MANUAL

Pinnacle Systems Production Book, First Edition
(Image Lounge, Web PDF Edition)

Writing and layout performed March 2002 at Pinnacle Systems, Incorporated, 80 Liberty Ship Way, Suite 7, Sausalito, CA, 94965, U.S.A.

Printed in the U.S.A.

Visit the Pinnacle Systems website at *http://www.pinnaclesys.com*.

Credits

LEAD WRITING, EDITING, AND GRAPHICS PRODUCTION	Lee Croft
LAYOUT DESIGN	Karyn Nelson Lee Croft
COVER AND INTERIOR ARTWORK	Karyn Nelson
CONTENT CONSULTING AND EDITING	Scott Squires Stonewall Ballard Scott Gross John Knoll Forest Key Cam Griffin Barry Berman
TUTORIAL FOOTAGE	Stu Maschwitz Cory Rosen John Knoll Matt Silverman

Sample source images donated by:

Artbeats, Inc.
http://www.artbeats.com

Hornet Animation, Inc.
http://www.hornetinc.com

“Keep Clear” footage courtesy Mr. Bagel Productions, ©1999.

IMAGE LOUNGE

APPENDIX

INTRODUCTION

Image Lounge contains powerful tools for creating organic effects like fire, water, clouds, shadows and more. Many of these effects have been unavailable on any platform, while others required high-end workstations. Image Lounge puts the power of nature in your hands as you work with Adobe After Effects.

Image Lounge contains powerful design tools for broadcast and music video applications. These are workhorse effects for doing sophisticated text treatment, graphic elements and other design effects that would normally take you hours to build into a project. Image Lounge puts them at your fingertips, whenever you need them.

SYSTEM REQUIREMENTS

Macintosh

The Macintosh version of Composite Wizard requires:

- Adobe After Effects 4.1 or later (carbon versions for 5.x)
- Power Macintosh
- MacOS 9 or later

Windows

The Windows version of Composite Wizard requires:

- Adobe After Effects 4.1 or later
- Windows 98, 2000, or XP.

MACINTOSH INSTALLATION

The following steps will guide you through the Macintosh installation of Image Lounge. Please be sure to read the *The Color Map Presets Folder* at the end of this section.

1. Double-click the installer icon.

2. After reading and accepting the license agreement, enter your name and your product registration code. This code is your proof of license from Pinnacle Systems. Do not share it.

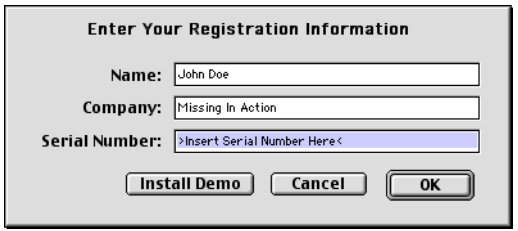


Figure 1:1 Registration Dialog

If you do not have a product registration code you can install demo versions of the plug-ins. The demo version installation will install a fully functional copy of the plug-ins that will run for 5 days. After the 5 day demo period, the filters will continue to operate, but will generate a yellow X over the image. Contact Pinnacle Systems for your authorization code.

3. The installer will either install directly on your hard drive, or allow you to manually tell it where to place the Image Lounge plug-ins folder.

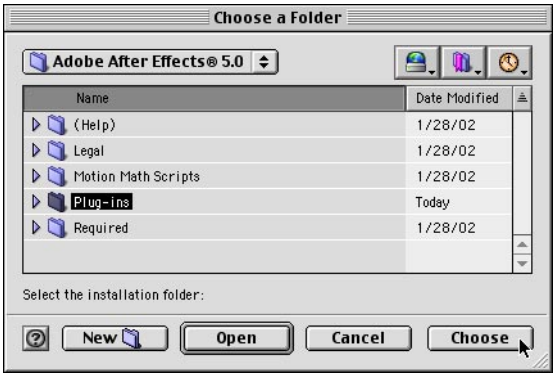


Figure 1:2 Installation Dialog

The Image Lounge plug-ins folder belongs in the Plug-ins folder for After Effects.

4. If you need to move your copy of Image Lounge to a different copy of After Effects with a different serial number, you must reinstall from the original installer, and reenter your registration code.

After installation, launch After Effects and it will serialize the plug-ins to your copy of After Effects. This process protects you by making it impossible for someone to copy the installed plug-ins from your computer and use them on a different copy of After Effects.

The Color Map Presets Folder

Many of the filters in Image Lounge make use of an item called the Color Map. The Color Map stores files in a folder called the Color Map Presets Folder. This folder *must* reside in the same folder as your After Effects application for Image Lounge to function properly.

The Macintosh installer, by default, creates the Color Map Presets folder at the same install location as the Image Lounge filters. For example, if you install the filters directly into your After Effects Plug-Ins folder, the Color Map Presets folder will be installed there as well.

If, after installation, you find that your Color Map Presets folder is in the wrong location, please manually move it to the root After Effects folder.

For more information, see "About the Color Map" on page 19.

Demo installers and Demo Plug-ins

Demo installers may be freely used, as long as the license is accepted. Demo plug-ins are functionally identical to the regular versions, except that they draw a big X in each frame. This will allow you to evaluate the plug-ins in your environment before committing to a purchase.

WINDOWS INSTALLATION

1. Insert the *Image Lounge For Windows* CD-ROM into your drive, and double-click its icon to open it.

2. Double-click on the file *Image Lounge.exe.*

Figure 1:3 Image Lounge.exe

3. The Image Lounge installation program begins. Follow the directions as they are presented to you.

Figure 1:4 Welcome Dialog

4. After agreeing to the Software License Agreement you will be presented with the User Information dialog.

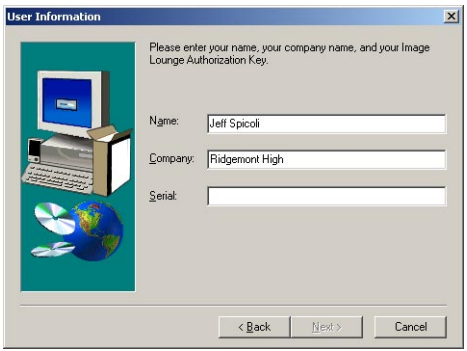


Figure 1:5 User Information Dialog

Here you are required to enter your Authorization Code to continue the install process. Your Authorization Code is located on a small sticker inside your Image Lounge CD packaging. The *Next* button will be grayed out until the user information is correctly entered.

If you do not have an Authorization Code you can install demo versions of the plug-ins. The demo version installation will install a fully functional copy of the plug-ins that will run for 5 days. After the 5 day demo period, the filters will continue to operate, but will generate a yellow X over the image. Contact Pinnacle Systems for your Authorization Code.

5. After successfully entering and then confirming your registration information, you will be presented with the Choose Destination Location dialog.

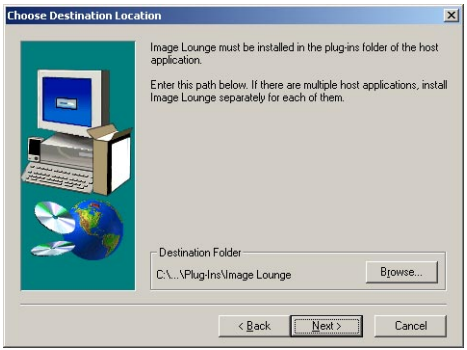


Figure 1:6 Choose Destination Location Dialog

The default location will be your After Effects plug-ins folder. If you want to put it somewhere else, you can direct the installer to the final location or move the folder after installation. Note that the installer looks for After Effects 4.1 or later by default. If you are using After Effects 4.0 you will need to manually select your After Effects 4.0 Plug-ins folder.

6. Click the *Next* button to install Image Lounge.

7. After installation, launch After Effects. Your plug-ins will be serialized to your copy of After Effects. This process protects you by making it impossible for someone to copy the installed plug-ins from your computer and use them with a different copy of After Effects.

The Color Map Presets Folder

The installer creates a Color Map Presets folder in the same directory as your After Effects application. If this folder is moved or renamed, some Pinnacle plug-ins may behave erratically.

Demo installers and demo plug-ins

Demo installers may be freely used, as long as the license is accepted. Demo plug-ins are functionally identical to the regular versions, except that they draw a big X in each frame. This will allow you to evaluate the plug-ins in your environment before committing to a purchase.

USAGE NOTES

Blend with original

All Pinnacle Image Lounge plug-ins include a Blend with Original control to set the amount of the effect applied or to allow a gradual fade-in or fade-out of the effect. Set to 0%, the result is just the effect. Set to 100%, the result is as if the effect was disabled.

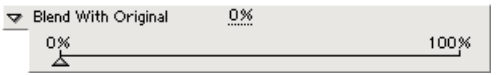


Figure 1:7 Blend With Original.

Note

One potentially confusing situation arises when using plug-ins that access the layer's image at different times or access other layers via a pop-up.

After Effects provides the image data to the plug-in without any layer masks, effects, or geometric transformations applied in the same comp. This can result in images not lining up, masked out image showing up unexpectedly, or missing effects. The only solution in this case is to pre-compose the accessed layer, moving the layer mask and any effects into the new comp. Even animating the position of a layer within a comp is bypassed in this case.

The Pinnacle Image Lounge plug-ins that might run into this problem are noted in their descriptions. These plug-ins are:

- IL Ultra Displacer
- IL Turbulent Distortion EZ

- IL Turbulent Distortion
- IL TrueCamera Rack Focus

ABOUT THE COLOR MAP

The Color Map is a powerful map generator that allows you precise control over color and transparency transitions throughout the map.

Several of the plug-ins in Image Lounge use the Color Map control, including *IL Color Map*, *IL Fractal Fire*, *IL Fractal Clouds*, *IL Fractal Brimstone*, and *IL Fractal Tunnel*.

As seen in Figure 1:8, Color Map is a very intuitive gradient designer like those found in Photoshop and similar programs. You can add up to 32 colors to the gradient, edit any marker by eyedropper or color picker, and even adjust transparency.

Much of the power and realism from effects like Fractal Clouds, Fractal Fire and Fractal Brimstone comes from understanding how to set the Color Map, and how functions like Gain interact with it.

We encourage you to become very familiar with the color map functions of Image Lounge so you will have the maximum designing power at your fingertips.

Color Map is also available as a separate plug-in as part of Image Lounge.

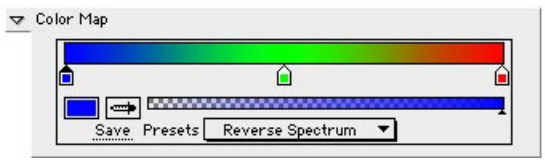


Figure 1:8 The Color Map Sliders

Using the Color Control

The color control consists of these parts:

- **Color Bar.** This strip along the top illustrates the color mapping in effect.
- **Color** markers specify the color and transparency at the point that they are touching. One marker is always selected, and is distinguished by the filled-in black top.
- **Transparency Bar.** Click in this bar to set the transparency (alpha) of the selected marker. The little triangle under the transparency bar identifies the setting of the current marker.
- **Color Swatch**. Clicking on this swatch opens the Apple Color Picker, allowing you to specify the color of the current marker.
- **Save button.** Click on this button to save the current color bar as a preset. A standard file save dialog will open into the *Color Map Presets* folder. Type in a name for the preset and save. The other color controls will immediately have that preset available.
- **Presets pop-up menu**. Choose a preset from this menu to load into the color bar.

Editing Markers

- Set a marker's position by clicking on it and dragging it sideways.
- Create a new marker by clicking in the color bar. The new marker will start with the color at that point.
- Delete a marker by clicking on it and dragging down until the marker pops off the color bar. Release the mouse button
- Select a marker by clicking on it. The selected marker will have a filled-in black tip.
- Change the color of a selected marker by clicking on the color swatch on the left side of the control.
- Change the transparency of the selected marker by clicking on the transparency bar. The left side is completely transparent, and the right side is completely opaque.

Managing Presets

Presets are small files stored in the *Color Map Presets* folder. This folder must be in the same folder as the active copy of After Effects. If you have more than one copy of After Effects, you can share a presets folder by putting an alias to the presets folder into the other After Effects folder.

The preset names as they appear in the presets pull-down menu are the same as their file names, so you can use the Finder to copy, rename, and delete presets. Any changes are immediately seen by the color controls.

You can share presets with other people by copying the preset files into their *Color Map Presets* folder.

Note that the Color Map Preset Manager file exists only to provide icons to the preset files. It is not an application. Double-clicking on a preset file will not do anything useful.

IL ALPHA RAMP

IL Alpha Ramp quickly creates circular, curved, or linear alpha ramps directly into the alpha of your current effect—a great workflow enhancer that allows instantaneous enhancement to any effect, without having to create additional matte layers within your composite. Use Alpha Ramp to create text transitions/wipes, and to add a gradation from transparent to opaque to any effect.

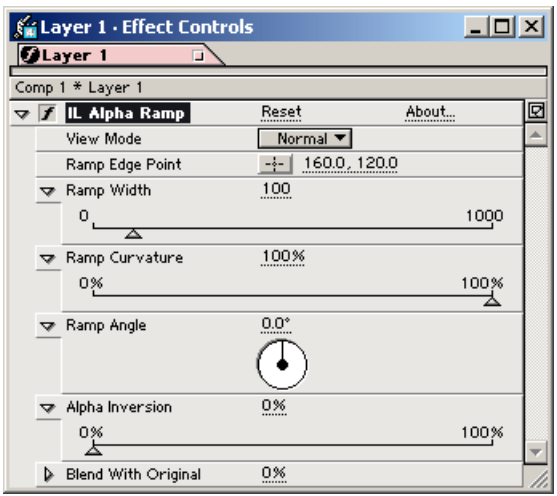


Figure 1:9 IL Alpha Ramp

View Mode

This pop-up allows you to see the effect of Alpha Ramp clearly with complex images. The modes are:

- **Normal** is the regular mode for rendering.
- **Alpha** shows the alpha channel of the layer as white, composited with the other layers in the comp.
- **Ramp** shows the ramp alone as a black-to-white blend on opaque alpha.

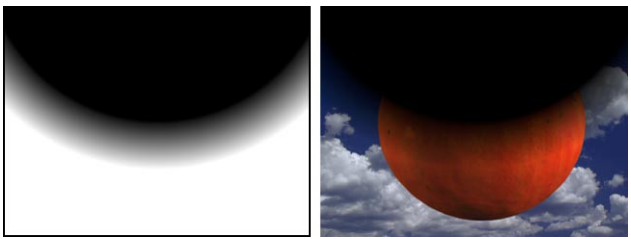


Figure 1:10 IL Alpha Ramp, Alpha and Normal View Modes

Ramp Edge Point

The Ramp Edge Point is the top, center point of the ramp. If the curvature is 100%, then this is the center of the radial ramp.

Ramp Curvature

At 100%, Ramp Curvature produces a conical ramp — at 0%, it produces a linear ramp. In between, it produces a circular ramp with a variable-width flat center.

Ramp Angle

The Ramp Angle determines the direction the ramp approaches the Ramp Edge Point. This has no effect with a Ramp Curvature of 100%

Alpha Inversion

Alpha Inversion smoothly reverses the direction of the ramp. At 50%, the ramp is uniformly 50% opaque. Figure 1:11 shows a round blur with a width of 250 at 0 and 100% inversion.

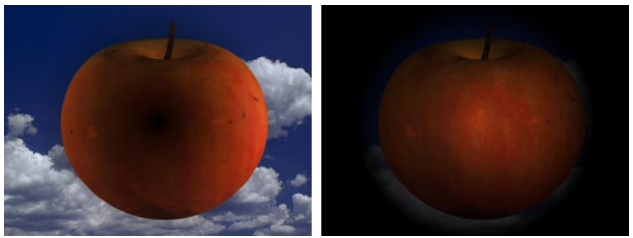


Figure 1:11 Alpha Inversion, Blur Width 250

IL BORDER PATROL

IL Border Patrol synthesizes zesty outline, edge, or inline shapes on the border of your images for instant pizzazz for your text or graphic animations. Add life and dynamic movement to your otherwise static graphic elements. Broadcast designers will love the ease of use and the immediate high pay-off of this powerful effect.

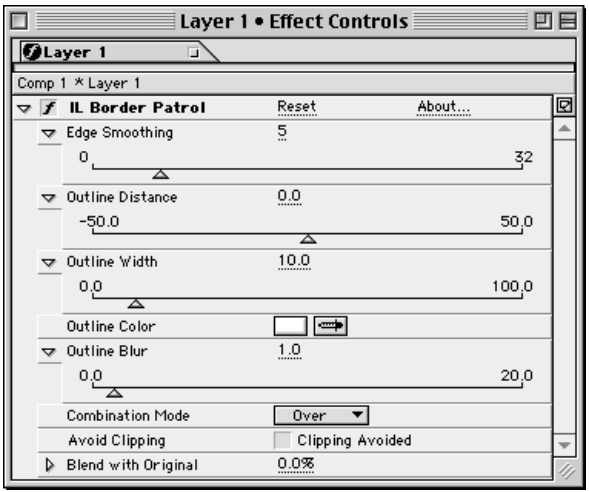


Figure 1:12 IL Border Patrol

Edge Smoothing

Edge Smoothing determines how smooth the outline will be. Depending on the complexity of the alpha channel, aliasing may appear in the outline. Turning this control up will smooth the line more.

Outline Distance

Outline Distance specifies how close to the alpha edge the outline will be drawn. Larger numbers move the outline away from the alpha. Negative values will draw the outline within the alpha. Note that very large distances can take a long time to render.

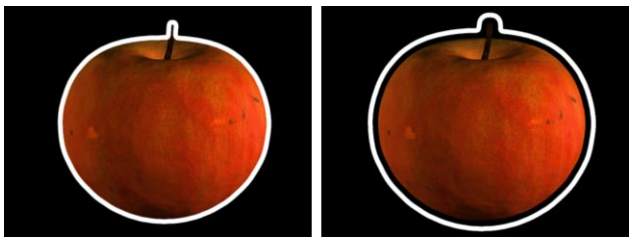


Figure 1:13 Outline Distances of 0 and 15

Outline Width

Outline Width controls the width of the outline itself. Small numbers make thin lines, big numbers make thick lines.

Outline Color

Outline Color controls consist of a swatch and eyedropper, and allow you to specify the color of the line.

Outline Blur

Outline Blur applies blur to the outline, creating quick halos and glows. Larger numbers add more blur.

Combination Mode

This pop-up controls how the outline is combined with the original image.

- **Replace** replaces the layer with the outline.
- **Over** draws the outline over the layer, like tracing the edges with a pen, while preserving the layer's original alpha channel.
- **Under** draws the outline under the layer's alpha, so the outline looks like its coming from behind the layer. Perfect for glows and halos.
- **On** draws the outline on the layer, **Mask** uses the outline as a mask, revealing the original layer with a *Track Matte* effect.
- **Stencil** is the inverse of Mask. The outline cuts a hole in the layer's alpha.

Avoid Clipping

If IL Border Patrol is used on a layer smaller than that layer's comp, it is possible to make the outline large enough to extend past the edges of the layer. In that case, the outline would be clipped by the layer edges.

Checking the Clipping Avoided box allows the outline to render beyond the edges of the layer.

Tips

Very complex edges, such as might be produced by an application of the IL Grunge filter, may cause Border Patrol to run out of memory and produce an incomplete outline. When this happens, Border Patrol beeps using the current alert sound.

To avoid this problem, blur the edge slightly so that Border Patrol will trace around the outside of the region instead of trying to outline each pixel.

If Combination mode is set to Under, negative distance settings can be used to animate the outline emerging from under the layer.

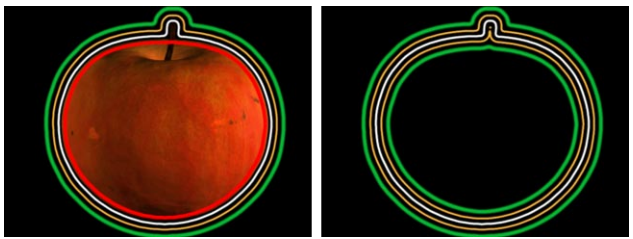


Figure 1:14 Multiple Border Patrol Effects

IL COLOR MAP

IL Color Map colorizes an image using a pair of sophisticated color blend ramps. Stylize your footage with bold color treatments, add duotone and tritone style colorization, or whack an image out to create editorial transitions. IL Color Map can be used for fine control of monochrome images, spot matting using transparent bands, or psychedelic color transformations.

The custom Color Control allows from 1 to 32 markers, each specifying a color and transparency. A preset pop-up provides access to saved color maps and makes it easy to copy color maps from one color control to another.

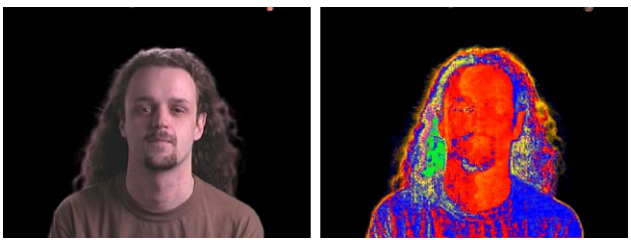


Figure 1:15 IL Color Map

Custom controls in After Effects can't be animated, so Color Map provides two color controls and an animatable slider that can blend between them.

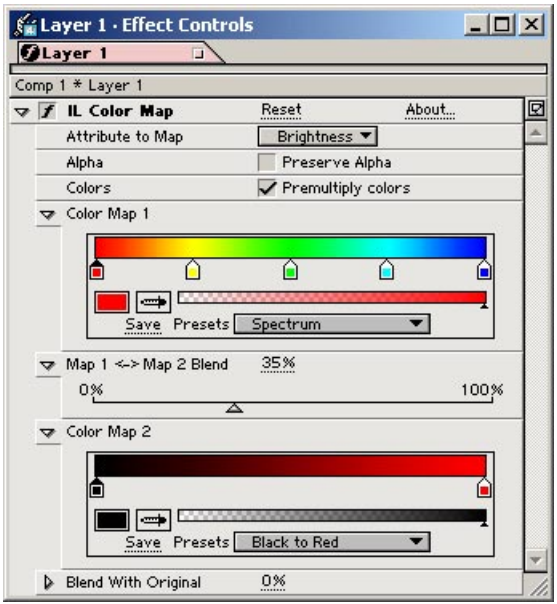


Figure 1:16 IL Color Map

Attribute to Map

The Attribute to Map pop-up menu specifies which channel of the layer is to be mapped.

Preserve Alpha

When Preserve Alpha is checked, IL Color Map will not expose the image outside the layer's alpha or mask. Transparent areas in the color blend can still punch holes in the existing alpha.

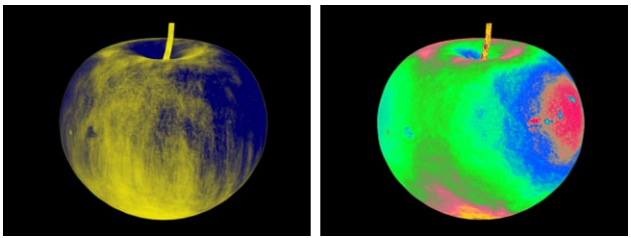


Figure 1:17 Color Maps Based on Saturation and Brightness

Premultiply Colors

When Premultiply Colors is enabled, areas with a low alpha value are treated as dark. Disable this option to avoid color fringing on anti-aliased images.

Color Map 1

The color bar specifies how the selected channel will be colored. The left side of the color bar sets the color of the channel's 0 value, while the right side maps the channel's 255 value. The rest of the control is used for editing.

Figure 1:18 $20 With Remapped Colors

Map 1 <-> Map 2

Map 1 <-> Map 2 blends the effects of the two color maps. At 0%, only the top map has an effect. At 100%, only the bottom map is used. Use this slider to produce the effect of an animated color map, or keyframe it to produce animated blends and transitions.

Color Map 2

This is identical in function to Color Map 1.

Using the Color Control

The Color Control consists of the following parts:

- **Color Bar**. This strip along the top illustrates the color mapping in effect.
- **Color Markers** specify the color and transparency at the point that they are touching. One marker is always selected, and is distinguished by the filled-in black top.
- **Transparency Bar**. Click in this bar to set the transparency (alpha) of the selected marker. The little triangle under the transparency bar identifies the setting of the current marker.
- **Color Swatch**. Clicking on this swatch opens the Apple Color Picker, allowing you to specify the color of the current marker.
- **Save button**. Click on this button to save the current color bar as a preset. A standard file save dialog will open into the Presets folder. Type in a name for the preset and save. The other color controls will immediately have that preset available.
- **Presets pop-up menu**. Choose a preset from this menu to load into the color bar.

Editing Markers

- Set a marker's position by clicking on it and dragging it sideways.
- Create a new marker by clicking in the color bar. The new marker will start with the color at that point.
- Delete a marker by clicking on it and dragging down until the marker pops off the color bar. Release the mouse button.
- Duplicate a marker by holding down Command, then click and drag on the market to be copied.
- Select a marker by clicking on it. The selected marker will have a filled-in black tip.

- Change the color of a selected marker by clicking on the color swatch on the left side of the control.
- Change the transparency of the selected marker by clicking on the transparency bar. The left side is completely transparent, and the right side is completely opaque.

IL EFFECT BLENDER

IL Effect Blender simplifies your animation workflow by applying a series of effects to a layer within a controlled region of the image. Build up your text, color treatment, and other effects, then use IL Effect Blender to apply the finished results within a specified region of the image. A great workflow enhancer that will simplify and speed up your projects.

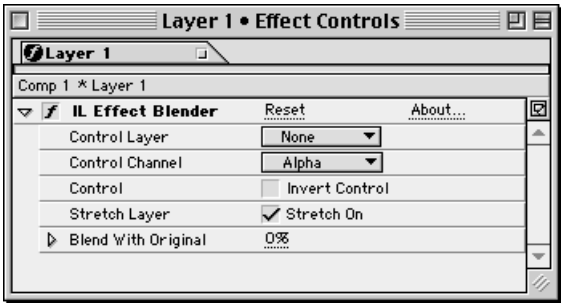


Figure 1:19 IL Effect Blender

Control Layer

The Control Layer popup menu specifies which layer in the comp will control the blending effect. The control layer can be the target layer itself, or another layer brought in for masking. The control layer need not be visible to operate.

Control Channel

The Control Channel determines which channel of the image will be used as a control (mask) for the blending effect. The choices are:

- Alpha
- Luminance
- Brightness
- Red
- Green
- Blue

Invert Control

This checkbox will invert the control area. It works like the Invert Selection command in Photoshop.

Stretch Layer

If the Control Layer is not the same size as the current layer, checking the Stretch On box will stretch or shrink the Control Layer to fit the current layer.

IL FRACTAL BRIMSTONE

IL Fractal Brimstone is the Tyrannosaurus Rex of organic particle generators, allowing you to create mind-boggling, realistic fire, smoke, fog, twisters, and distortion-field animations to enhance your next visual effects shot. IL Fractal Brimstone gives you total control over dozens of parameters to synthesize literally thousands of incredible effects. Brimstone works by shading particles with the same algorithms used in IL Fractal Clouds, creating complex and organic-looking fire, water, smoke, mist, explosions, molecules and much, much more.

This is a very rich and deep filter, capable of incredible results. While you can get amazing effects immediately, take the time to explore the possibilities in this powerful effects tool. Remember that you have to move the time marker away from frame 0 to see particles.

Getting Started

The best way to use Brimstone is to work straight down the controls, choosing where and how the particles are produced, specifying the color, the texture, and finally any special flow effects.

Performance

Every effort has been made to optimize performance on Brimstone, but be aware that it is possible to create long render times by setting certain parameters. High numbers of large, complex particles can take some time to render.

Controls

There are five basic areas of control that you need to understand to use Brimstone:

- General Controls
- Particle Controls
- Color Controls
- Cloud Controls
- Flow Controls

Each is described in detail in the following pages.

Special Notes

Most control settings in IL Fractal Brimstone are assigned to a particle at birth. Once the particle is born, it is “programmed” to certain behaviors as it ages and dies.

Controls notated with an asterisk (*) affect all the particles at once, and can do so at any particular frame on the timeline. For example, Velocity is programmed into the particle at birth, while Gravity* will affect all particles at any particular frame.

Brimstone is Motion Blur aware, so you can create very organic motion by enabling motion blur in After Effects and adjusting the shutter angle. Please note that After Effects’ motion blur adds considerable rendering time to your project.

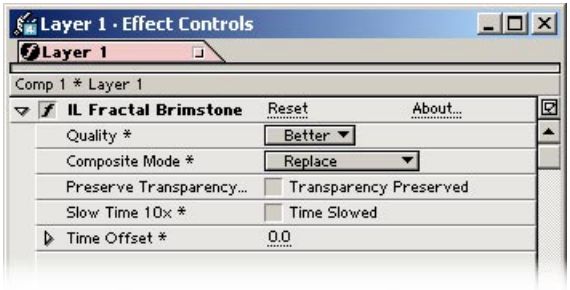


Figure 1:20 IL Fractal Brimstone General Controls

Quality

This pop-up controls the quality of the overall rendering; the lower the quality, the faster the render.

- **Better** provides the highest quality.
- **Faster** disables velocity stretching, motion blur, and texture alignment with travel direction.
- **Draft** displays the particle positions as white dots, allowing you to tweak particle flow and motion in near realtime before adding texture.

Composite Mode

The Composite Mode pop-up specifies what compositing mode the particle stream will have over the layer it is applied to.

Preserve Transparency

When this checkbox is activated, Brimstone acts as if the layer is a track matte. The alpha is generated by multiplying the effect's alpha with the layer's alpha. When turned off, the layer's alpha channel is ignored.

Slow Time 10x

This check-box slows down Brimstone's functions by a factor of 10, allowing you to create slow, graceful effects like water, fog and fireworks.

Switching between slow and normal time may have substantial effects when there are keyframed parameters, since the timing of the keyframes is effectively altered by a factor of 10.

Time Offset

Since particles are generated from frame zero, this slider allows you to offset the time origin, so that the effect behaves as though it were earlier or later than the current frame. This is very helpful for creating plumes of smoke or fire, so that your effect doesn't need time to build up

About the Particle Controls

The Particle Controls govern the behavior of the particle system in a general way — where the particles are generated, how big, how fast, gravity, air resistance — all these are controlled by particle controls. If you've used another particle system, these controls will be very familiar.

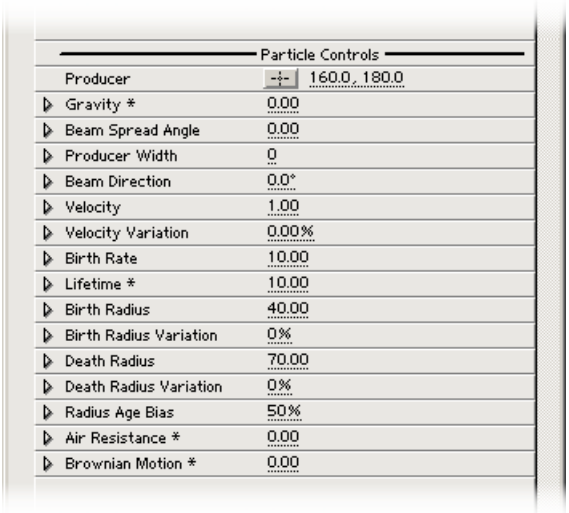


Figure 1:21 IL Fractal Brimstone Particle Controls

Producer

The Producer is the location from which all particle originate. Animating the position of the Producer will create smoke plumes and smoke trails.

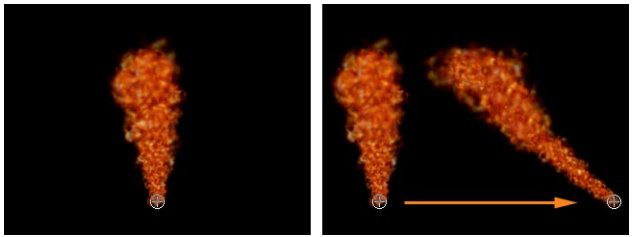


Figure 1:22 Producer Location and Keyframed Location, Producing Trails

Gravity

The Gravity value specifies the overall gravitational field on the system. Positive numbers will make particle fall, and negative numbers will make them rise. Zero-G will make particles float. In Figure 1:23 the velocity for the particle streams in left image are all 0. Note the effect of positive and negative numbers. The right image shows the effect of gravity on a stream moving perpendicular to the direction of gravity, in this case 90°. *See also "Beam Direction" on page 32.*

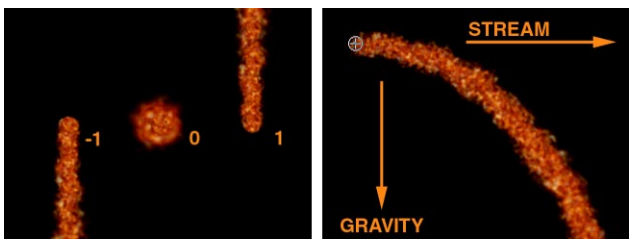


Figure 1:23 Gravity at Velocity 0, and Gravity at 90°

Beam Spread Angle

The Beam Spread Angle determines how wide the particle cone will be, from 1-360 degrees. This allows you to make fires, explosions and other kinds of radial effects.

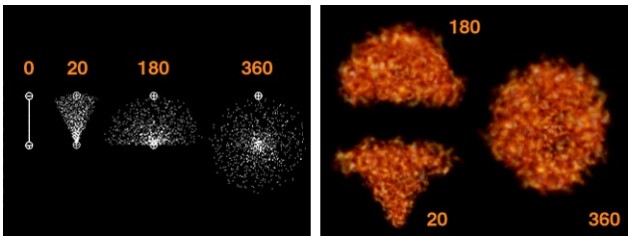


Figure 1:24 Beam Spread Angle Examples

Producer Width

The Producer Width controls how wide the producer will be, from a single point to a long line for making fire and fog. Higher numbers create a longer producer line, allowing you to create such effects as rain, snow, or a wall of fire.

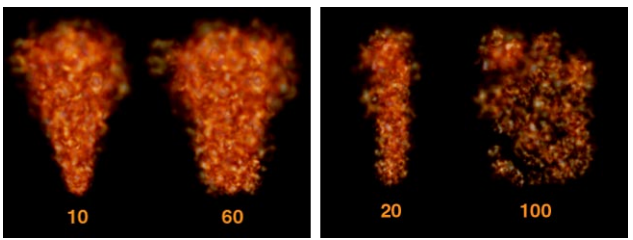


Figure 1:25 Producer Width, and Producer Width Versus Birth Rate

One thing to note is the relationship between Birth Rate and Producer Width, as shown in the right image of Figure 1:25. If the number of particles stays constant while the producer width increases, the birth rate will also need to increase in order to keep the particle effect solid. In the given example, a Producer Width of 20 produces a realistic particle stream. The same stream with a birth rate of 100 results in obvious spherical particles.

Beam Direction

The Beam Direction value provides a vector to control the angle at which the particles are shot out. Great for lining up jets and smoke from engines and exhaust, or for creating hoses, sprinklers, or water streams.

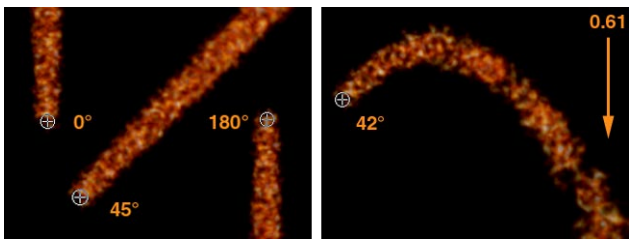


Figure 1:26 Beam Direction, With and Without Gravity

Velocity

Velocity controls the speed of the each particle at birth. The higher the velocity, the higher the birth rate must be in order to keep the particle effect solid.

Velocity Variation

Velocity Variation adds a specified range of randomness to the Velocity value, which can adds a chaotic, natural look to particle streams.

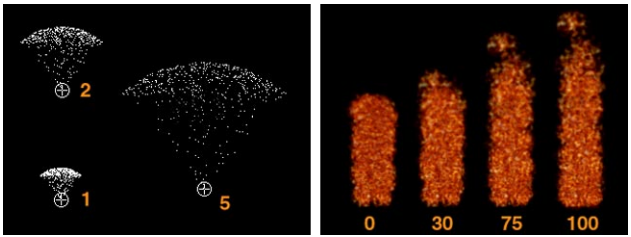


Figure 1:27 Velocity and Velocity Variation

Figure 1:27 shows us examples of various velocity settings. In both images, the number of particles remains constant through each example. The only difference between each particle stream is the velocity at which they leave the Producer.

The right image shows Velocity Variation settings of 0, 30, 75, and 100. A setting of zero will give no variation in the initial velocity of the particles. Since all the particles are traveling at exactly the same speed they sort of clump together into a column shape. As variation is introduced into the emission velocities we begin to see some particles “breaking free” at the top of the stream. It is these particles to which the variation has been applied, and as such they have a higher rate of velocity than the rest of the particles.

Birth Rate

Birth Rate controls how often particles are born. Animating this control creates explosions, wisps and other effects, and generally controls the density of your particle stream.

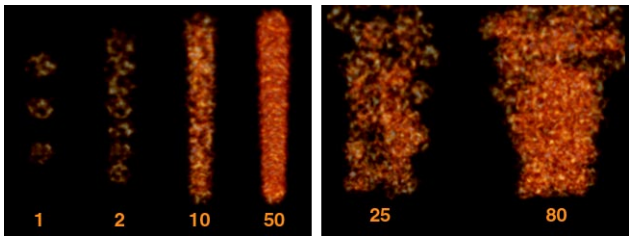


Figure 1:28 Birth Rate

The left image in Figure 1:28 shows the default particle stream with varying birth rates. The right image shows two streams, both with Producer Widths of 65. The left stream has a birth rate of 25, and the particle effect is clearly seen. Raising the Birth Rate to 80 or higher creates a nice thick particle effect.

Lifetime

The Lifetime value specifies how long the particles will last before fading out, (the time from birth to death, which affects all birth and death controls). Keyframing the Lifetime can produce strange results.

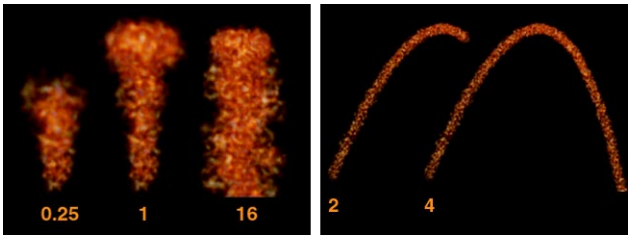


Figure 1:29 Lifetime

Figure 1:29 shows how Lifetime can totally alter the look of a particle stream. In the left image gravity is applied to the streams. At 0.25 the particles die about 2/3 of the way along their up vector; at 1 the particles reach the top but don't come back down, and at 16 the particles go all the way up and come all the way back down.

The right image shows how lifetime can affect the look of a solid stream. With a Lifetime of 2 the particles only make it just past the crown of the arc before they disappear. Imagine squirting a garden hose up at a 45 angle and having the water evaporate before it hits the ground. With a setting of 4, however, the particles live long enough to create a full arc.

Birth Radius

The radius of particles at their time of birth

Death Radius

The radius of particles at their time of death

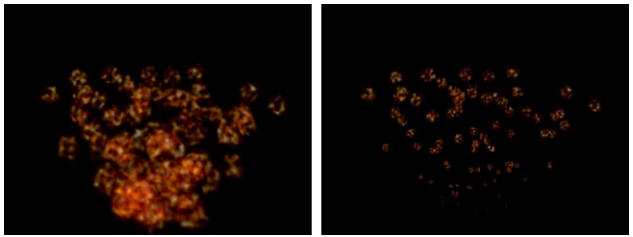


Figure 1:30 Birth/Death Rates: 50/1 and 1/50

Birth/Death Radius Variation

Birth/Death Radius Variation adds randomness to the radius settings, making your Brimstone animations look more organic.

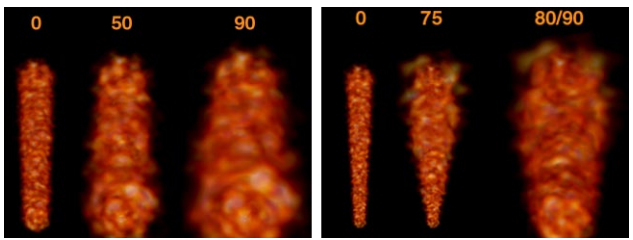


Figure 1:31 Birth And Death Radius Variations

The left image in Figure 1:31 shows Birth Radius Variations of 0, 50, and 90%, on a stream with a Birth Radius of 40 and a Death Radius of 70.

The right image shows Death Radius Variations of 0 and 75% on a stream with a Birth Radius of 20 and a Death Radius of 70. There is also a third stream, with a Birth Radius Variation of 80 and a Death Radius Variation of 90.

Radius Age Bias

The Radius Age Bias controls when, in the lifetime of a particle, the radius is halfway between birth and death. This allows you make particles transition in size at a different rate than they change color and age.

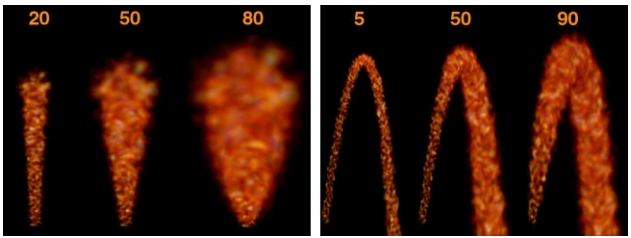


Figure 1:32 Radius Age Bias

Figure 1:32 shows how Radius Age Bias alters both a vertical and an arcing particle stream.

Air Resistance

The Air Resistance value specifies how much resistance there is to the particle flow. Higher numbers cause velocity to decay over time. Numbers approaching zero will allow the flow to behave normally.

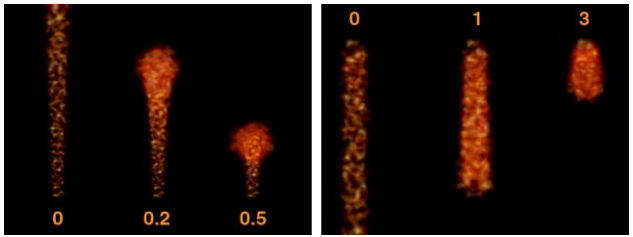


Figure 1:33 Air Resistance

Figure 1:33 shows how various air resistance settings work on particles. Note that the right image has particles flowing from top to bottom with a gravity setting of two. Even with gravity on the Air Resistance was able to stunt the flow of the particles, although it took significantly more resistance because of the extra momentum generated by the gravity.

Brownian Motion

Brownian motion is the random movement of particles when suspended in a liquid or gas environment. The particle movement is caused by particles colliding with other particles in the medium. It is named after English botanist Robert Brown, who, in 1827, noticed and documented random movement of pollen grain, suspended in liquid, under a microscope. In 1905, Albert Einstein won the Nobel prize for his mathematical theories behind Brownian motion.

Particles in a liquid or gas medium are constantly bumping into each other. When very small particles are hit they will make random jumps from their apparent motion path. It is these random deviations that make up Brownian motion.

The Brownian Motion slider allows you to simulate Brownian motion by controlling how much random motion is applied to each individual particle. Higher numbers create stronger changes in direction.

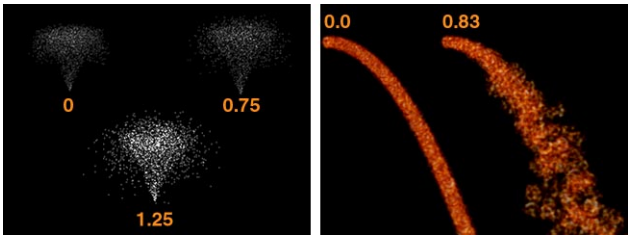


Figure 1:34 Brownian Motion

About the Color Controls

The Color Controls specify how the particles are colored. Brimstone uses the same functionality found in IL Color Map, which allows very specific color control and smooth, natural-looking transitions. There are several color modes to choose from, including:

- Varying the color map from birth to death
- Moving the particles down a color spline over time
- Color mapping as an image instead of on the particle level.

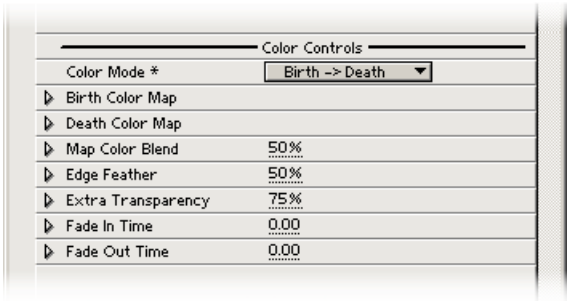


Figure 1:35 IL Fractal Brimstone Color Controls

Color Mode

This pop-up controls how the color map(s) are applied to the particles.

- **Birth -> Death** uses the Birth Color Map to start, and transforms each particle towards the Death Color Map as it ages.
- **Death -> Birth** works the same way, only from Death Color Map to Birth.
- **Age Color Blend** colors each particle by moving it down the Color Map as it ages.
- **Image Color Blend** uses the Color Map on the entire image, like the Color Map in Clouds and Fire.

The Color Blend modes use a combination of the Birth and Death Color Maps, as defined by the Map Color Blend control.

Birth -> Death

Birth -> Death uses the Birth Color Map to start, and transforms each particle towards the Death Color Map as it ages.

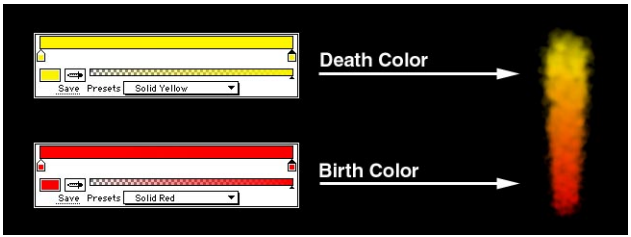


Figure 1:36 Color Mode Birth -> Death

Death -> Birth

Death -> Birth works the same way, only from the Death Color Map to the Birth.

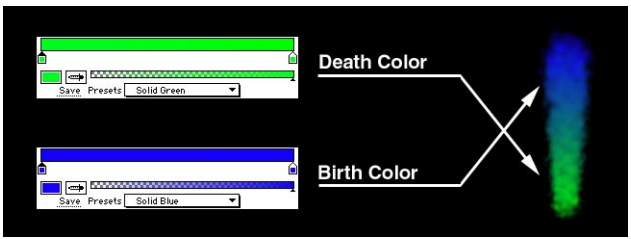


Figure 1:37 Color Mode Death -> Birth

Age Color Blend

Age Color Blend colors each particle by moving it down the Color Map as it ages.

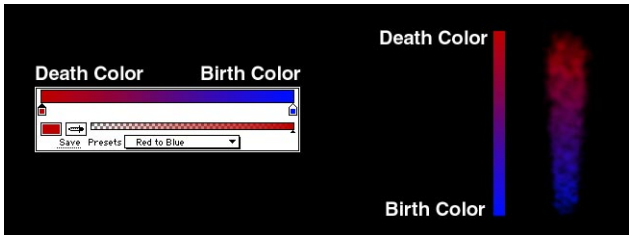


Figure 1:38 Color Mode Age Color Blend

Image Color Blend

Image Color Blend uses the Color Map on each individual particle, like the Color Map in Clouds and Fire.

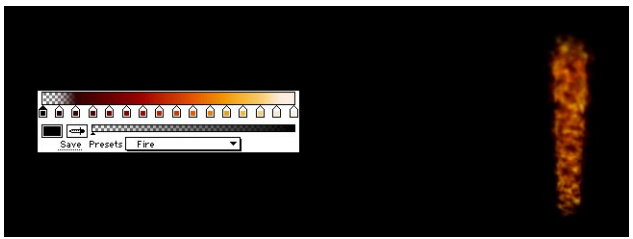


Figure 1:39 Color Mode Image Color Blend

Birth Color Map/Death Color Map

These function identically to the IL Color Map plug-in. For an explanation of their interface and function, please For more information, see "*IL Color Map*" on page 24.

Map Color Blend

Map Color Blend determines the centerpoint of the blend between the Birth Color and the Death Color.

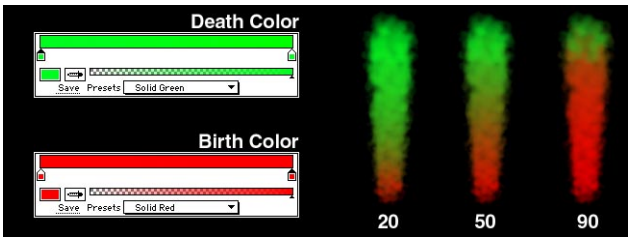


Figure 1:40 Map Color Blend

Figure 1:40 shows Map Color Blend values of 20, 50, and 90%.

Edge Feather

Edge feather erodes the edges of each particle, making them blend together and appear more natural. If your particles are looking kind of *blobbish*, turn up feathering.

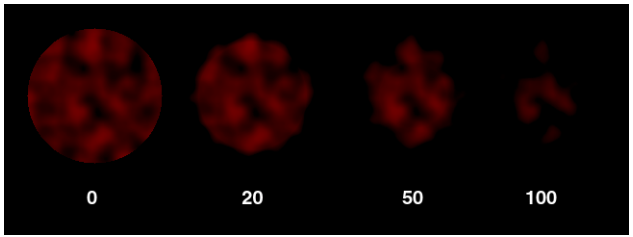


Figure 1:41 Edge Feather

As seen in Figure 1:41, an Edge Feather value of 0% will produce a solid edge. Higher values will progressively erode particle edges.

Extra Transparency

Extra Transparency improves the way that particles blend together by adding more transparency than is provided by the color map. From 0% to 50%, the left side of the color map becomes transparent, and from 50% to 100%, the whole color map gradually becomes transparent.

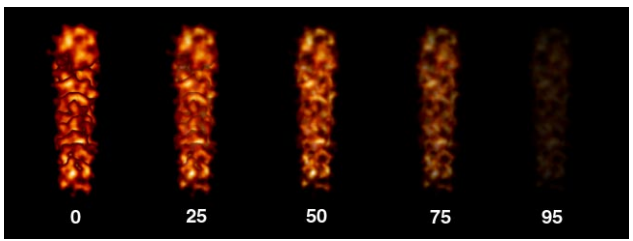


Figure 1:42 Extra Transparency

Under normal conditions the color map supplies the transparency — this provides more if there's not enough from the color map

Fade In Time

Gradually fades particles in from Birth. High numbers return longer fade-ins.

Fade Out Time

Gradually fades particles out towards Death. High numbers return longer fade-outs.

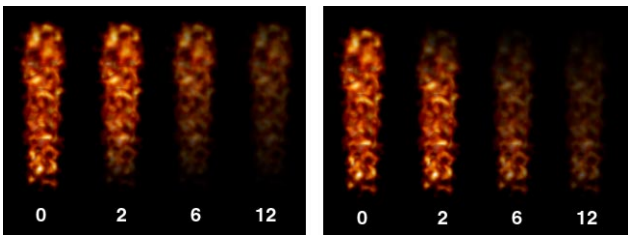


Figure 1:43 Fade In Time/Fade Out Time

By applying combinations of Fade In and Fade Out to your particles you can create very natural effects without masking.

About the Cloud Controls

The Cloud Controls are very similar to the controls for IL Fractal Clouds, allowing you to control the texture applied to the particles. Because of the overlapping nature of particle streams, however, Brimstone creates very different looks than any of the fractal filters.

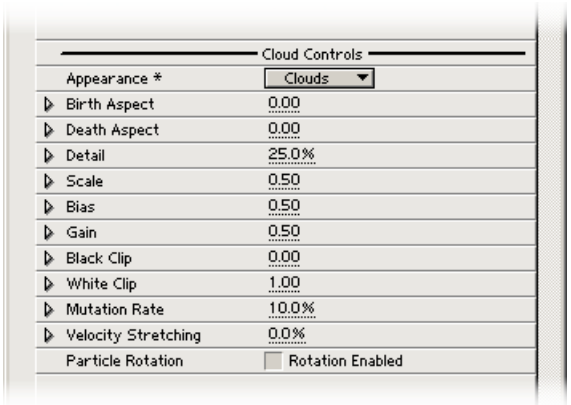


Figure 1:44 IL Fractal Brimstone Cloud Controls

Appearance

As in IL Fractal Clouds, the Appearance pop-up controls the type of cloud texture on the particles. You can choose from *Clouds*, *Billows* and *Filaments*.

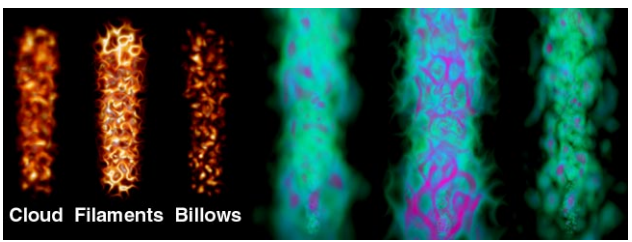


Figure 1:45 Appearance: Clouds, Filaments, and Billows

Birth Aspect

Birth Aspect sets the aspect ratio of the cloud at the time of its birth. 0 is normal aspect—moving from there will stretch the aspect either vertically or horizontally.

Death Aspect

Death Aspect sets the aspect ratio of the cloud at Death time. 0 is normal aspect—moving from there will stretch the aspect either vertically or horizontally.

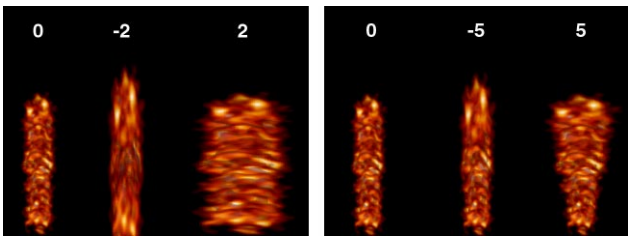


Figure 1:46 Birth Aspect and Death Aspect

Figure 1:46 shows Birth Aspect settings on the left, and Death Aspect settings on the right. It is important to note that the Birth and Death Aspects are *relative* to each other. For example, the Birth Aspect examples above are all uniform in width throughout the life of the cloud. This is because the Death Aspect was set to 0 at the time, which applied no change to the birth value at the time of death. Conversely, the Death Aspect examples all exhibit change over the life of the cloud, because they were all born with a Birth Aspect value of 0, and changed to the Death Aspect value the closer they came to death. If you set Birth/Death Aspect wide apart, and

increase the lifetime, you'll see interesting acceleration and dissipation effects.

Detail

Detail controls the amount of detail in the texture. Another way to think of this is *sharpness*. Higher numbers show an increase in sharp detail. Detail is particularly useful in creating the illusion of immense size, such as a pyroclastic cloud shooting from an erupting volcano.

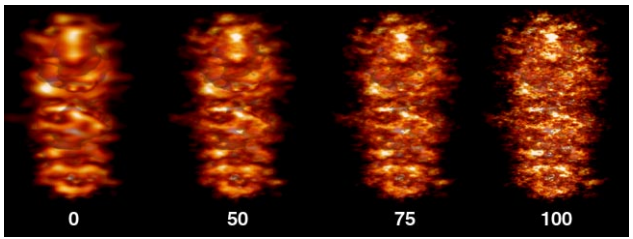


Figure 1:47 Detail

Scale

The Scale value determines the size of the texture on each particle. Low numbers will zoom in very close for misty textures, while high numbers will reveal many iterations of detail.

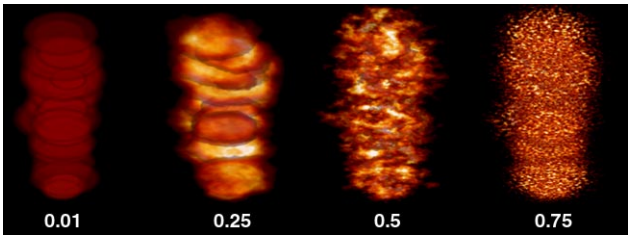


Figure 1:48 Scale

Use Scale in conjunction with Detail to fine-tune illusions of scale.

Bias

If you think of the Cloud texture as a wave pattern, Bias controls the overall position of the texture on the Color Map. Changing the Bias will move the texture's high and low points through the color map. In conjunction with Gain and the Color Map controls, this gives you very specific control of Brimstone's appearance.

Gain

If you think of the Cloud texture as a wave pattern, Gain controls the overall amplitude of the wave. Turn it up to make the parts of the texture further apart on the color map, and down for more similarity.

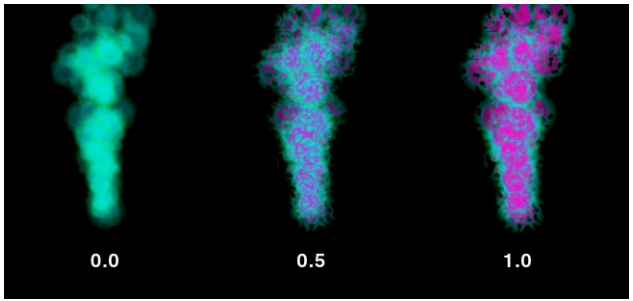


Figure 1:49 Gain

Gain functions in very much the same manner as using the Brightness/Contrast filter and adjusting the contrast.

Black Clip/White Clip

Black Clip and *White Clip* do not actually refer to colors, but to values processed before the Color Map is applied to Brimstone.

It might be more accurate to think of them Left and Right clip — the Color Map ranges left-to-right from 0 to 1, or low values to high values. Black is as low a value as you can get, and white is as high as you can get, thus Black and White Clip.

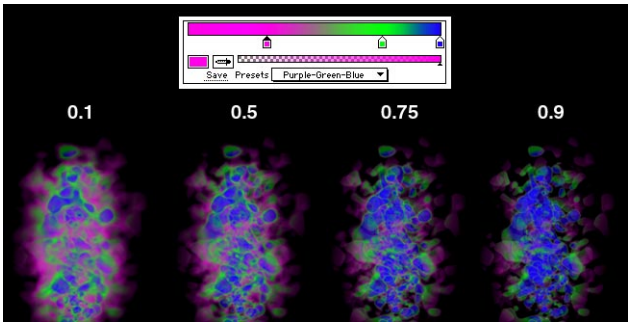


Figure 1:50 Black Clip

Black Clip determines the cutoff for values to drop off to the left side of the Color Map. This is very good for adjusting the density of the texture.

The higher the Black Clip value the less purple and green we see in the particle cloud.

White Clip works the same as Black Clip, but controls what values drop off to the right side of the Color Map.

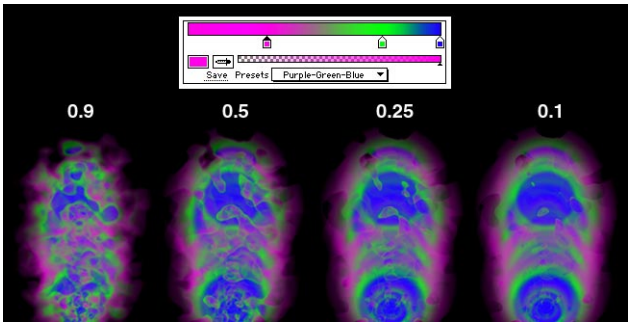
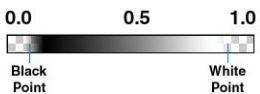


Figure 1:51 White Clip

One thing to note is the reversal of the values between White Clip and Black Clip: Black starts at 0 and goes up, and White starts at 1 and works down. This makes perfect sense in the context of Black and White being on opposite ends of a grayscale spectrum.



Essentially what you are doing when you set a Black and White Clip value is drag in the endpoints on a grayscale spectrum which represents the visible area of the Color Map.

Mutation Rate

The Mutation Rate controls the speed at which the cloud texture changes, as though roiling on the wind. Higher numbers make faster changes.

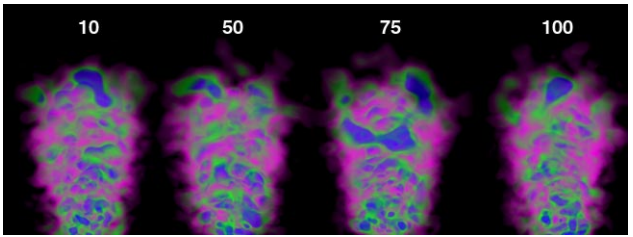


Figure 1:52 Mutation

Mutation is an effect that really must be seen in motion to be fully explained. However, Figure 1:52 shows the effect of differing Mutation values on the same point in time, which in this case was 6 seconds into a 10 second animation. You can easily see the degree of change that mutation can add to your particle cloud.

Velocity Stretching

Velocity Stretching enables you to dynamically stretch the aspect of the particle along the X axis, with the stretch amount based on the velocity of the individual particle. (Non-planar stretching is possible using the *Enable Rotation* option, described below.) Stretching is a common technique used to give a sense of acceleration. For example, think of your favorite cartoon character running or jumping. When the action begins there is usually some accompanying stretching to exaggerate the movement, and relay to the viewer that there is an impending velocity change.

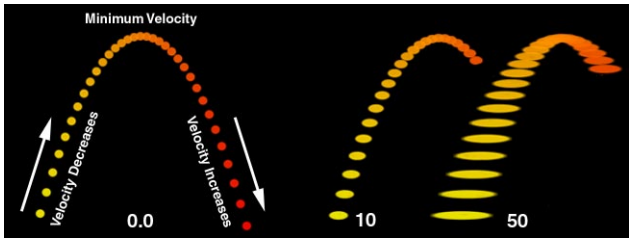


Figure 1:53 Velocity Stretching

Figure 1:53 shows Velocity Stretching in action. We have chosen a parabolic arc motion to illustrate the stretching because when travelling in this manner the particles are not at a constant velocity.

At birth the particles are yellow and are at their highest velocity. As they reach the crest of the arc they are at their lowest velocity and are orange. As they crest the arc and begin their descent they again begin to pick up velocity due to gravity and turn red at the time of their death. You can tell that the velocity is not constant because the space between the particles is not constant.

The leftmost arc has a Velocity Stretching value of 0, and as such all its particles are perfectly round. The other two arcs have Velocity Stretching values of 10 and 50. Note that the stretching is not constant, and that in all examples the particles at the crest of the arc have little or no stretching. The greater a particle's velocity, the more stretching will be applied.

Enable Rotation

Enable Rotation gives you the ability to have particles auto-rotate, so that its x-axis is aligned along its motion vector. The degree of rotation is always relative to the vector of movement.

If rotation is off, certain other aspects of IL Fractal Brimstone are less useful, since there's no control over their direction. A perfect example of this is *Velocity Stretching*, described on the previous page.

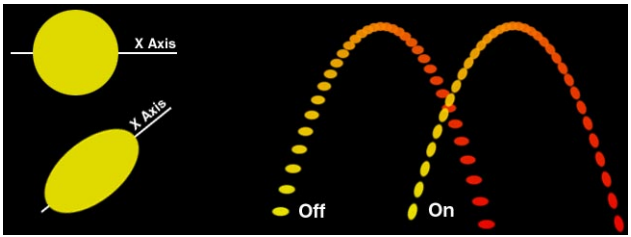


Figure 1:54 Enable Rotation and Velocity Stretching

As shown in Figure 1:53, when Enable Rotation is not enabled all Velocity Stretching is arbitrarily calculated along the particle's x-axis, regardless of particle position or trajectory. When Enable Rotation is enabled, however, the particle dynamically rotates so that its x-axis is aligned along the motion vector, creating a more natural, *motion-blurrish* stretching. Note that at the top of the arc, where there is little or no particle velocity, the particles are perfectly round.

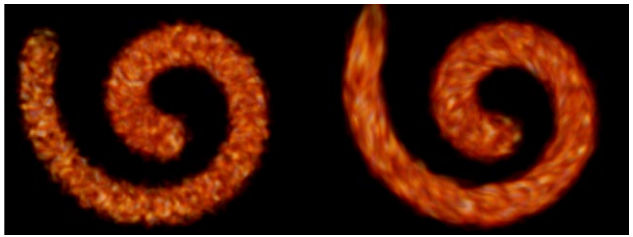


Figure 1:55 Spirals Without and With Rotation and Velocity Stretching

Because Rotation enables blurring along the motion vector it is incredibly adept at adding motion effects to such vector-altering effects as Spirals. (The creation of Spirals is covered below.)

The Flow Controls

The Flow Controls are special controls for changing the particle flow beyond the ordinary stream. These include adding influences like gravity well, spiral and helix.

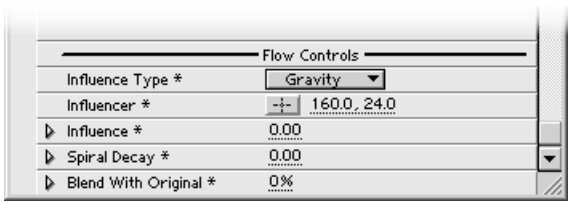


Figure 1:56 The Flow Controls

Influence Type

This pop-up determines which kind of effect the influencer will add to the particle stream. There are five options:

- Gravity
- Helix
- Whirlwind
- Spiral
- Slipstream

Gravity

Gravity creates an attractor/repeller that can be used for gravity wells, wind, gusts, etc. Negative Gravity can be used to repel particles.

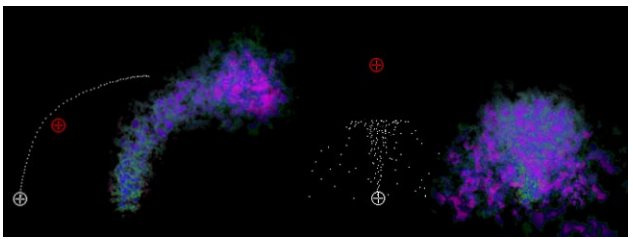


Figure 1:57 Gravity Influncer Examples

Note that in this as well as all other Influence Type examples, the Influencer has been colored red to distinguish it from the Producer.

Helix

Helix creates a three-dimensional helix, like a DNA molecule.

Whirlwind

Whirlwind creates a cyclone that turns faster at the center than at the edges, like a real twister.

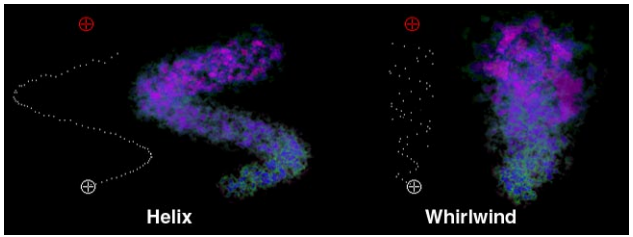


Figure 1:58 Helix and Whirlwind

Spiral

Spiral creates a unwinding spiral, like a whirlpool. Spiral works well when combined with Velocity Stretching and Birth/Death Aspect.

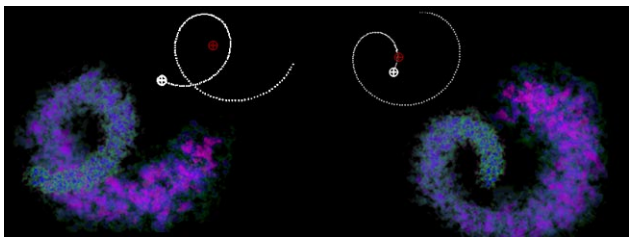


Figure 1:59 Spirals

Slipstream

Slipstream creates a chaotic bend in the stream, as though it was flowing over an object.

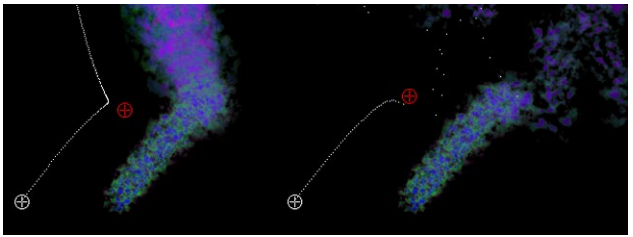


Figure 1:60 SlipStream

When placed close to a particle stream it can cause a severe kink or bend. If you move it slightly into the path of the particle stream, however, you can really disrupt your flow.

Influencer

Specifies the position of the influence point. Animating the position will cause change in the effect.

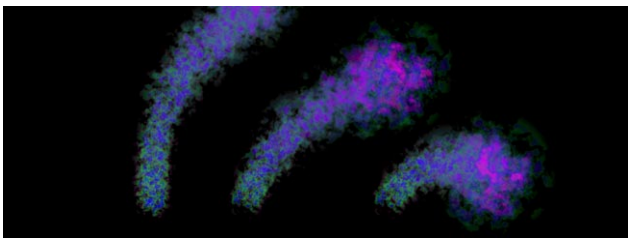


Figure 1:61 Animating the Influencer Position

Influence

Influence controls how much influence the flow effect has on the particles; you can type in much larger numbers than the slider reads.

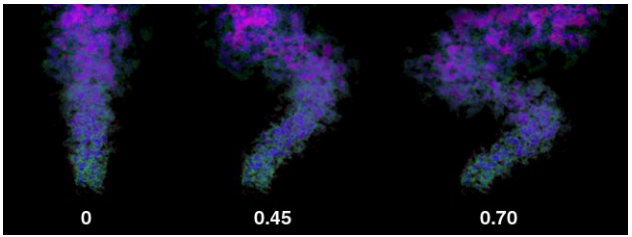


Figure 1:62 Influencer

Spiral Decay

Controls the amount of deterioration in the influence patterns. Higher numbers mean more deterioration.

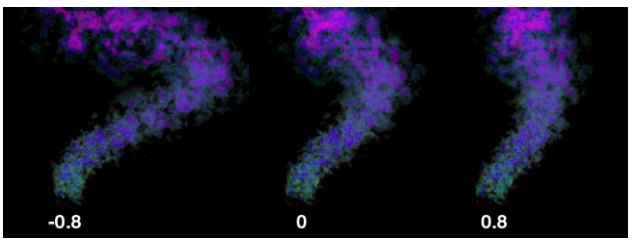


Figure 1:63 Spiral Decay

Negative numbers will apply *negative decay*, and actually expand the size of the spiral.

IL FRACTAL CLOUDS

IL Fractal Clouds gives you fast, powerful control over one of the most powerful CGI tools — fractal noise. With IL Fractal Clouds, you can create all sorts of clouds, oceans, water ripples, planet surfaces and much, much more.

Color Map

See *About the Color Map* on page 19 for detailed notes on using the Color Map.

Transfer Mode

Controls how the cloud image is applied to the layer.

- **Replace** replaces the layer with clouds.
- **Over** places clouds over the layer, combining the alphas from the layer and the clouds. You can use Over to enlarge the layer's alpha to include the cloud effect.
- **Under** puts the clouds under layer, visible only through low alpha.
- **On** masks the cloud image with the layer's alpha
- **Mask** uses the cloud layer's alpha to mask the layer.
- **Stencil** uses the cloud layer's alpha to exclude areas of the layer. Stencil is the inverse of Mask.

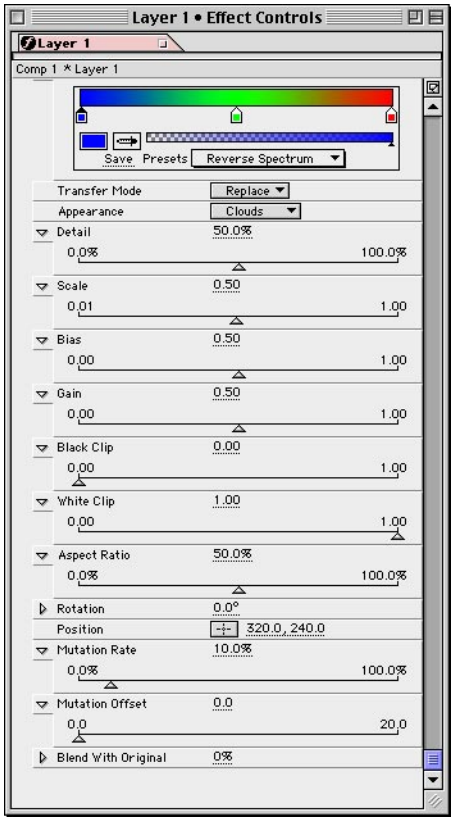


Figure 1:64 IL Fractal Clouds

Appearance

Controls the look of the turbulent noise in the image.

- **Clouds** look like standard Photoshop clouds
- **Billows** have a round, puffier shape and texture.
- **Filaments** have a thin, wispier shape and texture.

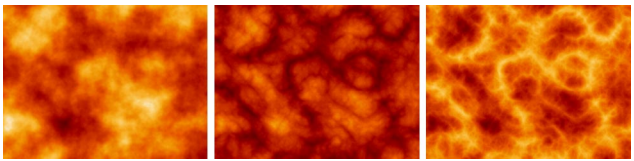


Figure 1:65 Clouds, Billows, and Filaments

Detail

Detail determines how much detail is in the cloud pattern — similar to a focus or sharpness control.

Scale

Scale controls how big the cloud texture is. By carefully setting Detail and Scale, you can create the illusion of immense size.

Bias

If you think of the Cloud texture as a wave pattern, Bias controls the overall position of the texture on the Color Map. Changing the Bias will move the texture's high and low points through the color map. In conjunction with Gain and the Color Map controls, this give you very specific control of Cloud's appearance.

Gain

If you think of the Cloud texture as a wave pattern, Gain controls the overall amplitude of the wave. Turn it up to make the parts of the texture further apart on the color map, and down for more similarity. Gain functions in very much the same manner as using the Brightness/Contrast filter and adjusting the contrast.

Black Clip

Controls which values are clipped to black. The higher the number, the more black will appear in the Cloud texture.

White Clip

Determined which values are clipped to white. Lower numbers make more of the Cloud texture white.

Aspect Ratio

Stretches the Cloud texture horizontally or vertically, depending on positive or negative setting.

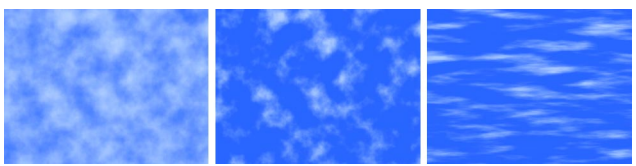


Figure 1:66 Creating Clouds

The Black and White Clip properties don't necessarily refer to the colors black and white. The left image in Figure 1:66 shows a standard Fractal Cloud layer, created using dark and light blue colors. By increasing the Black Clip value the amount of dark blue in the image increases, giving us the middle image. By adjusting the Aspect Ratio value we can stretch the clouds horizontally, giving us a reasonable representation of a cloudy day.

Rotation

Rotation allows you to rotate the cloud texture independently of the layer.

Position

Position controls where in the noise field the texture is centered. Animate this point to create drift, or windy clouds.

Mutation Rate

Mutation Rate controls the speed of the cloud textures change over time. Using Velocity and Mutation rate together, you can control how peacefully or frenetic the Clouds appear to be.

Mutation Offset

Mutation Offset controls where in the fractal space the cloud, and therefore the texture, is positioned. Use this control to find a texture you like, then mutate it using Mutation Rate. Mutation Offset can also be animated for nonlinear mutation effects.

IL FRACTAL FIRE

IL Fractal Fire is an optimized fractal noise factory to make your pyrotechnic soul burn. Create a nearly endless variety of fire effects, including solar flares, napalm explosions, smoky oil fires, or an inferno to make the devil inside of you proud.

Figure 1:67 IL Fractal Fire Example

Color Map

See *About the Color Map* on page 19 for detailed notes on using the Color Map. Be aware that the fire gets its distinctive look by mapping the texture with the Color Map. The default map has been tested to create a believable and organic fire look.

Texture

This pop-up determines the texture of the fire.

- **Gasoline** creates large flames.
- **Kerosene** gives a more roiling, hot-burning look.
- **Plasma** includes energy tendrils, suitable for solar flares and energy fields.

Paint Mode

Controls how the fire image is applied to the layer.

- **Replace** replaces the layer with fire.
- **Over** places fire over the layer, combining the alphas from the layer and the fire. You can use Over to enlarge the layer's alpha to include the fire effect.
- **Under** puts fire under the current layer, visible only through low alpha.
- **On** masks the fire image with the layer's alpha
- **Mask** uses the fire's alpha to mask the layer.
- **Stencil** uses the fire's alpha to exclude areas of the layer. Stencil is the inverse of Mask

Smokiness

Adds a smoky artifact to the top of the flames. The higher the setting, the more black smoke will appear.

Detail

Determines how much detail is in the flame pattern; similar to a focus or sharpness control.

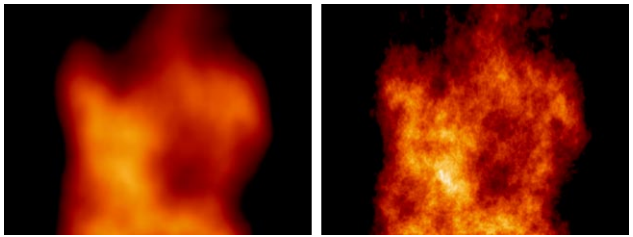


Figure 1:68 Detail Values of 30% and 70%

Scale

Controls how big the flame texture is relative to the flame size. By carefully setting Detail and Scale, you can create the illusion of immense size.

Velocity

Specifies how quickly the fire is burning. Lower numbers make slower fires.

Mutation Rate

Controls the speed of the fire textures' change over time. Using Velocity and Mutation Rate together, you can control how peaceful or raging the fire appears to be.

Mutation Offset

Controls where in the fractal space the fire, and therefore the texture, is positioned. Use this control to find a texture you like, then mutate it using Mutation Rate. Mutation Offset can also be animated for nonlinear mutation effects.

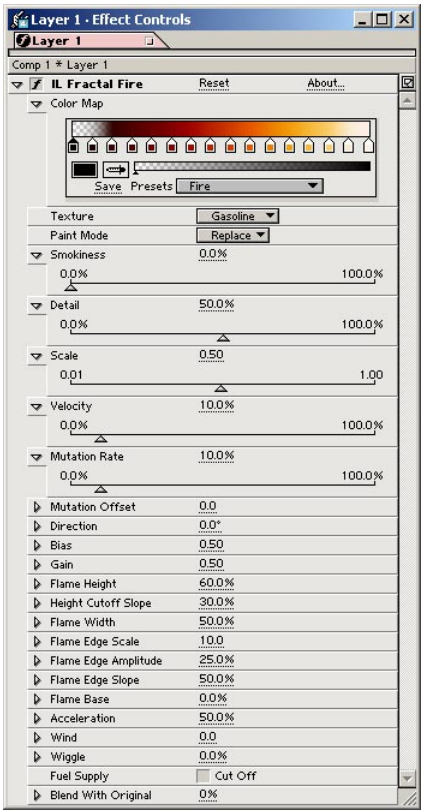


Figure 1:69 IL Fractal Fire

Direction
Specifies which direction the fire burns from the flame base. Useful for adding horizontal flames like flame throwers or jets.

Bias
If you think of the fire texture as a wave pattern, Bias controls the overall position of the texture on the Color Map. Changing the Bias will move the texture's high and low points through the color map. In conjunction with Gain and the Color Map controls, this gives you very specific control of the fire's appearance.

Gain
If you think of the fire texture as a wave pattern, Gain controls the overall amplitude of the wave. Turn it up to make the parts of the texture further apart on the color map, and down for more similarity.

Flame Height
Controls how high the flames will rise before fading out. Higher numbers make taller fire.

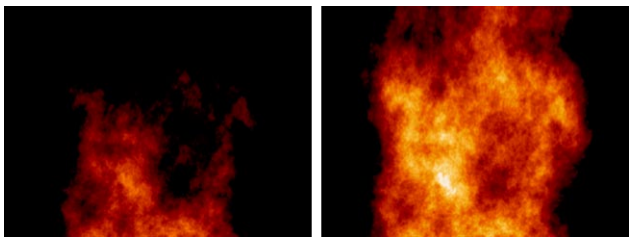


Figure 1:70 Flame Height

Height Cutoff Slope
Determines how gradually or abruptly the top of the flames will fade out. Higher numbers make a more gradual transition.

Flame Width
Specifies how much of the layer width the fire will cover.

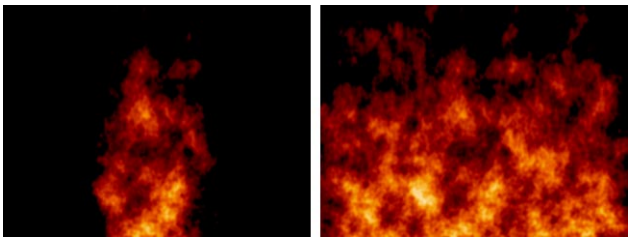


Figure 1:71 Flame Width

Flame Edge Scale
Controls the size of the edge transition, for greater control of fire motion. Higher numbers make for larger, rolling flame edges.

Flame Edge Amplitude
Specifies the frequency of edge artifacts on the flames. Higher numbers make more frequent edge changes.

Flame Edge Slope
Determines how gradually or abruptly the sides of the flames will fade out. Higher numbers make a more gradual transition.

Flame Base
Controls the position of the bottom of the fire. Higher numbers will move the flame base up (assuming a vertical direction setting).

Acceleration
Specifies how much the flames will accelerate as they rise. Higher numbers make the flames move faster as they move higher.

Wind
Adds a horizontal wind factor, blowing the flames.

Wiggle
Adds a gustiness look to the flames. Works well with Wind.

Fuel Supply Cutoff
This is a unique control, allowing you to simulate gas jets, flame throwers and the like. Keyframing the cutoff from Off to On will cut off the fire's fuel, and a few frames later, it will die off into a gout of flame.

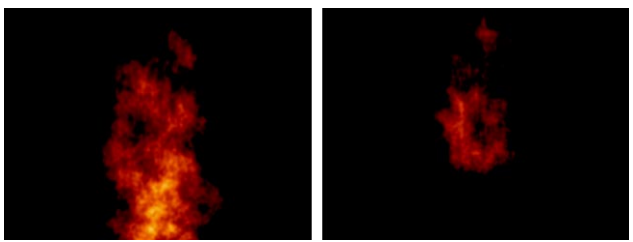


Figure 1:72 Fuel Supply Cutoff

It's important to note that you must key frame it Off, then On, then move forward a few frames to see the effect.

IL FRACTAL TUNNEL

IL Fractal Tunnel creates complex, turbulent tunnel effects, perfect for effects shots featuring wormholes, whirlpools and other tunnel environments.

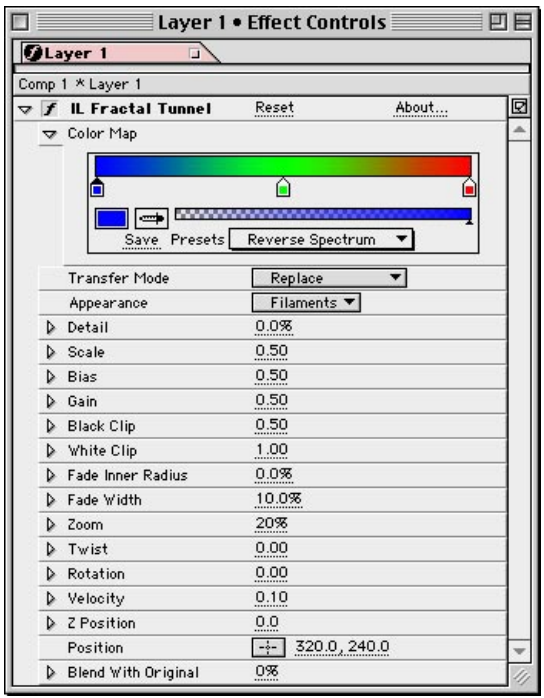


Figure 1:73 IL Fractal Tunnel

Color Map

See *About the Color Map* on page 19 for detailed notes on using the Color Map.

Transfer Mode

The Transfer Mode pop-up menu controls how the Tunnel effect is combined with the target layer.

- **Replace** replaces layer with tunnel.
- **Over** places Tunnel over the layer, combining the alphas from the layer and the tunnel. You can use Over to enlarge the layer's alpha to include the tunnel effect.
- **Under** places the tunnel behind the layer, visible only through areas of zero alpha
- **On** masks the tunnel effect with the layer's alpha channel
- **Mask** uses the tunnel's alpha to mask the layer.
- **Stencil** uses the tunnel's alpha to exclude areas of the layer — the inverse of Mask.

The rest of the transfer modes are the standard After Effects layer transfer modes.

Appearance

Controls the look of the turbulent noise in the tunnel.

- **Clouds** look like standard Photoshop clouds.
- **Billows** have a round, puffier shape and texture.
- **Filaments** have a thin, wispier shape and texture.

Detail
Detail determines how much detail is in the tunnel pattern; similar to a focus or sharpness control.

Scale
Scale controls how big the tunnel texture is. By carefully setting Detail and Scale, you can create the illusion of immense size.

Bias
If you think of the tunnel texture as a wave pattern, Bias controls the overall position of the texture on the Color Map. Changing the Bias will move the texture's high and low points through the color map. In conjunction with Gain and the Color Map controls, this give you very specific control of Tunnel's appearance.

Gain
If you think of the tunnel texture as a wave pattern, Gain controls the overall amplitude of the wave. Turn it up to make the parts of the texture further apart on the color map, and down for more similarity.

Black Clip
Black Clip controls which values are clipped to black. The higher the number, the more black will appear in the tunnel texture.

White Clip
White Clip determines which values are clipped to white. Lower numbers make more of the tunnel texture white.

Fade Inner Radius
Fade Inner Radius controls the radius of the hole at the back of the tunnel. The bigger the number, the bigger and closer the hole looks.

Fade Width
Fade Width determines the hardness of the transition between the tunnel and the hole. Bigger numbers make for a softer transition.

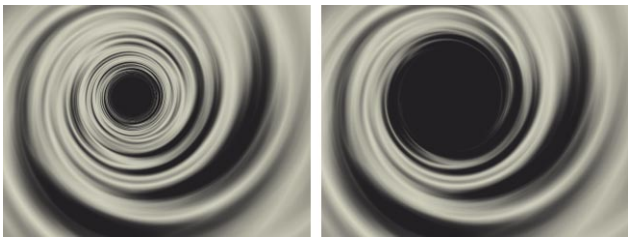


Figure 1:74 Fade Inner Radius and Width

Zoom
Zoom controls the illusion of the depth of the tunnel. Higher numbers make the tunnel look deeper.

Twist
Twist specifies how much the tunnel *corkscrews* as it moves through space. Higher numbers create a stronger twist; positive and negative numbers create twist in opposite directions.

Rotation

Rotation determines a rate of rotation for the tunnel. Rotation differs from twist in that rotation moves the entire tunnel uniformly.

Velocity

Velocity controls the speed the tunnel moves relative to camera. Higher numbers make the tunnel move faster; negative numbers move away, positive numbers move towards the camera.

Z-Position

Z-position allows you to *move into* the tunnel along the z-axis. In fact, the texture moves towards you, and the inner radius maintains its distance, so you can easily create a fly-through by animating z-position.

Position

Position controls the tunnel's location in the layer. Animate this point to create an illusion of perspective.

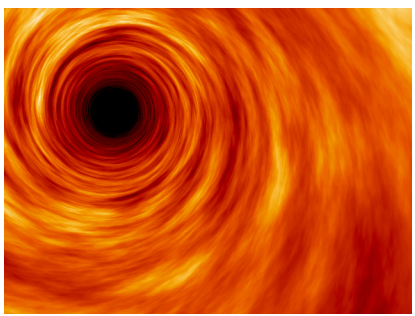


Figure 1:75 Flaming Tunnel Effect

IL FRAMER

The computer graphics industry has made some unbelievable advances in the last decade — dinosaurs have been brought back to life, tornadoes have blown us out of our seats, and spectacular battles in space have taken us to brave, new worlds. But no matter how great the strides, animators continue to be plagued by the most puzzling, technically baffling demand placed on them… *rectangles!*

Okay, so while it may not be rocket science, *IL Framer* quickly and easily takes care of a fundamental motion graphics design task: drawing boxes and frames around objects on screen. While this isn't exactly difficult to do it can definitely be a tedious, time consuming chore. This handy plug-in takes care of it with two clicks of the mouse.

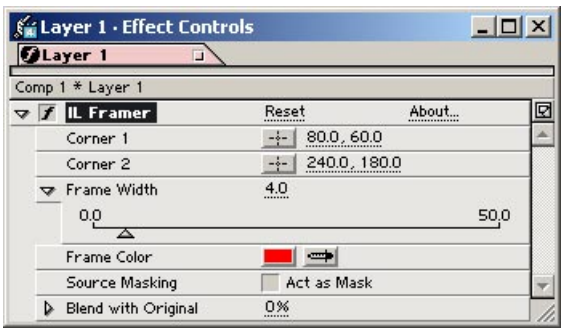


Figure 1:76 IL Framer

Corner 1

Positions upper-left corner of the frame.

Corner 2
Positions lower-right corner of the frame.

Frame Width
Frame Width controls the thickness of the line making up the frame.

Frame Color
Frame Color provides a swatch and eyedropper to select a color for the frame.

Source Masking/Act as Mask
The Act as Mask option masks the source layer into the frame line itself. If you set the Frame width to a high number, you can create textured picture frames this way.

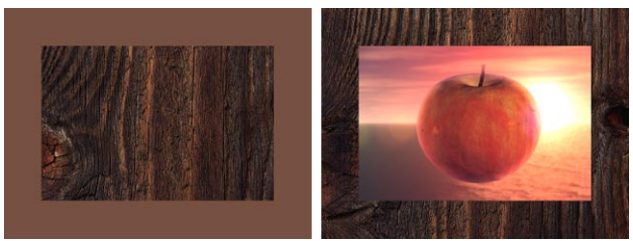


Figure 1:77 Textured Picture Frame Example

Figure 1:77 shows the IL Framer filter applied to a wood image, which is above the sunset apple image in the composition window. Checking Act As Mask drops out the middle and creates a wooden picture frame effect.

IL GRUNGE

IL Grunge is a style tool with many applications. It creates organic-looking, distressed edges inside the alpha channel of the layer, and can be used to stylishly distress objects for a “torn page” look, as well as simulate different kinds of corrosion. Use IL Grunge wherever you want to add a little bite to your images.

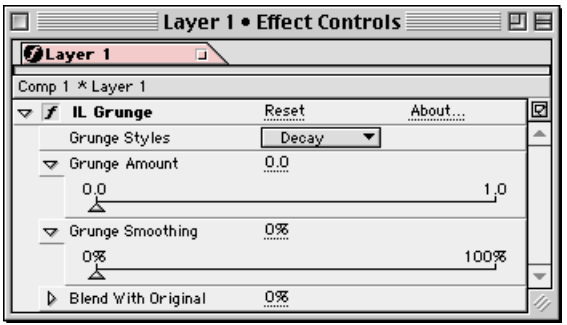


Figure 1:78 IL Grunge

Grunge Styles
The Grunge Styles pop-up menu specifies which kind of Grunge will be applied.

- Decay
- Sand Blast
- Acid Bath

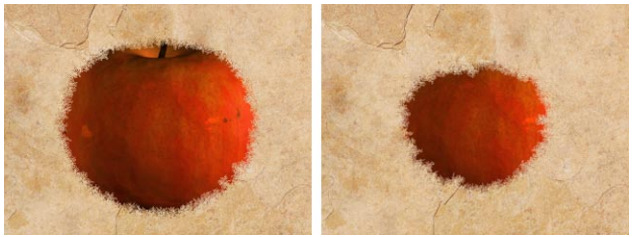


Figure 1:79 Decay Grunge Style

Decay is a furry, invasive look. It can eat into the alpha substantially.

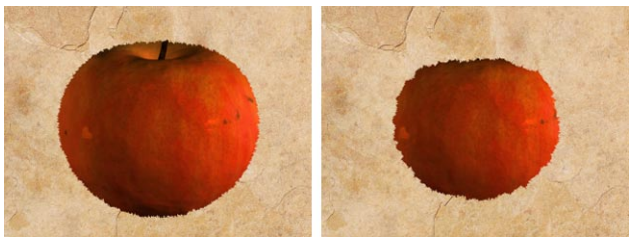


Figure 1:80 Sand Blast Grunge Style

Sand Blast is a more subtle grunge effect, simulating the effect of blasting the edges away with a sandblaster.

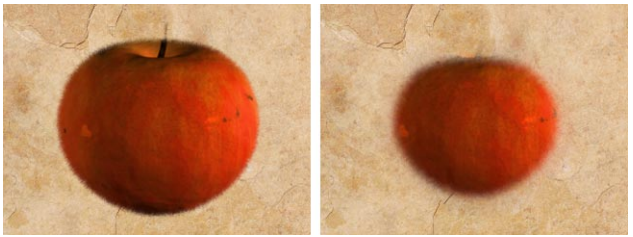


Figure 1:81 Acid Bath Grunge Style

Acid Bath is the smoothest and most gradual Grunge effect. It has a blurrier, graduated look, like chemical damage.

Grunge Amount

Grunge Amount controls the intensity of the Grunge Effect. Higher numbers return more Grunge.

It is important to note that while the slider goes only to 1.0, higher values can be set by clicking on the underlined center value. High settings may be necessary to completely obliterate large film-res areas. Be aware that the time to calculate a frame goes up dramatically with high Grunge Amount settings.

Grunge Smoothing

Grunge Smoothing blurs the result of the Grunge Effect, smoothing out some of the detail. This can be very important when animating Grunged layers.

IL HALL OF MIRRORS

IL Hall of Mirrors creates multiple reflections of the layer, and provides controls to affect the reflections. Hall of Mirrors can create a myriad of design effects from simulating infinite mirror reflections to making visual echoes and motion trails.

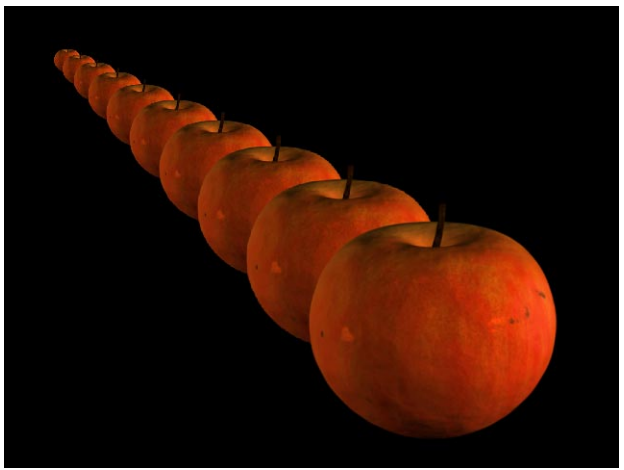


Figure 1:82 Hall of Mirrors, Before and After

IL Hall of Mirrors creates the same effects as IL Hall of Time does when its Echo Time is set to zero. However, Hall of Mirrors is optimized, so that spatial echoing renders much faster in this filter.

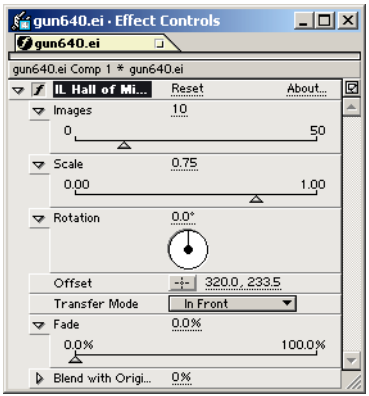


Figure 1:83 IL Hall Of Mirrors

Images

Images specifies the number of object reflections. Higher numbers create more reflections.

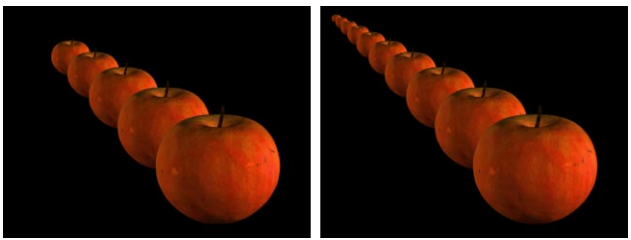


Figure 1:84 5 and 10 Images

Scale

Scale determines the scale relationship between iterations. This setting controls the relationship between iterations, so anything less than 1.0 will yield reflections shrinking into the distance.

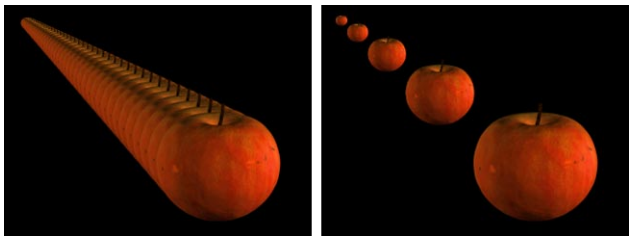


Figure 1:85 50 Images at 0.95 Scale, 5 Images at 0.55 scale

Rotation

Controls the rotational relationship between iterations. The setting is applied to each reflection relative to its predecessor.

Figure 1:86 Rotation Examples

Offset

Specifies an offset from the original layer that is applied between each reflection. If you like you can drag the offset producer point beyond the edge of the comp. If necessary, you can expand the size of your comp window and/or reduce the comp preview magnification.

Transfer Mode

The Transfer Mode pop-up menu controls how the Mirror effect is applied.

- **Behind** draws the reflections behind the original layer.
- **In Front** draws the reflections in front of the original layer.

The rest of the transfer modes are the standard After Effects layer transfer modes.

Fade

Controls the fade relationship between reflections. Each time a reflection is rendered, it uses this setting to determine how much more it should fade than its predecessor.

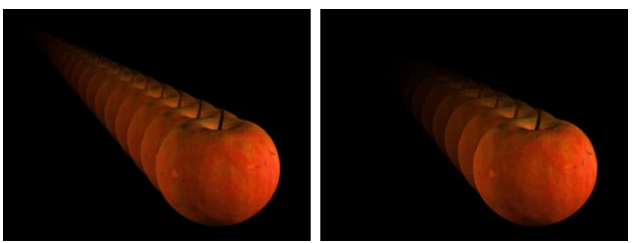


Figure 1:87 Fade Examples

IL HALL OF TIME

IL Hall of Time drops your image into a time warp, with cascading images from your clip accumulating in a corridor of time. Animate the amount of time echo, cascading rotation, scale, and opacity, for a dynamite effect. IL Hall of Time works great with animated type or graphics for a signature look.

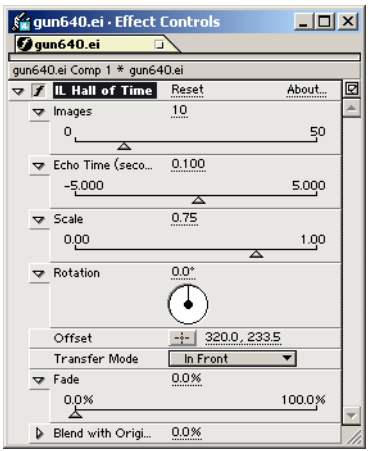


Figure 1:88 IL Hall of Time

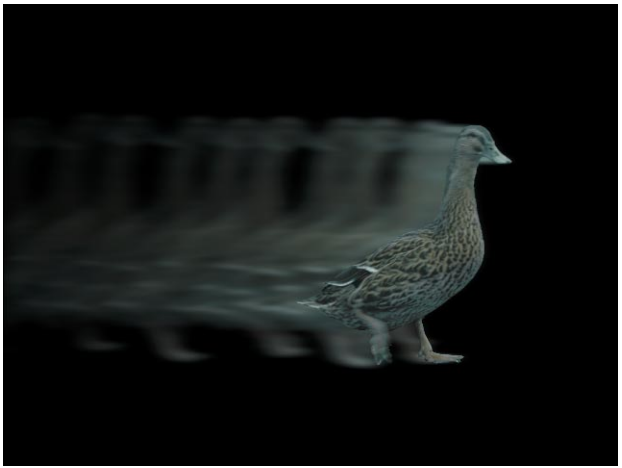


Figure 1:89 Duck In Time

Images

Images specifies the number of reflections. Higher numbers create more reflections.

Echo Time

Echo Time controls the offset of the reflections in seconds. Negative numbers look back in time, positive numbers look ahead.

Be advised that because of the After Effects pipeline, Hall Of Time will discard layer masks as it looks through time. If you want to time-echo a masked layer, remember to precomp it before applying Hall of Time.

Scale
Scale controls the scale relationship between iterations, so anything less than 1.0 will yield reflections shrinking into the distance.

Rotation
Rotation controls the rotational relationship between iterations. The setting is applied to each reflection relative to its predecessor.

Offset
Specifies an offset from the original layer that is applied between each reflection.

Transfer Mode
The Transfer Mode pop-up menu controls how the Mirror effect is applied.

- **Behind** draws the reflections behind the original layer.
- **In Front** draws the reflections in front of the original layer.

The rest of the transfer modes are the standard After Effects layer transfer modes.

Fade
The Fade value controls the amount of fade between reflections. Each time a reflection is rendered, it uses this setting to determine how much more it should fade than its predecessor.

IL MIRAGE
IL Mirage is a powerful tool for simulating mirages, heat waves, jet wash, and other thermal currents that may cause distortion patterns within your effect shot. Mirage can be a central design theme within an animation, or can be used as a realism enhancing touch to elements of fire, light, explosions, or other hot properties within your effect shot.

Figure 1:90 IL Mirage Example

View Mode
- **Normal** shows the comp with the Mirage effect applied.
- **Distortion Field** shows a graphical representation of the area that will be affected by the Mirage effect.

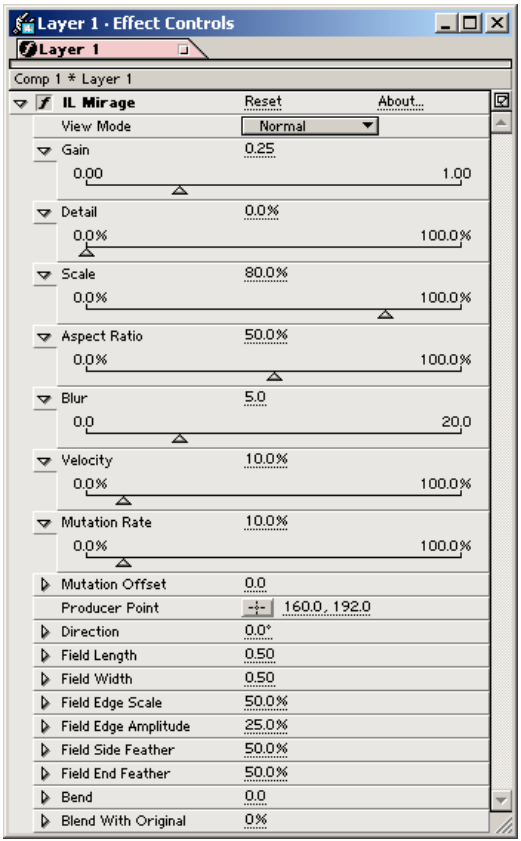


Figure 1:91 IL Mirage

Gain

Gain controls the amount of distortion in the mirage effect. Higher numbers distort the underlying image more.

Figure 1:92 Gain Examples

Detail

The Detail value determines how much high-frequency distortion is visible in the Mirage.

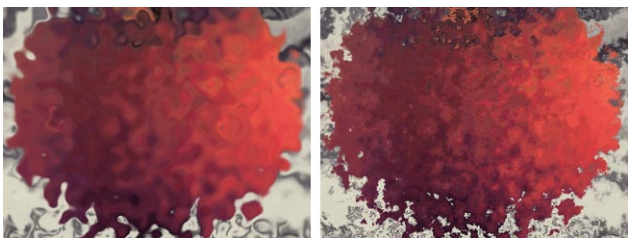


Figure 1:93 Detail Examples

Scale

The Scale property specifies the size of the waves within the mirage. Higher numbers make more waves.

Figure 1:94 Scale Examples

Aspect Ratio

Aspect Ratio values above 50% stretch the mirage effect horizontally, negative values stretch the mirage effect vertically.

Figure 1:95 Aspect Ratio Examples

Blur

Blur controls how much blur is added procedurally to the distortion. More blur creates hot, close, jet-wash type images, while little or no blur more closely resembles distant distortions like a desert mirage.

Figure 1:96 Blur Examples

The Custom Control

Figure 1:97 shows the IL Mirage Custom Control, accessed through the composition window. The Distortion Field is the green and red area.

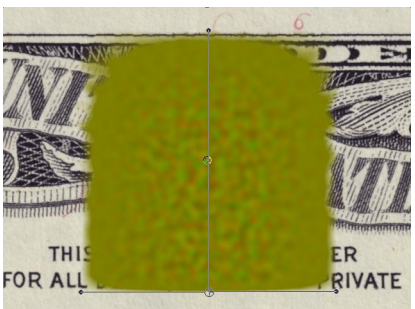


Figure 1:97 IL Mirage Custom Controls

The Mirage Custom Control gives you a powerful and intuitive control over the placement of the mirage through an *inverted-T* interface, making it easy to align the mirage effect to fires, afterburners and other background items that need a heat signature.

The Producer Point, located at the intersection of the control, moves the entire control without changing any other attribute. The nodes on the right and left of the Producer adjust the width of the mirage effect. The node at the tip of the control has a dual function: it controls both the length and rotation of the Distortion Field.

Due to After Effects' interface guidelines, the Mirage Control has to affect standard controls in the Mirage effect controls window. We encourage you to use the Mirage Control instead of the standard controls for Producer Point, Direction, Field Length and Field Width.

- Click anywhere off the edge of the active comp layer to hide the Mirage Custom Controls.
- Click on the bold IL Mirage in the Effects Controls window to unhide.

Velocity

Velocity determines the speed of the Distortion Field. Higher numbers make faster distortions.

Mutation Rate

The Mutation Rate controls the speed at which the Distortion field ripples and changes. Higher numbers create faster mutation.

Mutation Offset

The Mutation Offset controls where in the fractal space the mirage is positioned. With the View Mode set to Distortion Field, use the Mutation Offset control to view the fractal "texture" of the distortion effect. After you find a texture you like, mutate it with the Mutation Rate control. The Mutation Offset can also be animated for nonlinear mutation effects.

Field Edge Scale

The Field Edge Scale specifies the size of the edge treatment of the Distortion Field. Larger numbers create a larger, less detailed edge.

Field Edge Amplitude

The Field Edge Amplitude controls the variation in the edge pattern turbulence. Higher numbers create stronger turbulence at the edge.

Field Side Feather

The Field Side Feather control determines the transition between the edges of the Distortion field and complete transparency. Higher numbers create more gradual feathering of the transition, and make a softer look.

Field End Feather

The Field End Feather control sets the transition feathering at the tip of the Distortion field. As in Field Side Feather, higher numbers create a more gradual fade out.

Bend

The Bend control will cause your distortion effect to bend to one side or the other, with negative numbers causing a leftward bend, and higher numbers causing a bend to the right.

Figure 1:98 Bend Examples

Wind

Wind specifies a vector, perpendicular to the Distortion Field, that bends the Field to one side like wind. The direction of the vector is controlled by positive or negative values, while the strength is controlled by the amount of the value relative to 0.

For a realistic look, try keyframing gusts in this parameter.

IL REAL SHADOWS

IL Real Shadows allows you to add realistic perspective shadows to any layer with an alpha channel. Real Shadows is specifically designed for situations where the target layer is animated, such as keyed footage of people on a blue/green screen.

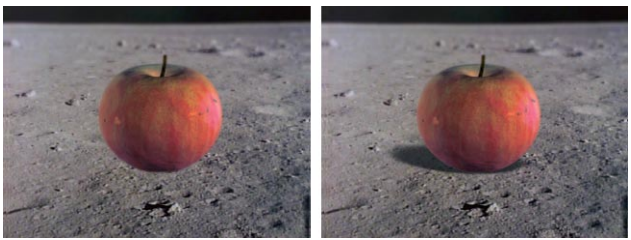


Figure 1:99 Apple On The Moon

Figure 1:99 shows how the use of shadows can mean the difference between a believable shot and a fake shot. Apart from the shadows, the two images are otherwise identical. Note how the apple on the left seems to be floating, whereas the apple on the right really appears to be on the lunar surface.

Color

Use the eyedropper or the color picker to specify the color of the shadow.

Opacity

Opacity controls the transparency of the shadow. Lower numbers are more transparent.

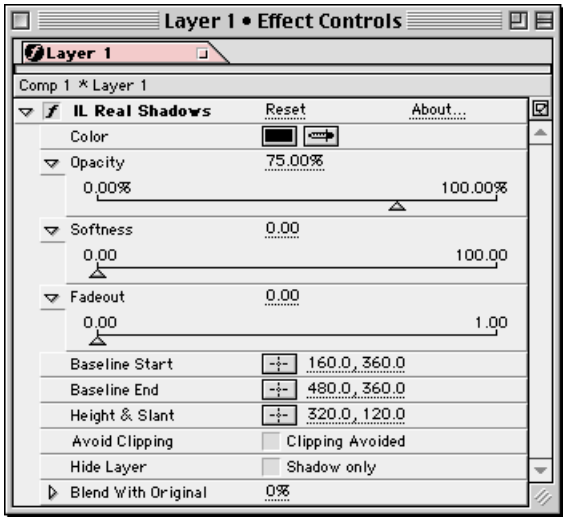


Figure 1:100 IL Real Shadows

Softness

The Softness value determines the blurriness of the shadow as it falls away from the shadow-casting object. Note the "wraparound effect" of the softness, which make Real Shadows look more organic. Higher numbers create more blur.

Fadeout

Specifies how the shadow will fade away as it recedes from the shadow-casting object. Higher numbers create a faster fadeout.

Custom Control

In the Composition window, you'll see the Real Shadows Custom Control. The Real Shadows Control gives you a powerful and intuitive control over the placement of the shadow, making it easy to align to the motion of the target layer. The custom control is particularly convenient for animating the shadow when a character's foot steps off the ground, which looks fake when using an ordinary drop shadow.

Figure 1:101 IL Real Shadows Custom Control

The Producer Point, located at the intersection of the control, moves the entire control without changing any other attribute. The nodes on the right and left of the Producer adjust the width of the Baseline. The node at the tip of the control has a dual function: it controls both the length of the Real Shadow, and the angle of Slant.

Due to After Effects' interface guidelines, the Real Shadows Control has to affect standard controls in the Real Shadows effect controls window. We encourage you to use the Real Shadows Control instead of the standard controls for Baseline Start, Baseline End, Height & Slant.

Avoid Clipping

Activating the Avoid Clipping checkbox allows the shadow to extend past the boundaries of the target layer.

Hide Layer/Shadow Only

Checking the Shadow Only checkbox replaces the target image with just the shadow.

Figure 1:102 Duck and Apple, Shadows Only

IL TEXT SCROLL

IL Text Scroll creates scrolling titles from a standard text file. Creating attractive scrolling titles is one of the most common and time-consuming broadcast design tasks. With IL Text Scroll you can roll credits in minutes, instead of hours.

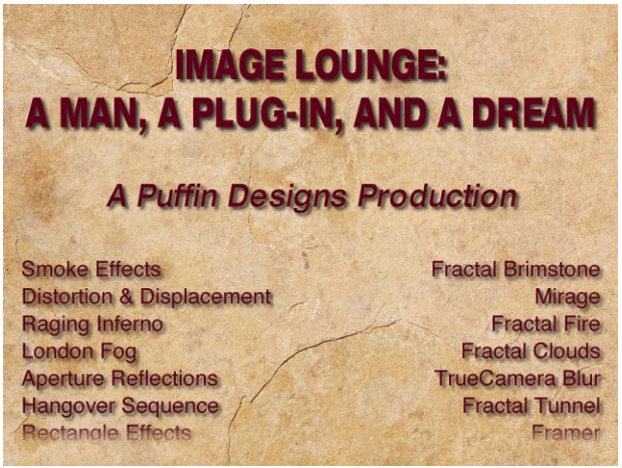


Figure 1:103 IL Text Scroll Example

Creating text for Text Scroll

In order to use IL Text Scroll, you first must type your credits into a standard text file using an application like SimpleText. Don't format the text, just add carriage returns where you want blank lines. Text Scroll will do the rest.

When you first apply Text Scroll, you'll see a dialog for importing your text file and choosing font information. If you do not specify a text file, no credits will appear on screen.

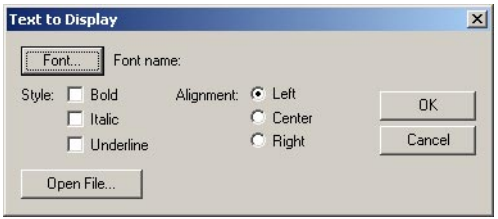


Figure 1:104 Text Import Dialogs

Macintosh users note: Due to a design flaw in the system control panel MacOS Easy Open*, it must be disabled in order to open text files from Text Scroll. If you are having problems, open MacOS Easy Open and disable Automatic Document Translation.*

Start Offset

Start Offset gives you a vertical offset from the original starting position of the text. Negative numbers make the text appear sooner.

Scroll Rate

Scroll Rate controls how fast the credits move across the screen. Smaller numbers move the credits slower.

Text Color

Use the eyedropper or the color picker to specify the color of the text.

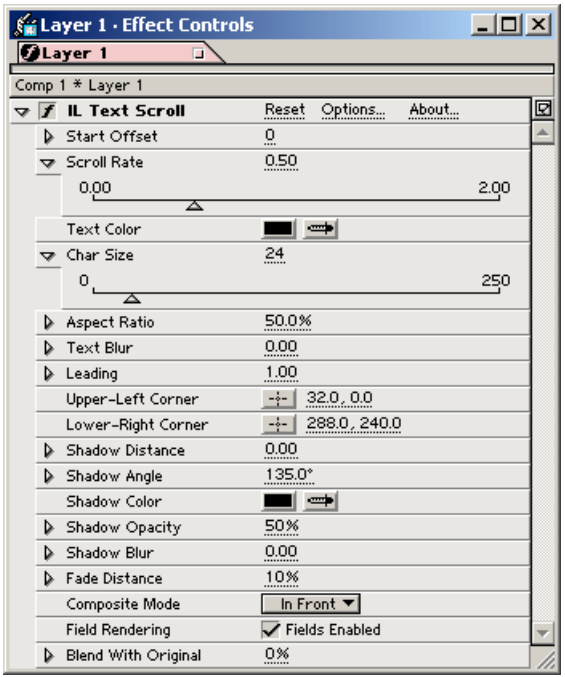


Figure 1:105 IL Text Scroll

Char Size

Char Size determines the size of the text. Char Size is fully keyframable, as are all other parameters in IL Text Scroll. Higher numbers make bigger letters.

Aspect Ratio

The Aspect Ratio controls the width of the titles without affecting the height. 50% is normal, unaffected type. Higher percentages stretch the characters wider, while lower numbers yield more condensed type.

Figure 1:106 Aspect Ratio, 30% and 60%

Text Blur

The Text Blur value blurs the text, which can be useful as an effect, but also to get rid of interlacing artifacts caused by thin letters. Text Blur also blurs the shadow at the same time.

Leading

Leading controls the amount of space between lines. Higher numbers increase the amount of space.

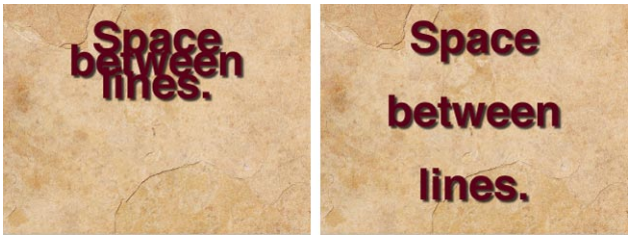


Figure 1:107 Leading, 0.5 and 1.7

Upper-Left Corner

Upper-Left Corner specifies the upper-left limit of the scroll space. (See *Fade Distance* below.)

Lower-Right Corner

Lower-Right Corner specifies the lower-right limit of the scroll space. (See *Fade Distance* below.)

Shadow Distance

Shadow Distance determines how far from the text the shadow will be drawn. Higher numbers move the shadow further away.

Shadow Angle

Shadow Angle controls the shadow's angular offset relative to the text. As you move around the wheel, the shadow will move around the text.

Shadow Color

Use the eyedropper or the color picker to specify the color of the shadow.

Shadow Opacity

Shadow Opacity controls how opaque the shadow will be. Higher numbers create more opacity.

Shadow Blur

Shadow Blur blurs the shadow independently of the text. Higher numbers create more blur.

Fade Distance

Fade Distance specifies how close the type will come to the upper and lower edges before it begins to fade out. High numbers make a large, gradual fade — low numbers show little or no fading.

Figure 1:108 Fade Distance, 20% and 55%

Note that the fade edges are defined by the Upper-Left and Lower Right Corners. (See the definitions of these parameters above.)

Composite Mode

Composite Mode defines how the text is composited with the target layer.

- **Replace** replaces the layer with text.
- **Behind** places the text behind the layer's alpha channel, but filling the entire layer.
- **In Front** places the text over the layer.

Field Rendering

When Field Rendering is checked, this text movement is rendered with field interlacing — movement occurs on each field, or twice per frame. When unchecked, the text moves upwards only on individual frames. Note that enabling field rendering may reduce interlace artifacts with some fonts, while non-field rendered text may flicker less with certain fonts and vertical scroll rates.

Tips

IL Text Scroll scrolls text upwards only. To produce downward-scrolling text, time-reverse the layer.

Scrolling text can interact with field rendering in unpleasant ways. The best way to avoid flickering due to interlacing is to use fonts without thin horizontal lines and to add a small amount of blur. Experiment with rendering with and without field rendering turned on to see which is better for the scroll rate you've chosen. This must be viewed on a standard interlaced monitor to see interlace artifacts.

IL TEXT TYPEWRITER

IL Text Typewriter is an advanced text-effect generator that simulates multi-line text being typed on the screen. This allows you to perform animated *type-on* effects, mimicking CRT's and typewriters. You can add raster lines and cursors for computer effects, or add grunge and scatter to mimic old typewriters and printers. All parameters can be keyframed, giving broadcast designers a powerful animation tool for thousands of different text effects.

Figure 1:109 IL Text Typewriter Example

Applying IL Text Typewriter

After first applying IL Text Typewriter to the layer, you will be presented with a dialog box for entering text and selecting fonts, as shown in Figure 1:110. In the bottom left corner there's a checkbox to allow you to see the typed text in the font you select.

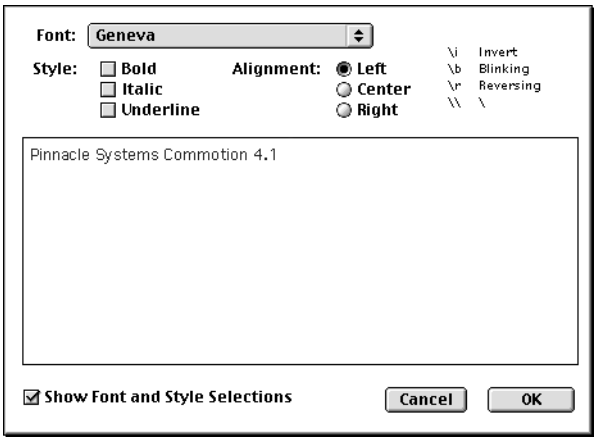


Figure 1:110 IL Text Typewriter Text Entry Box

After typing in the desired text, click OK — the text will appear in default color (white) on the active layer. At any time, you may change the font or text by clicking the *Options* button in the Effects dialog.

Entering and Editing Text

The Text Entry dialog allows you to enter or edit text, change fonts, and to flag letters and words for special effects.

- **\i** flags the text to invert, making a stencil from the text.

- **\b** flags the text to blink at the Blink Rate when Text Blink is enabled.
- **\r** flags the text as reversing, which is the same as inverse, except it will blink from inverse to normal when Text Blink is enabled.

The text flags operate like parentheses; any text situated between two identical flags will have that effect applied to it. For example, Figure 1:111 shows the result of entering “IL TEXT \i TYPEWRITER \i” in the Text Entry dialog.

Figure 1:111 Inverted Text

Il Text Typewriter has a limit of 255 characters of text.

Font Size

The Font Size slider controls the size of the text, and can be keyframed with sub-pixel interpolation for smooth animation.

Width Scale

Width Scale provides control over the individual width of each character. Values lower than 1 will make the individual characters horizontally smaller.

Position

The Position value specifies the origin point of the text. The location of the text relative to the origin point is dependent both on the text alignment, which is set in the Text Entry dialog, and the setting of the Typing Effect parameter.

Color

Use the eyedropper or the color picker to specify the color of the text.

Raster Effect

Raster Effect creates raster lines, as with old computer-screen lettering. It has three settings: *Off*, *Easy Lines*, and *More Control*. More Control allows you more precise control in the event of monitor artifacting.

Figure 1:112 Raster Effect

Typing Completion

Typing Completion controls how much of the text has been *typed* onto the screen. Keyframing this control creates the effect of text being typed character-by-character onto the layer.

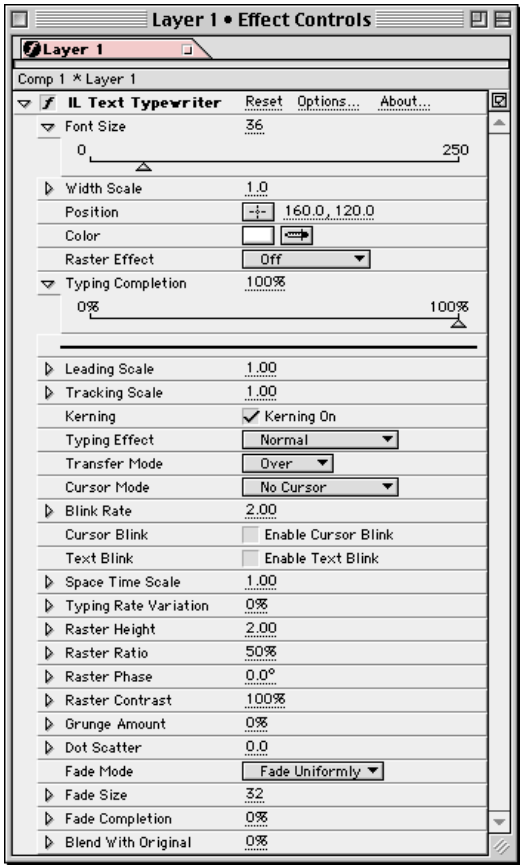


Figure 1:113 IL Text Typewriter

Leading Scale

Leading Scale controls the amount of vertical space between lines of text.

Tracking Scale

Tracking Scale determines the amount of horizontal space between letters.

Both Leading and Tracking controls yield interesting results when negative values are used.

Kerning

Checking the Kerning On box will kern fonts according to their built-in kerning tables. Fonts without kerning tables will not be affected.

Typing Effect

The Typing Effect pop-up menu specifies how letters are *typed* onto the screen.

- **Normal** acts like a standard character generator, writing the text on in regular order.
- **Random Order** reveals the letters of the text in random sequence.
- **Typewriter** simulates a manual typewriter by moving the text to the left as each new letter appears.

Transfer Mode

The Transfer mode pop-up menu controls how the letters are applied to the layer.

- **Replace** replaces the layer with text.

- **Over** composites text over the layer.
- **Under** composites text under the layer alpha.
- **On** masks the tunnel effect with the layer's alpha channel.
- **Mask** creates a mask in the shape of the text.
- **Stencil** creates an inverted mask.

Cursor Mode

Cursor Mode determines whether a cursor is displayed, and what kind. Leading cursors move to the right after typing a letter.

Blink Rate

The Blink Rate controls the speed of blinking text and cursors. Higher numbers create faster blinking.

Cursor Blink/Text Blink

Cursor and Text Blink enable blinking in text and cursors flagged to do so. The blink occurs at the rate determined by the Blink Rate.

Space Time Scale

The Space Time Scale produces pauses between words and lines. Lower settings make spaces and returns take less time.

High settings will break up typing with a more *human* feel. Low settings make the letters roll out evenly and mechanically.

Typing Rate Variation

Typing Rate Variation adds a *human* feel to the typing effect by varying the amount of time between letters appearing. Higher settings create more random variation.

Raster Height

Raster Height controls the thickness of the raster lines when raster lines are active. Higher settings are required for interlaced screens to avoid jittering.

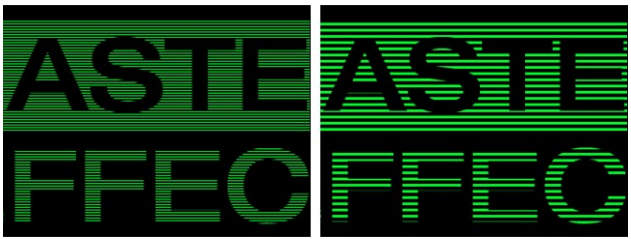


Figure 1:114 Raster Heights of 3 and 7

Raster Ratio

Raster Ratio controls the contrast ratio between the raster line and the dark space between the lines.

Figure 1:115 Raster Ratios of 20% and 70%

Raster Phase

Raster Phase controls the position of the raster lines within the letters. Animating this control can create scrolling lines within the text.

Raster Contrast

Raster Contrast adjusts the amount of contrast between the dark and light areas of the raster effect. Values lower than 100% will reduce the contrast, and make the differing areas appear more similar in value.

Grunge Amount

The Grunge Amount controls the amount of grunge applied to the type. The higher the setting, the more degraded and worn the text will look. Animating this control can create a dissolving or emerging text effect.

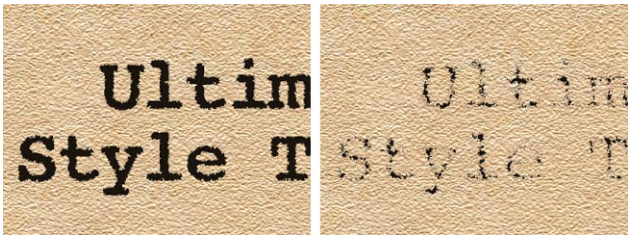


Figure 1:116 Grunge Amounts of 6% and 28%

Dot Scatter

Dot Scatter controls a proprietary algorithm that breaks the text into pixels, but maintains them at a controllable level of coherence. A low setting can simulate dot matrix or ink-jet printers, while animating the control can make text appear or disappear in a cloud of pixels

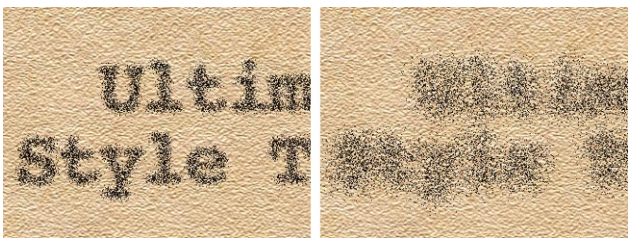


Figure 1:117 Dot Scatter, 10% and 33%

Fade Mode

Determines how text fades in and out. Fades can uniformly affect the text, or can begin at the top, bottom, left or right.

Fade Size

Specifies the thickness of the fade transition edge. A low setting produces a hard-edged wipe, while a high setting produces a gradual change in opacity.

Fade Completion

Controls where the fade transition edge is on the layer.

It's important to note that the fade operates within the layer geometry, not within the text bounding box. This means at 50%, the transition edge will be halfway across the layer, but if the text is in a corner, it may not be affected yet. By basing the fade completion on layer geometry, we allow you to animate the text position and move through the fade transition edge for some very interesting effects.

Tips

Make sure you allocate enough memory to Adobe Type Manager (ATM), or you can have problems with large font sizes. ATM should be set to *Preserve Character Shapes*, or the descenders of some fonts will be cut off.

Fonts with thin lines, including serifs, can jitter on interlaced monitors. When using such fonts, use CW Super Blur to soften the effect.

Usage

IL Text Typewriter is perfect for creating military-style CRT readouts. Use a CRT style font like OCR, color it green or phosphor blue, add raster lines, pick a block cursor with blink, and animate the typing completion. Flag inverse or blinking words in the text dialog box. Finally, set a Fade Mode, and animate the completion to fade the letters out after typing.

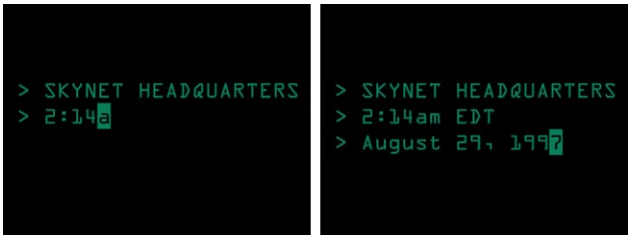


Figure 1:118 Military CRT Readout Example

A manual typewriter look can be simulated by using a white layer for background, and coloring the letters black. Pick a typewriter font like Courier. Set the Typing Effect to Typewriter Mode, and add a little grunge to make it look a bit more real. Animate the typing completion to type the letters on the screen.

Figure 1:119 Manual Typewriter Example

To mimic a really bad dot-matrix printer, choose a simple sans serif font like Monaco, color it blue-purple, add raster lines and then a tiny amount of dot scatter to dirty it up. It'll look just like a fast food receipt.

Figure 1:120 Dot Matrix Printer Example

Some very stylish effects can be achieved by fading in text while animating from a very wide tracking setting to normal.

IL TRUECAMERA BLUR

IL TrueCamera Blur replicates the blur created when an image is shot out-of-focus using a real 35mm film camera. Unlike normal blurs that give images a fake digital look, IL TrueCamera Blur accurately replicates the lens artifacts found in film, artifacts due to issues caused when light passes through a real film lens.

IL TrueCamera Blur's virtual lens properties give you total control over the nuances of your image, just like you were back on the set shooting your elements. IL TrueCamera Blur means the difference between a fake-looking shot and picture-perfect digital reality.

Figure 1:121 Il TrueCamera Blur Example

IL TrueCamera Blur functions the same as IL TrueCamera Rack Focus, but lacks the depth map controls. In most situations, IL TrueCamera Blur will render faster than IL TrueCamera Rack Focus.

For a detailed explanation of the wide range of blur types available to you in Image Lounge, please refer to "Blurs" on page 186 in the Appendix.

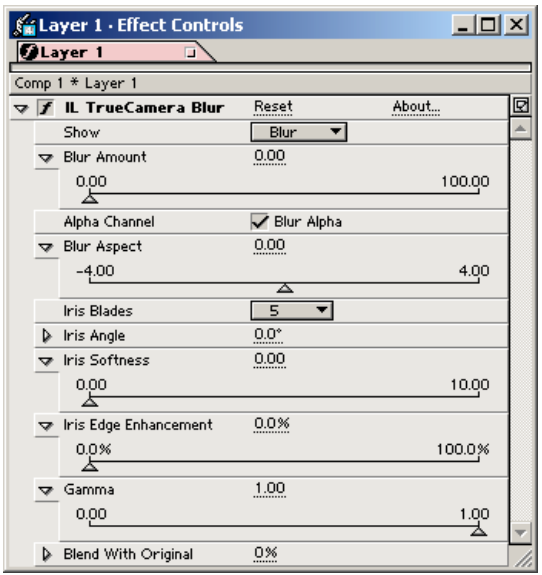


Figure 1:122 IL True Camera Blur

Show

Offers several display modes for maximum control.

- **Blur** displays the final blur (this is the setting for final rendering).
- **Iris 1x and Iris 10x** display the iris artifact at actual and 10x magnification, allowing you to quickly adjust the look of the iris, without having to wait for a full render to check your settings. Figure 1:123 shows the Iris 1x feature before and after making iris edge adjustments.

Figure 1:123 Iris 1x Before and After Adjustments

Blur Amount

The Blur Amount slider controls the amount of Camera Blur. Higher numbers produce more blur.

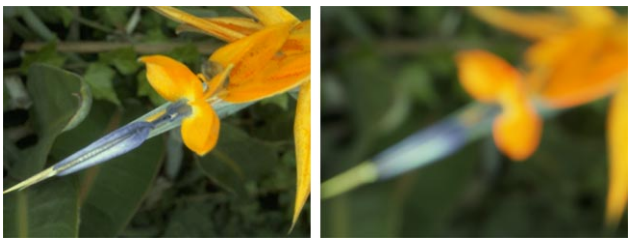


Figure 1:124 Before and After Adding Blur

Blur Alpha

Blur Alpha allows you to choose whether the blur is applied to the alpha channel as well as the RGB channels. Checking the box is recommended

in most cases, as disabling Blur Alpha can keep edges from spreading with matted or masked images.

Blur Aspect

The Blur Aspect value stretches the blur and lens artifacts — positive numbers stretch the blur horizontally, negative numbers stretch the blur vertically. Horizontal stretching allows you to precisely match anamorphic (wide screen) lenses.

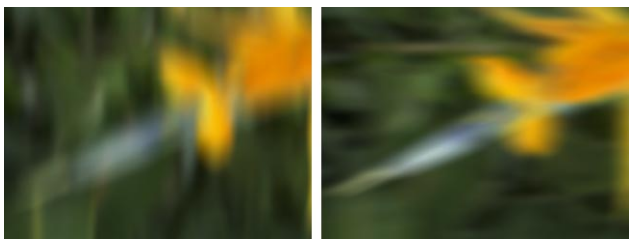


Figure 1:125 Horizontal and Vertical Blur Aspect

Iris Blades

The Iris Blades pop-up specifies the number of blades in the iris of the TrueCamera Blur lens. You'll see the effect of the blade number in the iris artifacts as the Blur Amount is turned up, as the number of sides on the artifacts is caused by the number of blades. Figure 1:126 shows the blur and artifacts created by both three and five iris blades.

The highest setting is Round, which replaces the bladed artifact with a circular one. Setting the iris to Round and turning up the edge enhancement gives an effect similar to a catadioptric (mirror) lens. You've seen this *donut* blur effect on extreme telephoto shots of sparkly water.

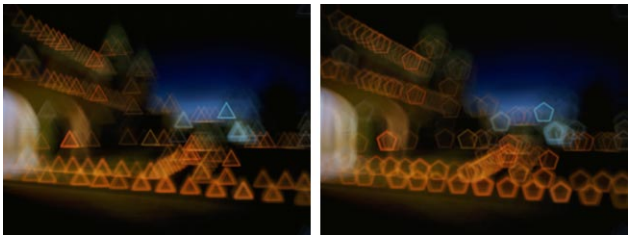


Figure 1:126 3 and 5 Iris Blades

Iris Angle

Iris Angle controls the angle (rotation) of the iris artifact.

Iris Softness

Iris Softness specifies how sharp or blurry the iris artifact will be. Higher numbers create softer artifacts.

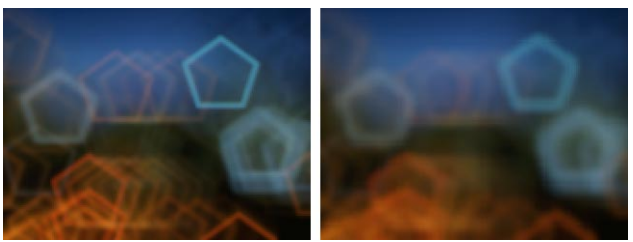


Figure 1:127 Iris Softness of 0 and 4

Iris Edge Enhancement

Iris Edge Enhancement emphasizes the iris edges, which simulates some kinds of lens optics.

Figure 1:128 Iris Edge Enhancements of 30% and 95%

At higher settings, the iris artifacts become more transparent in the center than at the edges.

Gamma

Gamma is a reciprocal gamma function that controls how bright a pixel must be before it generates an iris artifact. Lower numbers create more artifacts. Most applications are between 0.1 and 1.0.

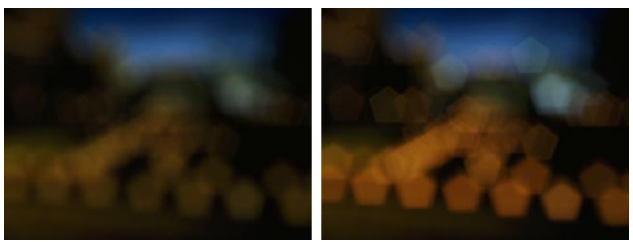


Figure 1:129 Gamma Values of 0.90 and 0.10

IL TRUECAMERA RACK FOCUS

IL TrueCamera Rack Focus brings z-buffer control to the TrueCamera algorithm, allowing for the creation of realistic depth of field simulation when a z-buffer map, or grayscale *depth map*, is available. Depth Maps, usually created within a 3D application, can indicate the distance from the camera of different points within an image. IL TrueCamera Rack Focus can reference this depth map to progressively blur an image as it recedes in space, away from the viewer. By animating the virtual camera parameters within IL TrueCamera Rack Focus, the feel of a camera operator changing focus as a scene progresses can be created with startling realism.

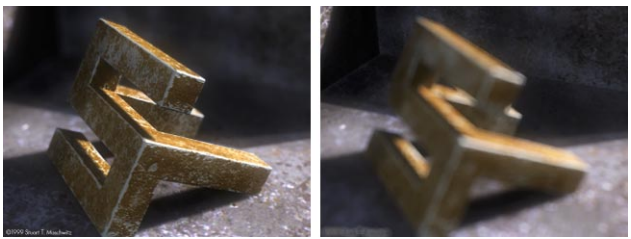


Figure 1:130 IL TrueCamera Rack Focus Example

IL TrueCamera Rack Focus functions the same as IL TrueCamera Blur, but adds depth map controls. In most situations, IL TrueCamera Blur will render faster than IL TrueCamera Rack Focus. Unlike IL TrueCamera Blur, IL TrueCamera Rack Focus is intended for use only on full-frame, 100% opaque layers.

The Appendix contains detailed explanations on the terms, concepts, and techniques associated with z-depth maps, their use, and creation. It also

explains such concepts as rack focus, focal point, and depth of field. The Appendix begins on page 162.

For a detailed explanation of the wide range of blur types available to you in Image Lounge, please refer to "Blurs" on page 186 in the Appendix.

Show

The Show menu offers several display modes for maximum control.

Blur displays the final blur (this is the setting for final rendering).

Sharp Zone displays only the areas where no blur is applied, and blacks the rest of the image out (this is a fast, easy way to control depth blurs).

Blur Control displays the depth map as processed by the depth controls, allowing you to easily see and adjust what will be blurred in your image.

Iris 1x 10x displays the iris artifact at actual and 10x magnification, allowing you to adjust the look of the Iris quickly, without having to wait for a full render to check your settings.

Maximum Blur

The Maximum Blur slider controls the amount of TrueCamera Blur. Higher numbers produce more blur.

Blur Aspect

The Blur Aspect value stretches the blur and lens artifacts — positive numbers stretch the blur horizontally, negative numbers stretch the blur vertically. Horizontal stretching allows you to precisely match anamorphic (wide screen) lenses.

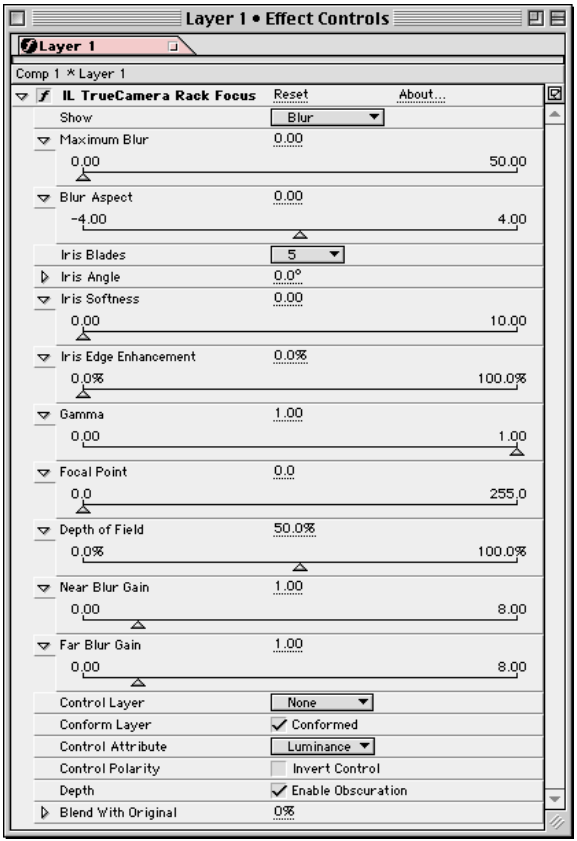


Figure 1:131 IL TrueCamera Rack Focus

Iris Blades

The Iris Blades pop-up specifies the number of blades in the iris of the TrueCamera Blur lens. You'll see the effect of the blade number in the iris artifacts as the Blur Amount is turned up — the number of sides on the artifacts is caused by the number of blades. Figure 1:126 shows the blur and artifacts created by both three and five iris blades.

The highest setting is Round, which replaces the bladed artifact with a circular one.

Iris Angle

Iris Angle controls the angle (rotation) of the iris artifact.

Iris Softness

Iris Softness specifies how sharp or blurry the iris artifact will be. Higher numbers create softer artifacts.

Iris Edge Enhancement

Iris Edge Enhancement emphasizes the iris edges, which simulates some kinds of lens optics. At higher settings, the iris artifacts become more transparent in the center than at the edges.

Gamma

Gamma is a reciprocal gamma function that controls how bright a pixel must be before it generates an iris artifact. Lower numbers create more artifacts. Most applications are between 0.1 and 1.0.

Focal Point

Controls where in the depth map the image will be in focus. By animating this control, you can create rack focus effects. In Figure 1:132 the Focal Point is located at the center of the Sharp Zone (the left image).

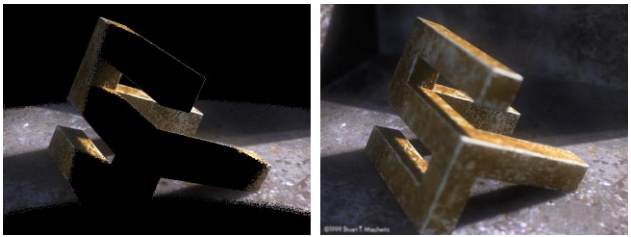


Figure 1:132 Using he Sharp Zone to Set the Depth of Field

Depth of Field

The Depth of Field control simulates depth of field by affecting the levels of the grayscale depth map. Depth of Field controls the size of the Sharp Zone where the camera lens would keep the image in focus.

Figure 1:133 shows two Sharp Zone views of the depth of field, and the corresponding view of the control layer.

To determine what area of the image is in focus, first set the Show Mode to Sharp Zone, then adjust the size of the area with the Depth of Field control, and set its location with Focal Point. As a final step, switch the Show Mode back to Blur for rendering.

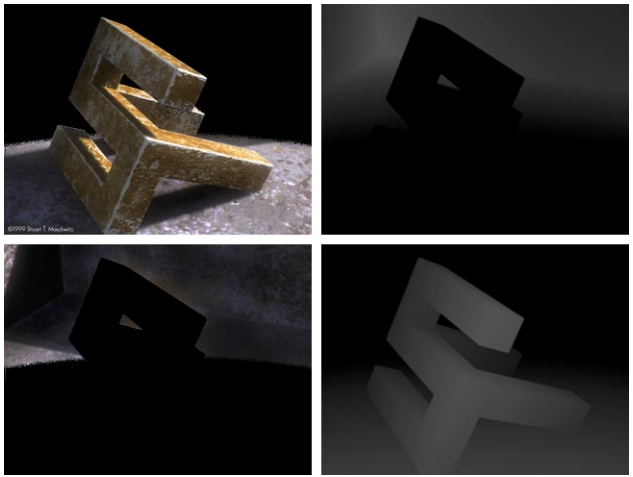


Figure 1:133 Sharp Zones and the Corresponding Depth Map Levels

Near/Far Blur Gain

These sliders control the intensity of the blur in front and behind the Sharp Zone. This allows you to adjust and animate the foreground and background blurs independently.

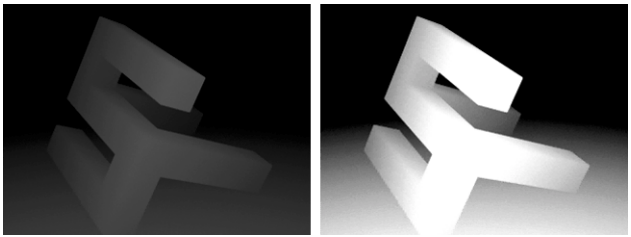


Figure 1:134 Near Blur Gain Values of 1 and 4

Control Layer

The Control Layer pop-up allows you to designate a layer to use as Depth Map.

Conform Layer

The Conform Layer checkbox will automatically resize the Depth Map to the current layer's resolution.

Control Attribute

The Control Attribute pop-up menu allows you to designate Luminance, Hue, Saturation, Brightness or any other channel of the depth map to control the Blur. The default setting of Luminance will work best for most maps.

Control Polarity/Invert

Normally, IL TrueCamera Rack Focus interprets a depth map as black being closest, and white being furthest away. Checking this box inverts your Depth Map, so that white is closest and black is furthest away. This

is particularly useful when working with 3D programs that generate an inverted z-map.

Depth

Checking the Enable Obscuration checkbox enables a realistic obscuration algorithm, so that Iris artifacts are properly obscured by overlapping foreground objects.

Tips

Real lenses tend to increase their depth of field as they focus further from the camera, and the area beyond the focal point (Far Blur) tends to get less blurry sooner.

To simulate this realistic effect, animate your Focal Point, enlarge the Depth of Field as the Focal Point moves further away, animate Near Blur Gain up, and Far Blur Gain down.

IL TURBULENT DISTORTION

IL Turbulent Distortion allows you to quickly and easily distort images with turbulent noise. Create water distortion, heat waves, and many other effects in your images. Create powerful organic distortions and exciting style effects, with the maximum control. Note that the controls are identical for horizontal and vertical distortion, and as such will only be explained once.

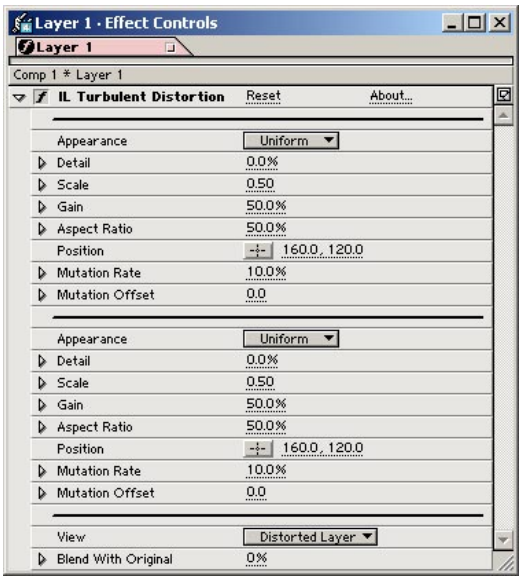


Figure 1:135 IL Turbulent Distortion

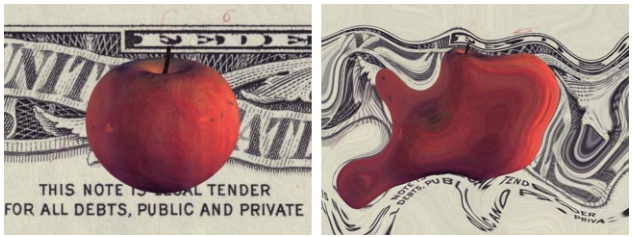


Figure 1:136 IL Turbulent Distortion Example

Appearance

The Appearance pop-up gives you a choice between two different textures for the turbulent distortion field, giving you even more variety and control over the distortion effect.

- **Uniform** returns a texture that looks more like distortions in water, heat waves and reflections.
- **Turbulent** more closely resembles turbulent fluid.

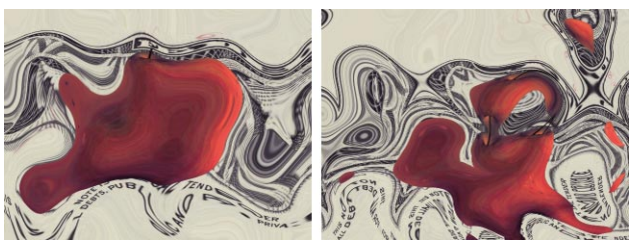


Figure 1:137 Uniform Versus Turbulent

Detail

The Detail slider determines how much detail is in the distortion field, similar in function to a focus or sharpness control. Increasing sharpness in the distortion field will create more abrupt transitions between distorted and unaffected areas of the image.

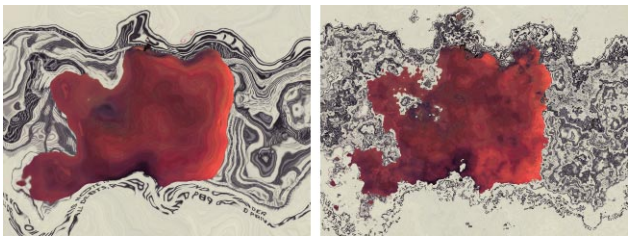


Figure 1:138 Detail Examples

Scale

Scale controls how big the distortion field is. Bigger field size creates bigger distortion areas, while smaller scale creates smaller, busier, more detailed areas of distortion.

Figure 1:139 Scale Examples

Gain

Gain controls the strength of the distortion field over the target layer. If you think of the distortion field as a wave pattern, Gain controls the overall amplitude of the wave.

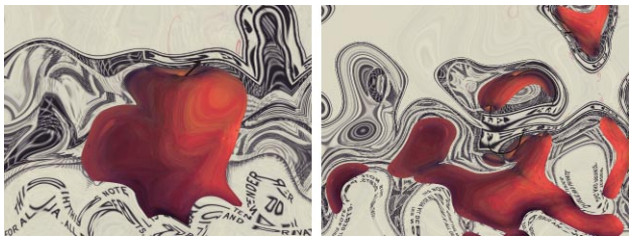


Figure 1:140 Gain Examples

Aspect Ratio

Positive Aspect Ratio values stretch the distortion field horizontally, negative values stretch the distortion field vertically.

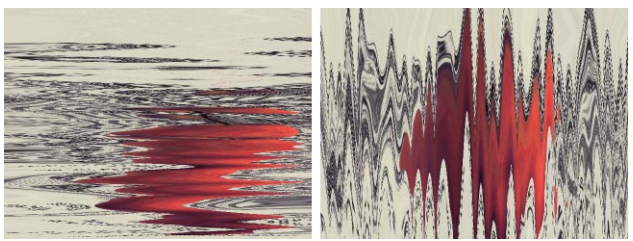


Figure 1:141 Horizontal and Vertical Aspect Ratios

Position

Position controls where in the turbulent noise field the distortion field is centered. Animate this point to create drifts or eddies.

Mutation Rate

Mutation Rate controls the speed of the distortion field's change over time. Higher numbers create faster changes.

Mutation Offset

Mutation Offset controls where in the fractal space the distortion, and therefore the texture, is positioned. Use this control to find a texture you like, then mutate it using Mutation Rate. Mutation Offset can also be animated for nonlinear mutation effects.

View

- **Distorted Layer** displays the target layer after being distorted.
- **Distortion Field** displays the distortion field as a red/green image. Red controls the horizontal, and Green controls the vertical.

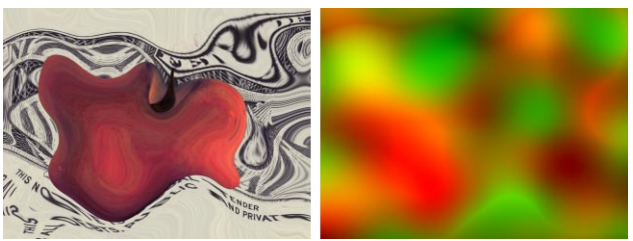


Figure 1:142 Distorted Layer and Corresponding Distortion Field

IL TURBULENT DISTORTION EZ

IL Turbulent Distortion EZ is a simplified version of Turbulent Distortion.

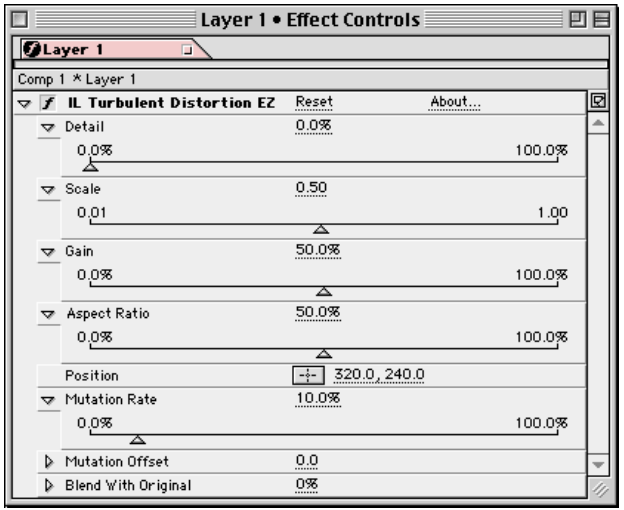


Figure 1:143 IL Turbulent Distortion EZ

Detail

The Detail slider determines how much detail is in the distortion field, similar in function to a focus or sharpness control. Increasing sharpness in the distortion field will create more abrupt transitions between distorted and unaffected areas of the image.

Scale

Scale controls how big the distortion field is. Bigger field size creates bigger distortion areas, while smaller scale creates smaller, busier, more detailed areas of distortion.

Gain

Gain controls the strength of the distortion field over the target layer. If you think of the distortion field as a wave pattern, Gain controls the overall amplitude of the wave.

Aspect Ratio

Positive Aspect Ratio values stretch the distortion field horizontally — negative values stretch the distortion field vertically.

Position

Position controls where in the turbulent noise field the distortion field is centered. Animate this point to create drifts or eddies.

Mutation Rate

Mutation Rate controls the speed of the distortion field's change over time. Higher numbers create faster changes.

Mutation Offset

Mutation Offset controls where in the fractal space the distortion, and therefore the texture, is positioned. Use this control to find a texture you like, then mutate it using Mutation Rate. Mutation Offset can also be animated for nonlinear mutation effects.

IL TURBULENT EDGES

IL Turbulent Edges modifies a layer's alpha edge to give an organic, rippling look. IL Turbulent Edges gives you the ability to add natural, chaotic edges to any layer. This can be used as both a stylistic effect or an organic one, such as adding realistic edges to CG water.

Figure 1:144 IL Turbulent Edges Example

Mutation Rate

The Mutation Rate controls the speed at which the turbulence will change. 0% means no change, while 100% will change substantially on each frame.

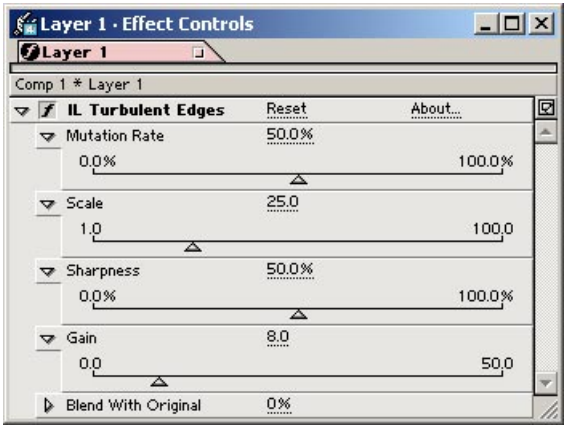


Figure 1:145 IL Turbulent Edges

Scale

Scale determines the size of the edge disturbance. Higher numbers produce more turbulence.

Figure 1:146 Scale Examples

Sharpness

Sharpness sharpens the edges following disturbance. Higher numbers sharpen the image more.

Figure 1:147 Sharpness Example

Gain

Gain specifies how much of the effect will be applied. Higher numbers make the effect stronger.

Figure 1:148 Gain Examples

Notes

IL Turbulent Edges works best with soft-edged alpha layers and masks. If you have a hard-edged alpha/mask, you may have to turn Gain up to see the effect. High gains can produce artifacts in deep concave edge corners, Applying an alpha bevel to the source image prior to applying IL Turbulent Edges may produce a more even result.

IL ULTRA DISPLACER

IL Ultra Displacer offers a more powerful way to use displacement maps and yields more predictable, controllable, and organic-looking results than other displacement map effects. IL Ultra Displacer can simulate water, heated air, steam, and other interference and distortion effects to make your images look like they are being seen through a distortion field.

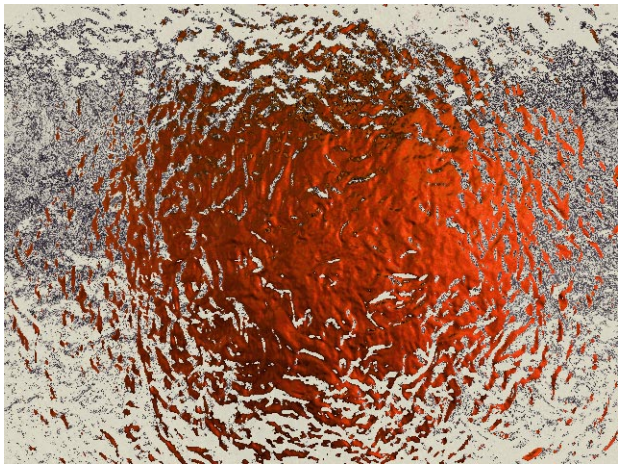


Figure 1:149 IL Ultra Displacer Example

Map Layer

The Map Layer pop-up menu selects the layer to be used as a displacement map. Map Layer defaults to the target layer, so the initial effect may be undesirable. In most cases, you'll want to choose another layer as the Map Layer. The Map Layer may be still or animated.

Remember that some layers may need to be precomped in order for IL Ultra Displacer to see the geometrics or filters applied to the layer.

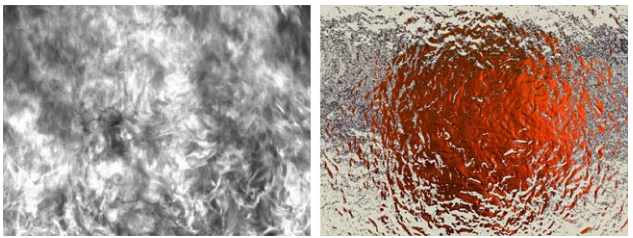


Figure 1:150 Inferno Map Displacement

Displacement maps can be as complicated or as simple as you like, as these two examples show.

Figure 1:151 Ripple Map Displacement

Map Interpretation

The *Use Slope* checkbox allows you to create glass-like distortions using shaded spheres, bubbles, or other maps that darken towards the edges. Checking Use Slope activates the glass-like effect.

IL Ultra Displacer lets you use standard grayscale (single-channel) images as controls instead of the red/green images needed by regular displacement effects.

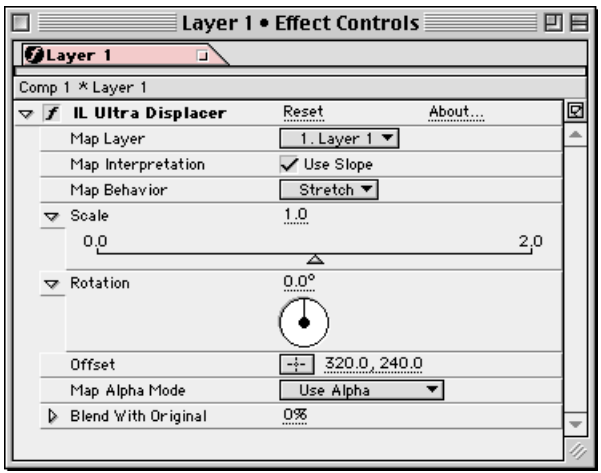


Figure 1:152 IL Ultra Displacer

Map Behavior

The Map Behavior option controls how IL Ultra Displacer handles displacement maps that are a different size than the target layer.

- **Stretch** will conform the map to fit the target.
- **Tile** will repeat it to fill the target.
- **Center** will align the displacement map to the center of the target layer.

Scale

Scale controls how much displacement is performed. Higher numbers increase the amount of displacement.

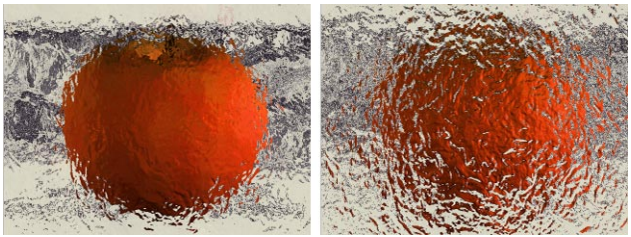


Figure 1:153 Scale Values of 0.3 and 3.0

Rotation

Rotation determines the angle of rotation applied to each displacement vector.

Offset

Specifies where in the target layer the displacement map will be centered. Offset can be animated to move the map across the target.

Map Alpha Mode

- **Use Alpha** uses the alpha channel from the map as part of displacement.
- **Use Blue Channel** uses the blue channel of the map as an alpha for the displacement map
- **Ignore Alpha** uses no alpha info on the displacement map.

IL VIDEO FEEDBACK

IL Video Feedback creates multiple iterations of the layer, using a unique time-slipping compositing algorithm. IL Video Feedback simulates the effect of pointing a video camera at its own monitor, creating an infinite reflection. In addition, the time-slipping compositing system can create chaotic patterns unattainable in any other way.

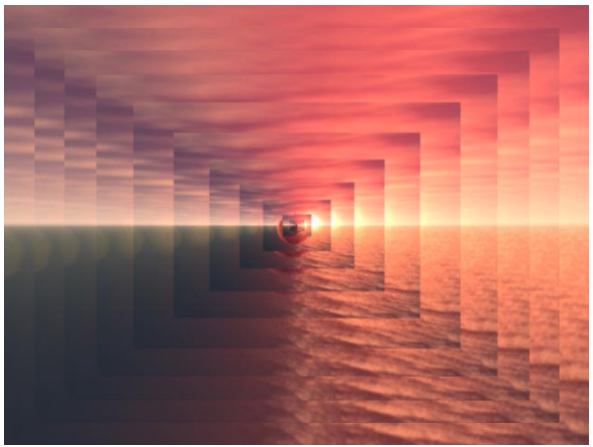


Figure 1:154 IL Video Feedback Example

IL Video Feedback does not operate in the normal way—it composites the current frame with the last frame it produced, regardless of the time associated with either frame, and saves the result internally. Tweaking settings may give unexpected or unreproduceable results. Renderings with IL Video Feedback must start at layer time 0 to produce consistent results. To reset IL Video Feedback by clearing its frame memory, move the current time to frame zero.

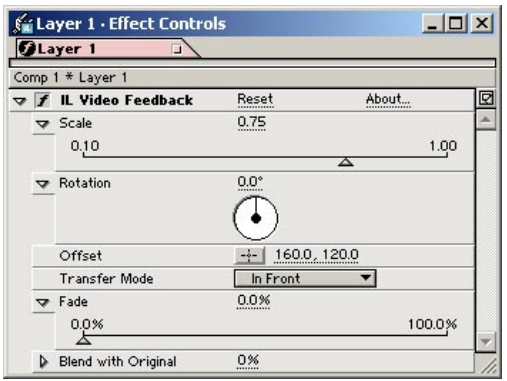


Figure 1:155 IL Video Feedback

Scale

Determines the relative scale between iterations. For example, a setting of 0.5 makes each iteration half (0.5) the size of the previous one.

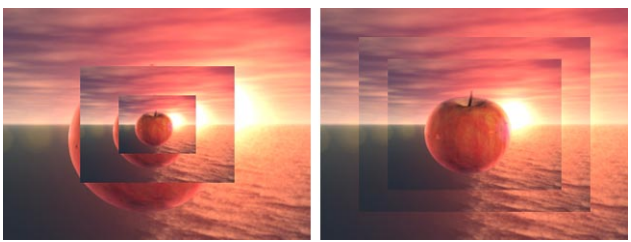


Figure 1:156 Three Iterations With Scales of 0.5 and 0.75

Rotation

Rotation controls the degree of rotation between iterations.

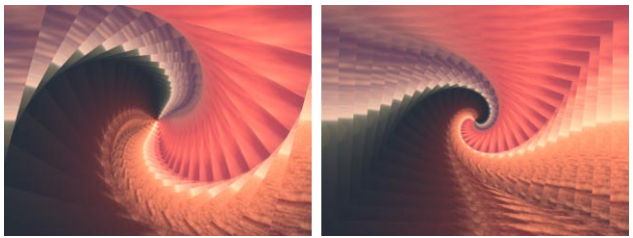


Figure 1:157 Rotation Examples

Offset

The Offset specifies the X/Y offset relationship between iterations.

Transfer Mode

- **Behind** draws the iterations behind the original layer.
- **In Front** draws the iterations in front of the original layer.

The rest of the transfer modes behave like the standard After Effects layer transfer modes

Fade

Controls the fade relationship between iterations. Each time an iteration is rendered, it uses this setting to determine how much more it should fade than its predecessor.

ABOUT THESE TUTORIALS

All the files associated with these tutorials can be found on your Image Lounge Install CD in the folder named *Tutorials*.

Opening this folder will reveal individual folders containing all the source files for each tutorial lesson. Each of these individual folders will contain:

- An After Effects 4.1 format completed project file
- An *Elements* folder, containing all the source movie and image files needed to complete the lesson
- A *Rendered* folder, showing how the lessons should look when successfully completed.

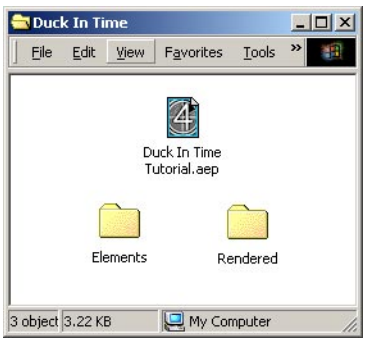


Figure 1:158 Duck In Time Lesson Folder

Some of the individual lesson folders will contain a folder called *Before & After*, which contains two-frame QuickTime movies showing the project before and after the particular effect(s) was applied.

The Project Files

The After Effects project files, when opened, show the tutorials completed as per the steps described in the lesson. For most layers in the projects the Effects have been disabled, and must be enabled before you can see them in action. To enable effects check the *Effect* checkbox next to the name of the specific layer in the Time Layout window.

NOTE TO WINDOWS USERS

The project files and elements contained on this CD were originally created on a Macintosh. Due to the file naming conventions of the Windows family of operating systems, problems arose when trying to open these files with their original naming scheme. To address the problem we have renamed all the files in a “Windows-friendly” format. For example, the Macintosh QuickTime movie file “1.Duck w/alpha” has been renamed “duck with alpha.mov”.

The PDF you are reading has been completely updated to account for both Windows and Macintosh users. Unfortunately, the printed manual you received with Image Lounge does not reflect these changes. Future pressings of the printed documentation will incorporate the cross-platform updates.

We apologize for any inconvenience this may cause.

TUTORIAL 1: BORDER PATROL

This tutorial will utilize the following plug-ins:

- IL Text Typewriter
- IL Border Patrol
- IL Turbulent Edges
- IL Hall of Time

This is actually a three-part tutorial, using the same elements in three individual projects highlighting the plug-ins listed above. All three involve using IL Border Patrol to enhance text treatments.

Precompose the elements

The first step is to set up the precomp layer, which makes up the base element of the other projects in this lesson.

Figure 1:159 Border Patrol Precomp Layer Final

1. Create a new project and import the image file *ILlayer.psd*.
2. Create a new 3-second composition named *TextPreComp*, and add the file ILlayer.psd. Create a new Solid, give it light blue/green color, and place it behind the foreground layer.
3. Position the logo layer at 326,110. If you like you can lock this layer as we won't be adding any effects to it.

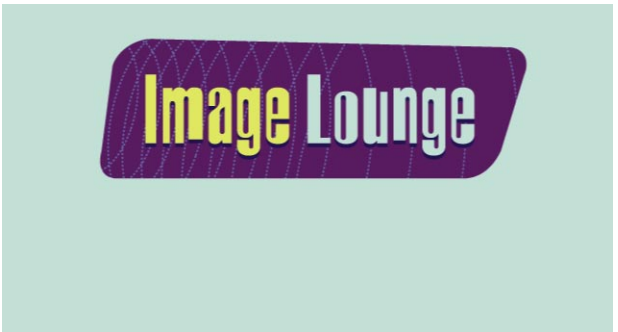


Figure 1:160 The Logo Over the Solid Background

Create the text

1. Apply *IL Text Typewriter* to the solid layer.

As soon as it is selected the options window is displayed. The options window is where you enter the text you want animated by IL Text Typewriter.

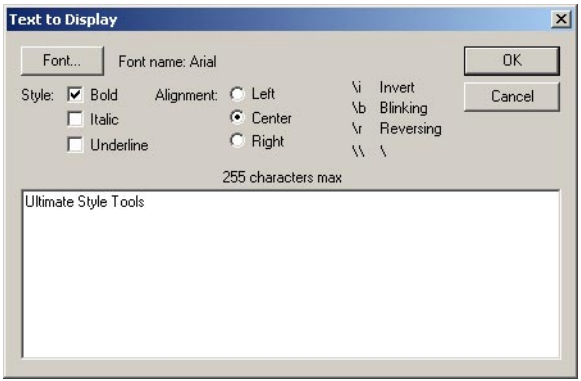


Figure 1:161 IL Text Typewriter Options

2. Type in the phrase “Ultimate style Tools”. Change the font to Helvetica (Mac) or Arial (Windows), set the style to *Bold*, and the Alignment to *Center*. Click OK when done.

The text appears in the composition window barely visible in the top left corner. The next step is to position and size the text accordingly.

3. From the Effect Controls window, find the *Position* value and position the text at 323, 273.5. You can do this either numerically or by using the crosshairs.

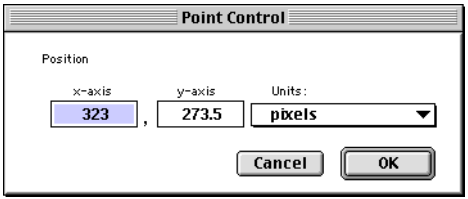


Figure 1:162 Position the Text Numerically

4. Change the point size of the text to 60 by dragging the slider.

The text is now situated correctly in the comp window.

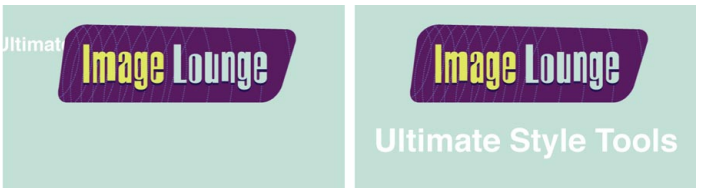


Figure 1:163 Text Situated Correctly

You might be wondering why you had to choose a custom color for the solid instead of the usual black. Well, it was to highlight the next step. IL Text Typewriter, as well as many other plug-ins in Image Lounge, contain a set of Transfer Modes, and the one we will be using will make this custom colored solid invisible.

5. From the Transfer Mode popup menu, select *Replace*. The text background now becomes black.

What Replace does is replaces the active layer with the text, essentially making invisible any area not covered with text. The black you are seeing is the default black background color of the composition window.

6. Set the *Grunge* value to 10%.

This gives the edges of our text a weathered, distressed look.

Figure 1:164 10% Grunge Applied

Animate the text

Now that the text is has been created we're going to animate it.

1. At frame 1 set a keyframe for the *Dot Scatter* parameter, the value of which will be set to 0%.

2. Advance to 01:29, and set another 0% keyframe.

3. Advance to 02:27 and change Dot Scatter to 1000.

The text disappears and is replaced by a field of random dots.

Figure 1:165 Animating the Dot Scatter

4. Scrub back and forth through the animation to preview the Dot Scatter effect. When you are finished close the composition.

BORDER PATROL 1

Figure 1:166 Border Patrol 1 Final

This project will utilize the precomposed layer we just completed, and will apply some basic IL Border Patrol effects.

Set up the Comp

1. Create a new composition named *1.Border Patrol Comp* and add in the *Text PreComp* layer.

2. Apply IL Border Patrol to the nested layer.

Tweaking the borders

When the effect is first applied all the objects in the scene are outlined by a thick white line, as shown in Figure 1:167. Note also that the text is outlined. For this initial setting we only want the logo to be outlined.

Figure 1:167 Border Patrol Applied

1. Decrease the *Outline Distance* value from 0 to around -5. The border applied to the text disappears.

The Outline Distance value specifies the distance from the edge of the object to the center of the border. By giving this value a negative number we "shrink" in where we want the border placed. The reason the border disappears from the text is that we essentially shrunk it a distance wider than the thickness of the text itself.

2. Set the *Edge Smoothing* value to 0.

3. Click the eyedropper next to the *Outline Color* value and sample the yellow of the word Image.

4. Give the border an *Outline Blur* value of around 3.

Figure 1:168 Border Patrol Before and After

Figure 1:168 shows the before and after results of our border settings. Now we'll add another border.

5. Apply *IL Border Patrol* again. This time set the Outline Distance to between 8 and 9.

A distinct border can now easily be seen. However, the edges of the second border are quite rough, and we need to smooth them.

6. Increase the Edge Smoothing value to 9, which removes the rough edges.

Figure 1:169 Border Smoothed Before and After

7. As a last step, change the color of this border to a bright green, and give it a Border Blur value of between 3 and 4.

Figure 1:170 Both Border Lines Created

Animate the borders

Since our source footage is animated it would be best for us to animate the border settings accordingly.

1. In the Time Layout window expand the layer views so that the parameters for both IL Border Patrol effects can be seen.
2. At Frame 1 set keyframes for the *Edge Smoothing*, *Outline Distance*, and *Outline Width* parameters in both effects.
3. Advance forward to the last frame. Set the Outline Distance values for both filters to 50. Set the Outline Width value to 2.1 for the upper filter and 1.6 for the lower filter.
4. Scrub through the animation to see the final effect.

Figure 1:171 Border Patrol 1 Complete

BORDER PATROL 2

Figure 1:172 Border Patrol 2 Final

This project will utilize the same precomposed layer from the first tutorial.

Set up the comp

1. Create a new composition named *2.Border Patrol Comp* and add in the *Text PreComp* layer. Set the background color of the composition to a green color (HSV values of 187, 36, 37).
2. Apply IL Border Patrol to the nested layer.
3. Set the Edge Smoothing to 0, the Outline Distance to -7.5, and the Outline Blur to 3. Once again use the eyedropper to sample the yellow color of the word *Image*.

Figure 1:173 shows the result at this point.

Figure 1:173 Border Applied, Before and After

4. Apply *IL Turbulent Edges*. For this project we'll use the default settings.

Animate the border

As a final step we'll animate the border parameters.

1. At the first frame set keyframes for the *Outline Distance* and *Outline Width* parameters.
2. Go to the last frame, then set the Outline Distance to 50 and the Outline Width to 2.1.
3. Scrub through the animation to preview.

BORDER PATROL 3

Figure 1:174 Border Patrol 3 Final

The final project in our set of three, it requires an additional precomp layer before applying the Hall of Time effect.

Set up the precomp

1. Create a new 3-second composition named *Comp 3 Precomp* and add in the *Text PreComp* layer.
2. Apply IL Border Patrol to the nested layer.
3. Apply the same settings as in the previous projects: *Edge Smoothing* of 0, *Outline Distance* of -7.4, *Outline Blur* of 3.2, and set the border color to green.
4. At the first frame set keyframes for the *Outline Distance* and *Outline Width* parameters.
5. Go to the last frame, then set the Outline Distance to 50 and the Outline Width to 2.1.
6. Close the composition.

Figure 1:175 Border Patrol 3 Precomp

Set up the composition

1. Create a new composition named *3.Border Patrol Comp* and add in the *Comp 3 PreComp* layer.
2. Apply the *IL Hall of Time* filter.
3. Set the *Echo Time* to 0.05.

Echo Time controls the offset of the reflections in seconds.

4. Increase the *Scale* value from 0.75 to 0.95.

The Scale value determines whether the reflections will increase or decrease in size as they go off in the distance.

Animate the Reflections

The final step in this lesson is to animate the reflections. For this we're going to keyframe the *Offset* value.

1. On the first frame set the Offset value to 778, -116. Set a keyframe for this value.,
2. Go to the last frame and change the Offset values to 416, 326.
3. Preview the animation.

Final Words

The possibilities for cool effects, especially when used with type, are virtually limitless with the tools found in Image Lounge.

TUTORIAL 2: CREDIT ROLL

This tutorial will utilize the following plug-ins:

- IL Fractal Tunnel
- IL Credit Roll
- IL Mirage
- IL Ultra Displacer

Figure 1:176 Credit Roll Final

This lesson involves creating a credit sequence, as found at the end of movies and TV shows. The background and text elements are separate precomposed layers.

Before we begin

The color scheme for the background in this lesson is quite complicated, and as such we have provided a settings file for you to use. It is located in the *Elements* folder, which is found in the *Credit Roll & Mirage* folder in the Tutorials section of your Image Lounge install CD.

The file is named *Color Map for Fractal Tunnel BG*. To install it simply drag it to the *Color Map Presets* folder, located inside your After Effects folder.

Set up the Project

1. Create a new After Effects project. Add in the following elements:

- 1_Distortion Cloud Pass.mov
- 2_Fiery BG Render.mov
- 3_Black Frame.pct

2. Create a new composition named *1.Firey BG Comp*, and add in the *3_Black Frame.pct* element.

Create the background

To create the “fire tunnel” background effect we’re going to apply a filter to the Black Frame layer. A solid would also have worked just as well.

1. Highlight the Black Frame layer and apply *IL Fractal Tunnel*.

The frame is now filled with the default tunnel effect.

2. Locate the *Presets* popup menu, found underneath the color selector at the top of the effect controls. From under this menu select *Color Map for Fractal Tunnel BG*.

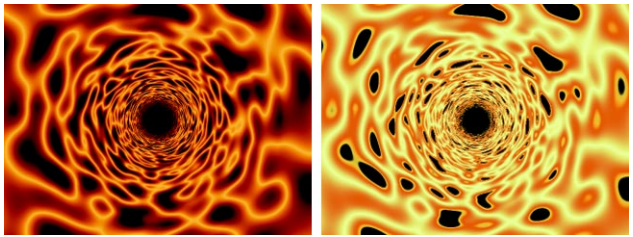


Figure 1:177 New Color Map Applied

The tunnel changes colors to those specified in the new color map. Now we will tweak the IL Fractal Tunnel settings to get the look we want. Because there are quite a few of these settings they will just be listed here. As you apply each setting watch and take note of what effect it has on the overall tunnel effect. Feel free to enter your own settings if you wish.

3. Set the *Detail* slider to around 32%.

4. Slightly increase the *Scale* slider to 57.

5. Increase the Bias slider to 68.

Performing just these three steps has gotten our tunnel looking significantly closer to the desired end effect. Figure 1:178 shows a before and after shot of these changes.

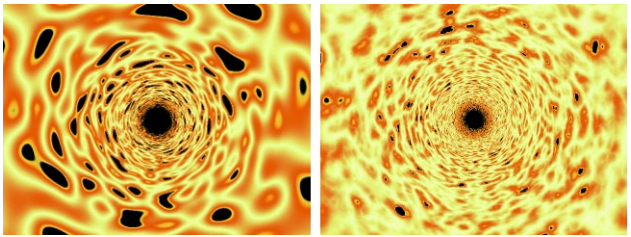


Figure 1:178 Before and After Steps 3-5

6. Reduce the *Gain* slider to 30.

7. Reduce the *Black Clip* slider to 46.

8. Set the Z Position to 1.3

At this point our tunnel is nearly complete. All that is left to do is change its orientation. We can currently see straight down the tunnel to the other end—what we need to do is swing end the tunnel off the left side of the screen.

9. By either using the crosshairs or entering the values numerically, set the *Position* parameter to -120, 249.

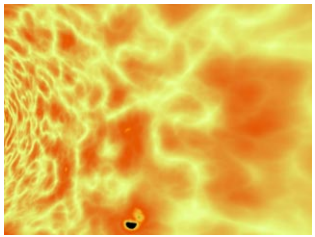


Figure 1:179 Fiery Tunnel Completed

Our Fiery Tunnel background element is now complete. Because this tunnel effect can take quite some time to calculate we have provided a pre-rendered version for you to use for the rest of the lesson.

Create the text

Now that we have the background for our credit sequence, we'll go ahead and make the text.

1. Create a new composition named *2.Text Precomp* and add in two copies of 2_Fiery BG Render.mov.

2. Highlight the top layer and apply *IL Text Scroll*.

The Options dialog appears.

3. Choose Helvetica as the font, then click the *Open File…* button.

4. Navigate to the Image Lounge install CD, find the Credit Roll & Mirage tutorial folder, go to the Elements folder, select the text file *Text for Credits1.txt,* then click *OK*. (If you like, feel free to copy these files to your hard drive first and then locate them there from the Open dialog.)

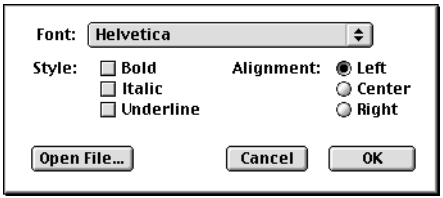


Figure 1:180 Text Scroll Options

Il Text Scroll works referencing a file full of text rather than providing an editor window for manual entry. If you like, open these text files and take a look at them—one file contains a list of the character's names, and the other contains a list of the performer's names.

Once the Text Scroll controls appear you can just see the name *Emilio Constanza* in black in the bottom left corner of the composition window. what we will do now is set up this text as our character names, and then duplicate the effect on the lower layer as our performer names.

As we did when creating the tunnel, due to the number of parameters to adjust here the steps to create the effect will simply be listed. Feel free to experiment with the settings to get the feel for them.

5. Decrease the *Start Offset* slider to -100.

6. Increase the *Scroll Rate* to 4. Since the slider only goes to 2 you'll have to manually enter this.

7. Set the *Char* (Character) *Size* to 20.

8. Increase the *Aspect Ratio* to just above 55%. This stretches the text out horizontally.

9. Increase the *Leading* to around 1.75. This sets the distance between lines of text.

Figure 1:181 Text Created

At this point our text is more or less situated how we want it. The next few steps will add some additional effects to the text.

10. Set the *Shadow Distance* to around 3.5. This creates a drop shadow under the text.

11. To simulate light coming from the bottom right corner, set the *Shadow Angle* to around -43°.

12. Set the *Shadow Color* to a light pink (HSV settings: 0,51,100).

13. Set *Shadow Blur* to around 0.80.

14. Finally, disable the *Fields Enabled* checkbox.

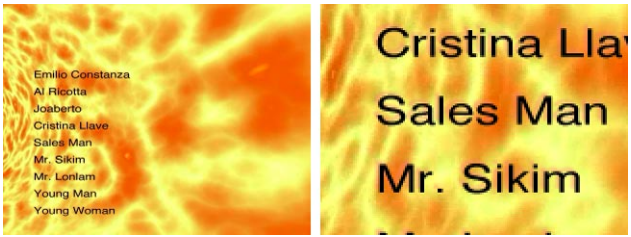


Figure 1:182 Left Side Text Completed

Our left side text is now complete, and the next step is to create the right side text.

15. Go to the Effect Controls palette for the upper layer, highlight the words *IL Text Scroll*, and select Copy from under the Edit menu. Close the Effect Controls dialog.

16. Turn off the visibility for the top layer, and activate the bottom layer. select *Open Effect Controls* from under the Layer menu.

17. Once the Effect Controls open, make sure it is in the foreground and select *Paste*.

What we have just done is copied and pasted the effect settings from the top layer into the bottom layer, which will ensure that the Text Scroll settings for both layers are identical. As soon as you paste the effect the Options window appears once again.

18. Choose Helvetica as the font, but this time select *Right* alignment.

19. Click the Open File… button and select *Text for Credits2.txt*. Click OK.

Figure 1:183 Right Side Text Complete

Now how easy was that? As a final step we want to set our text layer so that only the text is visible—the background is completely transparent. This will be accomplished through the Composite Mode selector, to which you were introduced in the previous lesson.

The default Composite Mode for both layers is *In Front*, which places the text over the layer to which it is applied while keeping that layer visible. We want both layers to be "text only".

20. Set the Composite Mode of both layers to *Replace*.

This makes the entire layer invisible except for the text, which allows the background color to show through, completing our text effect, as seen in Figure 1:184.

Figure 1:184 Completed Text

Displace the fire

For the final step in our credit sequence we're going to add some subtle distortion and displacement effects as an added dimension to the shot, really giving the text a sense of being in such a hot, fiery inferno.

1. Create a new composition named *3.Comp* and add the following elements in order:

- 2.Firey BG Render
- 2.Text Precomp
- 1_Distortion Cloud Pass.mov

2. Turn off the visibility of the Distortion Cloud Pass layer, as it is only for control purposes.

The Distortion Cloud Pass was originally created using IL Fractal Clouds. For more information on this filter refer to 46.

3. Highlight the background fire layer and apply *IL Ultra Displacer*.

Il Ultra Displacer distorts a layer by moving pixels based on the color values of pixels in a second layer, called the *Map Layer*. In this case our Map Layer is going to be the Distortion Cloud Pass.

4. Set the Map Layer to *1_Distortion Cloud Pass.mov*.

5. Set the *Scale* slider down to 0.2.

6. As a final step set the *Rotation* value of -58° to alter the angle of displacement.

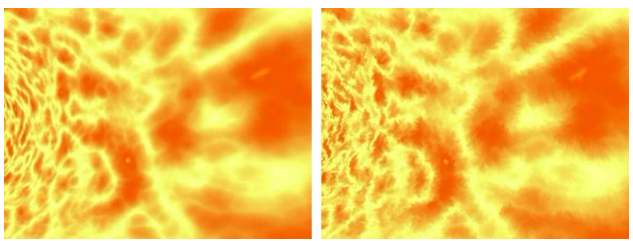


Figure 1:185 IL Ultra Displacer Before and After

To preview the displacement effect click the visibility of the effect on and off. Figure 1:185 shows the fire before and after Il Ultra Displacer is applied.

The next step is to add a subtle heat-ripple effect to the text layer.

Distort the text

1. Highlight the text layer and apply *IL Mirage*.

IL Mirage functions similarly to IL Ultra Displacer in that it distorts the image it is applied to, but it is different in that it doesn't have a control layer. when you first apply the filter you see control points appear in the composition window. These control paints determine the placement and direction of the distortion.

Figure 1:186 IL Mirage Default Settings

Even at its default settings the Mirage effect is easily visible—look at the names of Emilio Constanza and Cristina Llave in the left column, or Joaquin Casanueva and Roberto Calbreath in the right.

2. Set the *Producer Point* to 320, 520 by dragging the point in the composition window, using the crosshairs, or entering the value numerically.

3. Increase the *Detail* setting to 40%.

4. Slightly increase the *Aspect Ratio* to around 56%.

5. Increase the *Blur* value to 7.

6. Decrease the *Velocity* value to around 3.5%.

7. Increase the *Mutation Rate* to around 17%.

8. Set the *Field Length* slider to 0.40. This sets the distortion effect to around half the vertical length of the composition window.

9. Set the *Field Width* slider to 1.0. This sets the distortion effect to the horizontal width of the composition window.

10. Drop the *Field Edge Scale* down to 0.

11. Increase the *Field Side Feather* slider to around 90%.

12. Finally, increase the *Field End Feather* to around 57%.

Figure 1:187 IL Mirage Before and After

If you preview the animation you'll see a very nice rippling heat signature effect at the bottom of the screen. What we're going to do now is copy and paste the IL Mirage filter back onto this layer and set up an identical distortion effect for the top part of the image.

13. Copy IL Mirage from the Effect Controls dialog and paste it back in, so that there are two identical effects applied.

14. Change the Producer Point of the second effect to 320,0. This flips the producer from below the bottom of the screen to even with the top.

15. Set the *Direction* value to 180°, which makes the producer face downward.

16. Set the Field Length to 0.23.

Preview the shot by scrubbing through the time, noting how each separate distortion/displacement effect alters a specific part of the image.

TUTORIAL 3: DESIGN

This tutorial will utilize the following plug-ins:

- IL Hall of Mirrors
- IL Real Shadows
- IL Fractal Clouds
- IL Framer

Figure 1:188 Design Tutorial Final

This lesson will be of particular interest to those users doing broadcast design. Using nothing but a single image of the Image Lounge logo we are going to create an incredibly detailed, effects-laden animated logo treatment, the kind guaranteed to knock the socks off your next client.

Set up and precomp

1. Create a new After Effects project. Add in the element *ILlayer.psd*.
2. Create a new 3-second composition named *1.Logo PreComp*, and give it the same soft blue/green background color from Tutorial 1 (HSV values 161, 13, 88).

Figure 1:189 Design Logo Precomp

Hall of Mirrors

1. Create a new composition named 2.PreComp, and add the Logo Precomp layer you just created. Keep the background the same blue/green color as in the previous composition.
2. Apply the filter *IL Hall of Mirrors*.

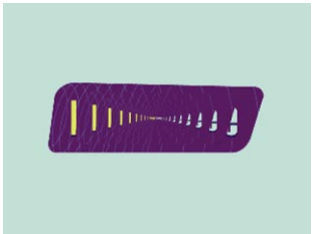


Figure 1:190 Hall of Mirrors Defaults

At it's default settings it's quite easy to see where this plug-in gets its name. Anyone who has ever seen one mirror reflected into another (such as you would find in a hall of mirrors at a carnival) will recognize the effect.

3. Increase the *Images* to 26.

4. Increase the *Scale* to 1.0.

5. Set the *Rotation* to 11°.

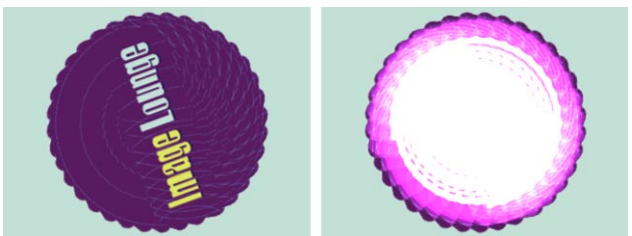


Figure 1:191 Transfer Mode Set to Add

At this point our composition looks like the left image in Figure 1:191. To create a little more dazzling effect we'll change the rotated images are applied to one another.

6. Change the *Transfer Mode* from its default setting of In Front to *Add.*

The layers are now all added to each other, giving us the effect in the right image of Figure 1:191. Next we'll animate this effect over the life of our project.

7. At Frame 1 set keyframes for Images, Scale, Rotation, *Offset*, and *Fade*.

8. Advance to 00:12 and set the Rotation value to 72°.

9. Advance to 00:15 and set a keyframe for Fade.

10. Advance to 00:22 and set the Offset to 303, 438.

11. Advance to 01:14. Set the Images to 10, Scale to 0.10, Rotation to -87°, Offset to 557, 102, and Fade to 100%.

At this point out work with Hall of Mirrors is complete. If you like you may adjust the interpolation between the keyframes to improve their animation. Preview the effect and move on to the next step.

Shadows

1. Go back to Frame 1 and apply the effect *IL Real Shadows*.

2. Change the shadow color to a sickly yellow (HSV Values 64, 58, 91).

The first thing we need to do is adjust the *Baseline* and *Height & Slant*. In a traditional scene the baseline would be aligned along the "feet" of whatever was supposed to be casting the shadows.

3. Set the *Baseline Start* to -2, 313.

4. Set the *Baseline End* to 627, 468.

5. Set the *Height & Slant* to 41, 67.

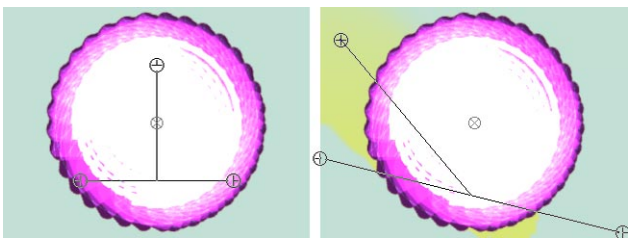


Figure 1:192 Baseline/Height & Slant Defaults; Current Settings

Figure 1:192 shows both the defaults and the above settings for the Baseline and Height & Slant values. The final step here is to animate the Height & slant values.

6. At the first frame set a keyframe for the current Height & Slant values.

7. Go to the last frame, and set Height & Slant to 582, 32.

Preview the effect. The shadow now travels from the left to the right.

The final composition

Now that our precomp layers have been created we can put together the final shot.

1. Create a new composition named *3.Comp*. Set the background color to light purple (HSV values 266, 59, 74).

2. Create three solid layers with the following settings:

- Bottom solid: 640 x 480, colored default black, named *Clouds*.
- Middle solid: 630 x 470, colored (HSV 324, 60, 10), named *Frame & Edges*.
- Top solid: 640 x 480, default black, named *Type-on Text*.

3. On top of the top solid layer place the *Logo PreComp* layer.

Apply the clouds

1. Turn off the visibility of all layers except the Clouds layer.

2. With the Clouds layer selected apply *IL Fractal Clouds*.

The default color settings for the clouds are black and white. Our first task is to change these color settings. Locate the *Color Map* at the top of the effect controls. By default this is a black to white gradient. We want to make it a purple to sickly-yellow gradient.

3. Click on the black arrow underneath the gradient to select it. When an arrow is selected its color becomes visible in the color tile to the bottom right corner of the Color Map section.

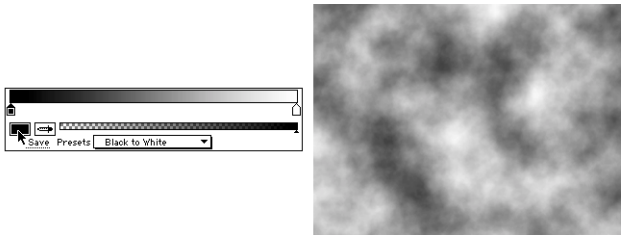


Figure 1:193 IL Fractal Clouds Color Defaults

4. With black selected, click the color tile to bring up the standard Macintosh color picker. Enter HSV values of 294, 78, 74.

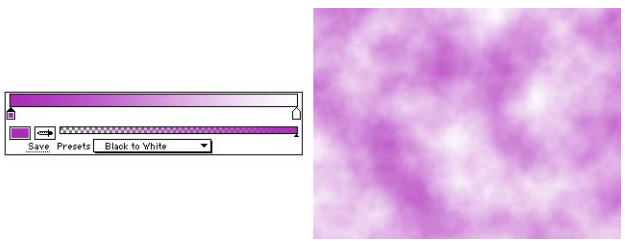


Figure 1:194 IL Fractal Clouds First Color Changed

The gradient now ranges from purple to white, and the generated clouds reflect this change.

5. Click the white arrow to activate it, then click the color tile to activate the color picker. Enter HSV values of 64, 58, 91.

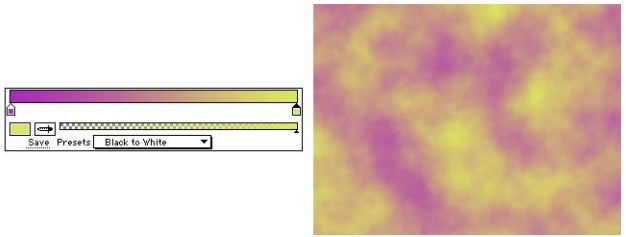


Figure 1:195 IL Fractal Clouds Both Colors Changed

Figure 1:195 shows the completed color change, and our fractal clouds now reflect the desired colors. Now we need to tweak the cloud settings to get the desired look.

6. Reduce the *Detail* slider to around 20%.

7. Increase the *Scale* slider to around 75%.

8. Set the *Rotation* value to around -54°.

9. Increase the *Mutation Rate* to around 17.

10. Change the Appearance popup menu from *Clouds* to *Billows*.

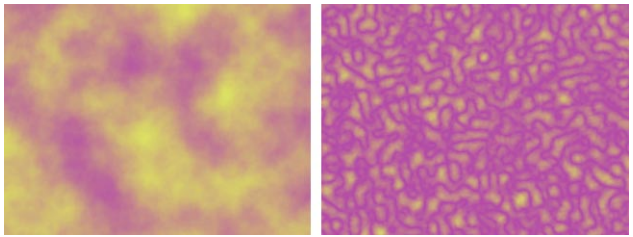


Figure 1:196 Clouds to Billows

Billows is a different kind of fractally generated effect. Figure 1:196 shows the progression from our original colored clouds to the final Billows. Now our last step in creating the cloud layer is to animate some of the parameters.

11. At the first frame set keyframes for Detail, Scale, and Rotation.

12. Go to the last frame. Set Detail to around 70%, Scale to around 50%, and Rotation to 0°.

Preview the animation in the cloud layer.

Create the frame

1. Activate the visibility of *Frame & Edges* and then highlight the layer.

2. Apply *IL Turbulent Edges*.

Figure 1:197 IL Turbulent Edges Defaults

At its default settings the effect of IL Turbulent Edges becomes quite clear.

3. Set the *Mutation Rate* to 15%.

4. Set the *Scale* up to around 47%.

5. Set the *Sharpness* up to around 75%.

6. Increase the *Gain* way up to around 45%.

Figure 1:198 IL Turbulent Edges Default and Final Settings

The effects of these settings on the edge of the frame are quite striking.

Animate the geometrics

For this layer we're going to be animating the overall Scale value of the layer, not the scale value of the effect.

1. At the first frame set a keyframe for the *Scale* value at 100%.
2. At the last frame, set Scale to 50%.

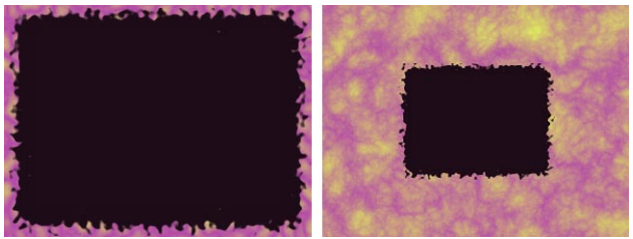


Figure 1:199 Animated Scale First and Last Frames

Preview the animation. Figure 1:199 shows the first and last frames of the animated layer.

Type On Text

1. Activate the visibility of *Type-On Text* and then highlight the layer.
2. Apply the filter *IL Text Typewriter*.

The Text Typewriter Options window appears.

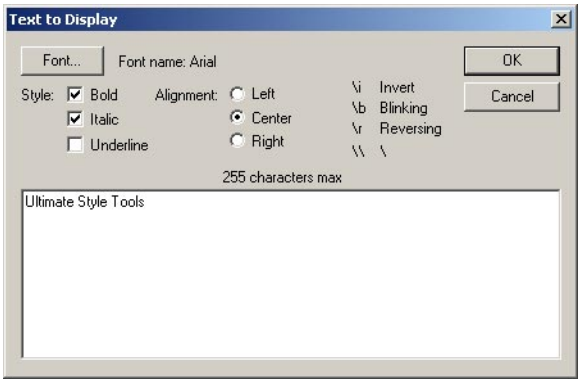


Figure 1:200 IL Text Typewriter Options

3. Type in the phrase *Ultimate Style Tools*.
4. Choose *Helvetica* as the font.
5. Enable both the *Bold* and *Italic* checkboxes.
6. Set the alignment to *Center*.
7. Click OK.

Figure 1:201 Design Text Basic

Figure 1:201 shows the added text at its default settings.

Tweak the text

1. Change the text color to blue/green (HSV settings 161, 13, 88).
2. Change the text position to 320, 383.
3. Change the Typing Effect popup to *Random Order*. This will cause the letters to type on in, you guessed it, random order.
4. Set the *Transfer Mode* to On, to see the background layers.

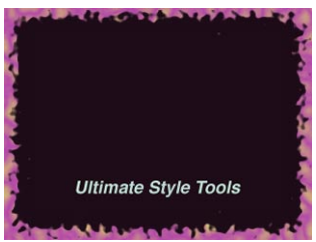


Figure 1:202 Design Text Tweaked

Animate the text

1. At frame 1 set keyframes for *Typing Completion*, *Grunge Amount*, and *Dot Scatter*.
2. Set Typing Completion to 0%.
3. Advance forward to 01:02, and set Typing Completion to 100%.
4. Advance forward to 01:29 and set keyframes for Grunge Amount and Dot Scatter.
5. At the last frame, set the Grunge Amount to 8%, and the Dot Scatter to 100%.

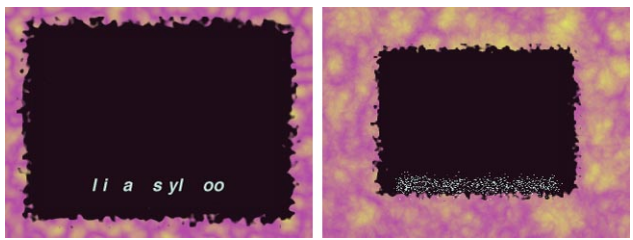


Figure 1:203 II Text Typewriter at Frames 14 and 67

Apply the logo

1. Activate the visibility of *1.Logo Precomp* and then highlight the layer.
2. Apply *IL Framer*.

IL Framer is the kind of effect that is at the same time both incredibly basic and infinitely useful. We will now apply and then animate some frame effects so finish off our scene.

3. Set *Corner 1* to 42, 39.
4. Set *Corner 2* to 590, 433.
5. Change *Frame Color* to our previous yellow color (HSV values 64, 59, 91).

Figure 1:204 Il Framer at Frame 1

Animate the frame

1. At frame 1 set keyframes for Corner 1, Corner 2, *Frame Width*, and Frame Color.
2. Advance to 01:05. Set Corner 1 to 129, 338; Corner 2 to 505, 396; and the Frame Color to HSV values 294, 78, 38.

If you like adjust the interpolation of the corner keyframes for smoother movement.

3. Advance to 01:29 and set a keyframe for Frame Width.
4. Finally, advance to 02:10 and set Frame Width to 0, which makes the frame disappear.

Figure 1:205 Frames 35 and 59.

5. Preview the completed project.

TUTORIAL 4: DUCK IN TIME

This tutorial will utilize the following plug-ins:

- IL Border Patrol
- IL Hall of Time

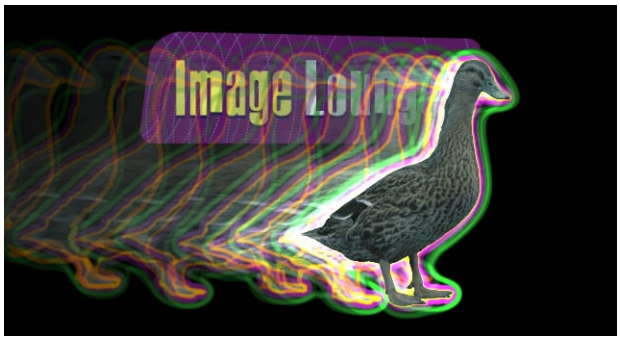


Figure 1:206 Duck In Time Final

This is a really neat tutorial using the shot of the duck running across the screen.

Set up the project

As with most of the tutorials in this manual the first step is to set up the precomp layer.

1. Create a new project and import the files *IL.layer.ps* and *duck with alpha.mov*.
2. Create a new 3:10-second composition named *TextPreComp*, and add the file Duck w/ Alpha movie.

Apply the borders

At this point we are going to apply three separate IL Border Patrol passes to the duck. We'll then apply our Hall of Time effect to this entire layer.

1. Apply the first *IL Border Patrol* pass with the following settings:

- Edge Smoothing: 0
- Outline Distance: 0
- Outline Width: 5.6
- Outline Color: HSV settings 294, 78, 38
- Combination Mode: Over

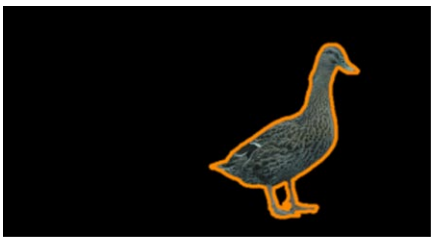


Figure 1:207 Duck Border Pass 1

2. Apply the second *IL Border Patrol* pass with the following settings:

- Edge Smoothing: 0
- Outline Distance: -1.5

- Outline Width: 5.9
- Outline Color: HSV settings 33, 33, 100
- Combination Mode: Over

Figure 1:208 Duck Border Pass 2

3. Apply the third and final *IL Border Patrol* pass with the following settings:

- Edge Smoothing: 18
- Outline Distance: 2.9
- Outline Width: 5.9
- Outline Color: HSV settings 122, 78, 38
- Combination Mode: Over

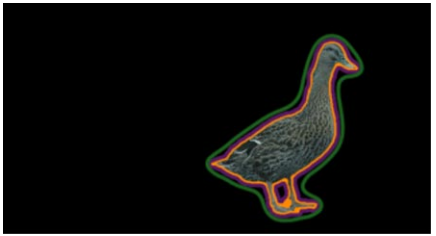


Figure 1:209 Duck Border Pass 3

Apply the effect

With our precomped duck layer completed it's time to complete the shot by applying the Hall of Time effect.

1. Create a new composition named *1.DuckInTime*. Add in the following elements in order:

- IL.Layer.ps
- PreComp
- 1.Duck w. alpha

2. Turn off the visibility of the duck layer.

3. Position the IL Logo layer at 340, 87. Feel free to lock this layer as we won't be using it any more.

4. Activate the PreComp layer and apply *IL Hall of Time*.

5. Set the number of *Images* to 12.

6. Set the *Scale* value to 1.0. This makes all the reflections the same size as the original.
7. Set the Offset to 35, 125.
8. Set the *Composite Mode* to Add. This gives the edges a sort of neon, glowing look, but it completely wipes out the duck.
9. To fix this, enable the visibility of the top duck layer.

Figure 1:210 Duck In Time Completed

TUTORIAL 5: DUCK SHADOW

This tutorial will utilize the following plug-in:

- IL Real Shadows

Figure 1:211 Duck Shadows Final

This lesson is one of the coolest and most fun of all offered with Image Lounge. It's also one of the easiest to do, which makes it doubly exciting.

A little backstory...

Ever since the day we first opened our eyes as newborns we have seen objects cast shadows. In order for you to see an object it must have light shone upon its surface—by virtue of that fact alone we know that every object casts a shadow to one degree or another.

In the world of compositing, however, we often run in to situations where our elements are shadowless due to the keying process, they way they were filmed (or rendered), or both. And nothing screams ***FAKE!!*** in a compositing situation louder than a shadowless object in a scene containing shadows.

While this filter is most useful when working with elements shot against a blue- or greenscreen it can be used (as it was in the Design tutorial) to provide a shadow for any object with an alpha channel.

Set up the project

1. Create a new project file and import the elements *Duck BG Still.pct* and *duck with alpha.mov.*
2. Create a new composition named *1.Duck Real Shadow* and add both elements to it.
3. Position the background image at 320, 173, then lock the layer if you wish.

Apply the shadow

Scrub back and forth through the scene to see the movement of the duck. Note the shadows on the ground being cast by the car.

1. Apply IL Real Shadows to the duck layer.

As in previous tutorials, after applying the filter you get the "inverted T" shape of the *Baseline* and *Slant* controls. What we want to do is align the Baseline along the path taken by the feet of the duck.

2. Position the *Baseline Start* point around 0, 300.
3. Position the *Baseline End* point around 640, 300.

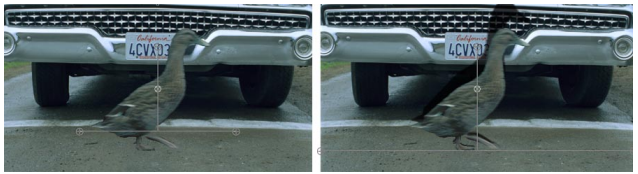


Figure 1:212 Baseline Defaults and Changed

Figure 1:212 shows the Baseline before and after we changed the points. Scrub back and forth through the clip and watch the position of the duck's feet to ensure that the baseline accurately represents their position.

The next step is to change the *Height & Slant* point to make the shadow appear to be cast on the ground.

4. Drag the Height & Slant point down and slightly to the right to position the shadow, or use the values 337, 260.

Figure 1:213 Shadow Applied

Again preview the duck motion to see the shadow in action.

Soften the shadow

The only thing wrong with our shadow at this point is the hard edges, so in this section we'll soften the shadow up a little.

1. Set *Fadeout* to 0.40, which makes the shadow more diffuse the farther away from the baseline it is.

Figure 1:214 Fadeout Adjusted

2. Set *Softness* to 20, which nicely blurs and softens the edges of the shadow.

Figure 1:215 Softness Adjusted

3. Set Opacity to 60%, which makes more of the background show through.

Figure 1:216 Opacity Adjusted

Scrub through the shot to preview the effect.

Fun stuff

Here's a little something fun to try. Enable the *Shadow Only* checkbox. The duck disappears but his shadow remains.

Figure 1:217 Shadow Only

TUTORIAL 6: FISH WATER

This tutorial will utilize the following plug-ins:

- IL Fractal Clouds
- IL Fractal Brimstone
- IL Ultra Displacer

Figure 1:218 Fish Water Final

Those of you who also own Composite Wizard will be familiar with this fish project. CW filters were used to remove blue spill, clean up the keyed matte, color correct the fish, and perform a host of other tasks. If you don't currently own Composite Wizard, install the demo and give the filters a whirl.

About the lesson

Fish IL is quite a detailed project, involving the creation of three layers of precomposed fractal water, particle systems, and image displacement, among other effects.

Set up the project

1. Create a new project file and import the following elements:

- Fish Comp.mov
- Fish matte.mov
- Water.fg.mov

Precompose the water

The first step is to precompose our three water layers: Foreground (FG), Midground (MG) and Background (BG).

(NOTE: We have also included all the water elements pre-rendered. If you are a tutorial purist who wants to use these lessons to learn every single nuance associated with getting the most out of Image Lounge, feel free to create the water layers yourself. If, on the other hand, you'd rather be prone on your couch watching reruns of *Geraldo* and really just want the basics, feel free to skip ahead.)

WATER BG

1. Create a new 4:28 composition named *Water BG*.

2. Add a new solid, and apply *IL Fractal Clouds*.

First change the colors from the default black and white to a dark blue and a bright light blue.

3. Change the black arrow to the dark blue (HSV 217, 92, 71).

4. Change the white arrow to light blue (HSV 190, 64, 100).

Figure 1:219 Water BG Color Map

5. Adjust the following parameters to set the fractal properties.

- Set *Detail* to 38%.
- Set the *Scale* to 0.44.
- Set the *Bias* to 0.46.
- Set the *Gain* to 0.62.
- Set the *Aspect Ratio* to 39%.
- Set the *Mutation Rate* to 12%.
- Set the *Mutation Offset* to 0.2.

Figure 1:220 Water BG Precomp

6. On the first frame set a keyframe for the *Position* value, which should be at 320, 240.

7. On the last frame set a Position keyframe of 500, 240.

WATER MG

1. Create a new 4:28 composition named *Water MG*. Make sure the background color is black.

2. Add a new solid, and apply *IL Fractal Clouds*.

First change the colors from the default black and white to a nearly transparent dark blue and a bright light blue/green.

3. Change the black arrow to the dark blue (HSV 217, 92, 71).

4. Change the white arrow to light blue (HSV 168, 45, 89).

Figure 1:221 Fish Water MG Color Map

5. Adjust the following parameters to set the fractal properties.

- Set the *Appearance* to Billows.
- Set *Detail* to 33%.
- Set the *Bias* to 0.46.
- Set the *Gain* to 0.62.
- Set the *Aspect Ratio* to 39%.
- Set the *Mutation Rate* to 12%.
- Set the *Mutation Offset* to 0.2.

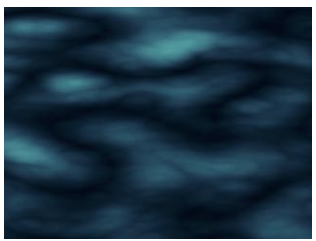


Figure 1:222 Water MG Precomp

Figure 1:222 shows the completed Water MG layer.

6. On the first frame set a keyframe for the *Position* value, which should be at 300, 240.

7. On the last frame set a Position keyframe of 500, 240.

WATER FG

1. Create a new 4:28 composition named *Water FG*. Make sure the background color is black.

2. Add a new solid, and apply *IL Fractal Clouds*.

First change the colors from the default black and white to transparent black and light blue.

3. Change the white arrow to light blue (HSV 200, 41, 100).

Figure 1:223 Fish Water MG Color Map

4. Adjust the following parameters to set the fractal properties.

- Set the *Appearance* to Filaments.
- Set *Detail* to 80%.
- Set *Scale* to 0.31.
- Set the *Bias* to 0.40.
- Set the *Gain* to 0.73

- Set the *Black Clip* to 0.23.
- Set the *Aspect Ratio* to 39%.
- Set the *Mutation Rate* to 12%.
- Set the *Mutation Offset* to 0.2.

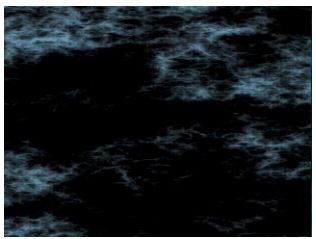


Figure 1:224 Water MG Precomp

Figure 1:222 shows the completed Water FG layer.

5. On the first frame set a keyframe for the *Position* value, which should be at 210, 122.

6. On the last frame set a Position keyframe of 500, 240.

You have now completed creating the water layers.

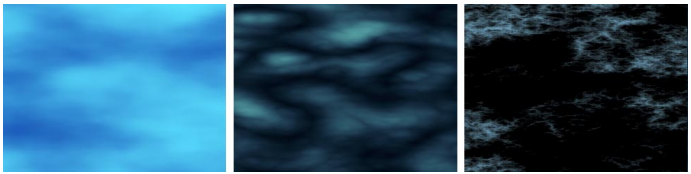


Figure 1:225 Water Precomp Layers: Background, Midground, and Foreground

Create the bubbles

To create the bubbles we are going to be using IL Fractal Brimstone, the amazing particle system. The first layer of bubbles we create is going to be the background bubbles that appear behind the fish.

1. Create a new 4:28 composition named *1.Bubbles BG Precomp*.

2. Add a new solid, and apply *IL Fractal Brimstone*.

As seen in Figure 1:226, the default settings of IL Fractal Brimstone create a large, straight pillar of fire. Below we will detail the settings necessary to create the bubbles.

Figure 1:226 Brimstone Defaults

As you clearly can see by looking at the Brimstone interface it would take six months to explain what every feature does, so we're just going to list them and only specifically comment on the important points. As you enter in each value watch its effect on the overall Brimstone effect.

The IL Fractal Brimstone chapter begins on 28 and contains detailed examples and explanations of all of IL Fractal Brimstone's functionality.

3. Enter in the values listed below to create the background bubbles layer:

General Controls

- Set the *Time Offset* to 10.

Particle Controls

- Set the *Producer* location to 320, 700.
- Set the *Beam Spread Angle* to 360°. Particles are now emitted in every direction.
- Set the *Producer Width* to 100.
- Set the *Velocity* to 1.2.
- Set the *Velocity Variation* to 18%.
- Set the *Birth Rate* to 100.
- Set the *Birth Radius* to 1.5.
- Set the *Birth Radius Variation* to 7%.
- Set the *Death Radius* to 6.3.
- Set the *Death Radius Variation* to 7%.
- Set the *Radius Age Bias* to 67%.
- Set *Brownian Motion* to 1.0.

Color Controls

- Set the *Birth Color Map* to Black to White, and adjust the in and out points as shown in Figure 1:227.

Figure 1:227 Birth Color Map Settings

- Set the *Death Color Map* to Black to White.

Cloud Controls

- Set the *Appearance* popup menu to Billows.
- Set the *Birth Aspect* to -0.4.
- Set the *Death Aspect* to 0.77.
- Set the *Detail* to 7.5%.
- Set *Scale* down to 0.4.

At this point your Brimstone bubbles should look similar to those in Figure 1:228.

Figure 1:228 Brimstone Bubbles

A few additional steps will complete the layer.

4. Set the Opacity of the solid layer to 50%.

5. Add the file *Fish matte.mov* on top of the solid layer, and turn it's visibility off.

6. Activate the *Transfer Controls*, and designate Fish matte.mov as a Luma Inverted track matte for the solid bubbles layer.

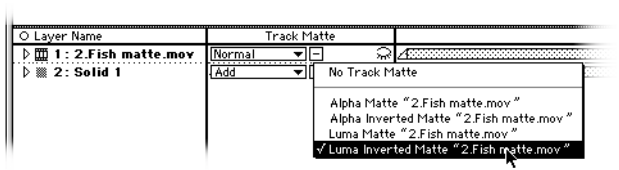


Figure 1:229 Luma Inverted Track Matte

Why did we do this? Because the bubbles are supposed to be in the background and will thus be going *behind* the fish, the luma inverted track matte will mask out any bubbles that occupy the same space as the fish, thus giving the illusion that they are indeed in the background.

7. Set the transfer mode of the bubbles layer to Add.

With that we're done precomping the background bubbles layer. There's still two more layers of bubbles to create, but we'll do those later in the final composite.

The final composite

This is where it all comes together.

1. Create a new 04:28 composition named *2.Fish Water Comp*.

2. Add in the file *Fish Comp.mov*.

3. Add in the file *Water.FG.mov* and turn off its visibility.

Because this fish footage was shot on DV it has a bit of interlacing which we should get rid of.

4. Apply the After Effects *Reduce Interlace Flicker* filter, and set the Softness slider to around 0.5.

Apply effects to the fish

1. Apply *IL Ultra Displacer* and designate Water.fg.mov as the Control Layer.

2. Set the *Scale* to 0.2 to reduce the displacement effect.

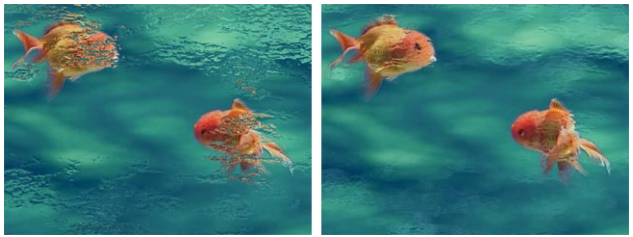


Figure 1:230 Ultra Displacer Default and Scale 0.2

Add more bubbles

1. Create a new black solid, name it *Bubbles FG*, and set its transfer mode to *Add*.
2. Open the composition *1.Bubbles BG Precomp* and open the transfer controls for the solid bubbles layer.
3. Highlight IL Fractal Brimstone and select *Copy* from the Edit menu. Close this composition.
4. Select the black solid you just created in the main composition, open its effect controls, and select *Paste* from the Edit menu.

Most of the settings here are the same. Listed below are the changes you need to make.

5. Make the following changes:

- Change the *Velocity* to just over 3.
- Set the *Velocity Variation* to 0.
- Set the *Birth Rate* to 22.
- Set the *Birth Radius* to 6.
- Set the *Birth Radius Variation* to 99%.
- Set the *Death Radius* to 35.
- Set the *Death Radius Variation* to 32%.

Figure 1:231 Foreground Bubbles Before and After

6. Add the composition 1.Bubbles BG Precomp as a layer and set it's transfer mode to Add.
7. Change the layer's Opacity to 80%.
8. Add another copy of the composition 1.Bubbles BG Precomp as a layer and set it's transfer mode to Add.

Congratulations! You've just finished creating a fish composite that would make Jacques Cousteau proud.

TUTORIAL 7: FRACTAL TUTORIALS

This tutorial will utilize the following plug-ins:

- IL Fractal Clouds
- IL Fractal Fire
- IL Fractal Brimstone
- Il Fractal Tunnel

If there's ever been such a thing as a "free range" tutorial then this is it. Because of the virtually unlimited amount of effects that can be generated using Image Lounge's fractal filters we're kind of hard pressed to be able to provide specific examples of everything you can do with them.

So, like medical school students at a cadaver, we present 12 fractal projects for you to slice open and dissect. Don't forget to check and see which parameters are animated.

Clouds

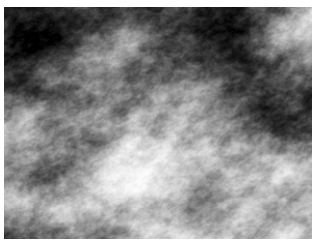


Figure 1:232 Fractal Tutorials Clouds

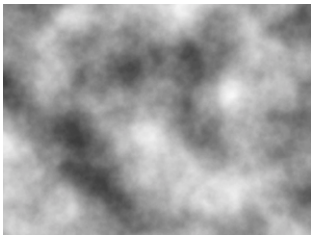


Figure 1:233 Fractal Tutorials Clouds 2

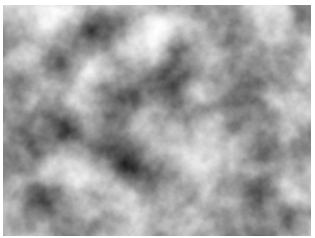


Figure 1:234 Fractal Tutorials Clouds 3

Fire

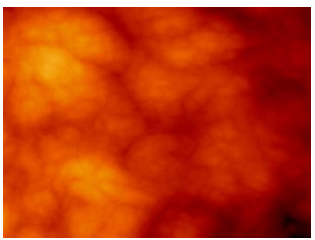


Figure 1:235 Fractal Tutorial Fire 1

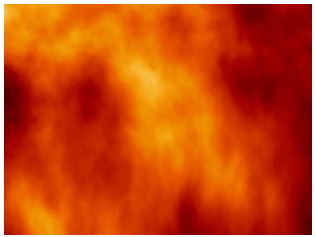


Figure 1:236 Fractal Tutorials Fire 2

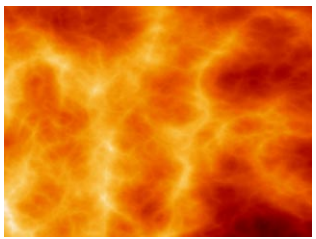


Figure 1:237 Fractal Tutorials Fire 3

Brimstone

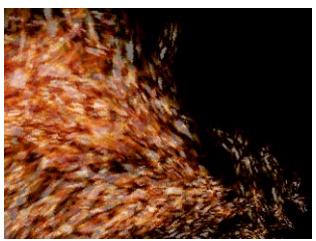


Figure 1:238 Fractal Tutorials Brimstone 1

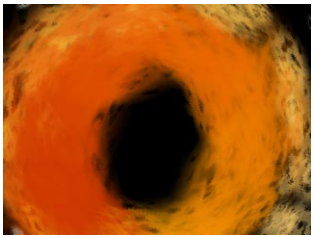


Figure 1:239 Fractal Tutorials Brimstone 2

Figure 1:240 Fractal Tutorials Brimstone 3

Tunnel

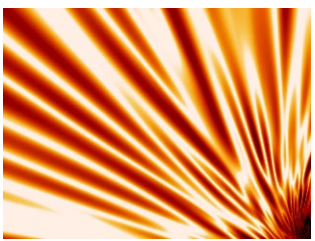


Figure 1:241 Fractal Tutorials Tunnel 1

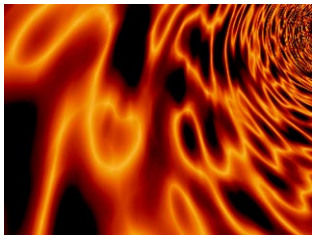


Figure 1:242 Fractal Tutorials Tunnel 2

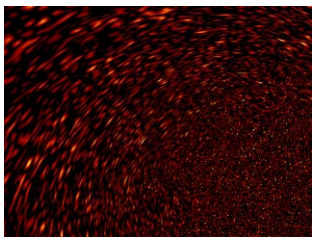


Figure 1:243 Fractal Tutorials Tunnel 3

TUTORIAL 8: TAHITI FLAME

This tutorial will utilize the following plug-ins:

- IL Fractal Fire
- IL Mirage

Figure 1:244 Tahiti Flame Final

After the last lesson, where there were three examples of abstract fire created using IL Fractal Fire, we thought it would be a good idea (not to mention a lot of fun) to create a project where we seriously torched something to show off just how great this filter is at making awesome-looking fire. This project has something for everyone—billowing fire, thick smoke, and rising heat distortion—more than enough to satisfy that little firebug in all of us.

Set up the project

1. Create a new project file and import the following elements:
   - Tahiti BG.psd
   - Sun & Flare.mov
2. Create a new 05:00 second composition named *1.Fire PreComp*.
3. Add a new black solid named *Fire Base*.

Precompose the fire base

1. Select Fire Base and apply *IL Fractal Fire*.

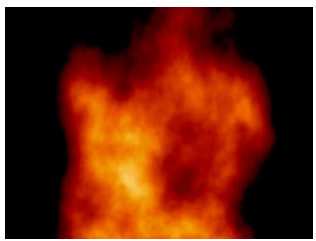


Figure 1:245 IL Fractal Fire Default Values

2. Increase the *Detail* slider to 63%.
3. Decrease the *Scale* value to around 42%.
4. Increase *Velocity* to 12.

5. Increase the *Mutation Rate* to 30%.
6. For the time being leave *Flame Height* as it is. Eventually we will keyframe this value to 0, but for now we need to be able to see the fire in order to tweak its settings.
7. Set the *Height Cutoff Slope* to 40%.
8. Set the *Flame Width* to 10%.
9. Set the *Acceleration* to 20%.
10. Now set the Flame Height to 0.

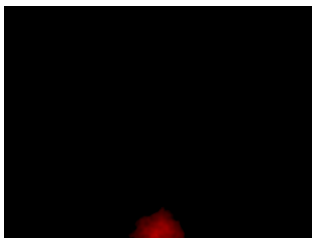


Figure 1:246 Current Flame Settings

Figure 1:246 shows how your flame should currently look. The next step is to animate some of the flame's parameters.

Animate the fire base

1. At the first frame set keyframes for *Flame Height*, *Flame Cutoff Slope*, and *Flame Width*. Set the *Position* value for the layer (not the effect) to 454, 240 and set a keyframe.

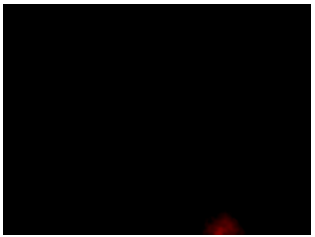


Figure 1:247 Fire Base Keyframe 1

2. Advance to frame 00:14 and make the following changes:

- Set Flame Height to 1.7%.
- Set Height Cutoff Slope to 36%.
- Set Flame Width to 21%.
- Set a keyframe for position.

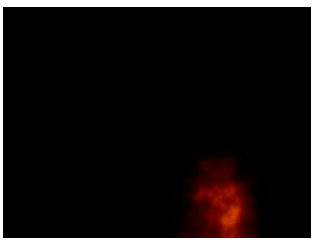


Figure 1:248 Fire Base Keyframe 2

3. Advance to frame 01:20 and make the following changes:

- Set Flame Height to 6.1%.

- Set Height Cutoff Slope to 25%.
- Set Flame Width to 75%.
- Set Position to 376, 240.

Figure 1:249 Fire Base Keyframe 3

4. Advance to frame 03:20 and make the following changes:

- Set Flame Height to 14%.
- Set Height Cutoff Slope to 29%.
- Set Flame Width to 100%.
- Set Position to 320, 240.

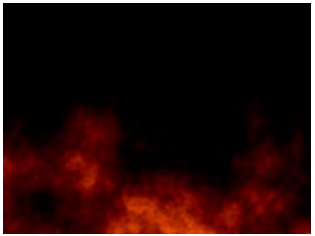


Figure 1:250 Fire Base Keyframe 4

5. Finally, advance to the final frame and make the following changes:

- Set Flame Height to 15%.
- Set Height Cutoff Slope to 24%.
- Set Flame Width to 83%.

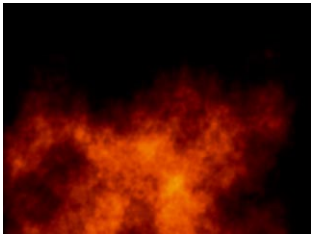


Figure 1:251 Fire Base Frame 5

Preview the fire base, and note just how much this effect not only *looks* like fire but it actually *moves* like fire.

Precompose the fire plume

1. Add a new black solid named *Fire Plume*.

2. Copy the IL Fractal Fire settings from the Effect Controls dialog of the Fire Base layer in the first composite, then paste them onto the new Fire Plume solid.

3. Make the following changes to the Fire settings at frame 1:

- Set Smokiness to 1.6%.
- Decrease *Detail* slider to 52%.
- Increase the *Scale* value to 50%.
- Decrease *Velocity* to 10.
- Increase the *Mutation Rate* to 30%.
- Set the *Height Cutoff Slope* to 80%.
- Set the *Flame Width* to 35%.
- Set the *Acceleration* to 50%.

4. Set the Position of the layer (not the effect) to 454, 240.

Animate the fire base

1. At the first frame set keyframes for the following parameters:

- Smokiness
- Flame Height
- Flame Cutoff Slope
- Flame Width
- Flame Edge Scale
- Set a keyframe for the layer Position.

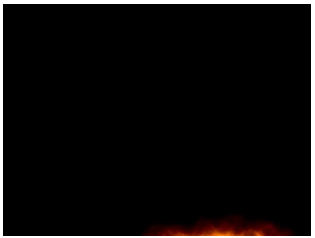


Figure 1:252 Flame Plume Keyframe 1

2. Advance to frame 00:14 and make the following changes:

- Set a keyframe for Smokiness.
- Set Flame Height to 5.6%.
- Set Height Cutoff Slope to 70%.
- Set Flame Width to 36%.
- Set a keyframe for Flame Edge Scale.
- Set a keyframe for layer Position.

Figure 1:253 Flame Plume Keyframe 2

3. Advance to frame 01:20 and make the following changes:

- Set Smokiness to 17%.
- Set Flame Height to 20%.
- Set Height Cutoff Slope to 45%.
- Set Flame Width to 40%.
- Set a keyframe for Flame Edge Scale.
- Set layer Position to 376, 240.

Figure 1:254 Flame Plume Keyframe 3

4. Advance to frame 03:20 and make the following changes:

- Set Smokiness to 50%.
- Set Flame Height to 45%.
- Set Height Cutoff Slope to 35%.
- Set Flame Width to 30%.
- Set Flame Edge Scale to 35%.
- Set layer Position to 320, 240.

Figure 1:255 Flame Plume Keyframe 4

5. Advance to frame 04:29 and make the following changes:

- Set Height Cutoff Slope to 30%.
- Set Flame Width to 50%.
- Set Flame Edge Scale to 34%.

Figure 1:256 Flame Plume Keyframe 5

Preview the fire precomp

Activate both the Fire Base and Fire Plume layers, then scrub back and forth to preview the motion of the fire. It looks absolutely gorgeous.

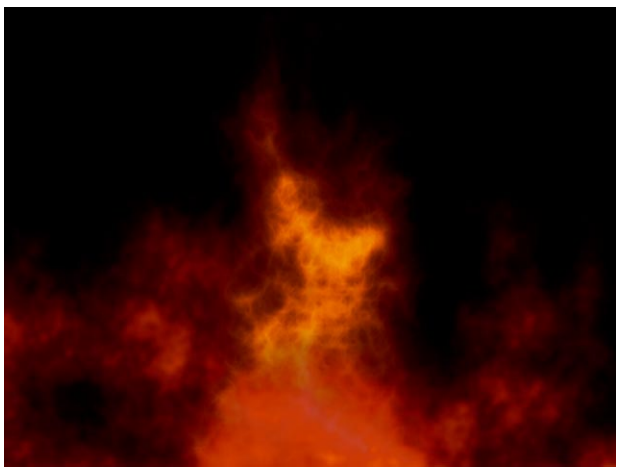


Figure 1:257 Flame Precomp Preview

The final composite

Now we need to place our fire precomp over the background layer and add in the heat distortion.

1. Create a new composition named *2.Tahiti Comp*. Add in the TahitiBG element and the Fire Precomp layer.

Because our fire starts out below the bottom of the frame and then shoots upward in a large gust we are going to have to set up our heat distortion according to that gust. First we'll set up the distortion parameters and then animate their effect.

2. With Tahiti BG selected apply *IL Mirage*.
3. Move the *Producer Point* straight down offscreen to 245, 285.
4. Increase the *Detail* slider to 23%.
5. Decrease the *Velocity* slider to 5%.
6. Decrease the *Mutation Rate* to 4%.
7. Set the Field Edge Amplitude to 33%.
8. Set *Field Side Feather* and *Field Edge Feather* both to 75%.

Animate the distortion

1. At frame 1 set a keyframe for Field Length, then set its value to 0.20.
2. Advance forward in time until the fire plume gives its first big burst, which is around frame 01:21, and set Field Length to 0.50.

3. The next significant gust occurs around 02:14. At this point set the Field Length to 0.80.

At this point the flame effect is looking really good. Figure 1:258 shows two frames — it's amazing how real this effect looks, and the heat distortion is what really sells the shot.

Figure 1:258 The Flame Composite

Sprinkles on top, please...

You know when you buy a sundae from an ice cream store, no matter how many different kinds of ice cream you combine together in your cup the snack is never complete without the little toppings — nuts, sprinkles, candy bits, etc. Well, compositing can be like that, too.

Think of it like this: after we precomped the fire together we could have simply stuck it over the background and been satisfied with a good looking shot. Adding the heat distortion, however, greatly enhanced the believability of the shot and really helped to sell the composite. Well, being *gourmets* of cool, eye-popping effects, we here at Pinnacle Systems have included for your fine dining pleasure a lens flare layer, the perfect sprinkles to finish off your Tahiti Flame sundae.

The lens flare layer was created using our very own Knoll Light Factory. For more information on Knoll Light Factory install the demo version off your Image Lounge CD and take it for a spin.

1. Add 2.Sun & Flare.mov to the top of the composite.

That's it! Of course, having been the ones who set up this project in the first place we had the luxury of knowing where to keyframe our lens flare for maximum effect. Essentially, we did just what we did when we rendered the head distortion — we based the flare on the fire precomp layer.

Figure 1:259 Flame Composite With Flare - Final

TUTORIAL 9: TRUECAMERA BLUR

This tutorial will utilize the following plug-in:

- IL TrueCamera Blur

Figure 1:260 TrueCamera Blur Final

Being graphics professionals we are all familiar with the concept of blur. We've applied it millions of times in the past in animation programs, page layout programs, still-image graphics packages, and the like. Many of us know Gaussian Blur better than we know some of our family members. So, since we're all familiar with blur what's the point of another blur filter?

For a detailed explanation of the wide range of blur types available to you in Image Lounge, please refer to "Blurs" on page 186 in the Appendix.

TrueCamera vs. Gaussian

Just because all blurs may look the same to the average Joe on the street doesn't mean that all blurs are actually the same. IL TrueCamera Blur stands apart from the rest of the pack because it accurately replicates the blur created by shooting out-of-focus images with a real 35mm film camera.

For example, Figure 1:261 shows the same image with a 10 pixel blur applied. The left image was blurred with a standard Gaussian blur, and the right image with TrueCamera Blur.

Figure 1:261 Gaussian Blur Versus TrueCamera Blur

Two huge differences instantly pop out. First, look at how much more pronounced the highlight areas of the scene are in the TrueCamera image. They're brighter, thicker, and more "edgy", for lack of a better word. Also, in the Gaussian image the blur function pulls in the edges of the image and you end up with artifacting around the perimeter of the composite — not so in TrueCamera.

Let's dive right in and start playing around with the filter. We're going to be animating the amount of TrueCamera blur applied, as the effect is incredibly easy to see when it's applied over time.

About TrueCamera filters

Before we jump in be advised that we're going to be mentioning functions of the filter like *Iris Blades*, *Iris Edge Enhancement*, etc. The next tutorial deals with IL TrueCamera Rack Focus and contains even more real-world camera terms and concepts. Remember, the Appendix contains detailed explanations on the terms, concepts, and techniques associated with z-depth maps, their use, and creation. It also explains such concepts as rack focus, focal point, and depth of field. The Appendix begins on 161.

Set up the first project

Okay, looks like we're ready to continue.

1. Create a new project file and add in the element *Logo.pct*.
2. Create a new 1-second composition named *1.TrueCamera* and add the Logo element to it.
3. Select the logo layer and apply *IL TrueCamera Blur*.
4. Set the number of *Iris Blades* to 12.

Any distant points blurred by TrueCamera will blur into 12-sided objects. The sharpness of these points is determined by the Iris Edge Enhancement slider.

5. Lower the *Gamma* setting to 0.2.

Gamma emphasizes the highlights, or points of light, to better show the artifact. Lower numbers create more artifacts.

Animate the blur

1. On frame 1 make sure the *Blur Amount* is set to 0, then set a keyframe for it.
2. Go forward to the last frame and set the Blur Amount to 20.
3. Render the project (or view the pre-rendered movie supplied by us).

Figure 1:262 TrueCamera Blur: 0 Pixels and 20 Pixels

Viewing the blur when animated makes the effect a lot easier to see. If you are so inclined, try rendering out the same animation with a Gaussian blur and compare the end result.

The second project is essentially identical to the first, except the number of iris blades has been reduced to 10 and the Blur Amount has been increased on the last frame to 70.

Example images

The following images will show the scene blurred with various TrueCamera settings, and give you an idea for just how versatile this filter really is.

Figure 1:263 Blur Amount 10

Figure 1:263 shows the scene with TrueCamera Blur applied with all it's settings at default except for Blur Amount, which has been increased to 10.

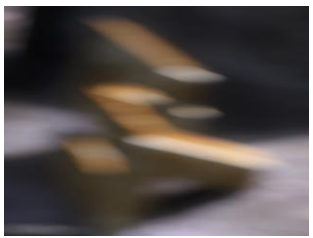


Figure 1:264 Blur Aspect 4

Keeping the same Blur Amount, setting the *Blur Aspect* to 4 gives us the effect seen in Figure 1:264. The blur is now four times wider than it is high.

The inverse of this is Figure 1:265, where the Blur Aspect has been set to -4, and the blur is now four times higher than it is wide.

Figure 1:265 Blur Aspect -4

The number of Iris Blades also controls how much blur is applied.

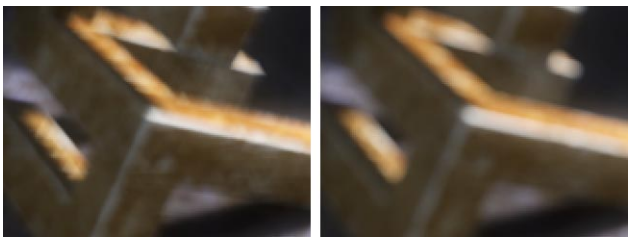


Figure 1:266 Blur Amount 10, Iris Blades 3 and 12

In Figure 1:266 we have a Blur Amount of 10 in both images. The left images as a Iris Blades set to 3, and the right has it set to 12. Increasing the number of iris blades increases the amount of blur.

The Iris Edge Enhancement slider controls the "sharpness" of the blur.

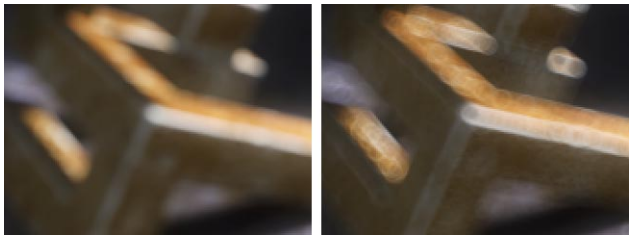


Figure 1:267 Blur Amount 10, Iris Edge Enhancement 0 and 100%

Figure 1:267 shows edge enhancement values of 0 and 100%. Increasing edge enhancement also creates a stronger-looking blur, even if the actual blur amount remains constant.

The Gamma value emphasizes the highlights, or points of light, to better show the blur artifact. Lower numbers create more artifacts. The left image in Figure 1:268 shows Gamma at 0.01, almost its lowest setting. The blurred artifacts are very bright and distinct. The right image shows the Gamma set to 1, a high setting. Lens artifacting is minimized.

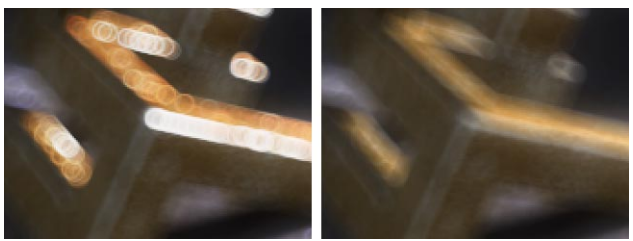


Figure 1:268 Blur Amount 10, Gamma 0.01 and 1

Iris Blades and artifact shape

The number of iris blades in a camera has a great deal of control over how the artifacting will look, specifically in regards to its shape. To illustrate this point we're going to reset all our values to defaults, then set the following parameters:

- Blur Amount to 20
- Iris Edge Enhancement to 100%
- Gamma to 0.01

Setting the Blur Amount to 20 will give us a good deal of blur to work with. The maximum amount of Iris Edge Enhancement will ensure the highest amount of artifacting. And the Gamma setting that low will make the artifacting very bright and easy to see. Figure 1:269 shows our scene before and after these settings were applied.

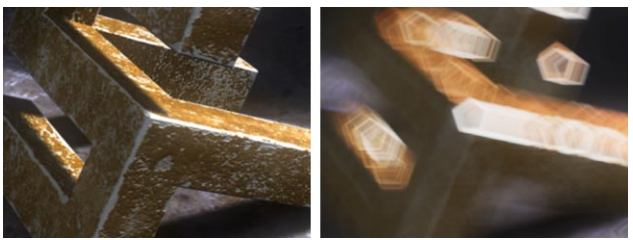


Figure 1:269 Iris Blades 5

In the right image note the high level of artifacting, especially of the bright edge areas. All the artifacts are pentagonally shaped. Why is this? By default the number if Iris Blades is set to 5. The number of Iris Blades

determines the number of sides on the artifacts, because when the five blades flange together the hole they form is shaped like a pentagon.

Figure 1:270 shows iris settings of 7 and 3. A setting of 7 produces heptagonal artifacts, and a setting of three produces triangular artifacts.

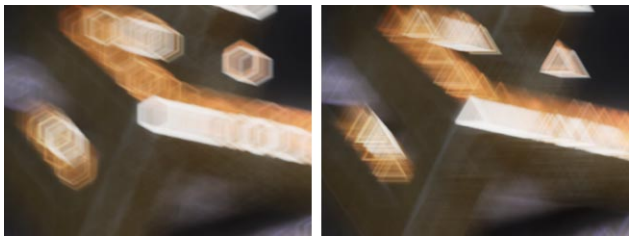


Figure 1:270 Iris Blades 7 and 3

Iris Blades and Lens Flare Pro

If you happen to be using both IL TrueCamera Blur and Knoll Light Factory in the same shot, be advised that the number of Iris Blades in your digital lens must be set the same in both plug-ins to ensure parity between the effects.

Figure 1:271 Knoll Light Factory Iris Artifacting

For example, the *PolySpread* lens primitive contains a setting for the number of sides — the sides in question are determined by the number of iris blades in the digital lens. Figure 1:271 shows two examples of the same Knoll Light Factory effect with Sides settings of 3 and 5. Figure 1:272 shows the flares correctly applied to our logo.

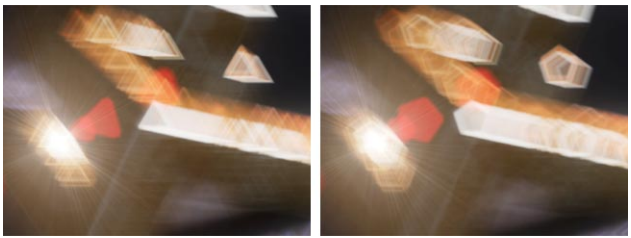


Figure 1:272 Knoll Flares Applied With Correct Sides

TUTORIAL 10: TRUECAMERA RACK FOCUS

This tutorial will utilize the following plug-in:

- IL TrueCamera Rack Focus

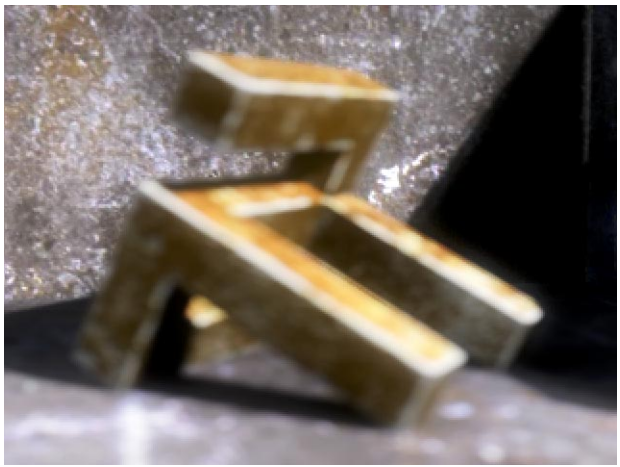


Figure 1:273 IL TrueCamera Rack Focus Final

This lesson will guide you through the process of pulling a rack focus on an animated logo.

The Appendix contains detailed explanations on the terms, concepts, and techniques associated with z-depth maps, their use, and creation. It also explains such concepts as rack focus, focal point, and depth of field. The Appendix begins on 161.

For a detailed explanation of the wide range of blur types available to you in Image Lounge, please refer to "Blurs" on page 186 in the Appendix.

Set up the Project

1. Create a new After Effects project and add in the following elements:
   - Logo Beauty Pass.mov
   - Logo Z Depth.mov
2. Create a new composition named *1.Rack Focus* and add both elements to it. Take a look at frame 1 of both elements.

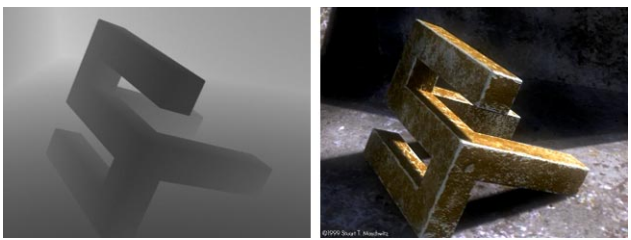


Figure 1:274 Rack Focus Elements

3. Make *Logo Z Depth.mov* hidden by turning off its visibility or simply placing it behind the beauty pass.

Unlike most of the previous tutorials there's no precomping or nested layers — you just get to jump in with both feet and begin.

Examining the controls

There are three main controls in IL TrueCamera Rack Focus that control how the focus is applied, and how the rack focus is animated:

- The Show Menu
- Focal Point
- Depth of Field

Let's take a look at these controls.

1. Activate the Beauty Pass layer and apply *IL TrueCamera Rack Focus*.

Unlike previous blur filters this one defaults with a Blur Amount of 0, so there's no change to the image

2. Designate *Logo Z Depth.mov* as the Control Layer.

One of the main differences between this interface and IL TrueCamera Blur is the *Show* popup menu. There are five options under this menu:

- Blur
- Sharp Zone
- Blur Control
- Iris 1x
- Iris 10x

For now we're going to be interested in the first three.

Blur is the setting you use for final renders. It shows the scene with the blur effects applied.

Sharp Zone shows what areas of the image are going to be sharp — not have any blur applied to them, in other words. The sharp zone is determined by the control layer.

Blur Control shows the control layer as it is currently interpreted by the filter. Okay, let's try and put that in simple terms. Because of the ability of the filter to animate a rack focus, it has to be able to animate the perception of depth in the z-map. Essentially what the plug-in is doing is running a Levels calculation on the z-map. Adjusting the gray levels in this manner changes the composition of light and dark areas in the z-map, and as such allows animated blur effects to be applied to the scene. When you select Blur Control you see the z-map as the plug-in itself see it, with whatever levels adjustments have been made according to the parameters you have set.

Let's take a look at how these settings work together.

3. Make sure you are at frame 1, and then set the Show menu to Sharp Zone.

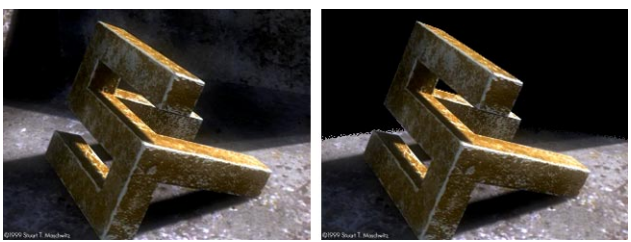


Figure 1:275 Blur and Sharp Zone Settings

Figure 1:275 shows the difference between Blur mode and Sharp Zone. The only areas visible in the Sharp Zone image are those pixels that are 100% sharp, and will have no blur applied to them. Any pixels that will be blurred are blacked out. This mode is extremely convenient for determining the depth of field for your scene.

4. Set the Show menu to Sharp Zone.

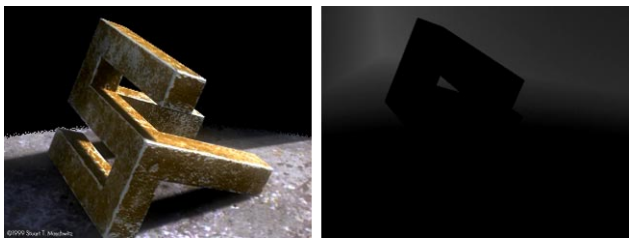


Figure 1:276 Sharp Zone and Blur Control Settings

Figure 1:276 shows the relationship between the Sharp Zone and Blur Control settings. The lighter an area in the Blur Control image, the more blur will be applied to it. Solid black areas receive no blur at all. Note how the areas in the Blur Control image that are solid black match perfectly with the visible pixels in the Sharp Zone image.

Next, let's take a look at the *Focal Point* controls, which by default are set to zero. A setting of zero focuses the camera on the point closest to it, which in the original z-map is represented by the darkest pixel in the image.

If you refer back to Figure 1:274 you can see the original z-map. Note that the darkest pixels in that image are concentrated on the very front point of the logo. A Focal Point setting of zero focuses our digital camera on that point. Conversely, a Focal Point setting of 255 will focus the camera on the farthest point away from the scene, or the lightest pixel in the z-map, which in this example are in the corner of the far wall.

Let's see how Focal Point settings affect our Blur Control image. The left image in Figure 1:277 shows the current Focal Point setting of 0.

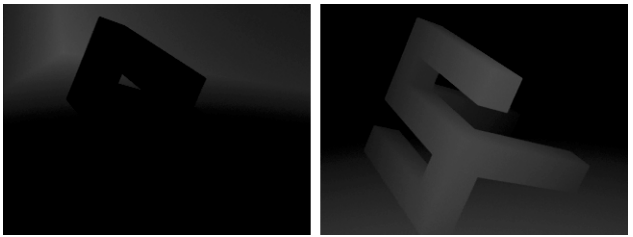


Figure 1:277 Focal Point Settings of 0 and 255

If we increase this value to 255, however, we get the image on the right. As you can see these images are essentially the inverse of each other. With a Focal Point of 255 the foreground will receive the most blur, and the background will be in focus.

5. Set the Show menu back to Sharp Zone.

As you may have guessed the sharp zone now is also the inverse of its previous setting. Only the far pixels will be in perfect focus, and all other pixels will receive blur.

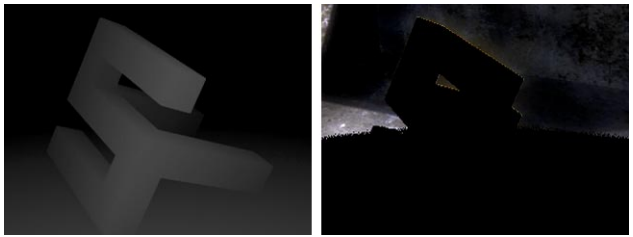


Figure 1:278 Current Sharp Zone View

Lastly, let's see how the Depth of Field control figures into all of this. By default the Depth of Field control is set to 50%. This percentage represents the amount of the distance between the nearest and farthest points in the scene.

6. Set the Show Menu to Blur Control, and the Focal Point to 0.

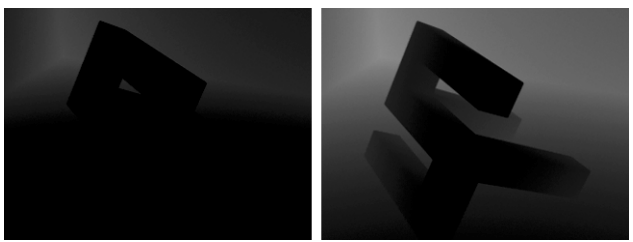


Figure 1:279 Depth of Field 50% and 25%

By decreasing the DOF we decrease the area of the image that is in focus, and thus increase the area of the image that is out of focus. The Blur Control layer reflects this by increasing the amount of light areas in the image — the lighter the pixel the more blur is applied.

7. Keeping the DOF at 25%, set the Focal Point to 128.

Figure 1:280 Focal Point 1 and 128.

128, being halfway between 0 and 255, positions the focal point of the camera in the middle of our scene. The only light areas seen in the Blur Control layer are the very front of the logo and the very back corner of the back walls. The Depth of Field is the black area between these two extremes.

8. Set the Depth of Field control to 12.5%.

Figure 1:281 Depth of Field 25% and 12.5%

12.5% is half of 25%, and our DOF area in the Blur Control layer has shrunk accordingly. The DOF can be clearly seen in the right image in Figure 1:281 as a black patch behind the logo and before the wall.

Setting up a rack focus

Essentially, the process for setting up a rack focus is a simple three-step process:

A. Set up the scene and designate the control layer.

B. Experiment with the camera settings to get a *Focal Point*, *Depth of Field*, and *Blur Amount* that are desirable, or that match the environment into which the composition is occurring.

C. Animate the Focal Point.

While there are a number of other control factors which you can use to alter the look of your scene, the above steps are the blueprint you can follow while you experiment.

Rack Focus in action

By this point you should have a fairly good understanding of the basic controls of IL TrueCamera Rack Focus, so now let's get on with actually pulling a rack focus through our scene. Following Steps A and B above, we will first set up the camera properties.

1. Go back to frame 1 and press Reset to reset the values of the filter to their defaults.

2. Set the Control Layer to *Logo Z Depth.mov*.

3. Set the *Maximum Blur* value to 20, which will give us quite a nice amount of blur.

4. Increase the *Blur Aspect* to 0.50, which will make the blur slightly wider than it is high.

5. Set the number of *Iris Blades* to 7.

6. Set the *Iris Softness* to 7.5.

7. Decrease the *Gamma* value to 0.20.

8. Set the *Depth of Field* to 40%.

9. Set the *Near Blur Gain* to 0.72.

10. Set the *Far Blur Gain* to 1.39.

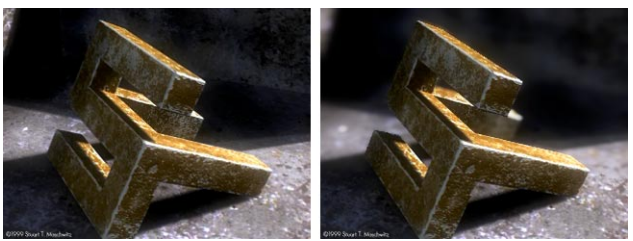


Figure 1:282 No Blur and Initial settings

Figure 1:282 shows the difference between the scene with no blur applied and the scene with the settings you just entered. The overall effect the blur has on highlighting the logo is striking, drawing the viewer's eye right

to the important items in the scene. Even if this was a still shot this effect would greatly enhance the overall look of the completed project.

The rest of this lesson will be fulfilling Step C above, animating the focal point. There will be two *rack foci* performed, between keyframes 2 and 3 and keyframes 4 and 5.

11. Set a keyframe for the Focal Point at frame 0.

This sets the initial keyframe for the rack focus.

12. Advance forward to 01:00 and set another keyframe for Focal Point.

Figure 1:283 Rack Focus Keyframes 1 and 2

The focal point has not changed between keyframes 1 and 2.

13. Advance forward to 02:12 and set the Focal Point to 255.

Figure 1:284 Rack Focus Keyframes 2 and 3

This is the first rack focus. Up until the second keyframe the foreground is in focus and the background is blurry. By the third keyframe, however, this has reversed, and the background is now in focus while the foreground is out of focus. You just witnessed a rack focus.

14. Advance forward to 03:20 and set a keyframe for Focal Point.

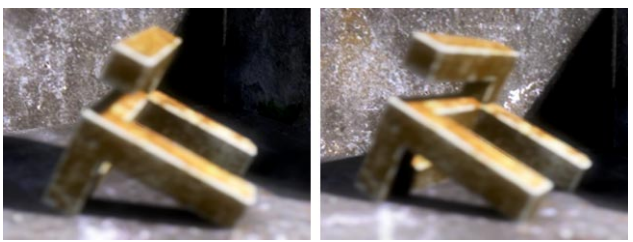


Figure 1:285 Rack Focus Keyframes 3 and 4

The focal point has not changed between keyframes 3 and 4.

15. Finally, advance forward to 04:11 and set the Focal Point back to 0.

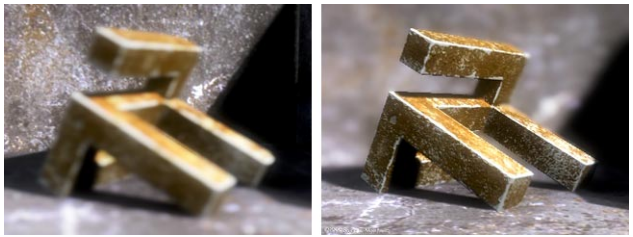


Figure 1:286 Rack Focus Keyframes 4 and 5

The second rack focus occurs.

Final notes

Make sure you check out the Appendix to truly be able to get the most out of your TrueCamera and Rack Focus experience.

TUTORIAL 11: TYPEWRITER

This tutorial will utilize the following plug-ins:

- IL Text Typewriter
- IL Turbulent Distortion EZ

This is actually a three-part tutorial, using the same elements in three individual projects. All three involve using IL Text Typewriter to create animated text treatments.

TYPEWRITER 1

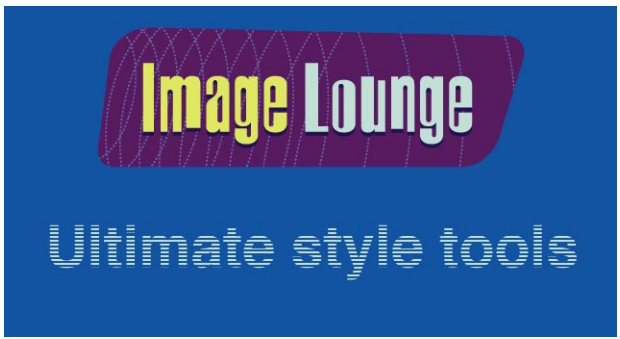


Figure 1:287 Typewriter 1 Final

This project involves creating computer-style text, complete with blinking cursor, and making that text type onto the screen.

Set up the project

1. Create a new After Effects project and add in the logo file *ILLayer.psd*.
2. Create a new composition (640x346, 01:20) named *1.Typewriter*.
3. Create a new solid and color it blue (HSV 212,92,65).
4. Add the logo element into the composition, and position it at 320, 96. Lock the layer if you like, as we won't be using it.

Set up the text

The first step when using IL Text Typewriter is to set up your text parameters, and then control the animated typing effect by animating the *Typing Completion* parameter.

1. Select the solid layer and apply *IL Text Typewriter*.

As soon as it is selected the options window is displayed. The options window is where you enter the text you want animated by IL Text Typewriter.

2. Type in the phrase "Ultimate style Tools". Change the font to *Helvetica*, set the Style to *Bold*, and the Alignment to *Center*. Click OK when done.

The text appears in the composition window, barely visible in the top left corner. The next step is to position and size the text accordingly.

3. From the Effect Controls window, find the *Position* value and position the text at 324, 272. You can do this either numerically or by using the crosshairs.

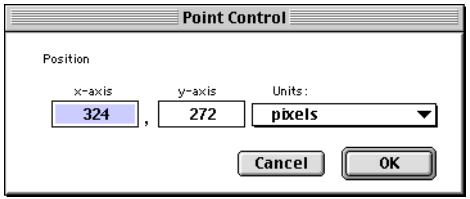


Figure 1:288 Position the Text Numerically

4. Change the point size of the text to 60 by dragging the slider.

The text is now sized and situated correctly in the comp window.

Figure 1:289 Text Situated Correctly

5. Apply the following settings to your text:

- Using the eyedropper tool next to the Color parameter, sample the light green color of the word “Lounge”.
- Set the Raster Effect popup menu to *Easy Lines*.
- Leave the Typing Completion slider at 100%. Eventually we will keyframe this parameter to animate our text.
- Set the Cursor Mode popup to *Leading Box*. This gives us a square cursor after our text.
- Check the *Enable Cursor Blink* checkbox.
- Set the Raster Height to 4.

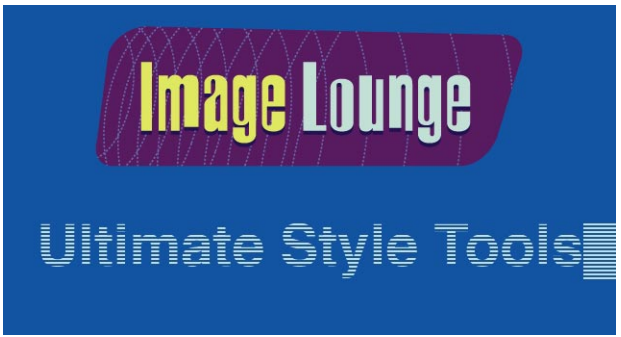


Figure 1:290 Text Setup Complete

If you were to hit Play right now and preview the comp you’d see the cursor blink on and off every few frames.

Animate the text

The final step in our lesson is to animate the text typing itself on, and to do this we will be using the Typing Completion slider.

1. Go to the first frame, set Typing Completion to 0, and set a keyframe.

The text instantly disappears, leaving only the cursor. Since we want our text to type *on* to the screen this is exactly what we need as a starting point.

2. Advance forward in time to 01:07 and set Typing Completion to 100%.

The text is now completely written on the screen.

Finishing up

The animation is complete, so scrub back and forth through the composition to preview the animation. The text types itself onto the screen between the 0 and 100% Typing Completion keyframes, and the cursor sits and blinks for the remainder of the project.

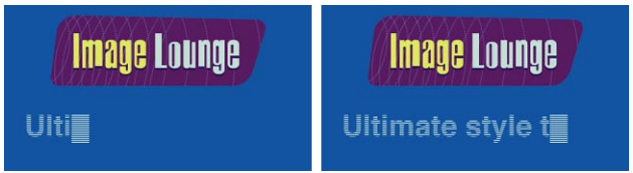


Figure 1:291 Typewriter 1 Complete

TYPEWRITER 2

Figure 1:292 Typewriter 2 Final

This project involves grungy, distressed type randomly writing itself, then quickly vaporizing and disappearing from the screen.

Set up the project

1. Create a new After Effects project and add in the logo file *ILLayer.psd*.
2. Create a new composition (640x346, 01:20) named *2.Typewriter*.
3. Add the logo element into the composition, and position it at 320, 96. Lock the layer if you like, as we won't be using it.
4. Create a new solid, and sample the light green color in the word Lounge to set the solid color.

Set up the text

Because we just went through the steps for setting up text we won't go through them again here.

1. Create the text *Ultimate Style Tools* and position it using exactly the same steps as you did for the previous lesson.

When completed your composition window should look like Figure 1:293.

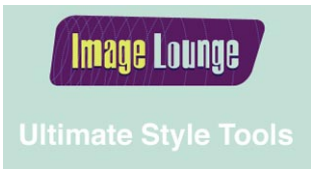


Figure 1:293 Text Created

2. Apply the following settings to your text:

- Use the eyedropper tool to set the text color to the purple found in the Image Lounge logo.
- Set the Typing Effect popup to *Random Order*.
- Set the Grunge Amount to 7%.

Figure 1:294 Text Style Complete

The text style is now finalized, as shown in Figure 1:294. The next step is to animate the text.

Animate the text

1. Go to the first frame, set Typing Completion to 0, and set a keyframe.
2. Advance forward to 01:00 and set the Typing Completion to 100%.

If you like, scrub through the animation to preview the type-on effect. Next we'll keyframe the dot scatter effect.

3. Advance to 01:10 and set a keyframe for *Dot Scatter*, which should be set to 0%. Set a keyframe for *Fade Completion*, which should also be set to 0%.
4. Finally, advance forward to 01:19 and set both Dot Scatter and Fade Completion to 100%.

The text disappears, and the animation is finished. Preview the completed project and render.

TYPEWRITER 3

Figure 1:295 Typewriter 2 Final

This final project involves warped, twisting text writing on to the screen from the right side of the frame.

Set up the project

1. Create a new After Effects project and add in the logo file *ILLayer.psd*.
2. Create a new composition (640x346, 01:20) named *3.Typewriter*.
3. Add the logo element into the composition, and position it at 320, 96. Lock the layer if you like, as we won't be using it.
4. Create a new solid, and sample the mustard yellow color in the word *Image* to set the solid color.

Set up the text

As in the previous lesson, simply follow the same text setup steps as you have in the past.

1. Create the text *Ultimate Style Tools* and position it using exactly the same steps as you did for the previous lesson.

When completed your composition window should look like Figure 1:293.

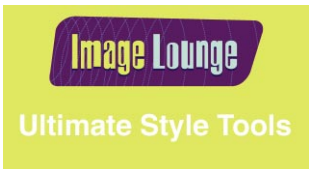


Figure 1:296 Text Created

2. Apply the following settings to your text:

- Set the Position to 580, 270
- Use the eyedropper tool to set the text color to the purple found in the Image Lounge logo.
- Set the Typing Effect popup to *Typewriter*.

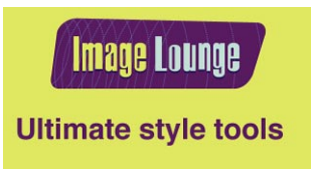


Figure 1:297 Text Style Complete

The text style is now finalized, as shown in Figure 1:297. The next step is to animate the text.

Animate the text

1. Go to the first frame, set Typing Completion to 0, and set a keyframe.
2. Advance forward to 01:07 and set the Typing Completion to 100%.

If you like, scrub through the animation to preview the type-on effect.

Distort the text

The final step is to apply the distortion to the text, then animate the distortion.

1. Apply *IL Turbulent Distortion EZ* to the text layer and set the following parameters:

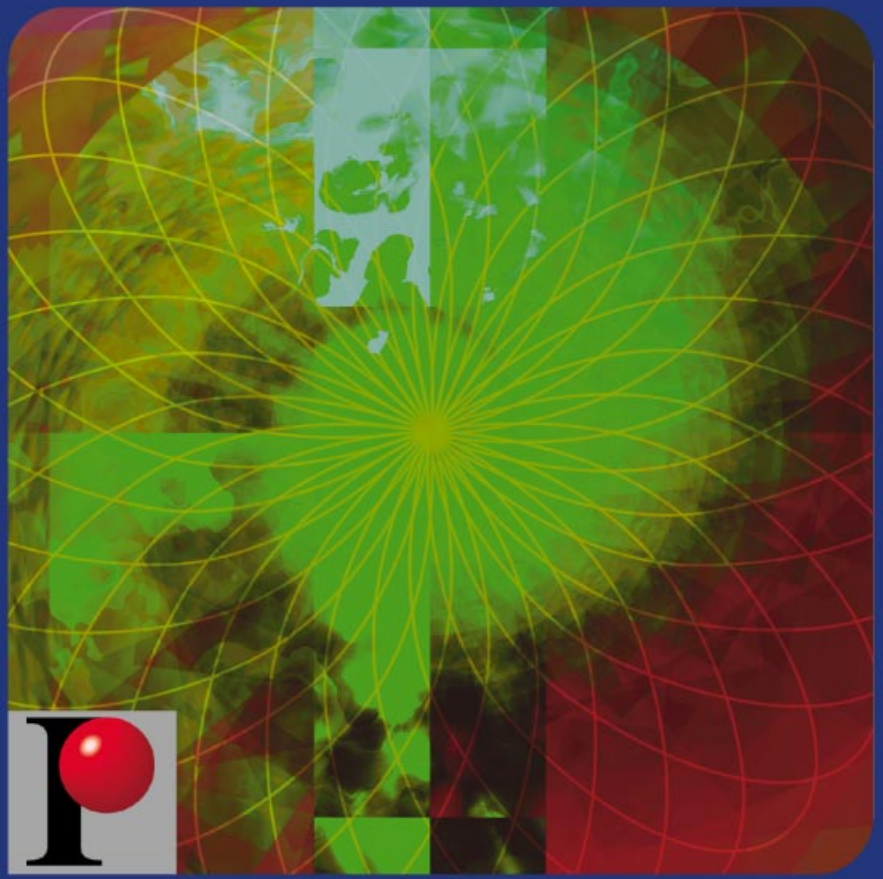
- Set the Scale to 0.43.
- Set Gain to 28.
- Advance in time to 01:07 and set a keyframe for *Detail*.
- Advance to the last keyframe and set Detail to 100%.

2. Preview the animation.

Figure 1:298 Typewriter 3 Complete

CONGRATULATIONS!

You have now completed all of the tutorials for Pinnacle Systems Image Lounge. Please feel free to install the demo versions of our other plug-in sets—*Primatte Keyer*, *Composite Wizard*, and *Knoll Light Factory*—to see how well they integrate to meet your compositing, effects, and matte creation needs.



APPENDIX

ABOUT THE APPENDIX

The appendix contains detailed explanations of concepts essential to getting the most out of both *Composite Wizard* and *Image Lounge*. Rather than explain these items multiple times throughout the documentation we have decided to combine them here, allowing us to explain them in much greater detail.

Calculating Z-Depth

This chapter is essentially a primer on z-depth: what it is, what you can do with it, and how the filters use it.

Using Z-Maps

This chapter tells you what you can do with a z-map once you have one.

The Science of Focus

Everything you ever wanted to know about focus: how cameras work, depth of field, circles of confusion, and how these concepts relate to the filters.

Creating Z-Maps (3D)

How to create a depth map in a 3D application. This chapter explains all the concepts behind z-map creation.

Creating Z-Maps (2D)

This chapter is sort of a part two to the previous chapter. This explains how to create a z-map for a 2D image.

Blurs

There are many different kinds of blurs available in both *Composite Wizard* and *Image Lounge*—this chapter makes sense of them.

CALCULATING Z-DEPTH

Many of the plug-ins detailed in this book, (such as the Composite Wizard filters *CW Super Blur* and *CW Super Rack Focus*, and the Image Lounge filters *IL TrueCamera Blur* and *IL TrueCamera Rack Focus*,) contain functionality specifically designated to be controlled by a grayscale depth map, commonly referred to as a *z-map*. Because many of you will undoubtedly not be familiar with z-maps, their creation, or their use, this section will explain these concepts in detail.

Why "Z"?

The term z-map might be a little misleading to those who are not familiar with working in 3D space. Anyone who has ever taken a high school geometry class will understand the concept of two-dimensional space: the x-axis represents horizontal space and the y-axis represents vertical space. Whenever you work in packages such as Commotion, Photoshop, or After Effects you are working solely in 2-dimensional space. When you work in 3D you have, in addition to the x- and y-axes, a z-axis, representing depth. Think of it like this: if you're looking at an image on your monitor the x-axis goes from left to right, the y-axis goes from top to bottom, and the z-axis is actually goes in and out of the screen, closer or further away from you.

A z-map is a grayscale image, similar to an alpha channel, that is a graphical representation of depth. An alpha channel uses 256 levels of gray to determine masking, transparency, etc.—in a z-map every pixel in a scene is assigned a 0-255 grayscale value based upon its distance from the camera. Traditionally the objects closest to the camera are white and the objects furthest from the camera are black. This grayscale image is then used as a control layer to determine how much of a particular effect an individual pixel in an image receives.

The term "z-map" may be misleading in the sense that the depth does *not* have to occur along the true z-axis of the original 3D environment. When simulating depth in a 2D environment the z-axis is always relative to the camera. If you think of the eyes of the viewer as the "camera", the z-axis is always facing in and out of the monitor screen, no matter how the scene in the clip may be positioned.

How it works

In order to illustrate how z-depth works and how the grayscale z-map relates to 3D space we're going to use the example scene shown below in Figure 1:1. The scene is comprised of a ground plane, upon which sits a red cone, a blue sphere, and a green inverted cone.

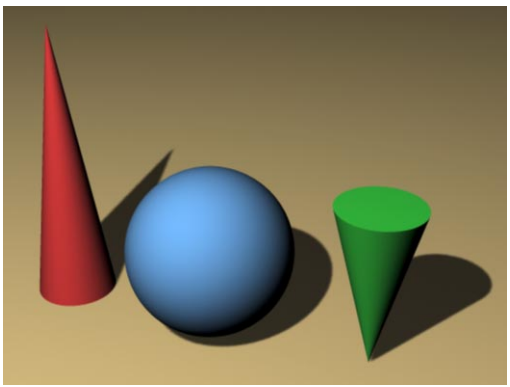


Figure 1:1 Example Scene

Imagine we have a camera positioned directly above our shapes, looking straight down. The closest point to the camera is the top of the red cone. The next highest points are the tops of the both the blue sphere and the green cone, which are at the same height. Figure 1:2 shows a side view of this scene, easily showing the distances to the camera.

Figure 1:2 Distance from Camera

The z-map is generated by the camera in the 3D application, and as such the only pixels it will represent are those seen by the camera on a given frame. To illustrate this point, imagine that in Figure 1:2 above we dropped a huge bedsheet onto our objects. By the time it finished collapsing and came to rest it would probably have a shape similar to that seen in Figure 1:3. The visible area is the only area considered when the z-map is calculated. For example, think back to the Golden Gate lesson, where you simulated a z-map. Let's say there was a hot air balloon obscured behind the bridge, and the camera couldn't see it—that object would have absolutely no bearing on how the z-map was created.

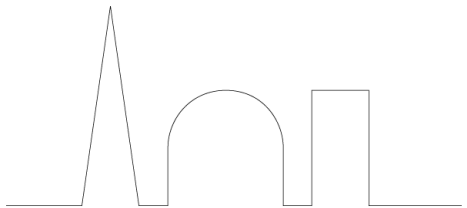


Figure 1:3 The Visible Object Surfaces

Because only visible objects are calculated the green cone is actually seen as a circle, because the wide top surface of the cone obscures all the points below it. So, as we said before, the top of the red cone is the closest point to the camera, and the ground plane is the farthest point from the camera.

Figure 1:4 Grayscale Values Based on Depth

When the z-map is calculated the topmost point of the red cone will render as pure black, and the ground plane will render as pure white. All points in between will assume a shade of gray based upon their proximity to the camera. The amount of a particular effect assigned to a given pixel in a scene is dependent upon the value of its corresponding z-map pixel—the lighter the pixel the more effect is assigned.

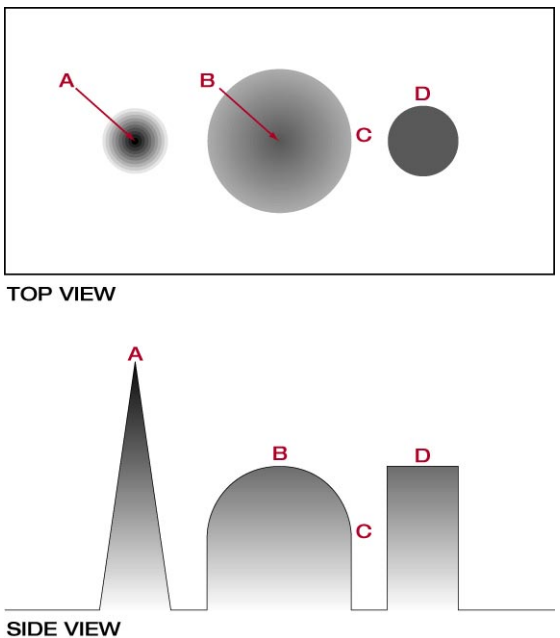


Figure 1:5 Z-depth Map from Top

Figure 1:5 shows the top and side views of our scene—the top view is our z-map. (Note that the black outline around the top view is there only to show the outer perimeter of the ground plane, and would not be there in the actual z-map.) Four corresponding points have been identified in both views. ***A*** shows the highest point in the scene, the top of the red cone, and is solid black. ***B*** and ***D*** show the next highest points, the tops of the sphere and inverted cone. Note that because the top of the inverted cone is flat, it is represented by a solid color due to the lack of change in depth. In the case of the sphere, however, only the pixel representing the very top point has the same gray value as the top of the inverted cone. The outside edge of the sphere, represented by ***C***, shows the extents of the sphere's visible depth. The z-map generated here is a gradient, based on depth, between the highest visible point and the lowest visible point in the sphere.

A Practical Example

Okay, enough with the theory, it's time to see a real z-map in action. Figure 1:6 shows the beauty pass from the logo tutorial and its corresponding z-map.

Figure 1:6 The Beauty Pass and Z-Map

The frontmost point of the 3D logo is solid black. The further away from the camera a point on the logo lies the lighter it's corresponding z-map pixel. The walls behind the logo, being the farthest points in the scene from the camera, are the lightest pixels in the z-map. The very farthest point in the scene, the corner of the two walls and the ground plane, is pure white.

How your computer sees the Z-map

If we were to look at the z-map in 3D space it would look something like Figure 1:7. In the rightmost image we see the extruded z-map from its side. Note the black-to-white gradient from the front to the back. While we humans see the z-map simply as a grayscale image your computer sees it as depth.

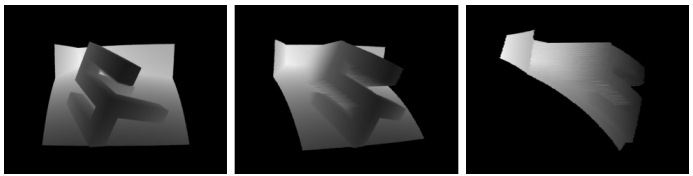


Figure 1:7 Three Views of the Extruded Z-Map

And that's exactly what a z-map is: a 2D grayscale representation of 3D depth. Figure 1:8 shows three views of the beauty pass extruded in 3D space according to the values of the z-map.

Figure 1:8 The RGB Image Extruded by the Z-Map

USING Z-MAPS

Okay, so now you have your z-map, what can you do with it? Well, the most common use is to use it as a control layer for a blur operation, simulating what a real camera would see—this directly relates to the previous depth of field discussion, and will be covered in detail a little later. So, before we start discussing blur control layers, let's take a look at some other uses for z-maps.

Where there's smoke...

Figure 1:9 shows three elements of a composition: a scene of a room containing a large piece of machinery, rendered in a 3D animation program; its corresponding z-map; and a clip of floating smoke filmed over a black background.

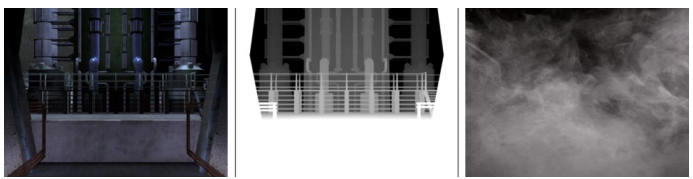


Figure 1:9 Scene, Z-map, and Smoke

Let's say the task before us was to give the sense that this scene was filled with heavy smoke from a nearby fire. What we will do is use the z-map to give our smoke element a sense of depth, like it's actually *inside* our scene.

The first step is to precompose the background layer, which involves compositing the smoke element over the rendered scene at some degree of transparency. Figure 1:10 shows the precomped background—it looks very fake, and really *looks* like one image over another.

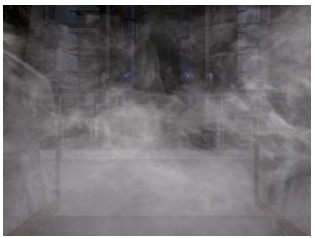


Figure 1:10 Precomped Background

The next step is to precompose the foreground, which involves taking the rendered scene and using the z-map to determine the scene's opacity by means of a Luma track matte.

Figure 1:11 Transparency Determines by Z-Map

Figure 1:11 shows the rendered scene before and after the track matte is applied. In the right image the scene looks significantly darker because the background color in the composition is black.

Figure 1:12 Z-Smoke Final

As a final step, we compose the foreground over the background. The transparent areas in the foreground allow the smoky composite in the background to be seen, creating the illusion of a room full of smoke.

... There's Fire

This same technique can be applied to a composition of many layers to create complex scenes, such as is shown in Figure 1:13. This example utilizes seven different precomposed layers. The fire is generated by *IL Fractal Fire*, the heat distortions are created using *IL Ultra Displacer*, and *CW Light Wrap* and *CW Composite Color Matcher* are used to color correct the foreground. The z-map was invaluable in making the fire look integrated into the seen instead of just placed on top of it.

Figure 1:13 Z-Map Fire and Smoke Example

This example clearly shows that z-maps are useful for much more than simple depth blurring.

Depth through Blur

The most direct use of a z-map, and the use that most directly relates to Composite Wizard and Image Lounge, it to use the z-map as a control

layer for a blur effect applied to a clip. When a z-map is used in this manner the map functions in exactly the same way as an alpha channel. The lighter the pixel in the z-map the more blur is applied to the image.

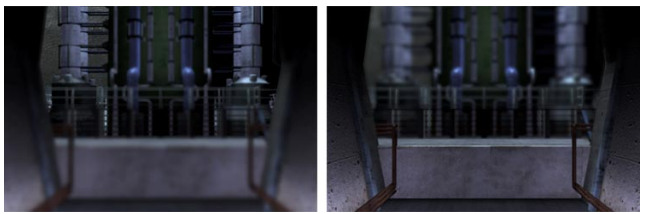


Figure 1:14 Foreground Blur and Background Blur

The left image in Figure 1:14 shows our scene, where the z-map has determined how a blur effect is applied. The lighter the z-map pixel the more blur is applied to the scene,—the foreground (which has the lightest pixels) is the most blurry, and the background is in focus. If we invert the z-map, so the background pixels are lightest, the background blurs and the foreground is sharp and in focus.

Calculating blur in this manner most closely resembles the way blur actually occurs on film, and can greatly enhance the believability of a shot.

Rack Focus

The effect that Z-maps have on a scene can be animated as well, allowing for the simulation of dynamic focus effects, otherwise known as a *rack focus*.

Let's take a look at the first, middle, and last frames of a three-second rack focus effect, and see how the corresponding z-map control layer determines the blur location and amount.

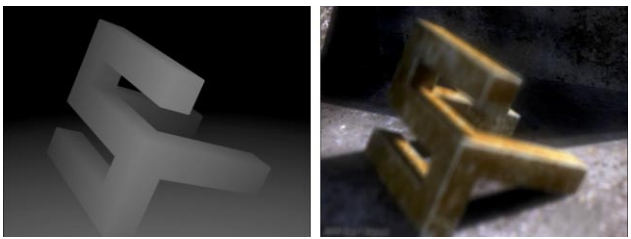


Figure 1:15 Rack Focus Frame 1

Figure 1:15 shows the first frame of the rack focus effect. The lighter areas of the z-map are at the front of the object, and the corresponding areas of the beauty pass are blurred.

Figure 1:16 Rack Focus Frame 45

Half way through the animation we find that almost all of the z-map is black, and as a result the entire scene is in focus. The significance of this will be elaborated upon later when we discuss Depth of Field.

Figure 1:17 Rack Focus Frame 90

Figure 1:17 shows the last frame of the rack focus. This is essentially the opposite of the first frame—the foreground is solid black and in perfect focus, while the background is blurred and out of focus.

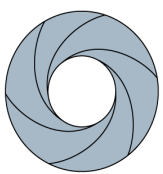
THE SCIENCE OF FOCUS

Circle of Confusion

During our discussions on z-depth the word *focus* was used extensively. But what exactly does it mean to say that an image is in focus? We all know that it means the "opposite of blurry", but how do you measure exactly how in or out of focus an image is?

Film and video images are created when light passes through lenses onto a plane of light sensitive material, such as unexposed film or a CCD. (A CCD, or *Charge Coupled Device*, is a light-sensitive device used to capture images in such items as video cameras, scanners, and digital cameras.) Adjusting the lenses so that images appear to be in focus is an important part of this process, and understanding how this occurs is an important part of understanding how *IL TrueCamera Blur* and *IL TrueCamera Rack Focus* accurately simulate out-of-focus images.

The key to this operation is the *aperture*, also known as the *iris*. The iris is the adjustable opening through which light, after entering the camera through the lens, passes through the lens en route to the film; in most cases this opening is a hole of adjustable size formed by several overlapping blades that are ganged to open and close together.



The manner in which these blades control the diameter of the opening is similar to the functionality of the iris of the human eye. The images recorded on the film or CCD are projections of light through this hole.

The light projected through the iris forms a cone inside the camera, and if the point of this cone lands squarely on the light sensitive plane, the recorded image will be in focus. Figure 1:18 shows such an in-focus situation. Light from the sun bounces off the soccer player—after passing through the lens to enter the camera, it then passes through the iris and makes contact with the film. Because the point of the light cone lands squarely on the film the soccer player is in focus.

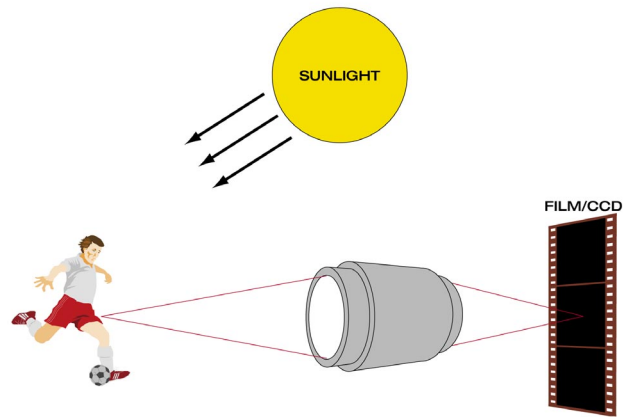


Figure 1:18 The Image In Focus

Light rays that travel different distances to the lens, however, will have cones of varying lengths, so only objects at a certain distance will be truly in focus. This distance is referred to as the *focal distance* or *focal point*.

It is possible to have objects nearer and farther from the lens than the focal point appear to be in focus. This occurs when the cone intersects the light sensitive plane near enough to its apex that the size of the cross-section is smaller than the resolution of the film's grain, or the CCD's pixel array. Making the iris smaller, or "stopping down," is one way to narrow the cone and allow more of an image to appear to be in focus—another way is to switch to a wider lens. Wide angle lenses have the appearance of better depth of field than telephoto lenses—because the magnification factor of a wide-angle lens is less than that of a telephoto, the variation in the position of the cone peak with variation in the subject distance is smaller. (For example, if you were to change from a wide to a long lens without changing the position of the camera, you would get a different depth of field. However, if you were to change from a wide to a long lens, and then physically *move* the camera so that the size of the filmed image was identical for each lens, the depth of field would, in fact, be the same.)

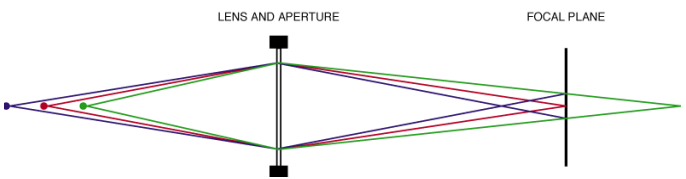


Figure 1:19 Circle of Confusion

That little cross-section of the cone referred to earlier represents what is called the Circle of Confusion. It's called that because it's usually circular—actually the shape of the iris itself. The Circle of Confusion in Figure 1:19 is the point where the cones of the green point and the blue point intersect at the focal plane. Out of focus images reveal this circular representation of the lens failing to resolve the image. The classic example is a close-up of an actor with city light behind them—each out-of-focus pinpoint of light is projected onto the film as an enlarged representation of the camera's aperture. Sometimes these circles can appear to have bright edges due to light bouncing off the edges of the metal iris blades themselves.

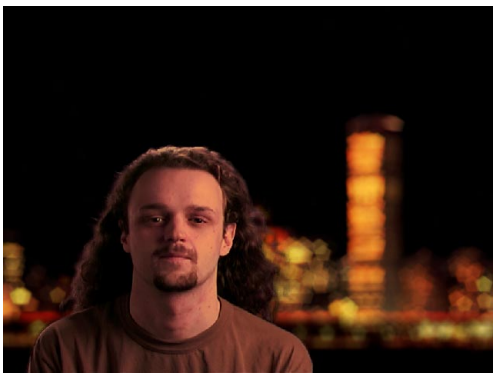


Figure 1:20 Circles of Confusion, Classic Example

Circles of confusion projected onto film or CCD through an aperture, resolving either within the threshold of the imaging plane's resolution or outside of it—that's how photographic images are acquired.

Depth of Field

Figure 1:19 shows a diagram of three dots representing points in space. The light reflected from the red dot falls squarely on the focal plane and is in perfect focus. The blue dot and green dot represent the maximum distances from the focal point that will appear in focus. Anything situated past the blue dot or in front of the green dot will appear out of focus. The blue and green dots represent the acceptable *Depth of Field* for our virtual camera lens.

Depth of field is a constant value—in our diagram it is the distance between the green and blue dots. The red dot determines the area the lens is focused on; the blue and green dots determine the acceptable range in front of and behind the red dot where the image is in focus.

Earlier we showed three frames of a three-second rack focus effect. Let's see how that same scene can elaborate on depth of field. We'll use the same color scheme here as in Figure 1:19: red for the focal point, green for the near extent of depth of field, and blue for the far extent of depth of field.

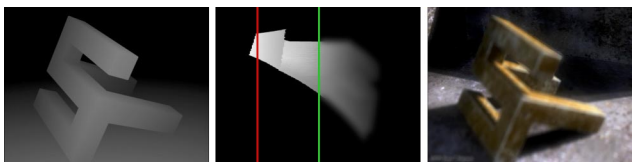


Figure 1:21 Depth of Field Frame 1

Figure 1:21 shows Frame 1 of our rack focus. If you look at the z-map image on the left the blur area extends from the front of the scene to the back side of the logo. From the logo to the wall the scene is in focus.

Now look at the middle image: the focal point of the lens on this frame is the far wall (red). The green line shows the near extent of the depth of field—everything in front of this line is blurry. There is no blue line in this diagram to show the far depth of field because that area is obscured by the wall at the back of the scene.

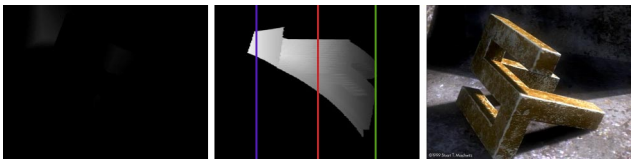


Figure 1:22 Depth of Field Frame 45

Figure 1:22 shows the focal situation at frame 45, the middle frame of our rack focus. The z-map is almost entirely black, and as such the entire scene is in focus. At this frame the focal point of the lens (red) is the center of the scene. The near extent of the depth of field (green) is the front of the image, and the far extent (blue) is the back of the image. Because the entire scene fits inside the depth of field the entire scene is in focus. Notice that the distance from the red line to the green line has not changed—that distance is constant no matter where the focal point is positioned.

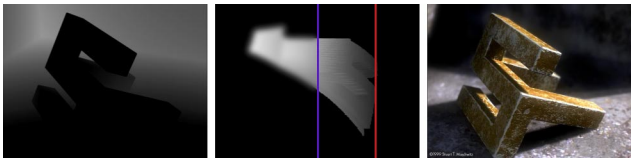


Figure 1:23 Depth of Field Frame 90

Figure 1:23 shows the last frame, frame 90. The focal point is the very front of the logo, and the far extent of the depth of field is the back side of the logo. Everything past the blue line is out of focus. As before, note that the distance between the red line and the blue line is unchanged.

Digital Depth of Field

One of the advantages to working digitally (as opposed to actually filming with a traditional camera) is that our depth of field is not determined by lens type. When working with an actual camera the lens chosen for a particular shot has a known depth of field which cannot be modified. The digital world, however, does not have this physical limitation. All of the Rack Focus and TrueCamera plug-ins found in Composite Wizard and Image Lounge contain a *Depth of Field* value, which allows you to essentially create your own custom digital lenses.

CREATING Z-MAPS (3D)

The preceding chapters of the Appendix have explored everything you could ever want to do with a z-map… which is great if you know how to make one. For those of you who don't, this chapter is for you.

There are two main ways to create a z-map: with a 3D application or by faking it in 2D. If the depth effect you are going to apply is intended for a rendered 3D element you're better off making one in the 3D application itself, it's the most accurate way. For a 2D scene (i.e. video or film footage) you can either fake one with gradients or replicate the scene precisely in a 3D application and create it there—it goes without saying that the gradient method is the easiest of the two.

We'll start out explaining the 3D technique and then follow up with the 2D technique. Each section will provide a detailed explanation of the process involved. It is important that you read both sections, however, as the 3D section will explain the entire process and the 2D section will only cover how to fake it with gradients.

Creating 3D Depth Maps

The following technique is not specific to any one 3D application or platform, so it should translate well into your package of choice. Before we begin, however, you should check the documentation provided with your 3D software and see if it contains the ability to automatically export depth data, either in a proprietary format or as a grayscale image. If you package exports depth in a proprietary format you'll need an application to convert it to grayscale.

In order to explain the technique we're going to use the scene in Figure 1:24 as an example. This scene is a still, but the steps to create the z-map are identical for both moving and still scenes.

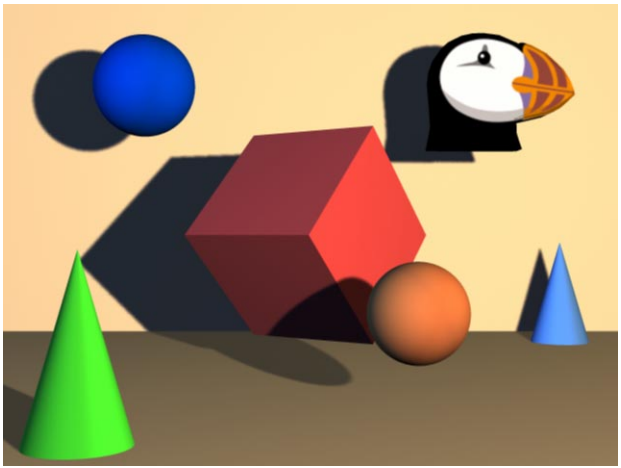


Figure 1:24 Example Scene

The first step is to set up your project, including all the lights, textures, etc. Creating the z- map is the last thing you do in a project, after everything else is finalized and complete. It's best to create the z-map after you've done the final render for your project because any changes you make to the scene are going to require another render of the z-map.

What is camera fog?

Practically every commercial 3D rendering program has some kind of fog function that you can apply to the render camera. *Fog* functions are so named because they function in exactly the same manner as regular fog. Figure 1:25 shows our example scene with a black fog effect applied. The farther away an object is the darker the fog makes it appear.

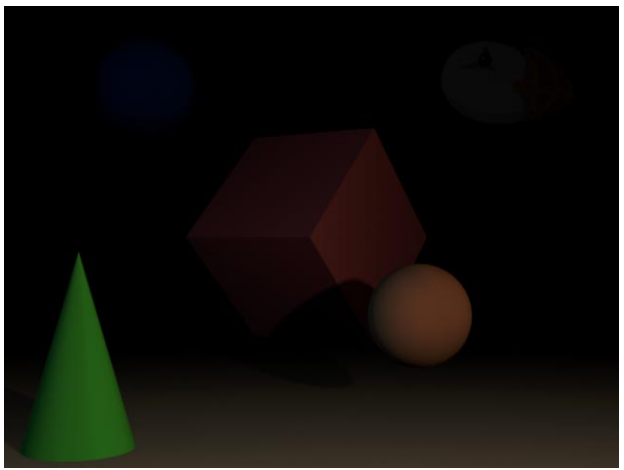


Figure 1:25 Black Fog Applied to the Scene

To illustrate the point, imagine yourself standing in the middle of a thick fog. You can see clearly for about 10 feet or so in front of you. After that things start to fade out, and you can't see anything past around 40 feet in front of you. Digital fog works in exactly the same manner.

Technique Overview

To create the z-map we're going to use the program's fog function to determine the depth in our scene. Think about how we need the z-map to look: the objects closest to the camera need to be black, and the objects farthest from the camera need to be white. We're going to make every object in our scene solid black, and then use white fog to simulate the depth.

Setting up the scene

The first thing you need to do is make every object in your scene matte black. *Matte black* means that the object is a flat, non-shiny black color. No specular highlights, reflections, or anything of that nature. The best way to set this up will undoubtedly differ greatly depending on your 3D application. Just make sure that every single piece of geometry is solid matte black—no exceptions.

Digital fog is applied to a scene as a *post process*. A post process is any calculation that takes place after the main render is completed. Fog is added into the scene by the software at the end of the render. Since it's not a part of the rendered scene it's not affected by scene properties such as light.

Camera fog is said to be *fully luminant*, which means that it doesn't need a secondary light source to be visible. In fact, when we render out our z-map we're not going to have any lights on in our scene at all, it's just going to be our matte black geometry and our fully luminant white fog.

Setting up the fog

This section explains how to set up the fog. Remember that while this is pretty standard functionality for 3D applications, your particular program of choice might require a slightly different setup.

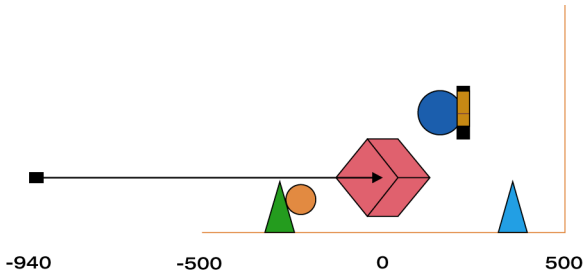


Figure 1:26 Diagram of Scene from Side

Figure 1:26 shows a side view of our scene. The numbers at the bottom represent the position in meters along the z-axis. The long arrow represents the camera—the square end represents the location of the digital camera itself, and the arrow end designates the point in space that the camera end is pointed at. The red cube is situated at 0, the center of our scene. The ground plane is 1000 meters long, stretching in space from 500 to -500. The camera is positioned at -940, and the camera's reference point is at 0.

When you set the fog settings for a camera you usually have two controls, one for the start point of the fog and one for where it ends. If you looked at this fog from the side it would appear to be a simple gradient. The first thing you need to do is determine the locations of the closest and furthest items in your scene, as this has direct bearing on the start and end settings for the fog. If you refer again to Figure 1:26 you can see that the piece of geometry closest to the camera is the beginning of the ground plane, which is positioned along the z-axis at -500. The point furthest away from the camera is the back wall, which sits at 500.

Fog start and stop points are almost always calculated relative to the position of the camera. Our camera is situated at -940. The closest geometry is at -500. There is a distance of 440 meters between the camera and the closest geometry. The farthest point is at 500, which is 1440 meters away from the camera. These two settings, 440 and 1440, represent the values we will enter as the start and stop distances for the fog.

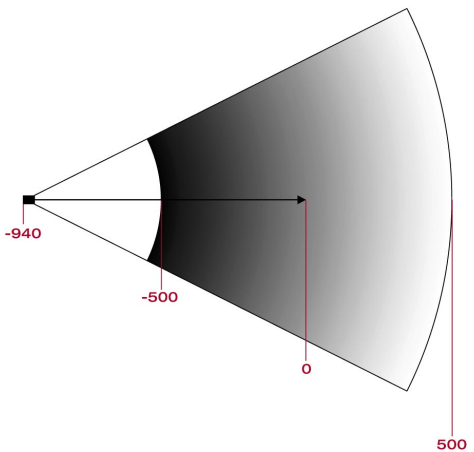


Figure 1:27 Fog Settings.

Figure 1:27 shows a diagram of these fog settings applied to white fog. At -500, the start point of our fog, our scene is black. (The scene is black in the sense that there is no fog at the start point and thus no *whiteness* is applied to our solid black geometry.) As we progress through the scene along the z-axis the white fog gets thicker and thicker, ending up totally white along the back wall.

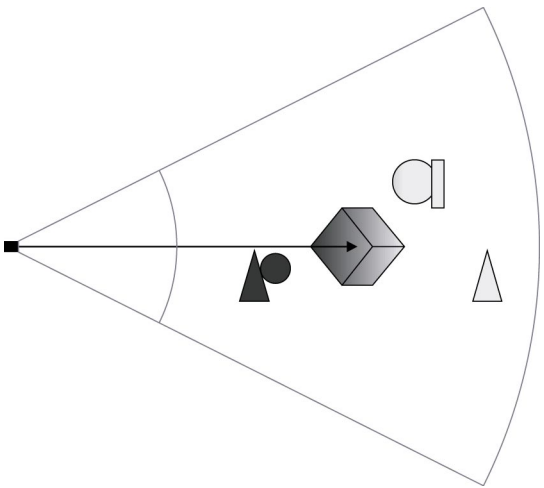


Figure 1:28 Fog Alters Black Geometry

Figure 1:28 shows how these fog settings will color our black geometry. The closest objects will be black and the farthest will be white.

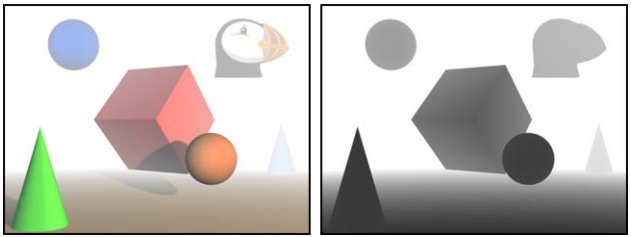


Figure 1:29 White Fog With Colored and Matte Black Geometry

Figure 1:29 shows our scene with white fog applied, first to the standard scene and then to the scene with matte black geometry and no lights. This image on the right is a completed z-map, ready for use in After Effects. And just to show you that we weren't fooling around Figure 1:30 shows the first and last frames of a rack focus effect created in *IL TrueCamera Rack Focus* using our sample scene and the z-map above.

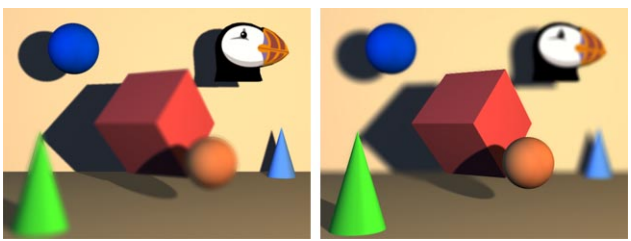
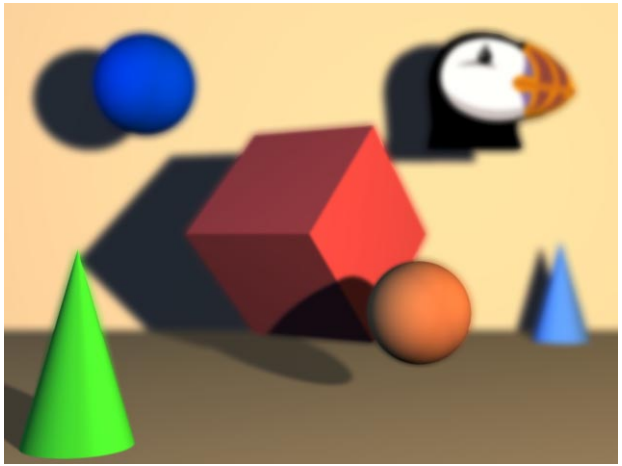


Figure 1:30 Sample Scene Rack Focus

This technique may seem a little confusing, especially if you've never done it before, but with a little practice you'll get the hang of it in no time.



The steps

So, now that the process has been explained to you here's a quick recap of the steps, in order.

1. Finalize your scene. If possible wait until you have completed the final render.
2. Find the distances of the nearest and closest points to the camera.
3. Set up your white camera fog. Set the start point for the fog to be the closest object and the end point to the farthest object. (See "Issues to be aware of" below for exceptions to this rule.)
4. Set the material properties of all the geometry in your scene to matte black. Turn off all textures, reflections, specular highlights, and the like. Do not, however, turn off any bump or displacement effects that alter the physical shape of your objects.
5. Turn off all lights in the scene.
6. Render.

Issues to be aware of

For most scenes, especially indoor scenes and outdoor scenes that do not cover a great distance, setting the fog to start and stop at the object extents is a reasonable thing to do, especially if it's to be used in a filter like IL TrueCamera Rack Focus, where you can fully animate the gray levels in the z-map itself. However, there are definitely situations where you aren't going to want to set your fog extents this way.

The images in Figure 1:31 are a perfect example of such a situation.

Figure 1:31 Hallway Animation 5 Seconds

These three images are frames 1, 105, and 150 of a 450 frame (15 second) animation done for a major sports franchise. The scene, as specified by the client, was to be an enormous industrial warehouse containing a giant machine, supposedly around the size of an oil drilling platform. This

machine would be revealed at the end of the animation to be a giant press, which would slam together and create the team helmet worn by the players. The camera was to start at the end of a long, dark hallway and slowly enter into the large main warehouse area containing the machine. The animators decided to render out a z-map to simulate depth of field, which would heighten the sense of scale desired by the client.

If the animators had rendered out a z-map based on the entire length of the hallway PLUS the entire length of the warehouse the effect would not have been nearly as noticeable and it would have made the distance look smaller. The farther away something is the blurrier it appears, so the shorter the distance between the start and stop extents of the fog the more of the image will be out of focus.

Figure 1:32 Hallway Animation Frames and Z-Maps

Figure 1:32 shows the same three frames of the animation with their corresponding z-map frames. The animators settled on a fog distance equal to the distance from the front of the machine to the back wall of the warehouse, which means that until the camera reaches the very front of the machine (around frame 7) there is always blur to one degree in the background. This blur continually adds to the sense of immense depth that the client requested.

Figure 1:33 Final Render With Blur

CREATING Z-MAPS (2D)

Now that you've been exposed to the process of creating a z-map in a 3D application we'll take a look at how you can use this same technique on a regular old piece of 2D video footage. We're going to be using a combination of Commotion, Photoshop, and After Effects to do this effect, but the technique is by no means specific to these packages.

Figure 1:34 Car Footage Example Frames

Figure 1:34 shows the first, middle, and last frames of a 90-second clip of a car driving from the far background to right past the camera. (Those of you who own Commotion will be very familiar with this clip—it's been used in tutorials and demos since the company was first started.) What we want to do is add a depth blur to this image, so that as the car gets closer to the camera it becomes less and less blurry, eventually appearing in perfect focus right before it goes out of frame.

The process

In order to achieve the desired effect we are first going to have to separate the car from the background element. We'll also have to create a z-map for the background so we can set the focus for the scene, and create an animated z-map for the car so that its blur settings can change while the rest of the scene remains constant.

Roto the car

The first thing we're going to do is create a matte for the car, and we'll do it using Commotion's powerful rotosplines. Starting at frame 1 we're going to draw a spline around the outline of the car, then animate the position of that spline over the length of the clip so that it always remains aligned with the car's outline. Once that is done the spline will be used to render an animated matte for the car.

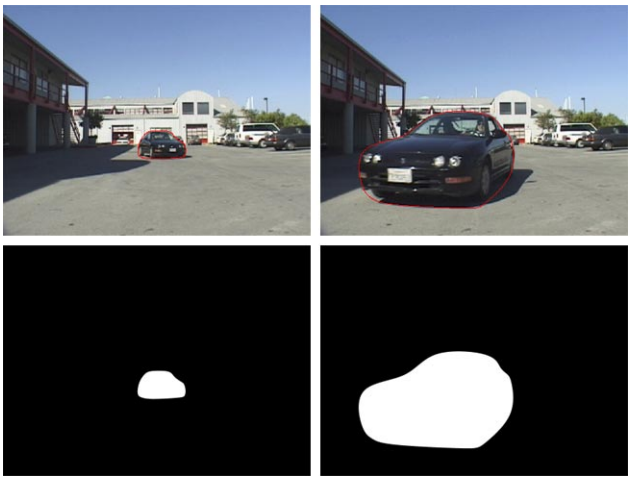


Figure 1:35 Car Rotospline and Matte

Figure 1:35 shows frames 27 and 65 of the clip. The upper pictures show the red rotospline around the car, and the bottom pictures show the matte generated by that spline. This matte should be rendered out as a separate file, not into the alpha channel of the car clip itself.

Isolate background elements

The next step is to create the z-map for the background. Since our camera is locked off for the entire clip the background doesn't change, which means we only have to create a single frame, and for this task we're going to use Photoshop. If the background was moving you could use After Effects for basic movement, or a Commotion/After Effects solution for complicated movement. The gradients could be created either with After Effects built-in gradient features or using the Image Lounge filter *IL Alpha Ramp*.

At the very end of our clip the car goes out of frame, leaving us with a clean background plate to work with. We start by placing a copy of this frame inside Photoshop. Then, using tools like the *Polygonal Lasso Tool* and the *Magic Wand*, we begin to isolate areas of the frame. Once these areas are isolated they should each be placed each on their own individual layer.

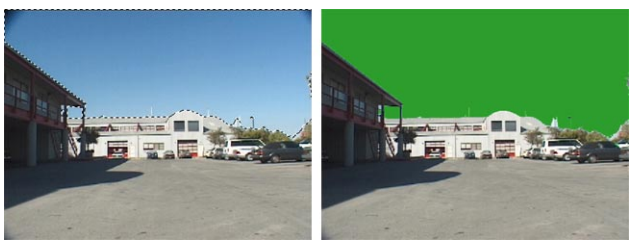


Figure 1:36 Selecting the Sky

For example, Figure 1:36 shows the sky area selected by multiple clicks of the Magic Wand tool. Once the area was isolated a new layer named *Sky* was created, and the selected area was filled in with a solid color. (The solid colors are only used to differentiate the different sections from each other. Because there will initially be some overlap in selected areas, the regions will eventually have to be added and subtracted from each other, and differing colors assists in doing so.)

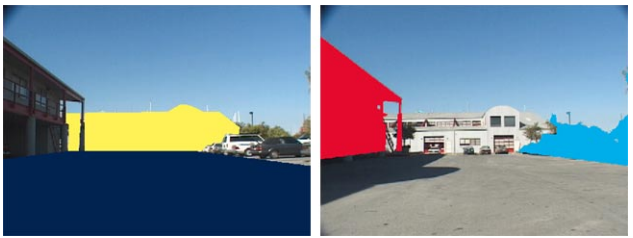


Figure 1:37 Selecting the Remaining Areas

Figure 1:37 shows the remaining areas, each isolated on their own layer and filled with a solid color. If you were to turn on all these layers at the same time you would see Figure 1:38.

Figure 1:38 All Layers Turned On

Determine the depth

Now we're going to start creating our gradient ramps, but before we do we have to determine the progression of depth in the image. If you were to look at our five layers, which one do you think would be the farthest away from the camera? It would be the green sky, so the sky area is going to be solid white. The layer closest to the camera is the ground, so the front of the ground layer will be black.

We start out by creating a new layer in Photoshop, which is going to be our grayscale z-map layer, and filling it with white, which represents the sky area. Starting from the sky and working our way back towards the camera the next farthest item is the yellow building. Since this building is perpendicular to the camera it will all be at one depth, and thus will be one color. Using the yellow building layer to load in that area as a selection, we'll fill it with a color slightly darker than white, around 90% gray. Figure 1:39 shows the selected area and the filled gray area.

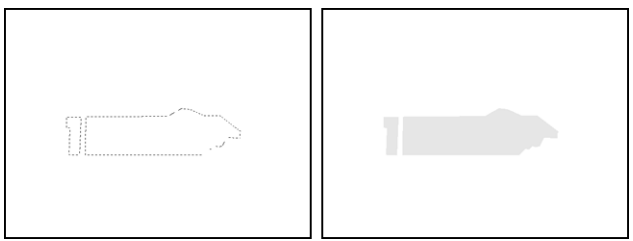


Figure 1:39 Setting the Back Building

This now gives us a starting point for the gradient ramps for the other items in the scene. Figure 1:40 shows the ground area loaded in as a selection and a black to 90% gray gradient applied.

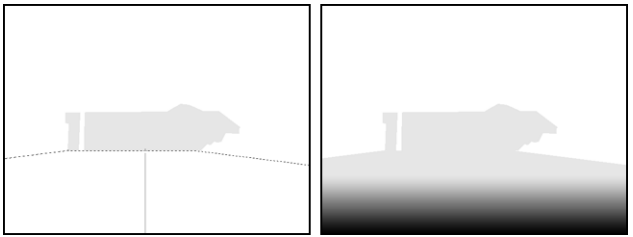


Figure 1:40 Applying the Ground Gradient

Simply repeat this process for each individual element in the scene, tweaking and making alterations to the gradients as necessary. Figure 1:41 shows the completed z-map for the background element in our clip.

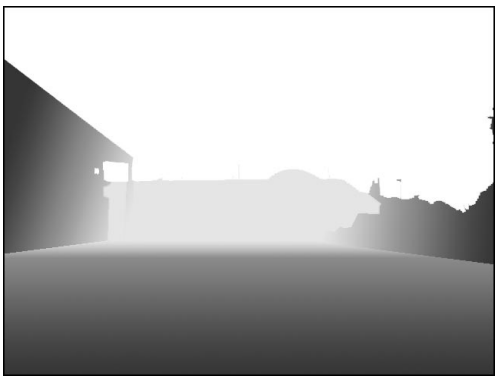


Figure 1:41 The Completed Z-Depth Background.

The final step is to take this still image into After Effects and integrate it with the roto footage of the car created in Commotion.

Finish the Z-map

Before we begin let's take a look at our two depth map elements, the car layer and the background layer.

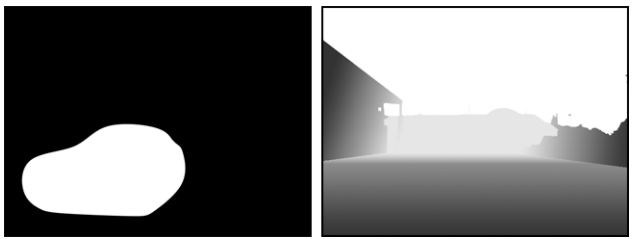


Figure 1:42 Depth Map Elements

Imagine the white car in our gray scene. As the scene progresses what is going to happen to the color of the car? Well, because it gets closer to the camera the color of the car must get darker as time goes on. To simulate this we'll keyframe a *Levels* adjustment on the car layer.

Before we begin we must make sure that the car is masked out with an alpha channel. If your car layer doesn't have an alpha channel it's very easy to set a duplicate copy up as a Luma track matte of itself.

Once this is completed make sure the project is at frame 1, then apply Levels to the car layer. Decrease the *Output White* level until the car begins to match its surroundings. Once you are satisfied with the car's color set a keyframe for the Output White value and advance to the last frame. Set the Output White level all the way to 0 for pure black, then scrub through the clip to preview the animation.

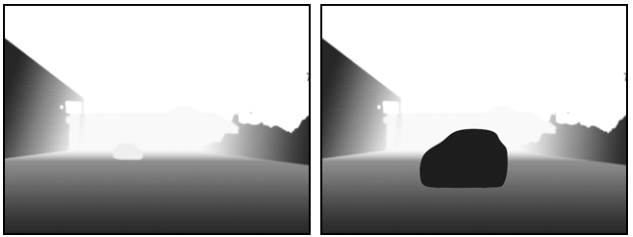


Figure 1:43 Car Depth Map Final

The car progresses from white to black as it advances toward the camera, providing a perfect matte with which to simulate depth of field using *IL TrueCamera Rack Focus*.

Figure 1:44 Final Effect

Figure 1:44 shows the depth blur effect in action. Note how blurry the background areas are, and how blurry the car is on the first frame. By the time the car gets to the front of the shot, however, it is back in perfect focus. Figure 1:45 shows the final effect in greater detail.

Figure 1:45 Car Depth Map Final

About this technique

As you can see creating depth maps in this manner is not for the light-hearted. We were fortunate in that the camera was locked off, which allowed us to create a single frame for the background map, and we had only one moving object to rotoscope. Nonetheless this should provide you with a clear understanding of how to modify the process for your own production needs. Good luck!

BLURS

The previous sections have shown you a multitude of ways to use depth maps to perform a variety of effects, the most common of which is to simulate depth of field through blurring. *Composite Wizard* and *Image Lounge* provide you with a number of different blur options. This section will elaborate on the different blur types available to you. As with many of the other chapters in the Appendix we will be using the logo image below as our master example image.

Figure 1:46 Blur Master Image

In *CW Super Blur* and *CW Super Compound Blur* you have two types of blur available to you: Faster and Better. *Faster* blurs with a Box blur, and *Better* blurs with a Gaussian blur.

Box Blur

A Box blur is the fastest of all the blur modes available to you in CW and IL. While it works well with soft scenes, the edges of the box effect can cause unpleasant artifacting in high-contrast scenes.

Figure 1:47 Box Blurs of 10 and 20

Box blurs are very fast to calculate because the blur has straight edges and a uniform profile. The blur produced by a Box blur is practically identical to TrueCamera Blur with a 4-sided iris.

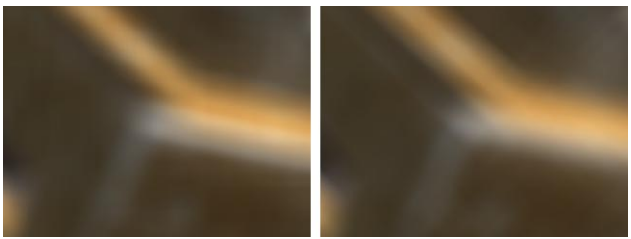


Figure 1:48 Box Blur, and TrueCamera Blur with 4-Sided Iris

TrueCamera Blur is covered in detail later in this chapter.

Gaussian Blur

If you are familiar with the blur options available to you in such programs as Commotion, Photoshop, or After Effects, you will undoubtedly be familiar with Gaussian blur.

Figure 1:49 Gaussian Blurs of 10 and 20

Gaussian blurs produce round blurs with an emphasis on the center. This eliminates the artifacting on high-contrast scenes, and produces a very pleasant appearance. The Gaussian blur profile is exponential and bell-shaped, and produces an effect more akin to viewing the scene through a piece of lightly frosted glass than viewing it through an out-of-focus lens. Gaussian blurs are fairly quick to calculate, though not as quick as Box blurs.

Blur profiles

While explaining Box and Gaussian blurs above we referred in both instances to the blur *profile*. Without going into too technical of an explanation, the profile of the blur refers to the type of curve that would be created if the blur's mathematical algorithm were plotted onto a standard X/Y graph.

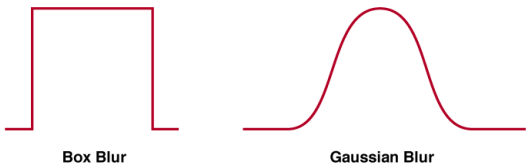


Figure 1:50 Box and Gaussian Blur Profiles

The Box blur produces a square, box-like profile—the profile shape is actually where Box blur gets its name. Because the profile is such a simple shape, the blur calculates quickly but with results that are less pleasing to the eye, essentially a quality-for-speed trade-off.

The Gaussian blur profile is exponential and bell-shaped. It has a tapering effect at the edges and is most active at its center, and as such is said to have an emphasis on the center. By comparison, the Box blur is applied evenly to the whole blur area with no tapering of the effect.

Box versus Gaussian

The following examples highlight the differences between Box and Gaussian blurs by showing their effect on a single white square on a plain black background.

Figure 1:51 Box Blur, Value 30

Figure 1:51 shows a Box blur with a value of 30. The square artifacts from the Box algorithm can be easily seen at the corners of the square. The human eye naturally picks up on straight lines, making them distracting to the overall scene, which is why Box blur is not recommended for high contrast scenes. If, instead of black and white, this image was comprised of two shades of red that were very similar in tone, the artifacts from the Box blur algorithm would be far less noticeable.

Figure 1:52 Gaussian Blur, Value 30

Figure 1:52 shows a Gaussian blur with a value of 30. Note the soft, round effect it applies to the corners and the subtle gradiation it applies to the edges. A Gaussian blur produce a much more natural, lifelike blur than a Box blur.

Now that you have specific examples of both blur types, refer again to Figure 1:50 and compare the individual blur profiles to the effect their blurs produce. The Box blur produces square, harsh edges, much like its mathematical profile. The Gaussian blur is round, soft, and has tapered edges, exactly like its profile.

To see a more dynamic example, Figure 1:53 shows 12-pixel Box and Gaussian blurs applied to a high-contrast checkerboard pattern. The Gaussian blur is soft and evenly applied, while the Box blur shows horizontal and vertical artifacting in the white areas of the image.

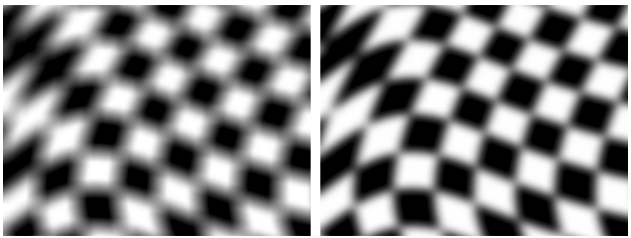


Figure 1:53 Box and Gaussian Blurs, Value 12

To see a practical example of the difference the blur types have on our logo image it's best to zoom in closely. Figure 1:54 shows the front point of the logo object with 10-pixel Box and Gaussian blurs applied.

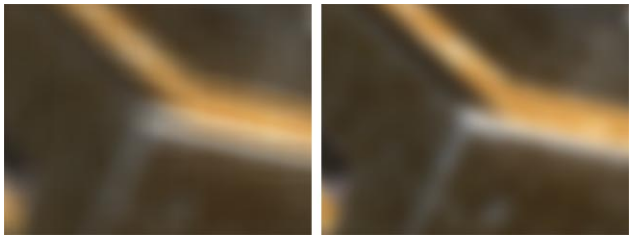


Figure 1:54 Box and Gaussian Blurs of 10

The Box blur gives off a noticeably square blur, caused by its equal, linear calculations both horizontally and vertically. The Gaussian blur is more even, round, and tapered.

TrueCamera Blur

IL TrueCamera Blur and *IL TrueCamera Rack Focus* use general convolution blurs, which can simulate the appearance of the circles of confusion produces by an iris, but are computationally expensive. Since the circle of confusion is actually calculated as an image within the plug-in, you can affect its shape, angle, and the profile of the intensity.

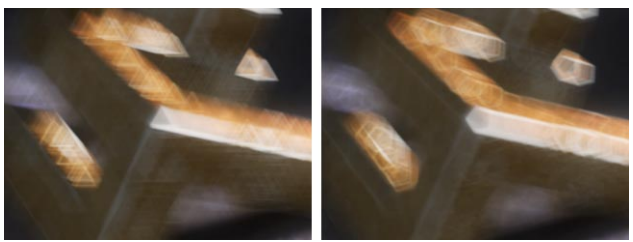


Figure 1:55 3- and 5-Sided Iris Artifacts

The resulting blur is more physically accurate than other types, but requires substantially more time to produce. If you are trying to accurately simulate the kind of blur you see in film, TrueCamera Blur is your best choice.

Figure 1:56 TrueCamera Blur Value 10, Plus Iris Enhancement

Figure 1:56 shows two views of a TrueCamera Blur value of 10. The left image uses the default settings, and the right image has TrueCamera's iris enhancement features applied. The intensity of artifacting in the image is not dependent on the amount of blur.

TrueCamera Versus Gaussian

To show the superiority of the TrueCamera Blur algorithm over other blur methods at simulating focus blur, let's take a look at some side-by-side examples. Figure 1:57 shows a composite of Mr. Stu against the Dallas skyline at night. No blur has been applied to the background layer.

Figure 1:57 Mr. Stu In Dallas

Traditionally, Gaussian has been the blur of choice when trying to simulate focus blur. Figure 1:58 shows the skyline with a 10-pixel Gaussian blur. This nicely softens the background and greatly improves the sense of distance between Mr. Stu and the skyline.

Figure 1:58 Gaussian Blurred Skyline

Let's now take a look at the skyline with a 10-pixel TrueCamera Blur applied. (To better show the artifacting, this image is shown larger than the previous images.)

Figure 1:59 TrueCamera Blurred skyline

The iris enhancement features of the TrueCamera Blur algorithm provide a significantly better blur—not only is it more accurate in a scientific sense, it also produces a blurred image more pleasing to the eye.

Depth Blurs

Blurs with depth control (z-maps) are much more complex than those that uniformly blur an image. A uniform blur can calculate many pixels at once,

while a z-mapped blur must cope with the possibility that adjacent pixels can have wildly different blurs.

CW Super Compound Blur is the fastest of the depth-blur filters because it uses the z-map to vary the compositing of a uniform blur with the original image. *CW Super Rack Focus* uses a more sophisticated algorithm that calculates the blur separately at each point, producing a better-looking result, but more slowly. Figure 1:60 shows both these blurs at their default settings, with a z-map applied as a control layer and a blur value of 20.

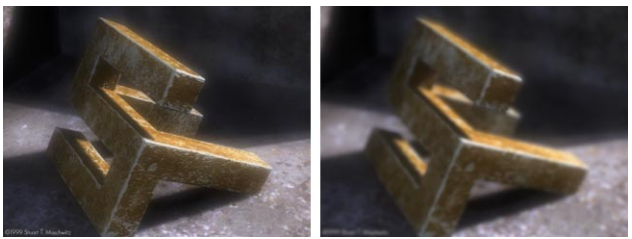


Figure 1:60 Super Compound Blur and Super Rack Focus, Value 20

The simpler z-mapped blurs produce a physically-incorrect result, though. If you look through the lens of a 35mm camera at two objects at different distances, but whose images overlap, you'll see that a sharp object in front obscures the blur of an out-of-focus object in the background, but a blurry front object is not obscured by a sharp background object. In fact, the blurry edge of the frontmost object bleeds over the sharp background object, an effect that is not reproducible with normal Z-mapped blurs such as Adobe's *Compound Blur* or Pinnacle's *CW Super Rack Focus*. Only *IL TrueCamera Rack Focus* has the ability to calculate this obscuration in a physically-accurate way.