Anarchy Toolbox

Plug-ins for Adobe After Effects and compatible applications

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Introduction and Overview

Thanks for purchasing Anarchy Toolbox! Unlike most of our plugin packages, which tend to have themes, this is more of a grab bag of stuff. It's a variety of stuff that we've been working on or have wanted to do for awhile and didn't fit nicely into any of our other packages.

The filters range from stuff that AE should probably have like color sampling (this is super cool for those of you that use expressions!) and distorting images along a path to improvements on old filters like Displacement Mapping. Some of these are filters that came from requests customers have made that they'd like to see.

Registration & Support

Registration occurs when you purchase the filter. We register you in our database using the contact information you supplied upon purchase, and the serial number we've given you. If you need a serial number, installer, or any other material support, just contact sales@redgiantsoftware.com or call 1 (260) 918-4505.

We hope that you find Anarchy Toolbox to give you all the control you could want, while simple enough that you can set everything up in a few minutes. It's our desire to make sure you're satisfied with your purchase. If you have any questions, comments, or whatever, we'd love to hear them.

If you're having trouble with Anarchy Toolbox, please make sure to go through the tutorials available at www.redgiantsoftware.com.

Installation for Macintosh

Launch the Anarchy Toolbox installer. In the main window, you'll see a pop-up in the upper left corner that asks you to select your version of After Effects. Anarchy Toolbox supports versions 5.5 +higher.

Once you've selected the correct version, in the lower part of the window is the installation destination. Click on 'Select Location' and navigate to your After Effects 'Plugin' folder. You are now ready to install. Click the Install button.

Once you've launched the installer, this process is slightly different for users of Final Cut Pro You'll need to find the Final Cut 'Plug-ins' folder in your Shared Library or User Preferences folder, and put the plug-ins in there.

If you're installing to the shared resources, your path will be something like this: Hard Drive> Library> Application Support> Final Cut Pro System Support> Plugins. Or, if you're installing for a particular user, the path will read: Hard Drive> Users> [User Name]> Library> Preferences> Final Cut Pro User Data> Plugins. Check your Final Cut Pro manual for more help.

Installation for Windows

Launch the Anarchy Toolbox installer and click the 'Next' button until you get to the 'Locate Destination' screen. Click on 'Browse' and select the After Effects plug-in folder. Click 'Next'.

The next screen asks you which version of After Effects you'll be installing for. Select the appropriate version and click Next. If you don't select the appropriate version, the plug-in may crash or not perform as expected.

You are ready to install. The installer will show a screen informing you of this. Click the 'Next' button to begin installation.

Using Grayscale Maps

Most of the Toolbox filters use grayscale maps (referred to as graymaps, from here o n out) to control some aspect of how they behave or what the filter outputs.

This section is going to discuss graymaps in general, but will focus a bit on the Advanced Displacement Map filter which requires graymaps to produce an effect.

How Do You Do That Voodoo

Different filters use graymaps in different ways. Two common ways graymaps are applied are shown here.
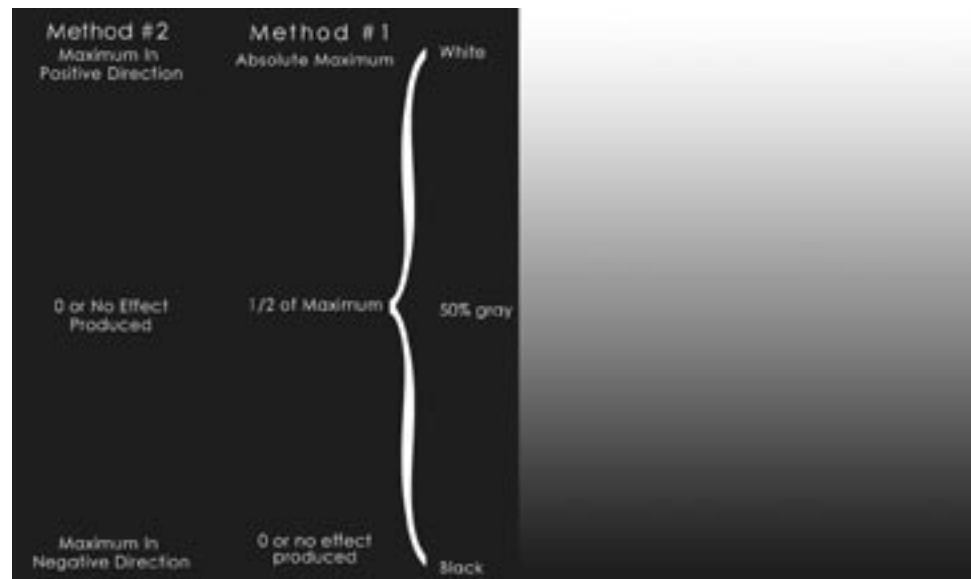
Advanced Displacement Map uses Method #2.

Method #2

What does Method 2 do? Well, when you take something like the Adv. Dismap filter, give it a graymap and tell it to displace the original image by 10 pixels...

Wherever the graymap is white, the underlying original image will be pushed 10 pixels up or to the left. Where the graymap is black, the original image will be pushed 10 pixels down or to the right.

Ok, so we know what happens at black and white, what about all those shades of gray in between? Well, I'm glad ya asked...

At 50% gray, nothing gets displaced. If you just create one big solid of 50% gray and use that as your graymap, nothing will happen.

All other shades of gray cause the image to be displaced by a fraction of the maximum amount. For example, if we want to have a maximum of 10 pixels, this is what we would end up with, using different shades of gray:

Shade of Gray	Amount of Displacement (max = 10)	Shade of Gray	Amount of Displacement (max = 10)
10%	8 pixels	95%	-9 pixels
20%	6 pixels	80%	-6 pixels
35%	3 pixels	75%	-5 pixels
49%	.2 pixels	60%	-2 pixels

(Remember: 50% gray produces no effect. You get more displacement as you get closer to black or white)

Now, you may be asking why does 10% gray displaces 8 pixels? Wouldn't it make more sense if it displaced 9 pixels? Isn't 10% of 10 equal to 1?

Remember that for displacing in either the positive or negative direction, we're only dealing with HALF of the grayscale spectrum. Looking at the above illustration, realize that only 0 to 49% gray are displacing in the positive direction. This means that 10% gray is actually 20% of the available spectrum.

Shade of Gray	10%	20%	30%	40%	50%
maximum effect 100%	80%	60%	40%	20%	no effect 0%

Percentage of maximum effect applied to the image, based on the shade of gray

This is one of those concepts that can take a little while to get your head around. So create a ramp (Effects>Render>Ramp) in After Effects, and use that as a displacement map on your favorite photo. Experiment with the ramp at different angles or try playing around with the Fractal Noise (Effects>Render>Fractal Noise) filter and using that as a displacement map.

Here's an example of using a Ramp as a displacement map. Notice that there's some extreme displacement happening at the top and bottom, and none in the middle, and just a bit between the middle and top/bottom.

Normal   Displaced

You'll notice that the flag at the top is heavily displaced upwards, as you would expect from the shades of gray that are close to white. The top of the carriage and the model's arm are slightly displaced, which is what the mid-tones will give you. As we get close to black, where the model's leg is, it gets heavily displaced downward.

Beyond Displacement Mapping

There's a number of other regular AE filters that use this method… Particle Playground, Card Dance, and Caustics, to name a few.

What I just described for the Advanced Displacement Map filter works with these filters as well. The effects are more pronounced when the underlying graymap is close to black or white. As the graymap gets close to neutral gray, the effect starts going down to zero.

One note: Neutral gray is usually defined as having 128 in each of the RGB channels. If you open up your color picker and put 128 in each box, you'll get neutral gray. However, the Evolution filters, like Card Dance and Caustics, use 127 as neutral gray. So if you're prepping a file for use with one of those filters, just be aware of where neutral gray is. As it's pretty important for controlling how the filters work.

Method #1

This method is used by the Designer Blur filter to control the amount of blur applied. It's also used with such filters as the Compound Blur that are in After Effects.

Essentially, with this method black is off, white is on, and the shades of gray are somewhere in between. Using Compound Blur as an example, we get something like this:

Notice that as the ramp goes from black to white, the image is successively more affected. At the bottom where it's black, there's really no blur, at the top where it's white, the top of the tower is obliterated by the blur. So, this is what our ramp looks like:

The only weird thing is that the lighter shades of gray have the most effect. So 10% gray, applies 90% of the effect. Unlike the

Advanced Displacement Map filter and similar effects, you're using the entire grayscale spectrum, which makes calculating how much of an effect will be applied due to a particular shade of gray much easier. Just use this: 100% – the shade of gray = the amount of the effect that will be applied.

There's an accompanying project called grayscale.aep, that has three filters set up with a ramp. Compound Blur, Displacement Map, and Card Dance. Use these to play around with graymaps.

For further experimentation, apply Fractal Noise (Effects>Render>Fractal Noise) and use that as a graymap to control the various filters.

Smooth Tiler

Smooth Tiler is designed to seamlessly tile images that were not designed to be seamlessly titled. It accomplishes this by blending opposite edges together as the image is tiled. This generally creates a soft blend between the two edges and can give the appearance of a smooth transition. This tends to work better on more abstract types of things like natural phenomenon (waves, clouds) or textures. Take a look at the following example of a wave.
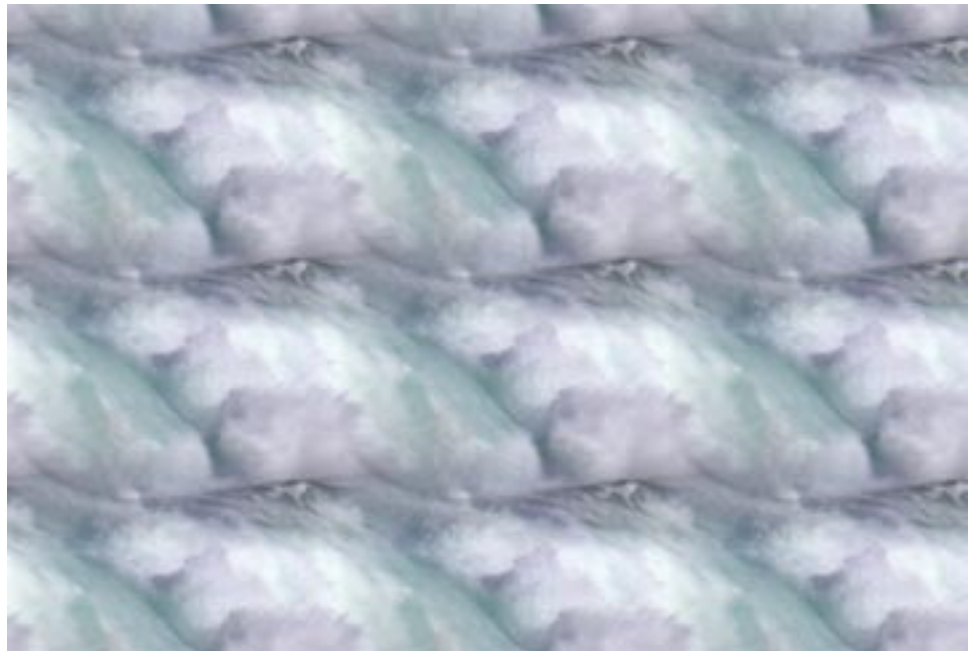
Obviously if you have a house on one side of the image and a tree on the other side they probably won't blend very well together. However Smooth Tiler will do its best to create a smooth transition between the two which almost always looks much better than a hard edge.

It's a great way of creating backgrounds or setting up texture maps.

Blend Amount, Uniform Blend Amount

The first key parameter (the second key parameter set is the Transform Controls) for Smooth Tiler is Blend Amount which specifies how wide an area around the image will be blended. It creates a border area and it is the borders that are blended, leaving the center of the image untouched.

By turning off **Uniform Blend Amount** you can have different blend settings for the top/bottom and right/left.

The larger the Blend Amount, the larger the borders that you blend, and the less that will be left of the original image. The borders are laid on top of each other to create the blend. The left border of one tile will be overlaid onto the right border of the tile next to it and a smooth transition between the two will occur.

If you have Blend Amount set to 10%, most of the image will remain, but you'll only get a slight transition from one edge to the other, which usually won't look very seemless. If you set it to something like 60%, you'll get a much more blended look at the expense of sacrificing more of the original image. Take a look at the following images.

original

blend = 35   blend = 80

Notice that at 35% blend, most of the original image is still present, but it's very obvious where the edges are. At 80%, it's less obvious where the blend is occurring, especially along the left-right edge, but very little of the original image is left.

How does it work?

The below images show various amounts and how they cause the original image to be sampled to create an image that can be tiled.

#1 Blend Amount = 3   #2 Blend Amount = 40

#3 Blend Amount = 80

#1 Blend Amount = 3   #2 Blend Amount = 40

#3 Blend Amount = 80
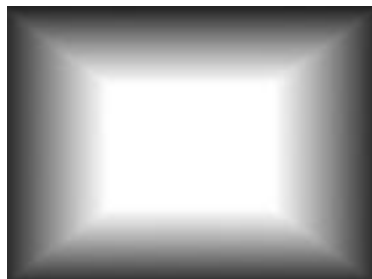
The following examples only show one edge. The examples would look different if they had all edges being blended, since the image would start repeating to the top and bottom as well. We've just isolated one edge to better show the blending effect.

Ex. #1 Tiled
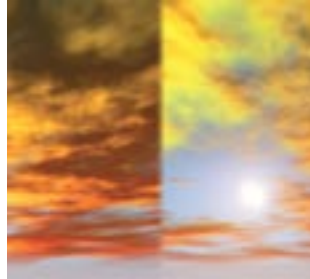
Ex. #2 tiled

Ex. #3 Tiled
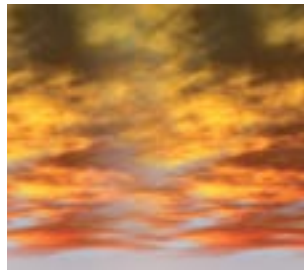
Notice as more of the image is blended, the actual size of the image that is tiled decreases because less of it is visible. In the grayscale images above, it's mostly the part of the image that is in the solid white area that will be visible in the pattern.

Tiled Layer

This parameter allows you to select the image that will be tiled. You can use any image in the timeline, including Illustrator (vector) files or files with alpha channels. Vector files and files with alphas don't usually have straight hard edges so you may get unexpected results when using them.

Tile Arrangement

You have two options in regards to how the tiles are arranged.

Repeat is the normal mode and allows you to do a regular tiling of the image. If you are trying to create seamless tiles this is the mode you will use. It just sets the tiles one right next to each other like you were laying down photographs on a table.

Reflect creates more of a kleidiscope effect. It lays the tiles down as mirror images. So instead of the top edge of one tile being next to the bottom edge of the tile above it, the tile above it is flipped over so that the top is against the top, the right edge is against the right edge, and so on.

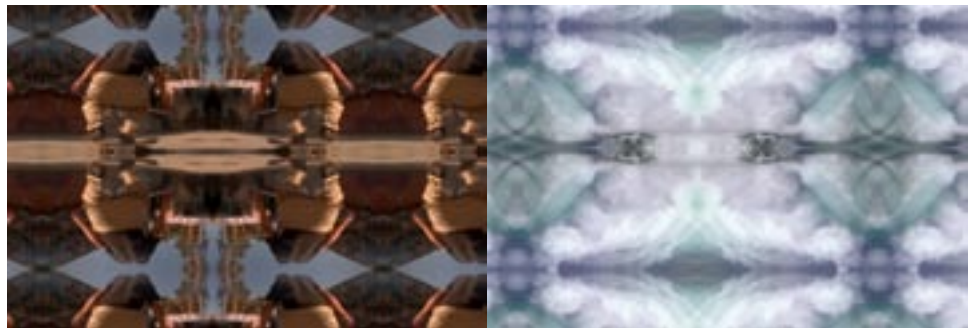The images for **Blend Amount** were done using Repeat. Here are the same images using Reflect:

The waves are more abstract so they create a cool kleidiscope pattern, whereas the skater is very well defined and you can see where the tiles are mirrored.

Tile Blend Transfer

This allows you to set a transfer mode for the edges as they are blended. You can use any of the standard transfer modes. Difference, Add, Overlay, and Hard Light generally give some interesting effects. However, in practice they simply make the transitions lighter or darker than the main image most of the time. The results will vary depending on your image.

Fading Function

We recommend that you use Smooth Fade most of the time. This sets how the edges blend. The Linear Fade simply fades one edge straight down and the other straight up. Smooth Fade creates a softer transition at the beginning and end. It's a lot like using Easy Ease in your animation.

Animating from 100 to 0 in a linear fashion can result in jerky animations. If you use Easy Ease and gradually ease out of 100 and ease in to 0 the animation looks smoother.

This is essentially what Smooth Fade does and it usually gives a nicer result. Although the effect can be quite subtle and may not be noticeable on many images.

Anti-Aliasing

You must have the layer set to Best Quality to see the effects of this setting.

This allows you to select different Anti-aliasing algorithms. You should rarely use None. There is a VERY slight speed increase with this, but it is significantly lower quality.

When scaling images up or down the images need to be re-sampled. This generally results in 'softening' of the image (same as a slight blur). There are various algorithms that attempt to reduce the amount of softening. Different algorithms will work better on different images so we've included four of the more common ones so you can experiment and see what works.

Bi-Cubic is the most commonly used and generally works pretty well. Mitchell and Lanczos result in a slightly sharper image but tend to be a bit slower and the sharpness can result in jaggies or other artifacts.

The differences tend to be very subtle in most cases and which one produces better results is very subjective and depends on the image.

Cropping Controls

This allows you to crop the image that you're tiling. This is essentially the same as creating a rectangular mask to crop the image except it's built into the filter.

To turn on the cropping controls, select the **Use Crop** checkbox. This will activate the other parameters.

Smooth Tiler will update as you adjust the cropping controls so you dynamically see how the crop is affecting the tiles. This is what happens when you set **Preview Mode** to **Normal Mode**. This is great if you're not sure exactly where you want the image cropped and want to see the resulting tiles.

If you know exactly where you want to crop the image, select **Crop Preview Mode.** This will show the image by itself and allow you to use the **Top Left** and **Bottom Right Corner** controls to set the crop area. Switch back to Normal Mode when you've set the crop up and the tiles will be updated accordingly.

Border Controls

The border controls allow you to, surprisingly, put a border around your tiles. This is most effective, with one or two exceptions, when you do NOT have a blend amount set and just want to repeat the image with something around them.

The borders get taken into account as part of the tile when blended so you can get some unexpected results when blending with a border. This can create some neat 'soft' borders, but it may not be what you wanted. Here's an example using a solid color border:

There are several variations of borders all of which can be selected from the **Border Type** pop-up.
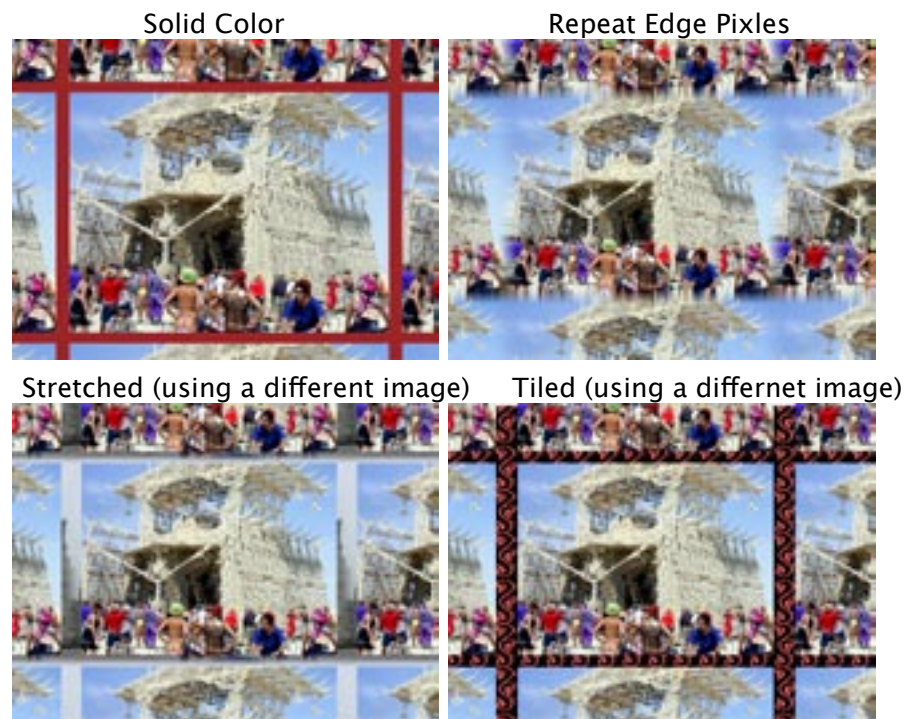
Border Width and **Border Height** sets how thick the border will be. Again, if you choose to blend the border this will affect how the tiles are created. For tiling purposes, the border is added on to the image size.

Solid Color: This creates a border of a single color around the image. This is pretty simple and straight forward.

Edge Pixels: This can be extremely useful for creating 'seamless' tiles where you don't want to lose any of the original image. This repeats the pixels along the edge of the image and blends them into the edge pixels of the neighboring tile. It creates a 'stretched' look, but at small border sizes it can produce a nice blend effect that may, depending on the image, make the tiles seamless.

Stretched Image: This puts an image into the border and stretches it along with your tiled image. As you adjust the transformation controls for your tile, the image in the border adjusts as well.

Tiled Image: This places an image in the background and it shows through where the border is. This can be very useful if you want a specific image in the borders, like a pretty pattern or the original full sized image being used for the tile.

Solid Color   Repeat Edge Pixles

Stretched (using a different image)   Tiled (using a differnet image)

X Scale, Y Scale

This is the second key set of parameters. This is where you will set up the size of your tile. By using **X Scale** and **Y Scale** you can set the size of the tile as a percentage of the original image. You can scale the original image up or down (usually you will scale it down),

but if you scale it up, make sure it doesn't outsize the layer that Smooth Tiler has been applied to. You can't tile something that is larger than the layer it's applied to.
Insert Scale Images

The tile size works in conjunction with Blend Amount. The Blend Amount is always relative to the Tile Size so that shrinking or enlarging the tile won't mean you need to re-adjust Blend Amount as well.

Since X and Y are separate parameters you don't need to have them scale in unison. You can stretch the tile any way you like.

Scale = 50   Scale = 10

X Offset, Y Offset

These two controls allow you to move the tiles right/left or up/down. Since Smooth Tiler creates seamless tiles, you should be able to move the tiles around almost infinitely. The tiles will always repeat, so you never have to worry about running out of tiles or hitting the edge.

Rotation

This allows you to rotate the entire grid of images. Smooth Tiler currently does not allow rotation of the individual tiles. However, that is something we expect to add shortly in a new version.

Anarchist Edge

This filter produces a glowing, edge effect. It finds areas of contrasting color and creates lines along the borders of the area.

Anarchist Edge allows you more control than most Edge filters as you can adjust both the strength of the edge and the softness of it and then combine the result with the underlying image via transfer modes. This can create some wonderful glow effects, particularly on images with good contrast, if the Smoothing Factor is set high, and some great painterly effects if Smoothing is set to a very low value.

Clockwise from top, left corner:
Smooth = 1, Smooth = 10, Smooth = 60

Smoothing Factor

This smoothes the underlying image resulting in less contrast and softer lines. At higher values, this results in very soft lines that sometimes cross over each other and cancel each other out creating a 'difference' effect between the lines. At lower values it creates very precise outlines of the shapes, but tends to have a lot of noise as it picks up all the various edges in the image.
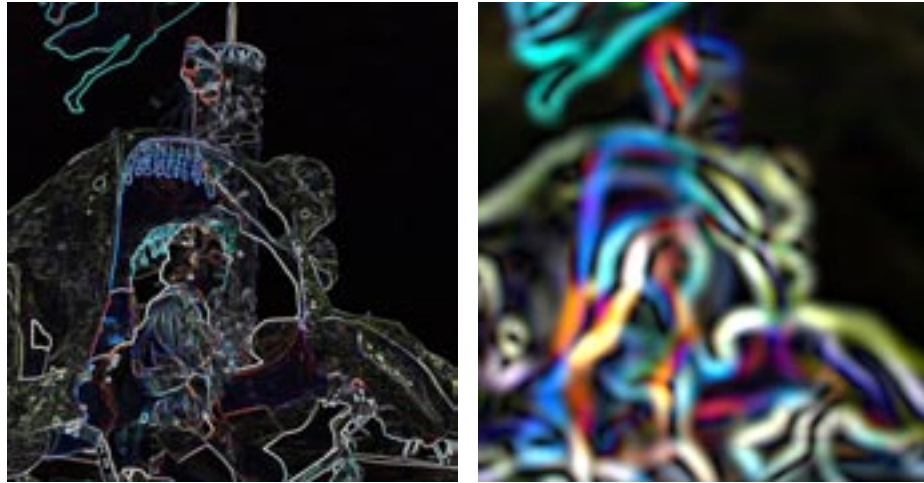
You can use a high smoothing factor combined with something like the Add transfer mode to generate cool glow effects. (see the Transfer Mode section)

Edge Intensity

This just sets the brightness of the lines. The higher you set this the more the lines will tend to get blown out and become white.
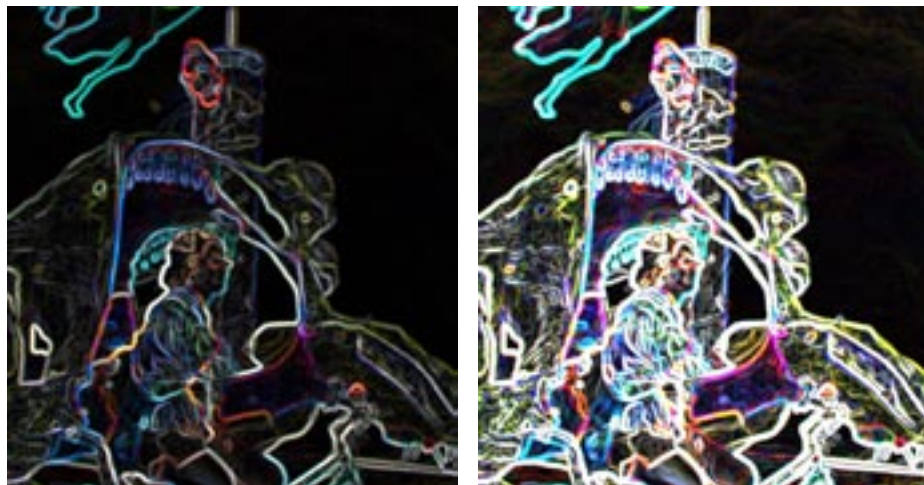
Intensity = 100   Intensity = 400

Transfer Modes

The real power of this filter shows itself in combining the result with the original image via transfer modes. As mentioned, this can result in a wide variety of effects and looks. Which transfer mode will work best, depends on the effect you are trying to achieve and the image itself. It requires some experimentation to find what will work.

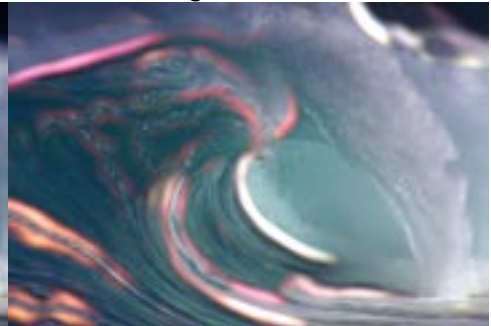See the appendix on transfer modes to get a better idea of what each does.

There are a few that generally give good results. Add, Lighten, Overlay will generally give you good results, but it is always a bit hit or miss depending on the image.
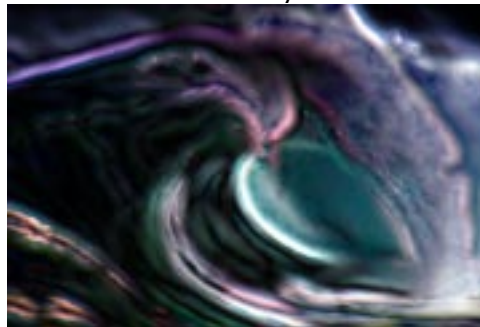
<table>
<tr><td>Soft Light</td><td>Lighten</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Overlay</td><td>Color Dodge</td></tr>
<tr><td></td><td></td></tr>
</table>
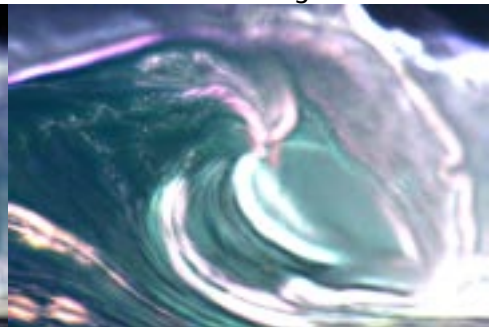
Path Distort

Path Distort allows you to distort an image in the shape of a path (bezier mask). Imagine creating a snake by using an 'S' shaped path and a rectangular texture of a snake skin. The texture will get distorted into the shape of the S. You can then animate the path or you can have the texture only take up a portion of the S path, then animate it along the S shape.

Warped Layer

This is the layer that will be distorted by the path. This allows you to apply the effect to any layer, like a New Solid, then distort any other layer. For example, in the snake example above it would have been unwieldy to apply the effect to the snake texture itself since it's so thin. You wouldn't have been able to fit the 'S' shaped path on it, or any path for that matter except a practically straight one.

Path

This pop-up allows you to the select the path you wish to use. You can use pretty much any path that is on the layer that Path Distort is applied to. The paths can be opened or closed, animating, and have any amount of points.

You can not use paths that are applied to different layers.

Warping Method

You have two options here. **Bezier Warp** and **Linear Warp**. Bezier Warp provides a higher quality warp. However, it can be a bit tough on the render times. Linear Warp is much faster but lower quality. Many animations will be fine with Linear Warp, so you should try that first and if it works to your satisfaction then you're good to go.

If Linear Warp is selected, the **Horizontal and Vertical Subdivision** parameters are active. Linear Warp breaks the line down to segments and the Subdivision parameters set how many segments a line is made up of. The higher the number, the better it'll look, but it'll also take longer to render.

If you don't have enough segments then you'll get sharp corners where there should be smooth curves. Going back to our snake, you can easily see the difference between Linear and Bezier:
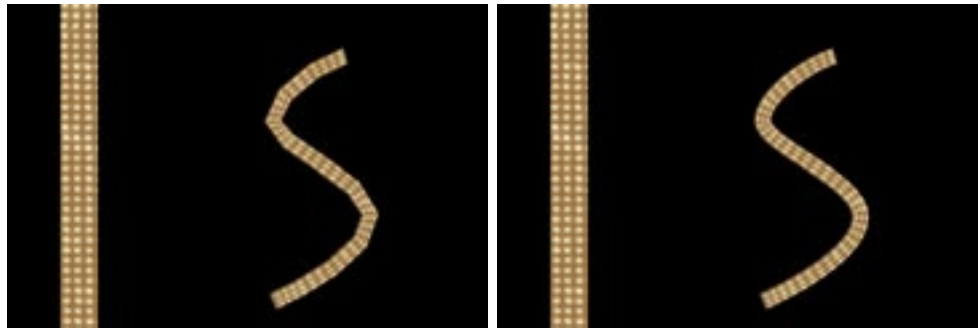
Bezier Warp uses the true vector bezier path and so results in a much smoother distortion. It doesn't use the Subdivision parameters at all. However, since it's using vectors there's a lot more math involved and hence it can take much longer to render. When using paths with a lot of curves you will usually want to use Bezier Warp as it'll give you a much smoother and more pleasing result.

Output View

This has three basic views.

Low Quality: Renders the image using no anti-aliasing which results in a lot of jagged edges. This is very useful for setting up your project as it renders fairly quickly and gives you an exact, if low quality, render of the effect. When you are done setting everything up, switch to High Quality for the final render.

High Quality: Renders out the result with anti-aliasing. This is the mode you'll switch to for doing final renders, but for setting up it renders a bit too slowly.

Wireframe: You will not need to use this too frequently. Low Quality mode renders fast enough that you shouldn't need this. There's basically no render time for wireframe as it only shows you the SubDivisions making up the underlying grid that distorts the image. This can be useful if you're adjusting other layers and only need an approximation of where the image is going to be. You can switch to wireframe and this will make AE more responsive as you adjust other layers.

Expand Buffer

With this selected, a layer will render outside of it's boundary. For example our snake texture normally would not render outside of where there are pixels. With this turned on, you can create a path that is of any size and still have it render, regardless of whether it goes off the edge of the layer or not.

We still recommend that you use a layer that will fit the path you want to draw. It is generally less confusing and is less likely to result in unexpected results.

Combine With Original?

Usually Path Distort will generate an Alpha channel and not render the original layer the effect is applied to. It only renders the **Warped Layer** along whatever path it's being warped.

If Combine With Original is turned on then the Warped Layer is combined with the original image. This eliminates the alpha that is usually created by Path Distort.

Stretch

This parameter allows you to stretch the image out from the path. If you wanted to make the snake a little bit fatter, then you'd just increase the amount of this parameter.

In the examples below, the witch starts off as a cute, slim witch. Obviously after devouring far too many children high in cholesterol she's grown somewhat in the horizontal direction, requiring an SUV broomstick to get her wicked fatness around.
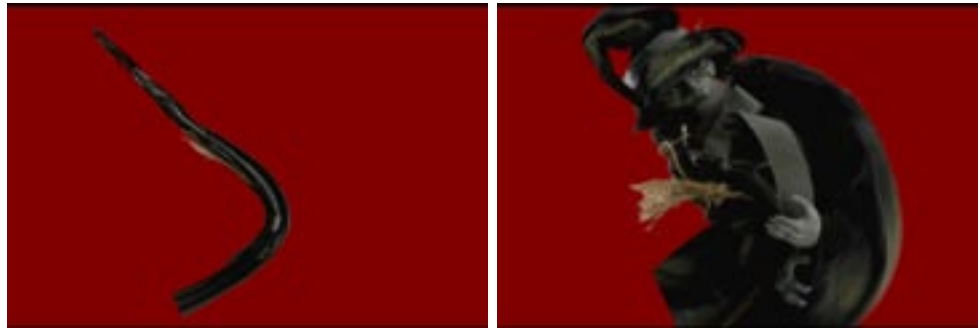
Percentage of Path

This determines how much of the path the image takes up.

If you want to animate the image along the path, the image needs to only take up a certain percentage of the path. This will give it room to move along the path. By setting this to something 30%, you leave plenty of room to move around.

From the images below you can see how the surfboard only takes up a given percentage of the straight path and grows as we increase the Percentage of Path.

10%   40%   100%
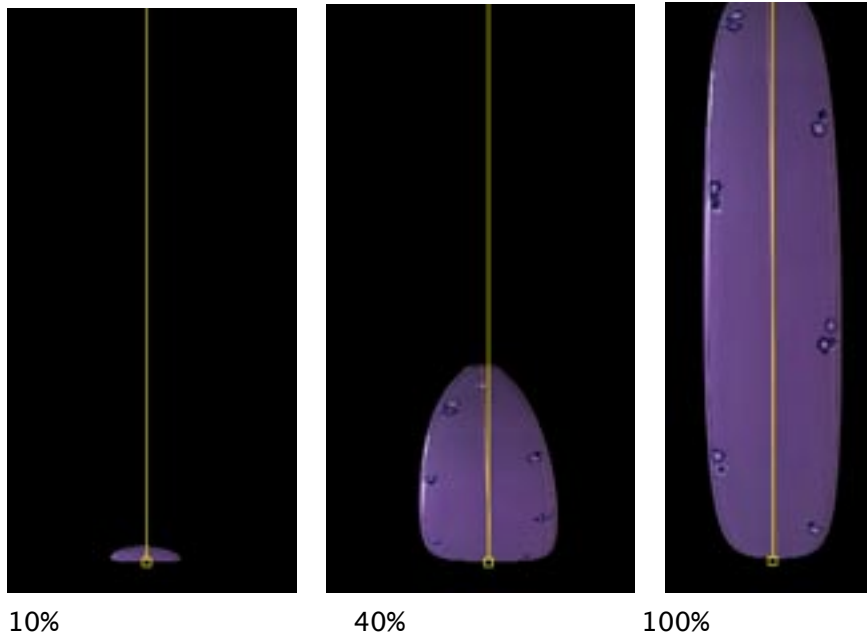
Position On Path

If the image takes up less than 100% of the path, the image can be positioned along the path.

You're probably saying, well I can position anything along a path normally in AE. This is true, but it won't take on the shape of the path. This is what Path Distort is designed for. As you position the image along the path, the image bends and warps to take on the shape of the path.

You can also animate this parameter and use the path to guide the image. This is how the snake example shown earlier (and repeated here) was accomplished. By moving it from 0 to 100, the image transverses the path, taking on the path's shape as it moves.

Position = 0	Position = 50	Position = 100
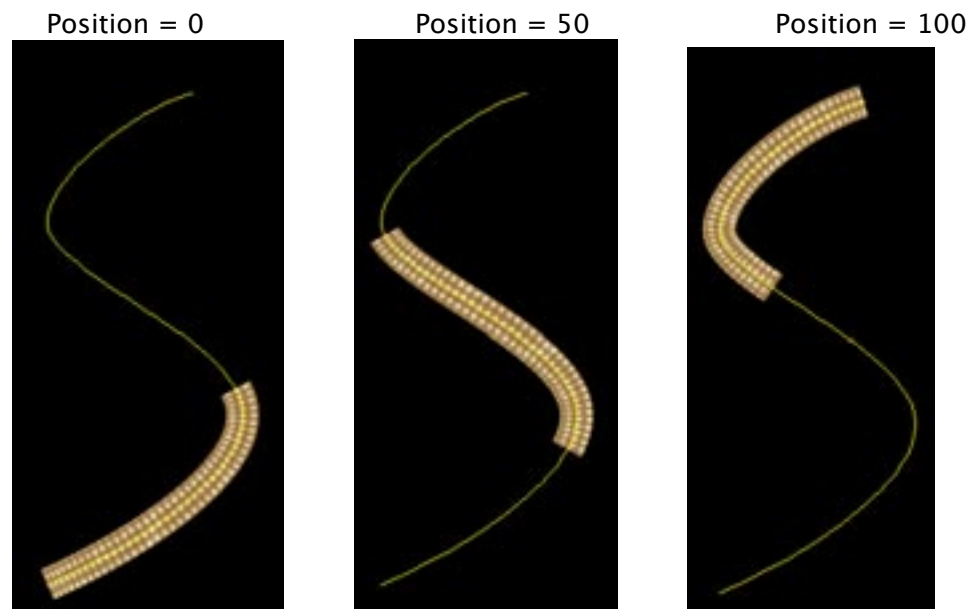
Animating Paths

One thing to keep in mind is that if you animate the shape of a path you will probably change the length of the path. If you're increasing the length of the path faster than the image is traveling along it, the image may actually appear to start going backwards.

Just something to keep in mind as you start creating complex animations.

Rotation

Path Distort may not orient your image correctly right off the bat. If my snake textures is oriented 90 degrees off, I end up with a very fat, distorted snake. Rotating it 90 degrees fixes everything. If your image looks excessively warped, try a quick 90 degree rotation.

Horizontal, Vertical SubDivision

This creates the resolution of the mesh that Path Distort uses when it's in Linear Warp mode. When Bezier Warp is turned on, these parameters have no effect.

The higher these are set to, the longer Linear Warp will take to render. If you really crank these up, you might as well use Bezier Warp as it'll take just as long.

To minimize the performance hit, optimize your mesh. If you have a very long, thin distortion, then you will need more resolution along one axis than the other. For example take a look at the following samples. Notice that initially there is plenty of resolution along the horizontal axis, but not enough along the vertical. You can see the sharp edges in the turns. By increasing the number of vertical subdivisions will get a much smoother distortion. You can also probably get rid of some of the horizontal subdivisions since they probably won't be necessary for this.

Vertical = 10, Horizontal = 20

Vertical = 20, Horizontal = 20
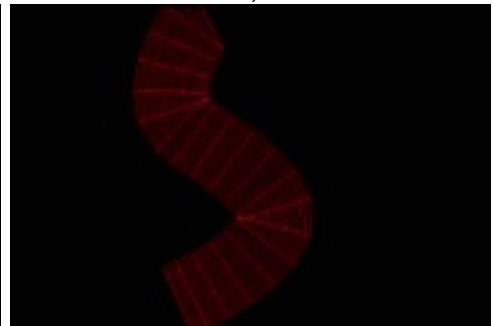
Vertical = 20, Horizontal = 10

Vertical = 40, Horizontal = 30

Noise Complex

This is essentially the standard AE Noise filter with a ton of bells and whistles. It's designed to do everything the standard filter can do and much more.

One key thing Noise Complex was designed to do is acting as a source layer for effects that use grayscale maps. Once problem for the traditional Noise filter in thi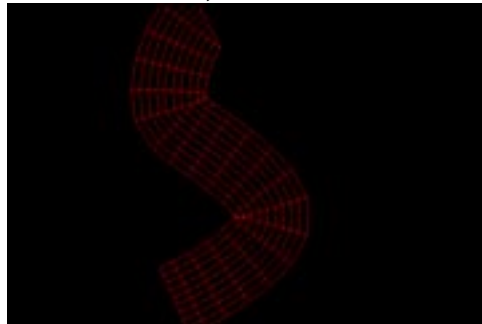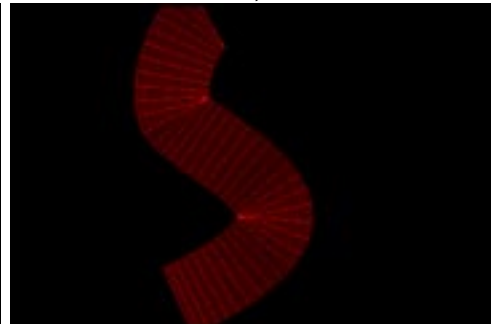s regard is that it changes on every frame. It does this because, in theory, film grain would change on every frame. Unfortunately, the standard Noise filter doesn't really do film grain well so that diminishes the use of having it change every frame. Changing every frame does get in the way of using the Noise filter with other filter. For most effects you do NOT want the effect changing every frame.

This is where Noise Complex comes in. You can use the Rate Of Change parameter to control how frequently the noise changes. Every frame? Sure. Never? Definitely. You can even randomize it so that it changes randomly.

You can also use grayscale maps to control the effect (basically a compound noise effect), use transfer modes, and much more.

Noise Strength

This sets the opacity of the noise and the amount of noise, inconjunction with Noise Spread. At it's highest setting the image will be completely obliterated by noise. At lesser settings, the image will be only partially obscured and at very low settings the noise effect will be very subtle.

Clockwise from top, left corner: Spread = 5, 40, 90

Clockwise from top, left corner: Strength = 10, 100, 1000

The regular noise filter in AE only goes up to 100, which only covers a portion of the image. Noise Complex will go up to 1000 at which point the image will be nothing but noise, useful if you want to transition to complete static.

Now, all you Spinal Tap fans out there are going well, why didn't you just make 100 be the max and make that complete noise? Because, all our volume knobs here go to 11 and we try and maintain that consistency in our plugins. Of course, you get more subtle changes by going from 0 to 1000 than 0 to 100, but mostly it's just that bigger numbers are more impressive.

Noise Spread

Noise Spread sets the amount of Noise in conjunction with Nosie Strength. When Noise Strength is set below 200 or so, Noise Spread will have a dramatic effect on the amount of noise that is visible. At higher Noise Strength settings when the image is mostly obscured by the noise, this has less of an effect.

It will still get rid of the noise, but the effect is much like animating Noise Strength down. At low Noise Strength values Noise Spread will produce a more unique effect.

For most purposes, you are better off adjusting the Noise Strength and leaving Noise Spread set to 100.

Change Noise With Strength, With Spread

If either of these is turned on, the noise will change ONLY when the corresponding parameter (Noise Strength or Noise Spread) are animated. Every frame that the Strength or Spread changes on will cause the noise to change as well.

Use Color Noise

This will use randomly colored noise instead of monochromatic noise.

If you are using Noise Complex to generate a source image for another filter, it's highly recommended that you turn this off. Monochromatic (black and white) noise will give you more consistent results than the color noise will. It's more difficult to look at color noise and determine how it will react with other filters than it is to look at black and white or grayscale noise.

Rate Of Change, ROC Randomness

Variable rate noise is one big feature of Noise Complex. You can set the rate that the noise changes. ROC is set in seconds. So the higher the number the slower the rate of change.

If you want the noise to change every frame, set ROC to it's minimum, .01. To change four times a second, set it to .25, to change once a second, set it to 1.0, and to have it never change enter in 0.

This is very useful since there are many times that you want random pixels, but don't want them changing every frame. Particularly when you're using noise in conjunction with other filters.

The Randomness parameter allows you to vary the rate, so that it doesn't happen like clockwork. Randomness creates a range of values and every time the noise changes it picks a new value for how long it will remain on the screen. If ROC is set to 4, and ROC Randomness is set to 50%, then the range is 4 +/- 50%, which results in a range of 2 to 6.

Spread Control Layer

This section allows you to set up an image to control the amount of noise. Where the image is black, there will be no noise, where it's white you'll see the maximum, and shades of gray will get you somewhere in between.

For a full explanation of how this works, see the 'Using Grayscale Maps' section and refer to the portion on 'Method #1'.

Original Blend Transfer

You can use transfer modes to blend the noise with the original image. This pop-up allows you to select one of the normal transfer modes to composite the noise with.

Designer Blur

Designer Blur allows you to create a blur effect using a pre-defined shape (the blur Kernel). As the underlying image blurs, the pixels take on the shape of the kernel which then blends with the other shapes around it. This kernel can either be one of the built-in shapes or be of your own design. Any image can be used to build a kernel, although, grayscale maps work best and provide the most consistent results. Color images generally don't work very well and aren't very predictable.

This can create a number of interesting effects, including producing very painterly effects. Using transfer modes to combine the blurred image with the original also produces some great effects. Like all the Toolbox filters, transfer modes are built-in so it's easy to create composite effects and make adjustments. You can also use a grayscale map to control the amount of blur, like AE's Compound Blur.

Output View

There are three different views.

Normal: As you would expect, this shows the normal effect mode. You'll use this about 99% of the time.

View Kernel: This shows you the image being used as the kernel. You can even view what the built-in ones look like, which can be handy when you're designing your own.

View BCL: This shows you the image that is being used as the Blur Control Layer and is creating a compound effect. If there is no BCL being used, this renders as black.

Blur Type

What the kernel looks like that you use to blur the image is probably the most important part of Designer Blur. This is where you select the kernel you are going to use. There are a variety of built-in ones and you can also select to use one of your own making.

Kernels come in two varieties, 1D and 2D. This refers to how the blur engine deals with them. 2D kernels take longer to render, so if you're pressed for time I recommend sticking to the built-in 1D ones. All Custom kernels are 2D.

The different kernels

Gaussian (1D): A faded sphere
Diamond (1D): Diamond shape that fades out towards the edges
Sharp Diamond (1D): Same as diamond with sharper points.
Creates a 'starry' effect.
Box (1D): A solid square
Star (2D): A solid 5 pointed star.
Spiral (2D): A soft, blurry swirl. Creates some nice painterly effects.
Cross (1D): A solid 'plus' sign.
Cylinder (1D): A faded cylinder shape. Could be called the 'line' shape.
Custom (2D): ? This one is up to you!

Blur Amount, Uniform Blur

This specifies how blurry your image is going to be and how large the blurred kernels will become.

If Uniform Blur is not checked, then a second Blur Amount slider becomes active and you can have different blur amounts for the vertical and horizontal directions.

Designer Blur creates a unique effect. It doesn't appear to blur all parts of the image equally. This has to do with the way the blurred kernels blend together. Lighter pixels will be much more pronounced than darker pixels and small groups of pixels will be much more pronounced than large fields of them. So, things like highlights, small amounts of bright pixels appear to be blurred heavily, while a field of dark blur doesn't appear blurred at all.

This is essential to the effect and allows the kernels to show themselves. Otherwise, it'd just be another guassian blur filter.

Clockwise from top, left corner: Amount = 10, 30, 65

Custom Shape Controls

Ah… the heart of Designer Blur. This is where you select the image you're going to use as a kernel. Using the **Custom Shape Layer** pop-up, you can select pretty much any image. That doesn't mean that any image will give you good results, but hey, it's all about freedom of choice.

Designing Custom Shapes

Some general guidelines for creating custom kernels:

1– Use grayscale. Do not use color. Grayscale will get you much more predictable results and save you a ton of time. You could certainly use an HD res movie file, but your render times will be dastardly and it'll look like garbage. Don't say I didn't warn you.

2– Make the kernels small. Look at the built-in ones. They're all about 128 pixels square at best. Larger kernels mean larger rendering times. This is especially important for the custom kernels because they are 2D and take longer to render.

3– Blurred kernels generally will give you better results. Luckily, there is a **Blur** built-in specifically for custom kernels, but

better to make it that way to begin with. A blur creates softer edges and causes better blending. It tends to give a more painterly feel. Hard edged kernels tend to take over the image. Look at the Blur Amount example. At 65, it's nothing but hard edged stars.

Shapes that have a bright center and tend to fade around the edges seem to work best. At least, they tend to let the original image show through to some degree. Shapes that are solid white tend to take over the image. Take a look at the following kernels:
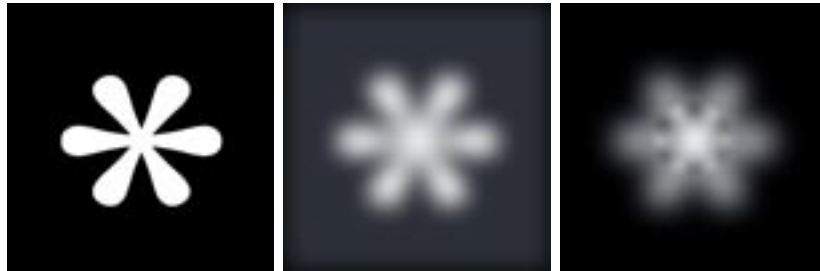
Of the 'flowers' (actually the lowly asterisk), the third one works best. It's had just the outside 'leaves' blurred heavily resulting in a bright center and a much dimmer outside area. This creates a falloff and generally allows it to blend better with the rest of the image.

Compare that to the first one (solid white) which completely takes over the image. The second one, which is a blurred version of the first one, works better, but you still have a very well defined shape since the entire kernel is basically the same shade of gray.

If you blur a solid white image, it's only going to make a slight improvement.

Clockwise from top, left corner: Regular, Blurred Regular, and Selectively Blurred

By setting up your kernel to fade out, you'll still get the shape of the kernel showing through, but it won't obliterate the image. There are all sorts of way to do this. Take a look at the following example, where we've used a gradient to create the fall off:
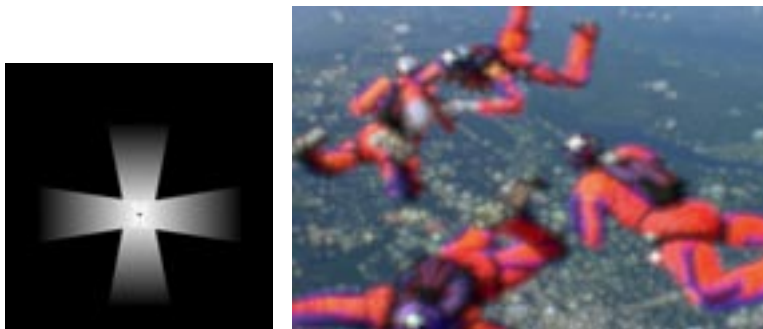
Of course, you may want the kernel to take over the image and create flowers out of skydivers. In which case, just leave everything solid white and you're good to go.

Custom Shape– Blur

As mentioned, this allows you to blur a kernel. This has no effect on the amount of blur Designer Blur applies. That's controlled by the **Blur Amount** at the top of the effects window. This simply softens up the kernel, which may make it blend with the original image a bit better.

If a kernel is taking over an image, try turning this on. It should make it more subtle, but may not necessarily improve the blending.

Blur Control Layer (BCL)

Enables the compound blur effect. This controls the amount of blur using a grayscale map. See the 'Using Grayscale Maps' section and refer to the 'Method #1' portion. This will explain exactly how this works.

Gradient Path

Gradient Path allows you to wrap a gradient around a path (bezier mask). Aside from just creating special color effects around masks, you can use this to gain more control when creating mattes, custom glow effects, build custom grayscale maps for a variety of filters (especially Designer Blur), create backgrounds based on mask shapes, and much more.

Path

Allows you to select the path you want to use. The path must be on the same layer you have Gradient Path applied to.

You can use any path. It doesn't matter how many points it has or whether it's open or closed. Although, there are a couple features that work differently if the path is open.

Tip: You can create paths in illustrator or Photoshop and copy and paste them onto your AE layer. Since the path tools in AE leave a bit to be desired this is an extremely powerful tool.

Output View

There are three view modes.

Normal: This is where you'll be about 99% of the time if not more. This renders the effect out normally showing you the gradient wrapped around the path.

Gradient Views: These two views simply render out the gradient by itself. Useful for setting up the gradient if you want to see exactly how it looks or if you have a very complex path that doesn't lend itself to previewing well. Complex paths can result in increased render times. If that is the case, the Gradient Views can be very useful.

Rendering Style

There are three modes here. They concern themselves with how the gradient is drawn on the layer.

Draw On Black: Turns the entire layer that the filter is applied to black and renders the gradient on it. This is the only mode that cause something to be rendered beyond the edge of the gradient. Since it applies black to the **entire** layer, anything behind the layer will be obscured. The other modes either respect the mask applied to the layer or don't render the layer at all.

Draw On Image: This will render the gradient on top of the image. The layer will still show through in transparent areas of the gradient that are inside the original mask. This does not render beyond the edge of the gradient and you will be able to see behind the layer.

Draw On Clear: Renders the gradient by itself. Wherever the gradient is transparent you will see behind it.
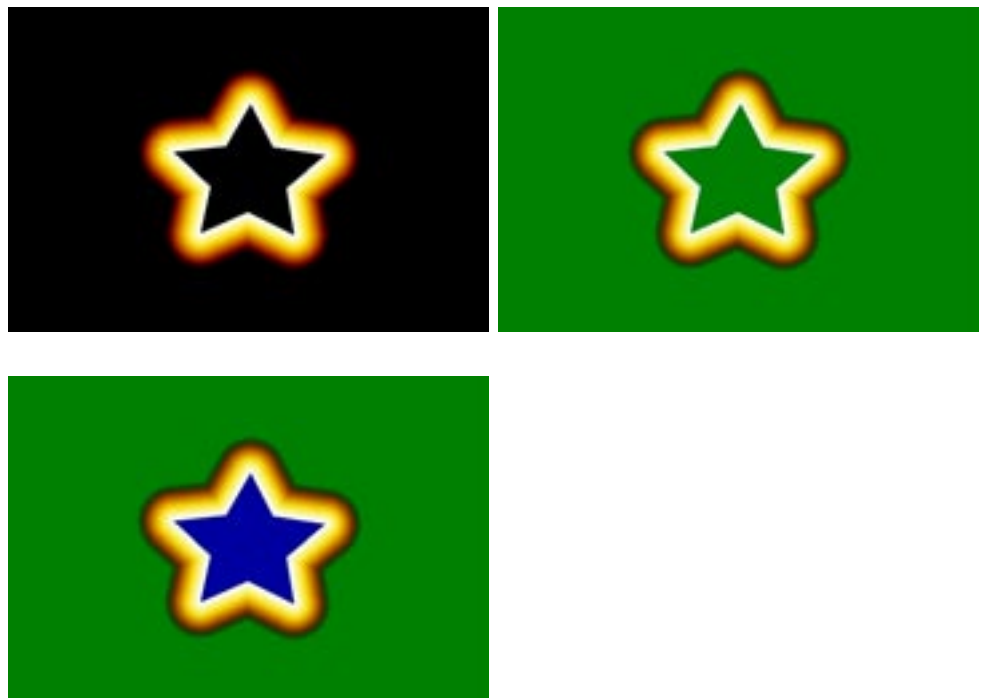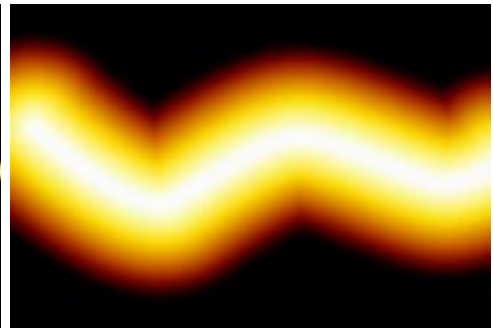

Clockwise from top, left corner: On Black, On Clear, On Image

Line Width

This sets how thick the gradient renders. This affects how the gradient handles sharp corners. With a thicker line, the corners tend to become more rounded. Actually, the corners are always rounded, but it's less noticeable with thinner Line Widths.
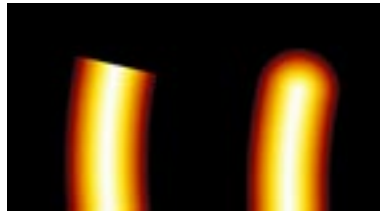
Width = 30   Width = 300

End Point Style

This only affects open ended paths (paths whose first and last points don't meet). There are two different rendering styles for the terminating points of an open path. Either:

Flat: The colors just come to a stop, like a rainbow.

Round: The colors wrap around forming a bulb on the end of the line.

Falloff

This sets how much the gradient's overall transparency falls off along the outer edge. This acts slightly differently than just setting a gradient color's opacity, as it affects the whole gradient and can cross over colors if you set it high enough.

It's basically like feathering the edge of the gradient, allowing it to blend into the background or original image better.

You can set this high enough that it fades out the entire gradient. Giving you a bit more control and make it easier to adjust than if you tried to do it with the last color's opacity. However, using a color's opacity can be a more precise method of determining exactly where you want the gradient to be transparent or opaque.

Repeating

You can repeat the gradient as many times as you want creating a sort of 'wood grain' pattern. There are a few options that are best described altogether instead of broken out separately.

Repeats: Allows you to specify the number of times the gradient repeats itself. There is no limit to this, but there is a practical limit based on the Line Width. You can only fit so many repetitions within a given width.

How the gradient repeats is set by **Repeat Style.**

Repeat Style allows you to select from two different rendering modes.

Repeat: This simply repeats the gradient in a linear fashion. Going from 0 to 100, then starting over at 0 again. So if you have a red, yellow, and green gradient, after green, you will get red again. The **Wrap Gradient Around?** checkbox is very important for this mode. It will blend the first and last color together for you. Otherwise you'll end up with a hard aliased edge where the gradient repeats. You may have to sometimes help it out by setting the first or last color not exactly on 0 or 100. If you set the last color to something like 98 or 95, you'll often get a smoother transition when the gradient repeats.

Repeating Gradient

Repeat = 1

Repeat = 2

Repeat = 8
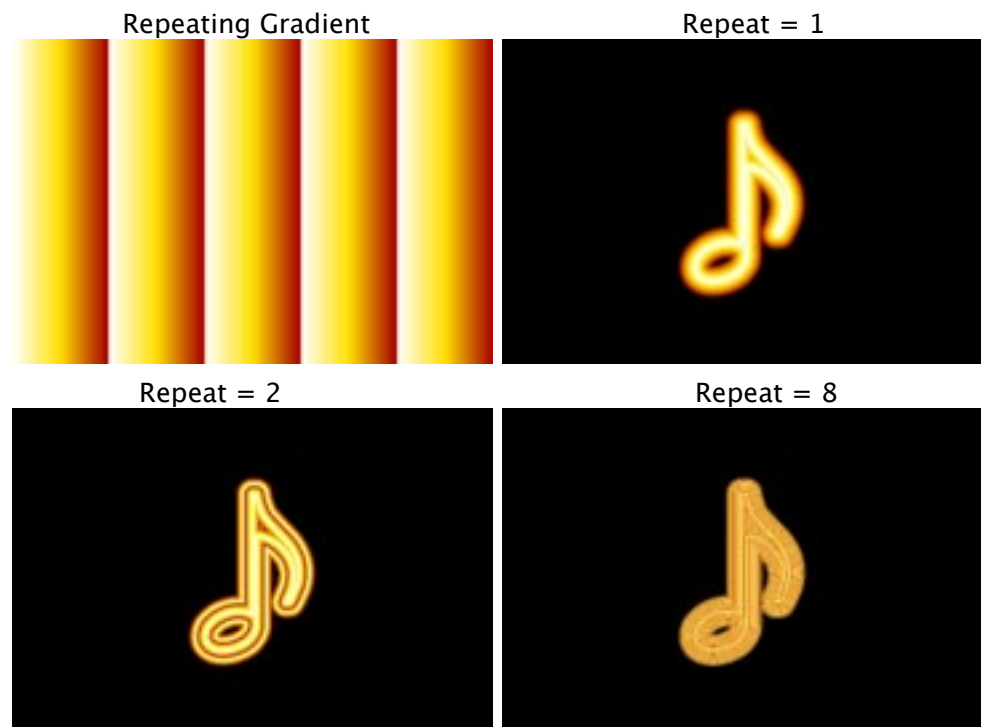
Reflect: This causes the gradient to mirror itself when it gets to the end of the gradient. Going from 0 to 100, then 100 to 0, then 0 to 100, and so on. **Wrap Gradient Around?** has little effect because you're not wrapping it around. The last color becomes the first color in the next repetition so there's no need to blend them together.
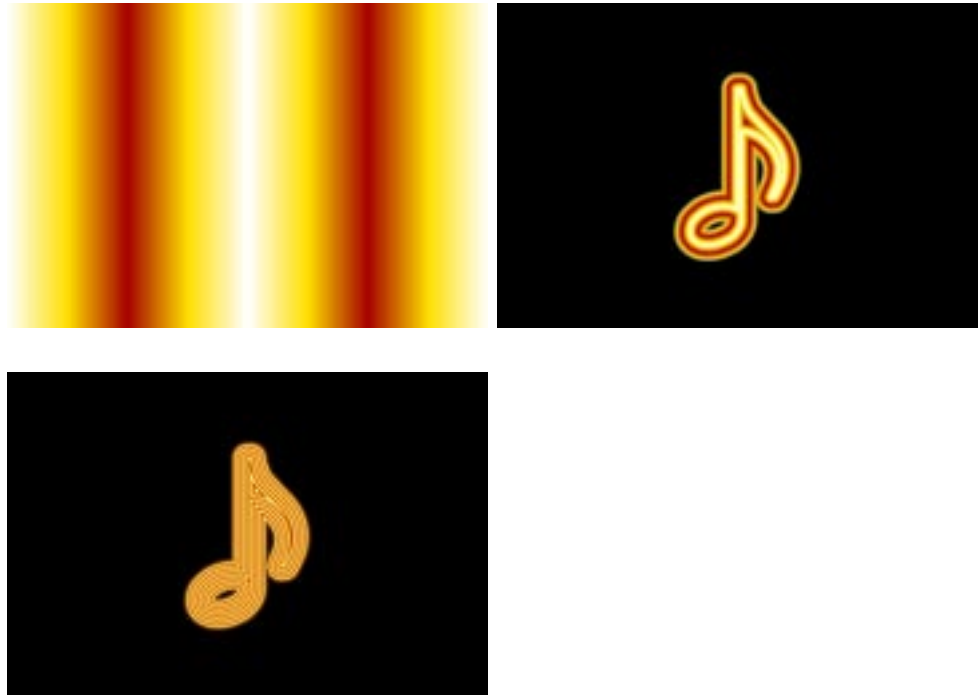
Clockwise from top, left corner: Reflecting Gradient, Reflect = 2, Reflect = 8

Gradient Offset

You can shift the entire gradient by using this parameter. Normally to change a colors position, you would have to go into the Color Dot sections and start moving colors around. By adjusting this you can move the whole gradient backwards and forewards, allowing you to transpose where the colors are.

This is also great for animations. Since the colors will wrap as you move them off the outside or inside edge (meaning if a color goes off the outside edge, it'll reappear on the inside edge), you can create cycling animations. Very 70s!

Gradient Mode

This only works for Closed paths (paths with no opening). On open paths, both sides of the gradient are always rendered.

By default, the gradient is rendered inside and outside of the path. Creating a sort of reflection as the gradient passes over where the actual path is. The location of the path always the zero point or starting point for the gradient, regardless of whether it's being rendered outwards or inwards.

Gradient Mode allows you to specify whether you want the gradient to render:

Outside the path, creating a halo or extruded type of effect.

Inside, giving the object itself color.

Or **Both.**
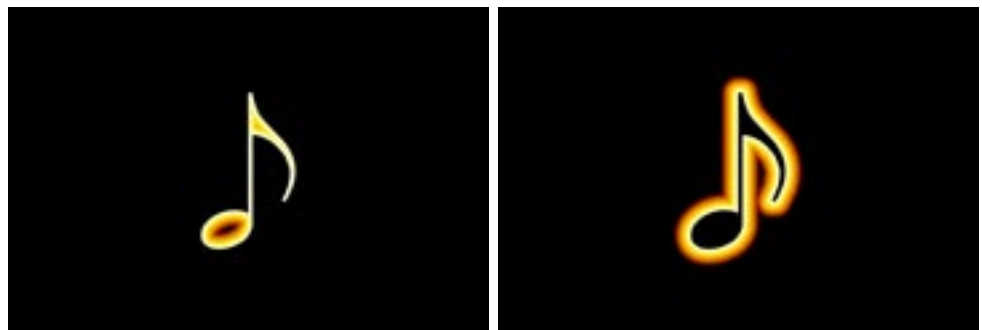
Colors

You can use up to 10 colors to make your gradient.

Each color is defined by a section containing four controls: Use Color checkbox, Position slider, the Color Chip, and Transparency slider. Here's an example of a section:

By default only the top three colors are used. These are what are used to generate the gradient. Colors can be changed or animated by adjusting the Color Dot underneath each 'Activate' checkbox. You can easily turn colors on and off by selecting the 'Activate' checkbox associated with each color.

Color Chips

Color Chips are the boxes of color below the Position parameter of each Color section (Color 1, Color 2, etc.). You can change the color by clicking on the Color Chip itself, or click on the eye-dropper tool next to the Color Chip and select a color from anywhere on the screen.

Colors can be animated and will smoothly blend from one color to the next. You can also use expressions to control the color.

Activate

When you select one of these boxes, the color below the box is turned on or off. If the color is turned on, the color is blended with the colors in front and behind it. If it's turned off, the colors in front and behind are blended to remove it. The exact effect this will have is determined by where the associated color is located in the gradient.

How to position colors in the gradient is discussed in the Position section of this manual.

You can animate turning the color on/off, however it will not smoothly transition. It abruptly changes from one to the other, much like flipping a light switch.

Position

The default position of the three colors that are turned on, result in the following gradient.

Notice that the Red has a position of 0, Yellow a position of 50, and Blue a position of 100.

The position parameter is in percentages, so since Yellow is at 50%, it's right smack in the middle of the gradient. It's getting blended with red which is all the way at 0% and Blue which is at 100.
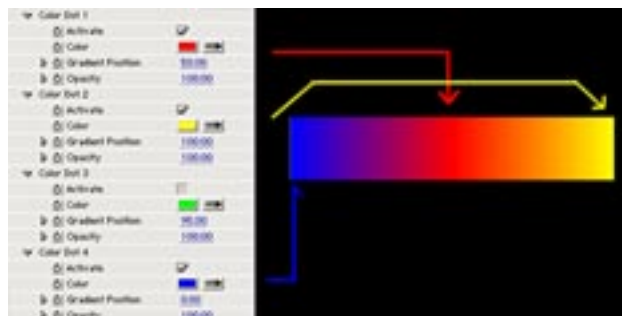
Just because colors appear in a particular order doesn't mean their positions need to be in any order. Color 1 could be the last color in the gradient, Color 6 could be the middle color, and Color 3 could be the first. In the following example, notice that Color 1 is in the middle, Color 2 is last, Color 3 is NOT used, and Color 4 is the first color in the gradient.

As you can see, it makes no difference how your colors are arranged. You can use the six colors in any crazy way you see fit. We know you color people are a wild bunch, so we accept the fact that some bizarre and shocking gradients may be made with this. It's simply one of the crosses we have to bear as software designers.

There are a variety of different configurations the colors can take. For example, you don't need to have them starting and ending at 0% and 100%. If the first color starts at 25%, then the first 25% of the gradient will be a solid color. Only after 25%, will the color start blending with the other colors in the gradient.

In the example below, the first color starts at 33%, and the last color starts at 67%. This produces solid colors at the beginning and ends. The solid color in the middle is achieved by setting two middle colors up, right next to the start and end percentages.

Once you get the hang of it, the position slider provides a simple, easy way of setting up a gradient. Since they can be animated, they also give you a very precisce way of control the look of the gradient and you can use expressions to control the gradient as well. This opens up all sorts of animation possibilities, so have some fun and explore in color.

Opacity

The colors can have transparency. If you wish a gradient to show another image behind it, set this to 0%. The colors next to it, will not only blend in color, but blend in transparency as well. Each color can have a different transparency setting, so transparency can vary throughout the gradient.

This setting will also affect your alpha channel if nothing is behind the layer the gradient is applied to. You need to be careful about this however. If you are going to take the gradient to a different application or system to be composited over something, saving out a transparent gradient to a pict sequence or quicktime movie won't work very well.

You should save out the gradient with no transparency, and then save out the alpha channel seperately, which you can then use as a matte. Let's take a look at why this is.

When you render out a transparent gradient, it's rendered over the background color, in this case, black. The alpha channel then applies it's transparency info to the gradient that's been blended with the background, producing incorrect results. Doing it this way is like applying the alpha twice and mixing some black in. Not very desirable.

If you save out the gradient and alpha channel seperately, the alpha when used as a matte produces a result that looks exactly like what we had in AE originally. You want the pure color to be made transparent, not color that's been blended already.

Advanced Displacement Mapping

Displacement mapping is a bit of a black art. It's an extremely powerful tool, but it can be very difficult to get your head around. It is the art of using grayscale images to push pixels around to create stunning distortion effects that would be normally difficult or impossible to do normally.

A common use for displacement maps is to create naturalistic distortion. For example, a flag waving or the effect of water running over an image. However, it's not really the Displacement Map filter creating this, it's the image or movie you are using AS the displacement map that causes the distortion. The Displacement Map filter is simply the middle man, allowing you to use the grayscale map to create the effect. Much like a brush simply allows you to apply paint to a canvas.

The Advanced Displacement Map filter is a very refined brush for creating displacement effects.

It is also a fairly complex 'brush' with many options. We will go over some of the most important ones first, before jumping into a parameter by parameter explanation of the filter.

How Does Displacement Mapping Work?

Since we have already gone over this in the 'Using Grayscale Maps' section, I will simply point you there. Look over Method #2 to get a decent understanding of how displacement maps work in general. It's extremely important that you read that section, as it should clarify some concepts you will need to understand how this filter works.

Some QuickStart Explanations

Hopefully you have read 'Using Grayscale Maps'. If not, go read it dammit.

Good. Having gotten that out of the way, let's go over some of the key parameters you'll need to fully understand to get things working.

Global Controls, Map>Max Displacement Controls

Quickstart tip: Once you apply the filter, set the Max Vertical/ Horizontal Displacement of each map you are going to use to 10. Then use the Global Vert/Horz. Displacement controls to create the effect.

As in all good filters, there are multiple ways to skin the cat, hound, or walking parapet. There are multiple ways to control the displacement. There are the global controls which operate on all maps you are using. The globals are basically a multiplier for the individual controls in each map.

And each map has its own set of controls for **Vertical** and **Horizontal Displacement Amount** and all other aspects of the map, such as scale, rotation, contrast, etc. The globals don't contain all the controls the map sections do. Only a few important ones, the most important being **Global Horizontal Displacement** and **Global Vertical Displacement**.

To make life less confusing, it is highly recommended that you use the Global Controls to create the displacement effects. Set the map's Vertical and Horizontal Displacement Amount to something like 10 or 25, then use the Global Controls to actually create the effect.

Quickstart tip: The names of the Displacement Amount parameters in the Map sections, change depending on what blending mode you have selected. When you have **Normal** selected it is Max Vert. or Horz. Displacment. When you have **Blended** selected, they change to Vert. and Horz. Opacity. Technically when they are blended, you just need to set up the opacity of each map and then use the global displacement controls.

Multiple Maps

Quickstart Tip: If you are going to use multiple maps, set the Multiple Map pop-up to Blend.

When multiple maps are used, how they blend together is important. If you have the Multiple Maps pop-up set to **Normal**, the maps will be added on to each other. One map will cause a displacement, then the next map will be added on to it. This is not

normally how you'll create an effect with multiple maps, although it can create a wide range of effects. Usually you will want the maps to blend and then displace as one. Displacement Mapping is a very 'zen' type of activity. When you have truly displaced your mind, it will be at peace. We here at Digital Anarchy have had our minds displaced for quite some time and are quite happy.

Quickstart Tip: If you use blended maps, you will need to select the blending mode from the **Blending Mode** pop-up. The most common modes to use our the **Add (no clamp)** and **Average** modes.

These are the same as transfer modes and just determine how the shades of gray combine. In future versions of this plugin we will have more options.
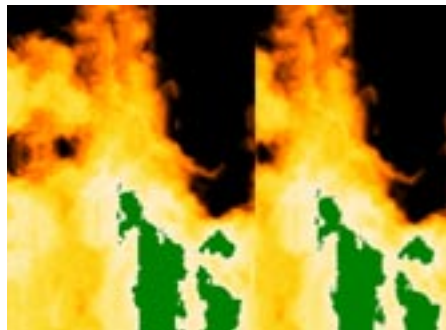
Artifacts

Quickstart Tip: Set the Edge Behavior mode to **Repeat Edges,** and the **Tiling** pop-up (in each map section) to **Wrap Around.**

Displacement mapping can produce artifacts. Remember you are literally pushing pixels from one place to another. Sometimes pixels will 'jump' from one place to another. This means they are no longer next to the pixels they were originally next to. This often creates a hard, aliased edge.

Also, along the edges there are always problems, because the edge pixels are being displaced and there is nothing next to them. This creates a hole which must be filled somehow. The Edge Behavior section and the Tiling parameters allow you to fix these problems.

Quality

Usually you will leave this on low. The only real benefit to using High or Super Quality is in the way the filter deals with holes and other artifacts. Fortunately, there are other ways to deal with these problems (see the **Edge Behavior** section). You shouldn't have holes to begin with, so hopefully you won't have to resort to using the higher quality modes.

The image on the left uses low quality and on the right, is super quality. Notice the only real difference is in the green, artifact area.

Anti-Aliasing

This pop-up allows you to select from various sampling algorithms. Bi-Cubic is the most common and will give you good results, but may be a little soft. Mitchell will give you similar results but some folks prefer it. Lanczos will give you a sharper image, but this may introduce more artifacts.

Overall, I prefer Lanczos, but your mileage may vary.

Multiple Maps

As mentioned in the Quickstart section, you can use multiple maps with the ADM filter. This introduces the problem of how these maps combine together to create the effect. The Multiple Maps pop-up allows you to specify how you want ADM to do that.

Blending will blend the maps together using transfer modes BEFORE it's applied to the image. Whatever maps you have selected are combined, then the resulting image is used for the displacement. The maps use the **Blending Modes** to determine how to combine their various shades of gray. So, for example, the three maps may be composited together using the Add mode, and then that result will be used to displace the image. This mode requires that the Global Displacement parameters have something other than 0. So you will need to set the value of the Vert./Horz. Opacity for each map to something like 10 or 25, then use the Global Displacement parameters to create the displacement.

Normal mode will just apply the maps in order, so the first map will displace the image first, the second map will be applied to the result of the first map displacing the image further, and so on. In this mode the **Blending Modes** pop-up is ignored.

You do not need to use the Global Displacement controls with this mode, although it is recommended. The displacement parameters in the map sections is sufficient to create the effect.

Blend mode: Normal mode:
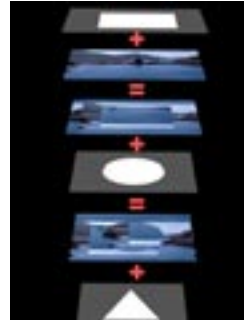
Blending Mode

This is only active when **Blended** is selected from the **Multiple Maps** pop-up.

These are transfer modes for blending the maps together. The most useful are Add (no clamp) which will tend to give you a higher contrast result, and Average, which will give you a low contrast result.

As with most transfer modes, you will probably have to flip through them to find the one that works best for the particular effect you're trying to achieve.

Global Controls

How Displacement Mapping works is explained in the 'Using Grayscale Maps' section, in the Method #2 portion. If you are unclear as to exactly how this works, please read that section.

The global controls act as multipliers when used with the parameters in the Map sections. It is generally recommended that you set the controls in the Map section to a relatively low value and use the globals to control the displacement and other effects. The exception to that is if you want one map to fade in or some other effect where one map needs to do something independently of the other maps.

How the globals act will depend on the Multiple Map mode that's selected. In Normal mode the individual maps can be set to 0 and just the Global controls can be used. In Blended mode, the maps have to have some value, especially in Vert/Horz. Opacity, so it's recommended you set them to 10 or 25, then use the Globals to control and further displacement. Also, in Blended mode, the Global values have to have a positive value for there to be any effect.
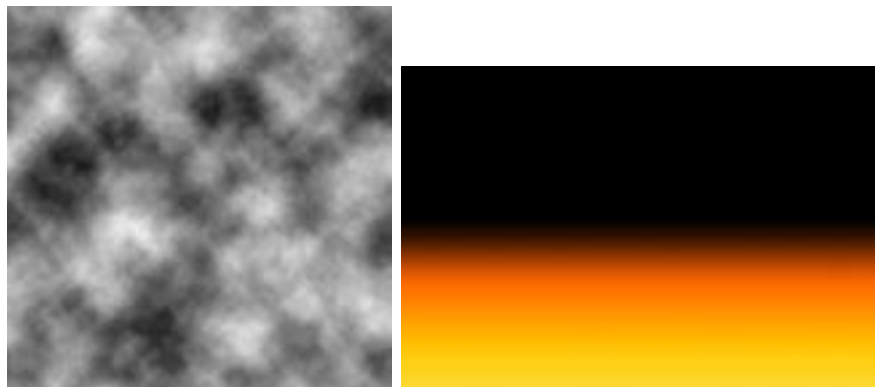
Max Horizontal Displacement

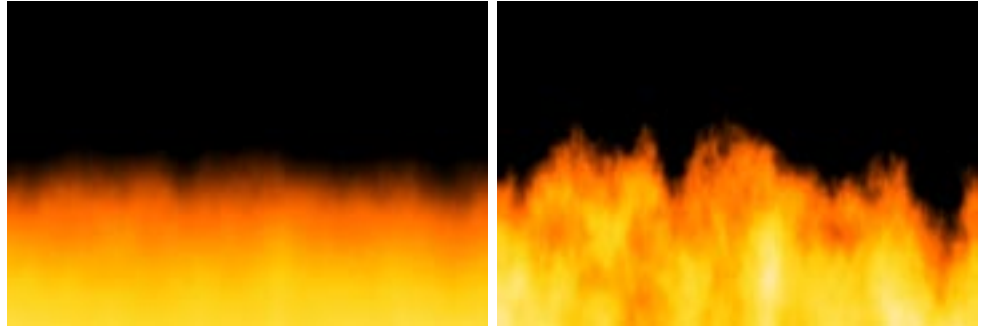This increases the amount that the pixels get pushed right or left.
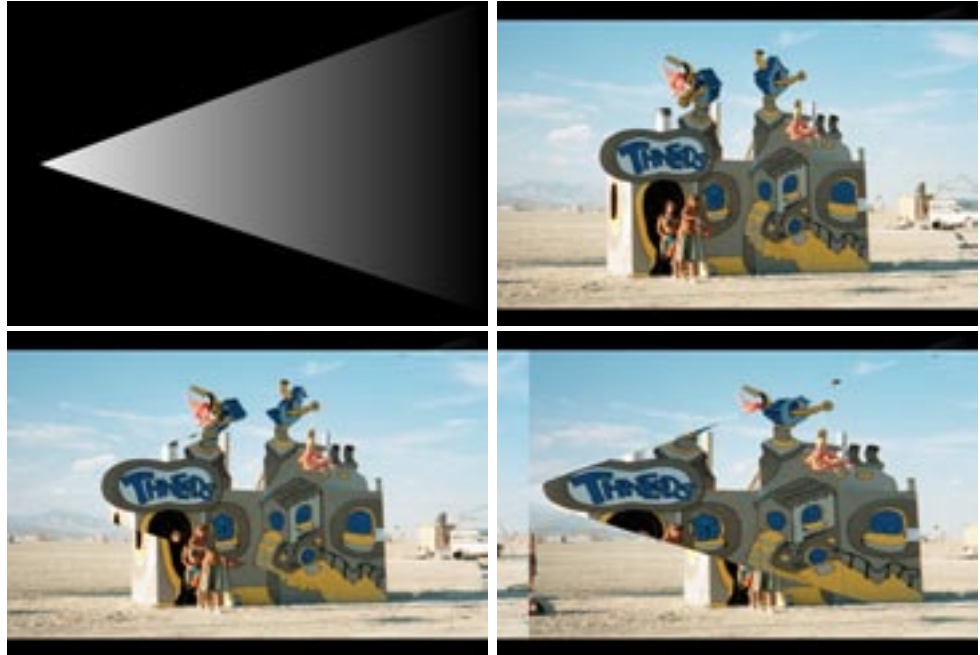
Clockwise from top, left:
The displacement map, no displacement, dis = 20, dis = 100.

Max Vertical Displacement

Increase the amount that the pixels get pushed up or down.

Clockwise from top, left:
The displacement map, no displacement, dis = 200, dis = 1200.

Blur Kernel

This blurs the underlying image. This has the effect of reducing the contrast for the image and making it softer. This can have several benefits, although the most prominent one is to get rid of artifacts.

Very often grayscale maps that have hard edges or too much contrast result in artifacts. Sometimes this can be fixed by applying a blur to them. Since this is a global control, it applies blur to all the maps together.

Since this has the effect of reducing contrast, it will also reduce the effect it has as a displacement map. Lower contrast images cause less displacement than high contrast images, because they tend to have less whites and blacks which is what causes the most displacement. Remember, that shades of gray close to 50% cause only a fraction of the maximum amount of displacement.

This can be very useful when a given displacement map is causing too extreme of an effect. If you're trying to create the look of water and the distortion seems too much, try blurring the map. This will reduce the amount of the distortion and result in a softer look.

Contrast/Brightness

Contrast and Brightness can play a huge roll in how a displacement map works. Higher contrast, resulting in more blacks and whites, will cause much more displacement than a low contrast map with shades of gray closer to 50% gray. Shades of gray close to 50% cause only a fraction of the maximum amount of displacement.

By increasing or decreasing Brightness you can affect the maps overall. Raising or lowering the amount of displacement that

it causes by increasing or decreasing the brightness levels of all shades of gray in the image. Unlike Contrast which pushes dark shades to go darker, and light shades to become brighter, Brightness pushes all shades in the same direction.

Edge Behavior

One common problem with Displacement Maps is what happens around the edges. When a pixel on the edge of an image is displaced, there is nothing next to it. Normally this results in a 'hole' artifact. In addition to the hole, it also creates jagged edges as there is nothing next to it to blend with.

There are a few ways to deal with this. The most useful method is **Repeat Edges**. This repeats the edge pixels, so that you end up with a straight line of color going from the edge to the place where the pixel has been displaced to. In many situations this will almost be seamless and you won't notice it.

Wrap Around wraps the pixels from the other side of the image around to the displaced side. This creates a hard seam which occasionally may not be noticeable, but usually is. You can use the **Edge Blur Amount** to soften this, but more often than not you'll get better results with Repeat Edges.

Border replaces the displaced pixels with a solid color border. This almost never works for a realistic replacement, but it can work for framing purposes or other effects.
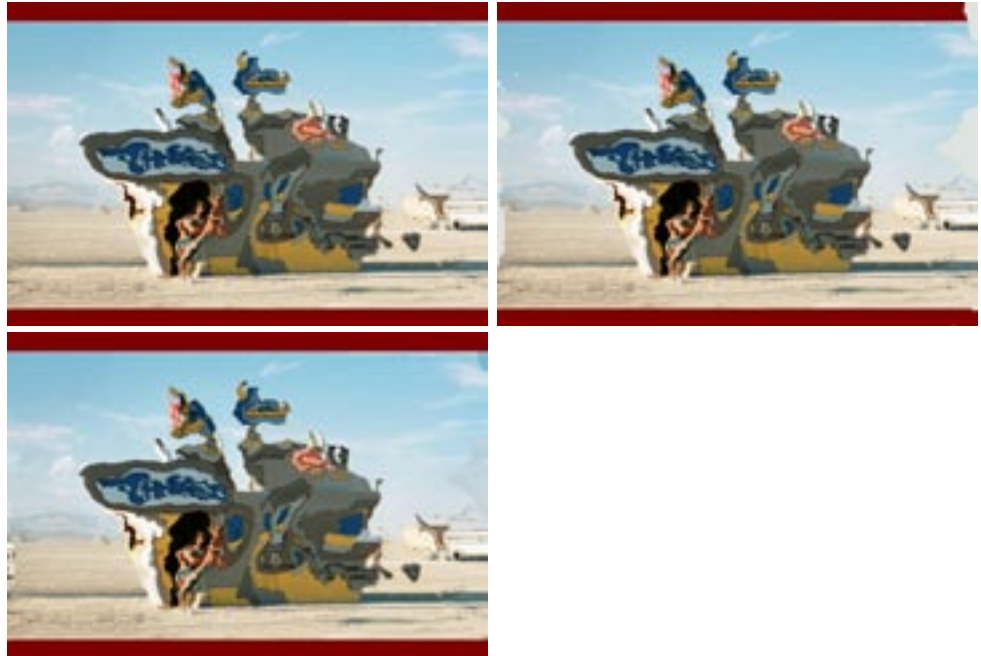
Clockwise from top, left corner: Repeat Edges, Border, and Wrap Around

Edge Blur Amount

This will blur the edge with whatever you have selected to replace it. This is particularly useful with Wrap Around, but will help with pretty much all the edge replacement methods.

Border Color

This is only active if you select Border as your edge behavior. It allows you to specify what color the border will be.

The Displacement Maps

Since the parameters for the maps are all the same, I will simply describe them once. There are three maps that you can use for displacement. By themselves, each one behaves the same. However, when you use the Multiple Maps pop-up to blend them, they will either add on to each other or blend together however you specify with the Blending Mode pop-up.

It is generally recommended that you set up the Map parameters once, then use the Global parameters, where available, to set up the rest of the effect and do any animation.

Map Layer

This selects whatever layer on the timeline that you wish to use as your displacement map. You can use any image, movie, or anything else that you can get into after effects. However, it will only recognize one channel of the image, which means it won't see colors.

Horizontal Channel

This specifies the channel of the Map Layer image you want to use to control the horizontal displacement. This can be the Luminance, Red, Blue, Green, or Alpha channel. In the case of Luminance the displacement will be based on the brightness of the pixels in the image.

By using channels this provides you with an excellent way of bringing in different images if you're not sure what is going to work. You can drop separate images into the different channels of a single image, then just need to bring that one image in. Or, of course, you could bring them all in separately and drop them on the timeline.

Max Horizontal Displacement, Horizontal Opacity

What this parameter is named and does depends on what is selected in the Multiple Maps pop-up.

If **Normal** is selected then is named Max Horizontal Displacement and controls how much displacement right or left the map causes. This can be used in conjunction with the Global Horizontal Displacement or it can be used by itself. We generally recommend you use the Global parameters to set up and animate your effect, but you can do it here as well.

If **Blended** is selected then this is named Horizontal Opacity. This ONLY works in conjunction with the Global Displacement parameter. You need to set this to a value higher than zero, and you need to set the Global Horizontal Displacement parameter to something other than zero to see any effect. We recommend you set this to 10 or 25 then use the Globals to deal with the rest of the effect.

The reason this is named Horizontal Opacity is that when you are Blending maps this controls how much they are blended. If you want all maps to have equal strength, set them all to the same value... 10, 25, whatever, just make sure all have the same value.

Max Vertical Displacement, Vertical Opacity

What this parameter is named and does depends on what is selected in the Multiple Maps pop-up.

If **Normal** is selected then is named Max Vertical Displacement and controls how much displacement up or down the map causes. This can be used in conjunction with the Global Vertical Displacement or it can be used by itself. We generally recommend you use the Global parameters to set up and animate your effect, but you can do it here as well.

If **Blended** is selected then this is named Vertical Opacity. This ONLY works in conjunction with the Global Displacement parameter. You need to set this to a value higher than zero, and you need to set the Global Vertical Displacement parameter to something other than zero to see any effect. We recommend you set this to 10 or 25 then use the Globals to deal with the rest of the effect.

The reason this is named Vertical Opacity is that when you are Blending maps this controls how much they are blended. If you want all maps to have equal strength, set them all to the same value... 10, 25, whatever, just make sure all have the same value.

Map Center

This sets the position of the map. This can be important if the map is not the same size as the layer ADM is applied to. If the **Tiling** parameter is set to **Wrap Around** this will act as an offset, as the map will wrap around to one edge as it is moved off the opposite edge.

This can be animated, so the map can move around while it's displacing the image.

Blur Kernel Radius

This blurs the underlying image. This has the effect of reducing the contrast for the image and making it softer. This can have several benefits, although the most prominent one is to get rid of artifacts.

Very often grayscale maps that have hard edges or too much contrast result in artifacts. Sometimes this can be fixed by applying a blur to them.

Since this has the effect of reducing contrast, it will also reduce the effect it has as a displacement map. Lower contrast images cause less displacement than high contrast images, because they tend to have less whites and blacks which is what causes the most displacement. Remember, that shades of gray close to 50% cause only a fraction of the maximum amount of displacement.

This can be very useful when a given displacement map is causing too extreme of an effect. If you're trying to create the look of water and the distortion seems too much, try blurring the map. This will reduce the amount of the distortion and result in a softer look.

Contrast/Brightness

Contrast and Brightness can play a huge roll in how a displacement map works. Higher contrast, resulting in more blacks and whites, will cause much more displacement than a low contrast map with shades of gray closer to 50% gray. Shades of gray close to 50% cause only a fraction of the maximum amount of displacement.

By increasing or decreasing Brightness you can affect the map overall. Raising or lowering the amount of displacement that it causes by increasing or decreasing the brightness levels of all shades of gray in the image. Unlike Contrast which pushes dark shades to go darker, and light shades to become brighter, Brightness pushes all shades in the same direction.

Rotation

Rotates the map around the Map Center.

Scale X/Y

Scales the map up or down along the given axis. This can be especially useful with things like fractal noise that tile seamlessly. Scaling allows you to adjust the density of these types of things.

If the map is scaled down, the **Tiling** pop-up determines what happens around the edges or if the map can be scaled at all. For example, if **Stretch To Fit** is selected you can't scale the map.

Tiling

This determines how the map tiles if it isn't the same size as the layer that ADM is applied to, if the map scaled up or down, if it's rotated, or if it's moved. There are a few modes that you can set this to:

Center Image: This puts the map in the center of the image it's been applied to. This does not stretch it to the same size as the image. If the map is smaller than the image, then it remains smaller and no displacement occurs along the edges of the image.

Stretch To Fit: This will take a map that is bigger or smaller than the image and scale it so that it is the same size as the image that ADM is applied to. Obviously this is very useful for maps that you want to cover the entire image, but are different dimensions.

Wrap Around: This causes the map to be wrapped around to the opposite edge if it moves off an edge. This is extremely useful for maps that are seamless as you can move the map around forever and you'll never see an edge where the displacement stops. It's useful for non-seamless maps, but you need to be careful about hard edged displacements that result from the seams.

Tip: This is usually the recommended tiling mode, especially when used with Edge Blend.

Repeat Edges: This repeats the edge pixels of a map as it's moved. This is less useful than the same option for the image being displaced. It causes pixels to move in blocks (due to the underlying grayscale value being the same for all of them) which can be unsightly and look like an artifact.

Edge Blend

When the Wrap Around tiling mode is selected, this blurs the edges. This is useful on maps that are not seamless as it will blur the edge and create a smoother displacement where the seam is.

Invert Image

This inverts the map shades of gray. Making whites and lighter shades black and dark grays and vice versa.

Color Sampler

Color Sampler provides a way of sampling an image at a specified point and getting the color value there. This can be amazing useful when used with expressions. You can sample the color of an image or piece of footage and then use that to set the color of another rendered element. You can also use the RGB values to control other parameters such as scale or rotation.

Layer

This selects the layer that will be sampled. It can be any layer in the timeline and pretty much any file that you can get into After Effects. Movie, still image, vector file, pre-comp, whatever. Keep in mind that Color Sampler will not see any effects you might have applied to a layer. It will only see the underlying image before the effects are applied. (Read up on the render pipeline for a better understanding why)

If you want Color Sampler to see effects, you will need to pre-comp them with the original footage or imagery.

Point

This is the sample point and the most important parameter in the filter. This sets the point at which the color will be sampled. You can see as you move this across an image, the color chip will be updated with whatever color is underneath the Point. By default, this samples single pixels. Whatever color the pixel is at the exact location you have Point set to, that is what gets returned. By changing Sample Size, you can have the Point sample a larger area.

Sample Size

This sets the area that will be sampled. It's set in pixels. A value of 1 will simply sample individual pixels. A value of 2 will sample a 2x2 area of pixels, a value of 8 will sample an 8x8 area, and so one. If there is more than one pixel, the pixels are averaged together and the result is returned as the color.

This is useful in preventing any wild changes as the sample Point moves across the image. It's more important when you're using the RGB values to adjust some other parameters value.

A single white pixel in a field of blue will cause a massive change that may not reflect the overall image. Creating a larger sample area, averages out the extreme effect that would be caused by the white pixel.

Examples

In this example we're using the shades of gray in the fractal noise to control the size of the ellipse that is passing over it.
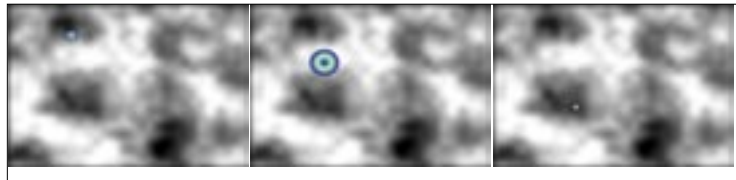

The sample point of Color Sampler is set to follow the Position parameter of the Ellipse effect. As the ellipse moves across the fractal noise, Color Sampler samples the shade of gray and returns the value. The Width, Height, and Thickness parameters of the Ellipse effect are then pointed at these values.

A very simple expression multiplies the R channel value by 40. As the Position parameter moves over dark shades or black, the R value decreases towards 0, as it moves over lighter shades it increases toward 1.0. This is multiplied with 40 resulting in the radius of the ellipse growing towards 40 as it passes over lighter shades and almost disappearing when it goes across black.


In this example, a color is being sampled from the background. Notice where the box and arrow are pointing. That is the point being sampled.
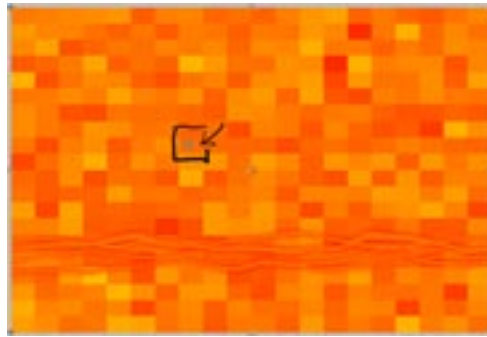
The flowing lines at the bottom of the image are then being colored by that sample. The Hairlines filter (from Digital Anarchy's Geomancy) is using the Color Sampler color chip to control the color of the lines.

Notice how as the background changes, the lines also change.
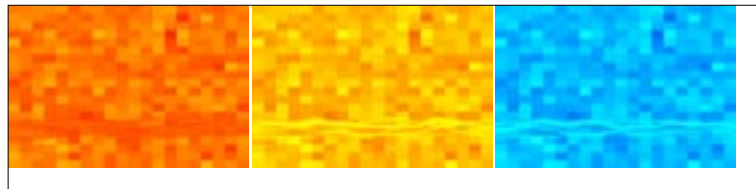
All that needs to be done for this is to Pickwhip from the Hairlines color chip to the Color Sampler Color Chip!
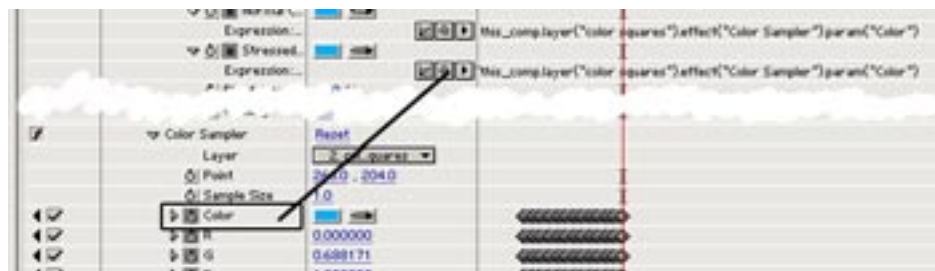
While Color Sampler does require expressions to be used, it only requires the simplest of ones. If you can use the pickwhip then you can use Color Sampler. It's extremely easy.

Problems

There's one serious issue with Color Sampler. It has to create a keyframe on every frame as the color changes. This is all well and fine until you change the source layer. There's no way for us to delete the keyframes, so the keyframes still reflect the first image you used as a source. SO... every time you change the input layer, you will need to open up the timeline and delete all the old keyframes. Otherwise, you'll get very unexpected results.

Gradient!

Gradient! is a tool designed to allow you to easily create and animate gradients. While the interface is different, it works very much like the Gradient tool in Photoshop. You have up to six colors to work with and four different types of gradients. You've got a lot of control over how you're gradient finally ends up, so let's get into those controls.

Colors

If you twirl down the Color section of the plug-in, you'll see a set of parameters that look like this:
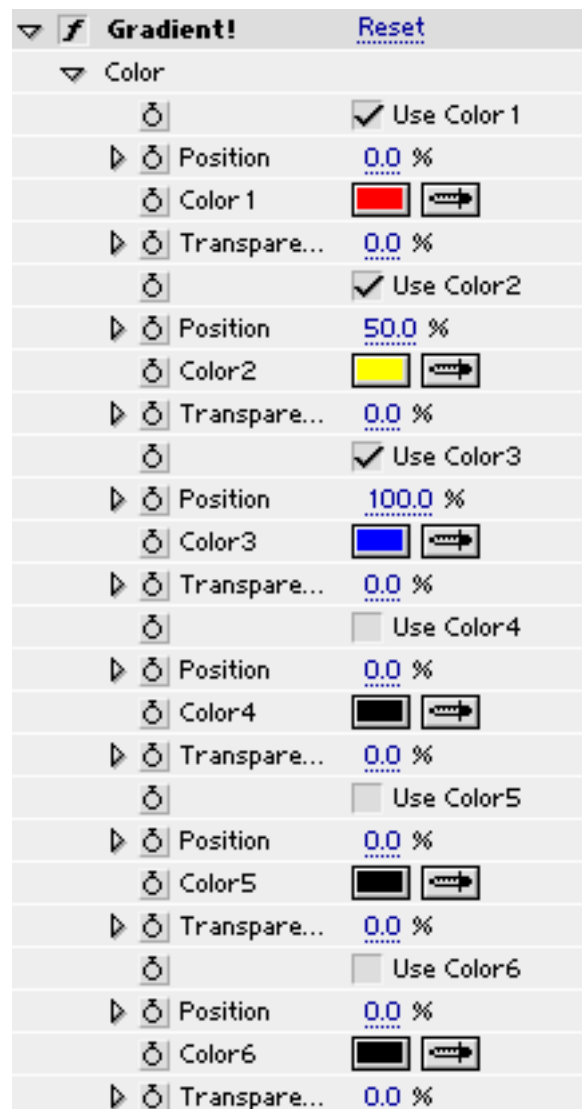
Each color is defined by a section containing four controls: Use Color checkbox, Position slider, the Color Chip, and Transparency slider. Look at the sidebar to the left for info on the color sections.

By default only the top three colors are used. These are what are used to generate the gradient. Colors can be changed or animated by adjusting the Color Chip underneath each 'Use Color' checkbox. You can easily turn colors on and off by selecting the 'Use Color' checkbox associated with each color.

Color Chips

Color Chips are the boxes of color below the Position parameter of each Color section (Color 1, Color 2, etc.). You can change the color by clicking on the Color Chip itself, or click on the eye-dropper tool next to the Color Chip and select a color from anywhere on the screen.

Colors can be animated and will smoothly blend from one color to the next.
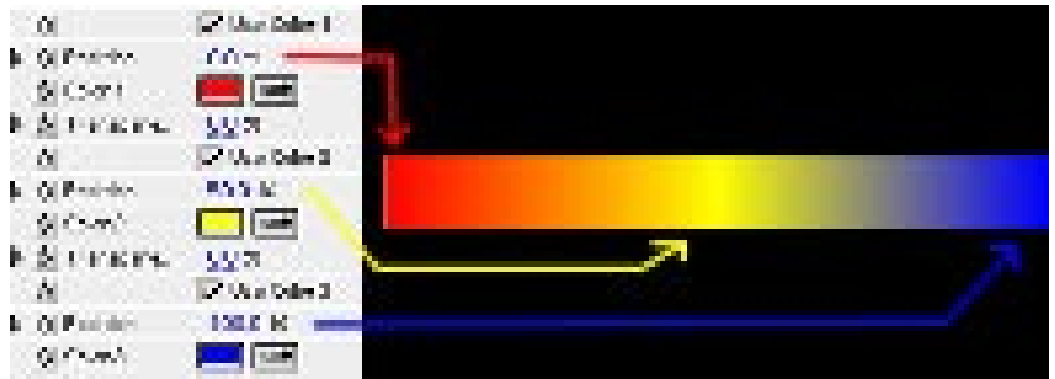
Use Color

When you select one of these boxes, the color below the box is turned on or off. If the color is turned on, the color is blended with the colors in front and behind it. If it's turned off, the colors in front and behind are blended to remove it. The exact effect this will have is determined by where the associated color is located in the gradient.

How to position colors in the gradient is discussed in the Position section of this manual.

You can animate turning the color on/off, however it will not smoothly transition. It abruptly changes from one to the other, much like flipping a light switch.

Position

The default position of the three colors that are turned on, result in the following gradient.
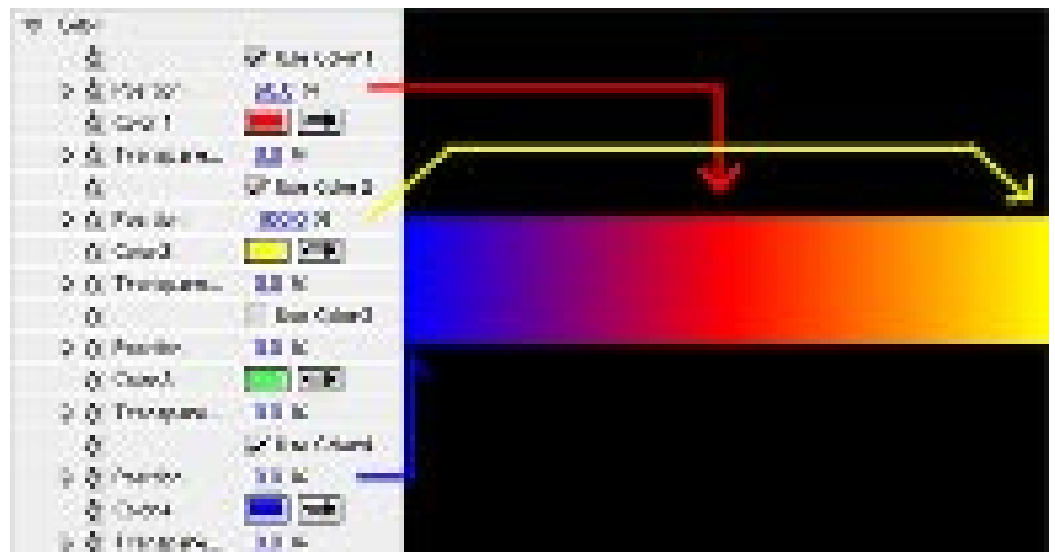
Notice that the Red has a position of 0, Yellow a position of 50, and Blue a position of 100.

The position parameter is in percentages, so since Yellow is at 50%, it's right smack in the middle of the gradient. It's getting blended with red which is all the way at 0% and Blue which is at 100.
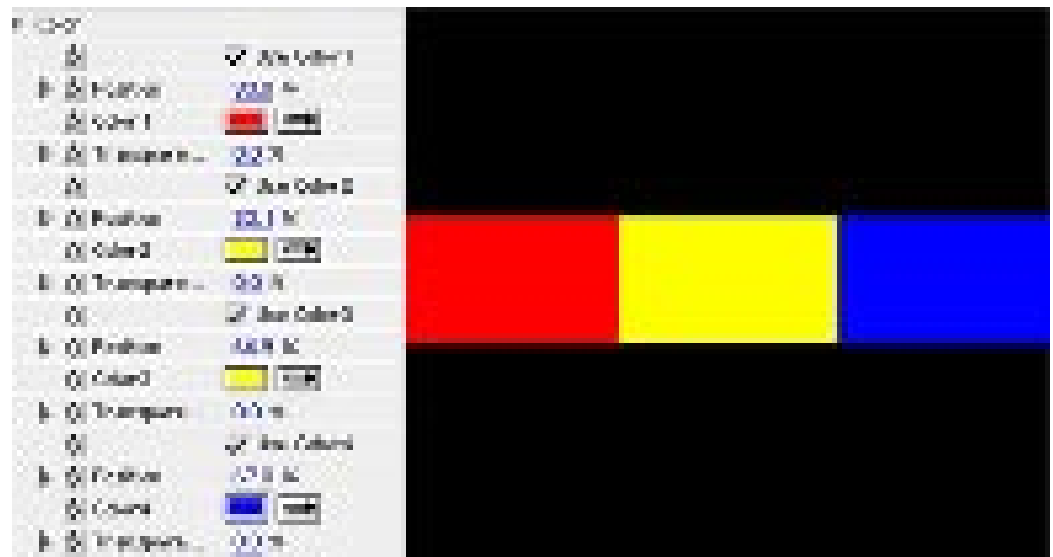
Just because colors appear in a particular order doesn't mean their positions need to be in any order. Color 1 could be the last color in the gradient, Color 6 could be the middle color, and Color 3 could be the first. In the following example, notice that Color 1 is in the middle, Color 2 is last, Color 3 is NOT used, and Color 4 is the first color in the gradient.

As you can see, it makes no difference how your colors are arranged. You can use the six colors in any crazy way you see fit. We know you color people are a wild bunch, so we accept the fact that some weird and shocking gradients may be made with this. It's simply one of the crosses we have to bear as software designers.

There are a variety of different configurations the colors can take. For example, you don't need to have them starting and ending at 0% and 100%. If the first color starts at 25%, then the first 25% of the gradient will be a solid color. Only after 25%, will the color start blending with the other colors in the gradient.

In the example below, the first color starts at 33%, and the last color starts at 67%. This produces solid colors at the beginning and ends. The solid color in the middle is achieved by setting two middle colors up, right next to the start and end percentages.

Once you get the hang of it, the position slider provides a simple, easy way of setting up a gradient. Since they can be animated, they also give you a very precisce way of control the look of the gradient and you can use expressions to control the gradient as well. This opens up all sorts of animation possibilities, so have some fun and explore in color.

Transparency

The colors can have transparency. If you wish a gradient to show another image behind it, set this to 100%. The colors next to it, will not only blend in color, but blend in transparency as well. Each color can have a different transparency setting, so transparency can vary throughout the gradient.

In this example, we've used the transparency settings to carve a hole in the middle of our layer, and then slowly fade up to completely opaque. You'll notice that even though Color 2 has it's position set to 67%, it's opacity is only at 50%. The first third of the gradient is completely transparent. Remember that since the first color is set to something other than 0%, the area in the gradient

that comes before it is a solid color. In this case the solid color is completely transparent, so a hole is carved out. Then, from 33% to 67%, the transparency ramps up to 50%, and on the last third of the gradient, it ramps all the way up to completely opaque (0% transparency).
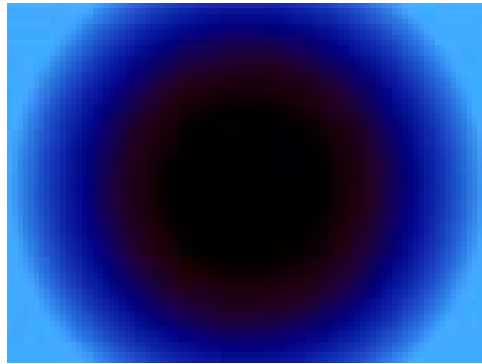

Gradient with transparency (over white)
Gradient without transparency

Transparency, pt 2

This setting will also affect your alpha channel if nothing is behind the layer the gradient is applied to. You need to be careful about this however. If you are going to take the gradient to a different application or system to be composited over something, saving out a transparent gradient to a pict sequence or quicktime movie won't work very well.

You should save out the gradient with no transparency, and then save out the alpha channel seperately, which you can then use as a matte. Let's take a look at why this is.

When you render out a transparent gradient, it's rendered over the background color, in this case, black. The alpha channel then applies it's transparency info to the gradient that's been blended with the background, producing incorrect results. Doing it this way is like applying the alpha twice and mixing some black in. The effect is subtle, but undesirable, nonetheless.

If you save out the gradient and alpha channel seperately, the alpha when used as a matte produces a result that looks exactly like what we had in AE originally. You want the pure color to be made transparent, not color that's been blended already.