

BCC Light Zoom Filter

The Light Zoom filter creates rays of light that spread out from the light source point in all directions. As the rays expand, their intensities are affected by the luminosities of the pixels that they cross. The farther from the source the ray extends, the less it is affected by the intensities of new pixels that it crosses. This process is referred to as attenuation, since the affect of the pixels on the intensity of the rays attenuates, or lessens, over time.

The **Light Source X** and **Y** position points set the location of the simulated light source on the X and Y axis.

Intensity adjusts the intensity of the light source.

The **Attenuation menu** chooses the type of mathematical process used to determine how the influence of pixels affecting the intensity of the rays of light changes over time. The choices are *Exp Distance SQ*, *Exp Distance*, *Expon Dist Sqrt*, *Dist SQ*, *Distance*, and *Dist Sqrt*. Experiment with the various modes to see which works best with your effect.

The following illustrations below show the affect of various Attenuation Types on the matte created by the filter.



Expon Distance SQ



Expon Distance



Distance SQ

Ray Length adjusts the length of the rays of light that emanate from the source. The length of the rays is also affected by the attenuation.



Ray Length=35



Ray Length=50



Ray Length=100

Minimum Influence determines the minimum amount of influence the pixels have on the length of the rays. Increasing this value is similar to decreasing the Ray Length value.



Minimum Influence=10



Minimum Influence=30



Minimum Influence=60

Aspect adjusts the shape of the light rays and the resulting matte. Positive values stretch the rays and matte horizontally, and negative values stretch them vertically.

Advanced Parameter Group

The **Attenuation Bias** menu determines how difference between the intensity of the pixels being passed and the intensity of the rays affects the attenuation.

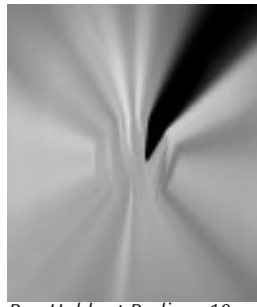
- If *Off* is chosen, the difference in intensity between an individual pixel and the ray crossing it does not affect the amount of influence the pixel has on the ray's intensity.
- *One Way* uses the **Bias Amount** value to determine how the influence of a pixel is affected by its intensity. Increasing positive values cause pixels that are more intense than the rays to have increasing influence on the intensity of the rays. This lightens to output. Decreasing negative cause pixels that are less intense than the rays to have increasing influence on the intensity of the rays. This darkens the output.
- *Two Way* is similar to *One Way*, but causes a more pronounced effect. For example, if the **Bias Amount** value is positive, *Two Way* increases the influence of pixels that are more intense than the rays while simultaneously decreasing the influence of pixels that are less intense than the rays.
- *Contrast* affects pixels that are closer to black or white over pixels that are closer to gray.

Increasing positive **HV Bias** values cause the rays to travel predominantly on horizontal and vertical lines. Decreasing negative values cause the rays to conform more to lines that form a 45 degree angle with the horizontal axis.

Ray Holdout Radius determines where the rays of light or the attenuation starts in relation to the light source. Positive values create a circular region centered around the light source beyond which the rays emanate. Attenuation does not begin until after the radius is reached. Decreasing negative values cause the attenuation to start closer to the light source point.



Ray Holdout Radius=-10



Ray Holdout Radius=10



Ray Holdout Radius=20

Directional Tuning smooths the angular behavior of the light. For most purposes, you should leave this control at the default value.

The **Color menu** determines how the applied light affects the source image. You can also use this menu to preview the source channel used by the filter to create the effect.

- **Colorize** uses the applied light to tone the image using controls similar to those in the Colorize filter.
- **Image** produces a colored lighting effect using color information from the chosen Image Layer.
- **Light Matte** uses the applied light to modify or create an alpha channel and displays a grayscale matte.
- **Inverse Light Matte** works similarly to Light Matte, but inverts the result.
- **Alpha** uses the applied light to modify or create an alpha channel and uses it to composite the source image.
- **View Source** displays the chosen Light From channel. This can be especially useful if you are using edges in the image as the Light From channel. In the following examples, Light From is set to Luma. See the following section for more information on the Light From menu.



Colorize



Image



Light Matte



Inverse Light Matte



Alpha



View Source

The **Color Source Layer** menu sets the layer used when the Color menu is set to Image.

Source Threshold subtracts the threshold from each pixel when computing the light.

Light Threshold sets a value that is subtracted from the light at each pixel before it is applied. If you are animating the position of an object, increasing Light Threshold will cause the light to fade out more rapidly as you move away from the source image.

The **Light From** menu determines which source color channel is used to create the light and to calculate the intensities of the source pixels. Pixels with higher values in the selected channel are considered to have higher intensities.

- **Luma**, **Red**, **Green**, and **Blue** use the corresponding color channel and multiply it by the source alpha channel.
- **Luma Inverse** uses the inverted luma channel to make the light.
- **Unmultiplied Luma** and **Alpha** use the unmodified corresponding source channels.
- **Luma Cartoon Edges** and **Alpha Cartoon Edges** find edges in the corresponding source channel, apply outlines to the edges, and use the resulting image. When Luma Cartoon Edges or Alpha Cartoon Edges is selected, **Thickness/Intensity** adjusts the width of the outlined edges, and **Cartoon Threshold** sets the value in the threshold above which pixels are considered fully on.

- *Luma Edges* and *Alpha Edges* find edges in the corresponding source channel and use the resulting image. When Luma Edges or Alpha Edges is selected, **Thickness/Intensity** adjusts the intensity of the edges, and **Edge Floor** adjusts the sensitivity of the filter when searching for edges in the source. Lower values increase sensitivity.

The illustrations below were created with the **Color menu** set to *Image*, so only the source channel used by the filter, and not the output, is visible. See “Advanced Parameter Group” for more information on the Color menu.



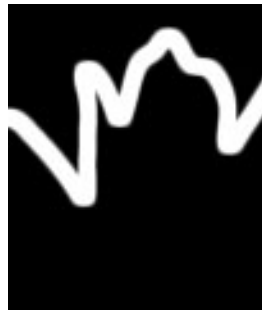
Luma



Unmultiplied Luma



Alpha



Alpha Cartoon Edges



Luma Edges



Red

Edges Parameter Group

When Luma Edges or Alpha Edges is selected in the Light From Channel menu, **Thickness/Intensity** adjusts the intensity of the edges.

Edge Pre Blur blurs the source image before the filter searches for edges. This blur does not appear in the output; it is used only in edge detection. This parameter only works if the Light From Channel menu is set to Luma Edges, Alpha Edges, Luma Cartoon Edges, or Alpha Cartoon Edges.

Edge Post Blur blurs the edges before they are used to create the applied light. This parameter only works if the Light From Channel menu is set to Luma Edges, Alpha Edges, Luma Cartoon Edges, or Alpha Cartoon Edges.

Cartoon Threshold sets the value in the threshold above which pixels are considered fully on. This parameter is only available if the Light From Channel menu is set to Luma Cartoon Edges or Alpha Cartoon Edges.

The **Color Preset menu** allows you to choose a Colorize preset (a gradient of up to six colors to tone the light). If the Mode menu is not set to Colorize, the presets have no affect.

Colorize Parameter Group

When the Light Mode menu is set to Colorize, these parameters allow you to use a gradient of up to six colors to tone the lighting effect. All of the parameters in this section can be animated.

The **Color Space menu** determines whether the gradient is created in *RGB*, *HSL*, or *HSV* color space. Choose HSL or HSV if you want to animate the colors in the gradient while maintaining the level of saturation.

The **Color 1**, **Color 2**, **Color 3**, **Color 4**, **Color 5**, and **Color 6** controls choose six different colors to add to the gradient. Color 1 and Color 6 are always used. Each of the remaining colors has a **Color On checkbox**. Select this option to add the corresponding color to the gradient. Deselect this option to remove the corresponding color from the gradient.

Black Point adjusts the value in the Input Channel which is treated as the pure Color 1 level in the output. All pixels whose Input Channel value is lower than the Black Point value are mapped to the Color 1. Increasing positive Black Point values cause more pixels to be purely Color 1 in the output. Decreasing negative values cause fewer pixels to be purely Color 1. The following illustrations show the affect of adjusting the Black Point in with a simple two-color gradient from black (Color 1) to white (Color 6).



Black Point = -75



Black Point = 0



Black Point = 75

White Point adjusts the value in the Input Channel which is mapped to the pure Color 6 in the output. Decreasing White Point causes more pixels to be purely Color 6 in the output.

The following illustrations show the affect of adjusting the White Point in with a simple two-color gradient from black (Color 1) to white (Color 6).



White Point=100



White Point=50



White Point=25

Negative **Squeeze** values compress and shift the gradient towards the left (Color 1) side. Increasing positive values compress and shift the gradient towards the right (Color 6) side.



Squeeze=-75



Squeeze=0



Squeeze=75

The **Loop** menu affects the output when either Loop Count or Gradient Offset are changed from their default values.

- When **Off** is chosen, looping past the end of the gradient uses the end color. This is the default value.
- When you choose **Forward Loop** the gradient loops back to **Color 1** after it passes **Color 6**. You can increase **Loop Count** to set the number of loops or change **Gradient Offset** to move the mapping through this loop.
- When you choose **Back & Forth Loop**, the color mapping goes from 1 to 6 to 6 to 1, etc.

Loop Count sets the number of times that the gradient loops. Values less than one use less of the gradient; negative values loop backwards, which only has a different appearance from a positive value if **Gradient Offset** is not zero.

Gradient Offset offsets the starting point of the gradient. This can be animated to create palette-shifting effects. A value of 100 offsets the gradient by one full cycle. Since the gradient loops back and forth, setting Gradient Offset to 100 or 300 simply reverses the direction of the gradient.

Color Ease adjusts the softness of the transitions between pure colors in the gradient. Increasing positive values causes the transitions to be more abrupt. Decreasing negative values softens the transitions.

Hue cycles the colors in the gradient around the color wheel in the HSL color space.

Saturation adjusts the intensity of each color's hue in the gradient. Negative values desaturate the gradient, while positive values increase the saturation of the gradient.

Lightness controls the brightness of the colors in the gradient. Higher values lighten the colors, while lower values darken the colors.

The **Apply Mode menu** controls how the filter is composited over the source image. For information on the available apply modes, see Appendix A in the User Guide.

Composite Parameter Group

These controls determine how the applied light is composited over the underlying image. When the **Opaque Light checkbox** is selected, the light created by the effect is opaque. Deselect this option to create light with a range of transparency.



Opaque Light=off



Opaque Light=on

Light Opacity controls the opacity of the light as it is composited over the source image.



Light Opacity=50



Light Opacity=150

Apply Mix controls the mix of the chosen Apply Mode with the *Normal* apply mode. If the Apply Mode is Normal, Apply Mix has no affect. If Apply Mix is 0, Apply Mode has no affect. Increase Apply Mix to blend the Apply Mode setting with the Normal apply mode.

The **Noise menu** determines which aspect of the effect is affected by the noise.

- When *Off* is chosen, the noise does not affect the output, and the remaining parameters in this section have no affect.
- *Source Light* causes the noise to affect the intensity of the source in the chosen Light From channel. See page 34 for more information on the Light From menu.
- *Attenuation* causes the noise to affect the amount of attenuation the light rays experience as the emanate from the source and interact with the pixels they cross.
- *Light* causes the noise to affect the light output by the filter. This choice often creates somewhat grainy images.
- *View Noise* displays a grayscale preview of the noise. The illustrations throughout this section were created with Noise Target set to View Noise.



Setting Noise to Attenuation has a similar effect to that of *Stringiness* in the Light Rays filters.

Noise Parameter Group

Noise Density sets the percentage of pixels that are affected by the noise.

Noise Intensity adjusts the intensity of the noise. Negative values cause the noise to have the opposite effect on the selected Noise Target as positive values.



Noise Intensity=50



Noise Intensity=100

Noise Blur applies a blur to the noise, creating a smoother, more organic, effect.

Noise Blur Quality sets the quality of the Noise Blur. *Pyramid* is the fastest option and is generally adequate unless Noise Target is Light. It produces a blur similar in quality to the Pyramid Blur filter. *Pyramid Smoother* produces a better quality pyramid blur and increases rendering times slightly. The remaining choices, *Gaussian Low*, *Gaussian Medium*, *Gaussian High*, *Gaussian Higher*, and *Gaussian Highest* produce gaussian blurs of increasing quality. These options increase rendering times proportionately.

When the **Bidirectional Noise checkbox** is selected, the noise affects the target both positively and negatively. For example, in the Noise menu is set to Attenuation and Bidirectional Noise is selected, the attenuation both increases in some regions and decreases in others. If Bidirectional Noise is not selected, the attenuation increases in some areas, and never decreases by the noise.



Bidirectional Noise=off



Bidirectional Noise=on

Seed determines which value is input to the random number generator used by the filter to create noise. Adjust this value when you like the overall effect but want to adjust the random configuration of the noise pattern.



Animating Seed creates noise that varies from frame to frame, because the noise affects a different randomly chosen group of pixels in each consecutive frame. A constant value creates static noise that retains its appearance from frame to frame.

The **Auto Animate checkbox** causes the filter to use a different random number seed for each frame. This is best used with small amounts of noise because it can produce results that are chaotic.

Perturbation and **Perturbation Seed** add a small amount of randomness to the numbers produced by Seed, allowing you to create noise patterns that differ between frames by a controlled amount. The best way to do this is to animate Perturbation Seed by at least one unit from one frame to the next, unless you want the noise pattern the same for some consecutive frames. Then adjust Perturbation until you get the desired amount of change.

When the **Radial Matte On checkbox** is selected, the Light Zoom filter creates a matte over the light. Deselecting the Radial Matte On checkbox turns the matte off.

Radial Matte Parameter Group

If the Radial Matte On checkbox is not selected, the parameters in this section have no affect. The **Inside Radius** and **Outside Radius** position point controls set the range of the matte, and the **Inside Blend** and **Outside Blend** soften the matte. To create a wipe using this filter, animate Outside Radius from a negative value to a value that displays the entire image.

PixelChooser Parameter Groups

The PixelChooser provides several methods to selectively filter an image. You can use the PixelChooser to create a matte between filtered and unfiltered pixels, either by specifying a geometric region or by using the image's luma or color information.

This filter includes an additional PixelChooser parameter. For more information on the PixelChooser, see Chapter 10, “The PixelChooser” in the User Guide, or open the help file for the standalone PixelChooser filter.

The **PixelChooser Target menu** sets which parameters are affected by the PixelChooser.

- Choosing *Light* scales down the light level at each point in the effect.
- *Mix* makes the PixelChooser behave in the same way that it does in most filters – it mixes the original image with the filtered image.
- *Source Light* uses the pixel chooser to mask the image as the light is created. It does not affect the compositing of the light over the image.
- *Attenuation* scales down the attenuation at each point where pixels are not fully chosen. This tends to make the rays shorter. You can make the rays stop in an unchosen region and pick up again in the chosen region.
- *Attenuation Boost* reverses Attenuation; rays travel further in unchosen regions.
- *Off* turns off these options.