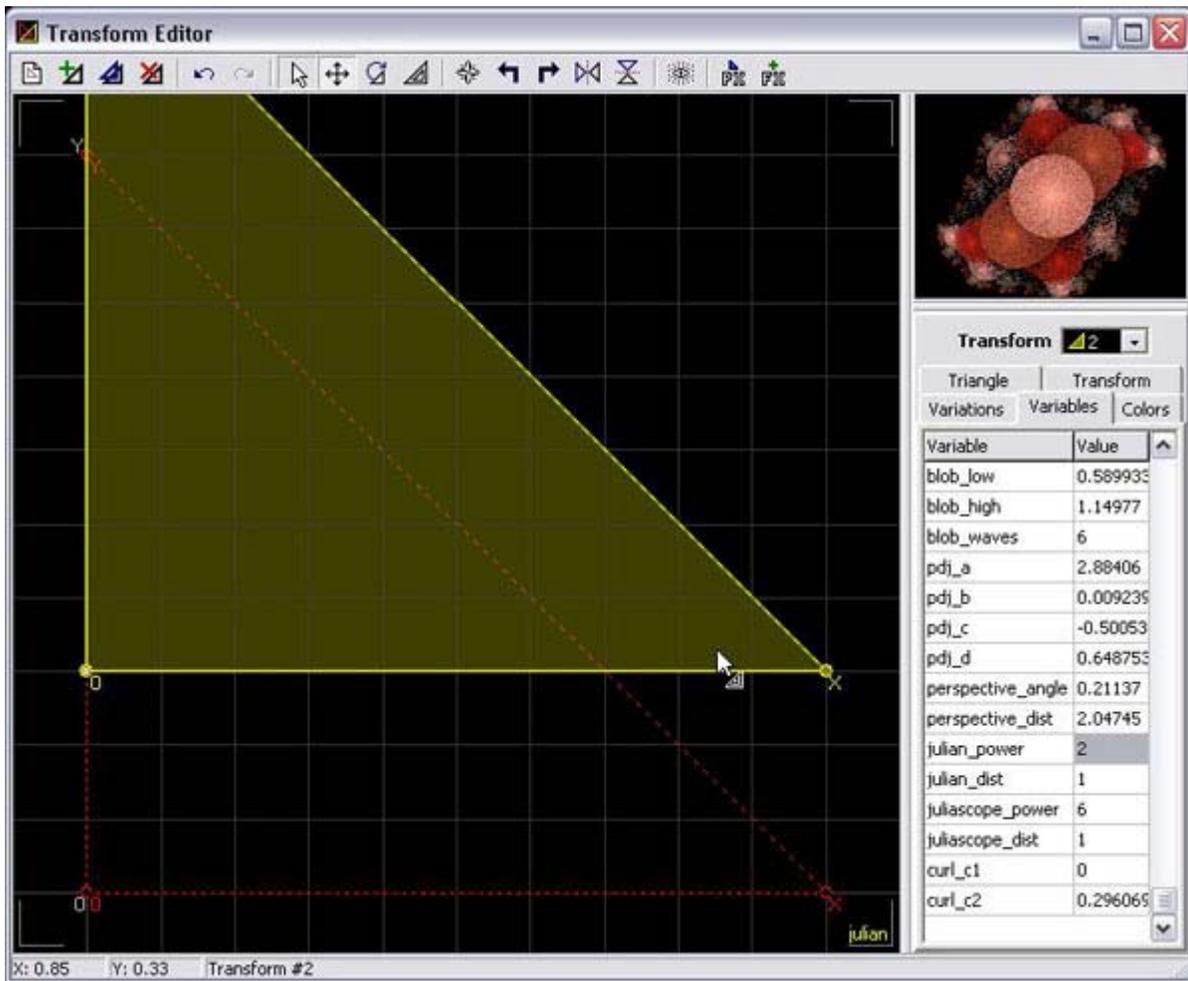


In the same way, change the second transform from Linear 1 to Julian 1

Click on the Variables tab and change the julian\_power value to 2 and the julian\_dist value to 1.

Now let's experiment with some new shortcuts!

With the second transform selected, use your arrow keys to move the triangle around on the grid and watch what happens. By clicking the Up arrow three times, the triangle moves upward three .1 units. Watch your preview box to see the changes occurring to your flame.



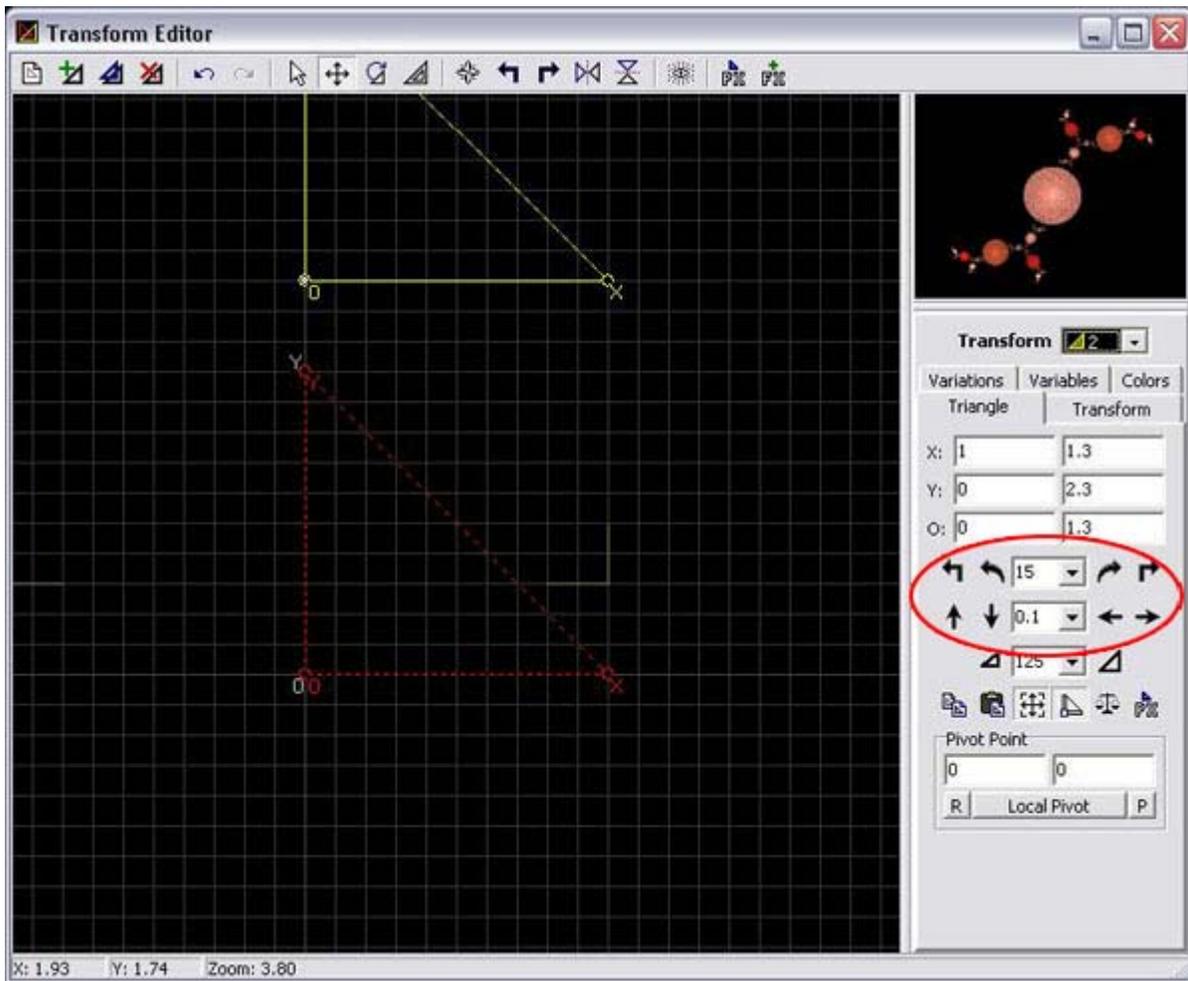
The Shift + arrow keys will cause the triangle to move 10x that amount. Try it out.

“Where did it go?” you might ask... well, if you have a roller mouse, you can zoom in and out of the viewing area by scrolling up and down. If you’re looking for keyboard shortcuts, try + and – on your alpha pad.

Zoom out and you’ll find the second triangle..

The Page Up rotates the triangle anti-clockwise and Page Down rotates it clockwise.

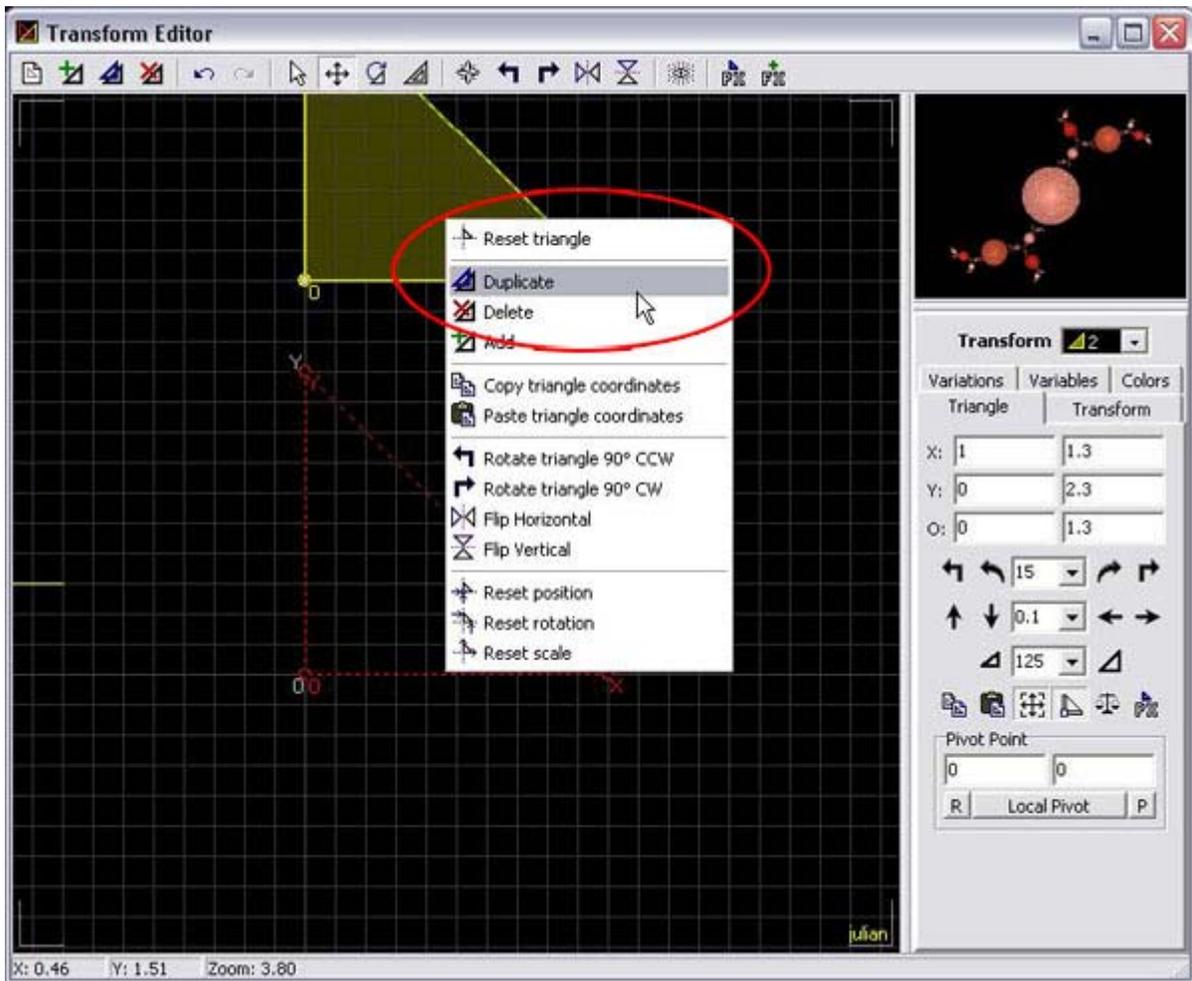
You can change the number of moving units and the degrees of rotation under the Triangle Tab.



Now right click on the second triangles. A menu will appear, allowing you to change the selected triangle in a number of ways (reference image below).

Choose Duplicate and a third triangle will appear directly on top of the second triangle.

The Insert button is an easier way to duplicate a selected triangle using your keyboard.



Go ahead and move this triangle around a bit and watch what happens in the preview window. Drop it where you like. 😊

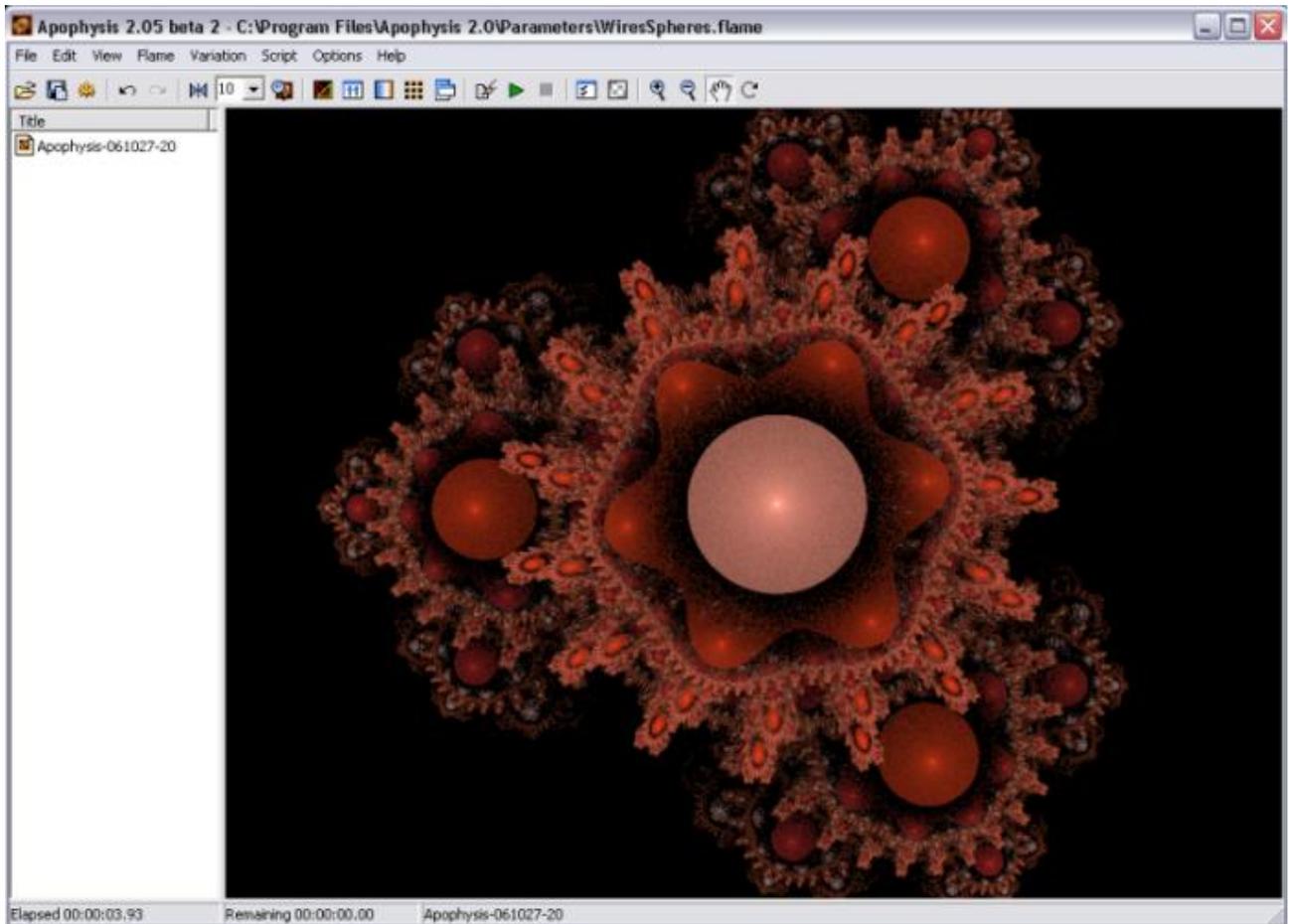
Now with the third triangle still selected, click on the variables tab and give `julian_power` a value of 15, and `julian_dist` a value of 2. Keep changing these numbers and watch what happens to your flame! Remember, you can use negative values too!

You can continue duplicating triangles, moving, rotating, swapping out values, etc until the image looks like you want it to. Julian is one of my favorite variations! You can have as many transforms as you want, though it's probably best to stick to only a few at a time while you're learning.

Select the second triangle but this time, try selecting it by using the + and - keys on the number pad.

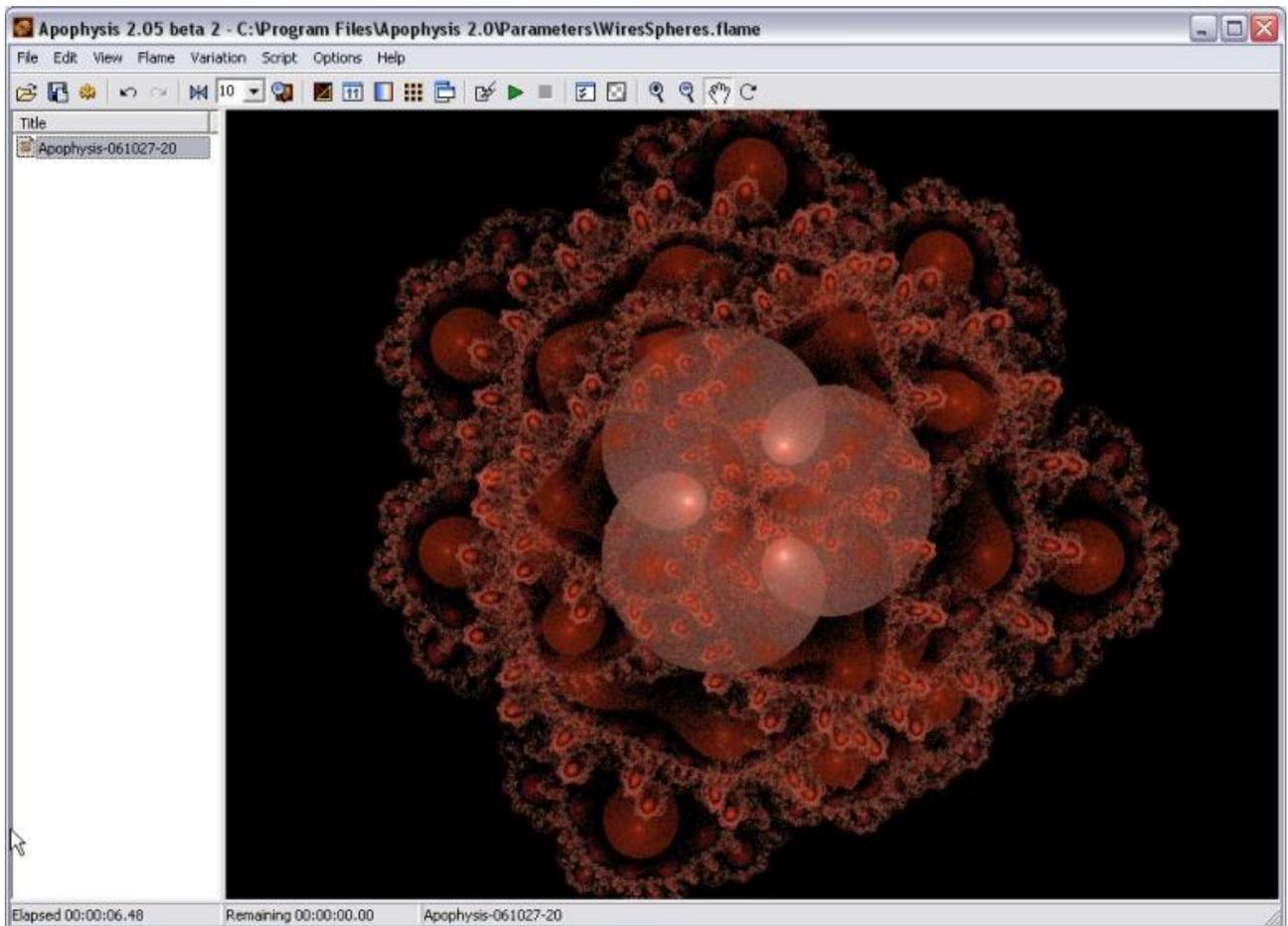
One last keyboard trick and then we'll move on... with the second triangle selected, hit the Home key a few times. It will scale the transform larger. The End key scales it smaller.

I moved some triangles, changes variables and swapped out values until I got something that looked like this:



Pretty neat, eh? You might be able to tell just by looking at this fractal that there is one Julian with a `julian_power` value of 3, one that has a value of 6, and another with a value of 16.

Now, the last button in the toolbar creates a final transform triangle. This triangle will apply a single variation to all the previous triangles. To see what I mean, click the +FX button and change the variation from Linear: 1 to Blob: 1 then move the triangle around. Next, change the variation to Julian or Diamond... see what happens?



This is what happened after I applied a Julian with the `julian_power = 4`, `julian_dist = 1`

Have fun playing with the Translation Editor! There are countless ways to experiment with this portion of Apophysis! In the next parts, we'll discuss the mutation window, applying gradients and scripts, and I'll also go into more detail about rendering using both Apophysis and Flam3.

Till next time!