



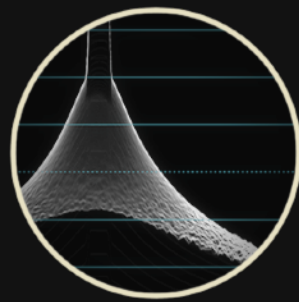
Scatter - User Guide

v1.9

September 2023

videovillage.co

Scatter emulates the characteristics of real-world optical diffusion filters on scene-referred footage.



Scene Referred

Physically-based workflow that maps diffusion intensity and falloff according to scene radiance, which makes it behave like real diffusion with consistent results between scenes, cameras, and alignments of Venus.*



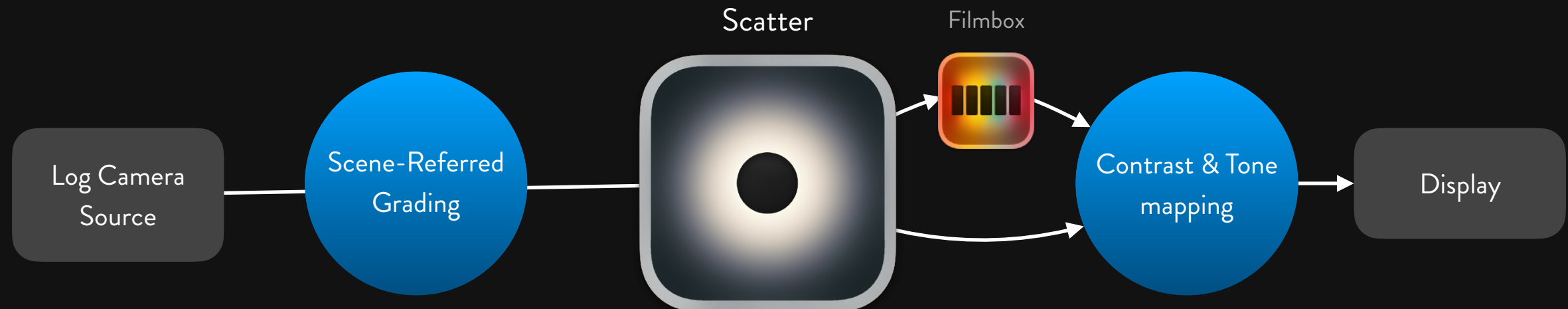
Familiar Filters

Presets built to match the characteristics of real photographic diffusion filters of various types and strengths.

*not tested for consistency in all astrological configurations

Grading with Scatter OFX for Resolve

The Scatter OFX node operates on ungraded footage from a supported camera in its native log colorspace or an intermediate space, and will output a processed image in that same colorspace.



Scatter is physically-based - we've calibrated the falloff and intensity of the diffusion for the quantities of light that the scene-referred image represents.

Grading **after** the Scatter node is analogous to working with footage shot with diffusion burned-in on set. Grading **before** the Scatter node is analogous to changing the light on set before scattering it through the diffusion filter.

If accuracy is important, only scene-referred operations should be performed before the Diffusion node. Exposure and color balance operations should be done linearly (gain in scene-linear, offset in ACEScc, or using Resolve's colorspace-aware HDR Global controls.)

Operations like contrast adjustment and tone-mapping before the Scatter node may produce results that are not analogous to real-world physically-based diffusion. But if you like what you see - go for it.

If you are using Filmbox, Scatter should be used *up-stream* from the Filmbox node.

Scatter Interface

Scatter

Source

Arri Log C

▼

Family

Black Pro-Mist

▼

Strength

Quarter

▼

Intensity

1.000

Focal Length (s35)

50.0

> Highlight Color Recovery

> Highlight Adjustment

> Edge

> Help

Source

Choose the colorspace of your “log” or “scene-referred” footage or working space.

It is not technically possible to produce accurate diffusion from “display-referred” footage but we have included the “(Inaccurate) Gamma 2.4” Source option which may produce a useful approximation on generic Rec.709 or sRGB “display-referred” source footage or graphics.

Family

Select the family of profiled filters.

Strength

Select the strength of the selected filter family.

Intensity

Amplify or reduce the effect of the active filter. Modifying intensity is not necessarily the same as selecting a different filter strength since some filter families do not have consistent characteristics between strengths.

Focal Length

The size of diffusion falloff typically varies with the field of view of the lens/sensor. The profiled filters have been calibrated for a 50mm lens on a s35mm sensor. This slider reduces/enlarges the falloff to approximate other fields of view (expressed in millimeters of focal length on s35mm).

Highlight Color Recovery Module

✓ Highlight Color Recovery

☐ Enabled

Radius 8.00

Saturation 2.000

Cutoff 5.00

When a sensor clips a colorful light source, the resulting diffusion in Scatter may end up appearing white because the chrominance of the pixels at the core of the source was not recorded.

The Highlight Color Recovery module attempts to rebuild color information in blown-out highlight regions by considering the hue of neighboring pixels so diffusion can be calculated more naturally.

Radius

The radius around the clipped pixels that are used to rebuild color. Larger clipped image regions may need larger radii.

Saturation

Boosts the saturation of the rebuilt color.

Cutoff

The luminance threshold above which a pixel is considered to be clipped and recovery is performed. Measured in number of stops above middle grey.

Highlight Adjustment Module

✓ Highlight Adjustment

☐ Enabled

☒ Gang Strength

Strength 0.00

Cutoff 5.00

Manually amplify or reduce diffused highlights either for creative effect or to compensate for clipped highlights that should be brighter than what the sensor was able to record.

Gang Strength

Disabling this gives separate RGB controls to change the color balance of diffused highlights.

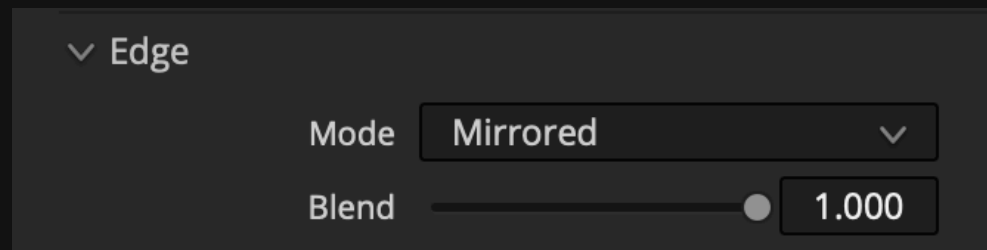
Strength

Strength of the amplification or reduction. Measured in stops.

Cutoff

The luminance threshold above which the adjustment takes place expressed in stops above middle grey.

Edge Module



Diffusion can be influenced by light beyond the bounds of the image.

In some cases the default mode (*Mirrored*) can cause glints similar to a gate flare if a very bright source is near the edges of frame. If this behavior is not desirable the *Blend* property can be reduced or a different *Mode* can be selected.

Mode - *Vignette*

No extrapolation beyond image bounds (black)

Mode - *Mirrored*

Mirrors the image beyond image bounds

Mode - *Repeated*

Repeats pixels on the border of the image beyond the image bounds

Blend

Decreases the strength of *Mirrored* or *Repeated* pixels.

Scatter Filter Comparison

					
	Soft FX Three		Soft FX Two		Soft FX One
	Classic Soft One		Classic Soft Half		Classic Soft Quarter
	Hollywood Black Magic One		Hollywood Black Magic Half		Hollywood Black Magic Quarter
	Radiant Soft Two		Radiant Soft One		Radiant Soft Half
	Black Diffusion FX Two		Black Diffusion FX One		Black Diffusion FX Half
	Glimmer Glass One		Glimmer Glass Half		Glimmer Glass Quarter
			Satin Two		Satin One
			Black Frost Half		Black Frost Quarter
	Black Pro-Mist One		Black Pro-Mist Half		Black Pro-Mist Quarter
					Scatter Linear
					Scatter Exponential
	Pearlescent One		Pearlescent Half		Pearlescent Quarter
	Pro-Mist Quarter		Pro-Mist One		Pro-Mist Half
			Fog Two		Fog Half
					Fog Quarter
	Smoque Two ex		Smoque One		Smoque Half ex
	LoCon One		LoCon Half		LoCon Quarter