ABOUT THIS GUIDE

This User Guide is a reference for Optics. You can read from start to finish or jump around as you please. This guide is available in Acrobat PDF format.

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About Us

Founded in 1995, Boris FX is a leading developer of VFX, compositing, titling, video editing, and workflow tools for broadcast, post-production, and film professionals. Boris FX products have grown to serve over a million artists worldwide. The company’s success lies in its ability to tightly integrate and leverage technologies through strong partnerships with Adobe, Apple, Avid, Blackmagic Design, Autodesk, FilmLight, Grass Valley, Magix, SGO, and other leading developers of video editing software. In 2014, Boris FX acquired Imagineer Systems, the Academy Award-winning developer of Mocha planar tracking software. In 2016, Boris FX acquired GenArts, the developer of Sapphire, the gold standard plug-in package for high-end visual effects. In 2019, Boris FX acquired Digital Film Tools, developers of award winning software for visual effects artists, video editors and photographers.
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INTRODUCTION

Optics

Optics is the definitive digital toolbox meant to simulate optical camera filters, specialized lenses, film stocks and grain, lens flares, optical lab processes, color correction as well as natural light and photographic effects.

Optics provides you with everything you will need to enhance your photos using a staggering amount of filter presets. Any filter can be limited to a portion of the image using sophisticated but simple to use masking controls. A layering system to apply multiple filters as well as the Standalone’s batch processing system rounds out Optics’ set of tools.


**Note:** Filters that contain a S_ prefix come from the Emmy award winning Boris FX Sapphire filter set. Visit [Boris FX Sapphire Filters](#) for more information.
Optics Features

General
- Simulation of optical glass camera filters, specialized lenses, film stocks, lens flares, optical lab processes, grain, exacting color correction as well as natural light and photographic effects
- 160 individual filters
- 75 curated, Emmy award winning Boris FX Sapphire filters let you create stunning organic looks unmatched by any host native filters
- Thousands of customizable presets
- Paint using Black/White, Blur, Clone, Color, Eraser, Mosaic, Red-Eye, Repair and Scatter brushes
- Layering system for multiple filter application
- Variation generator for effect parameters

Film Stocks & Looks
- 294 different color and black and white still photographic film stocks, motion picture films stocks and historical photographic processes
- 89 color grading presets from Academy Award nominated movies including 2001 A Space Odyssey, Apocalypse Now, Blade Runner, Back to the Future, Frankenstein, Gone with the Wind, King Kong, Saving Private Ryan and Titanic
- 159 stylized color and black and white looks

Lighting
- 126 optical lens flare presets
- Create stunning and realistic volumetric light ray effects
- 27 stylized light leaks
- Gobo library for lighting effects includes 751 gobos categorized into Abstract, Doors, Elements, Foliage, Snowflakes, Textures and Windows groups
- 193 different lighting gels to colorize your images

Renders
- Enhance your photos with textures, cloud, sky, and lightning effects
- Generate a noise texture that recreates the look of clouds to enhance or replace skies
- A starfield generator renders stars accurately down to date, time, and location
• Create photorealistic renderings of the moon that feature accurate lunar cycles

**Stylize**

• Build color grades, damage looks, and other high-quality treatments
• FilmDamage - Give your video a nostalgic archival film look by adding many different damage elements
• TVDamage - Give your video a retro television look by applying a variety of transmission issues
• DigitalDamage - Add a glitchy, digital transmission error look to your videos.

**Masking**

• Sophisticated but easy to use masking tools
• Gestural stroke based masking
• Gradient, Spot, Path, Snap, EZ Mask, Selection and Paint mask types
• Combine multiple masks using blend modes

**Architecture**

• Mac Retina Display Support
• 8, 16, 32 bit image processing
• Multi-processor acceleration
• GPU acceleration
Filter Categories

The Filters are categorized by filter function: Color, Diffusion/Blurs, Film Lab, Grads/Tints, Image, Lens, Light, Render and Stylize.

**Color**

1. Auto Adjust
2. Black and White
3. S_ChannelSwitcher
4. Color
5. Color Correct
6. Curves
7. Develop
8. Enhancing
9. Fluorescent
10. Haze
11. High Contrast
12. S_HotSpots
13. Kelvin
14. Levels
15. Low Contrast
16. Match
17. Ozone
18. Polarizer
19. Selective Color Correct
20. Selective Saturation
21. Shadows/Highlights
22. Sky
23. S_Threshold
24. Tone Adjust
Diffusion/Blurs
1  S_Beauty
2  Blur
3  S_BlurChannels
4  S_BlurChroma
5  S_BlurDirectional
6  S_BlurMotion
7  Center Spot
8  Depth of Field
9  Diffusion
10 Double Fog
11 S_EdgeAwareBlur
12 Fog
13 S_FreeLens
14 Frost
15 Halo
16 Mist
17 Net
18 S_RackDefocus
19 Silk
20 Split Field

Film Lab
1  S_BleachBypass
2  Cross Processing
3  S_FilmDamage
4  S_FilmEffect
5  Film Stocks
6  Flashing
7  Grain
8 Looks
9 S_VintageColor2Strip
10 S_VintageColor3Strip

**Grads/Tints**
1 Color Gradient
2 Color Spot
3 Colorize Gradient
4 Dual Gradient
5 S_DuoTone
6 Gels
7 ND Gradient
8 Photographic
9 S_QuadTone
10 Radial Tint
11 Sepia
12 Skin Tone
13 Split Tone
14 Sunset
15 Tint
16 S_TriTone

**Image**
1 DeBand
2 DeBlock
3 DeFog
4 DeNoise
5 Detail
6 Paint
7 Sharpen
8 S_WarpTransform
**Lens**
1  Chromatic Aberration
2  DeFringe
3  Lens Distortion
4  Radial Exposure
5  S_Vignette
6  Warp Fish Eye
7  Warp Magnify
8  Warp Polar

**Light**
1  Ambient Light
2  S_Aurora
3  Dot
4  S_EdgeRays
5  Eye Light
6  Flag
7  S_Glint
8  S_Glint Rainbow
9  S_Glow
10 S_Glow Darks
11 S_Glow Edges
12 S_GlowRings
13 Ice Halos
14 Key Light
15 Lens Flare
16 S_Lens Flare
17 Light
18 S_Light Leak
19 Overexpose
20 Rainbow
21 S_Rays
22 Reflector
23 ReLight
24 Soft Light
25 S_Sparkles
26 S_SparklesColor
27 S_SpotLight
28 Star
29 S_Streaks

**Render**
1 S_Caustics
2 S_Clouds
3 S_CloudsColor mooth
4 S_CloudsMultColor
5 S_CloudsPerspective
6 S_Grunge
7 S_LaserBeam
8 S_Luna
9 S_MuzzleFlash
10 S_NightSky
11 S_Zap
12 S_Zap From
13 S_Zap To

**Stylize**
1 S_Autopaint
2 Borders
3 S_Brush
4 S_Cartoon
5  S_CartoonPaint
6  Color Infrared
7  Color Shadow
8  S_Crosshatch
9  Day for Night
10 S_DigitalDamage
11 S_Dog Vision
12 S_Etching
13 S_FlysEyeCircles
14 S_FlysEyesHex
15 S_FlysEyeRect
16 S_HalfTone
17 S_HalfToneColor
18 S_HalfToneRings
19 Harris Shutter
20 S_Infinite Zoom
21 Infrared
22 S_Kaleido
23 S_KaleidoPolar
24 S_KaleidoRadial
25 Night Vision
26 S_ParallaxStrips
27 Pastel
28 Pencil
29 S_PseudoColor
30 S_RomanTile
31 Texture
32 S_TVDamage
33 S_WarpChroma
34 X-Ray
Installation

Photo Plug-ins

1. Download Optics at www.borisfx.com/
2. Double-click on the file that was downloaded and run through the installation process.
3. Start your program and load or select an image.
4. Apply a Optics filter:
   - Photoshop/Elements: In the Filter menu, select Optics from the Boris FX group.
   - Lightroom: In the Photo menu, select Edit In and then choose Edit in Boris FX Optics.

The Optics user interface opens.
Adding Optics to Lightroom as an External Editor

If Lightroom is found during the installation of Optics, Optics will automatically be added as an external editor. If for some reason Optics does not show up as an external editor, you can manually add Optics as an external editor by following the steps below.

1. **Open the Preferences in Lightroom.**
2. **Click the External Editing tab.**
3. **In the Additional External Editor section, select TIFF for File Format, sRGB for Color Space, 8 or 16 bits/component for Bit Depth, set the desired Resolution, and choose None for Compression.**

   **Note:** Optics is only compatible with TIFF files (8 or 16-bit, with no compression).
4. **Click on Choose to select an application. Navigate to the location of Optics.**
   - **On Windows,** the default installation location for Optics will be: C:\Program Files\BorisFX\Optics
   - **On Macintosh,** the default installation location for Optics will be: /Macintosh HD/Applications/BorisFX/Optics
5. **Select the Optics file and click Choose.**
6. **Under the Preset drop-down menu, select Save Current Settings as New Preset… and name the preset Optics.**

   Optics can now be easily accessed under the Photo menu as a preset external editor.
UNINSTALLING

Windows
From the Windows Start Menu, select Programs > Boris FX Optics > Uninstall Optics.

Macintosh
Go to /Applications/BorisFX/Optics and double-click on Uninstall Optics.
LICENSING

When you purchase your license, you will be emailed a serial number.

Activate Nodelocked License

When your machine is connected to the Internet, you can activate directly in a few simple steps.

1. Make sure you are connected to the Internet.
2. Start the Optics standalone or apply an Optics plugin.
3. Select Activate nodelock license in the License window and click OK.

The Boris FX License Tool will load.
4 Choose Activate your license now and press Next.

5 Paste the serial number into the Activation Key field and click Next.
If the activation is successful, details will appear on the next page.

6 Select Finish.

Your license is now installed.
Offline Activation

If your machine is not connected to the Internet or you are behind a firewall, use the Activate your license manually option.

1. Start the Optics standalone or apply an Optics plugin.
2. Select Activate nodelock license from the License window and click OK.

The Boris FX License Tool will load.

3. Choose Activate your license manually using another computer’s web browser and press Next.
4 You will be provided with file fields to load a key file.

5 Download and save the key file that you received from your license email from a computer that has an Internet connection.

6 Transfer the key file to your offline machine you are going to activate via a flash/thumb drive or a shared network.

7 Select the location of the key file in the first field.

8 Pick a location for the request file (which will be created) in the second field.

9 Copy the request file (.req) to a machine with an Internet connection.


11 Save the activation file it returns (via download or email), and copy that back to the offline machine.
12 Enter its location into the license tool and click Next.

Your license is now installed.
Deactivation

Once Optics has been activated, you can access the deactivate option.

1. Make sure you are connected to the Internet.
2. Start the Optics standalone and select License from the Help menu.
   The Boris FX License Tool loads.
3. Choose Deactivate your license now and press Next.

Optics deactivates.
License Troubleshooting

1. It is important that your Optics software matches your activation code, so check your purchase order to make sure everything matches up version wise. It may be that you don’t have the correct version of Optics installed from our download section. This is especially important for legacy software.

2. Check to make sure you are not restricted to using certain ports due to a firewall or other admin permissions. When in doubt, temporarily turn your firewalls off for the duration of the installation and then turn them back on when you are done.

3. Troubleshoot your machine; try uninstalling all your Optics software, restarting your machine, and installing the software again from scratch, and make sure you follow installation directions off our website exactly. It sounds redundant, but sometimes it’s a great way to figure out what is going on inside your machine.

4. If all else fails, our support team is happy to help you figure this out. Please contact support.

Request A Trial

Request a limited, unrestricted trial license.

1. Select Request a trial and click OK.

2. Click OK and you will be directed to a contact form.

3. Request a node-locked trial license of Optics.
Run in Demo Mode

Runs Optics in a watermarked demo mode which does not allow saving or rendering.
TUTORIALS

Optics Workflow

1. Apply Optics to an image.
2. Choose a filter category.
3. Select a filter.
4. Try out the various filter presets.
5. Adjust the filter parameters to your liking.
6. Use masks to limit where the filter is applied.
7. Add additional filters.
8. Click the Done button to apply the filters to your image.
Applying a Single Filter

The General Tutorials build on one another and are designed to be done in order.

1 **Apply Optics:**
   - *Photoshop/Elements:* In the Filter menu, select Optics from the Boris FX group.
   - *Lightroom:* In the Photo menu, select Edit In and then choose Edit in Boris FX Optics.

The image appears in the Viewer and thumbnails (small images) are created for all of the effects in the current category of the Filters window.

2 **Click on the Film Lab category in the Filters window and select the Looks filter.**
Presets for the filter are generated in the Presets window and the default preset is applied to the image in the Viewer.

**Note:** Some filters have multiple preset groups for more convenient organization.

3. In the Presets window, choose a new preset group from the pop-up menu to see a different set of filter presets.

4. Click on the different presets to try them out.
The image in the Viewer is updated as each preset is clicked.

5 If the Parameters window is not showing, click the Parameters tab at the bottom of the Presets window.
6 Adjust the parameters to your liking.

Adjusting the parameters will update and change the image in the Viewer. You can also set the opacity of the filter using the Layer Opacity control in the Effect window.
7 Click on the greater than character “>” to the right of the Layer Opacity spin controls to bring up the slider so that it can be adjusted.

In addition to opacity, Layers can be combined with the layer below using a variety of Blend modes.

Go to **Blend Modes** for explanations of the various modes.

8 Click the Done button to apply the filter to your image.

The next time you apply Optics in Photoshop, your previous Optics setup consisting of filters, layers and masks will all be displayed and can be modified. For the Optics setup information to be remembered in Lightroom, you need to use “Edit Copy with Lightroom Adjustments” and render the result. If you then apply Optics to the newly rendered version and use “Edit Original”, your previous Optics setup will also be displayed and can be modified. This behavior in Lightroom can be disabled via the Save setup with image preference.
Visualizing The Final Render

By default, the Viewer is set to a size smaller than full resolution resulting in snappy interactive editing, but will not represent the final render for some filters. These filters include: S_BleachBypass, S_Brush, Chromatic Aberration, DeNoise, Detail, S_EdgeRays, S_Etching, S_FilmDamage, S_FilmEffect, Film Stocks, Frost, Grain, Key Light, Looks, S_NightSky, Night Vision, S_RomanTile, Silk, S_VintageColor2Strip, S_VintageColor3Strip, S_ZapFrom and S_ZapTo.

To see an accurate representation of what the above filters will look like when rendered, set the Viewer > Preview Resolution to Full and the Zoom to 100%.

1. Change the Viewer > Preview Resolution to Full.

![Viewer Resolution Settings]

Note: The Viewer may take some time to update at full resolution.

2. Press the 1 keyboard shortcut to set the Viewer Zoom to 100%.

![Viewer Zoom Settings]

You are now viewing an accurate representation of what the filter will look when rendered.

3. When done viewing at Full resolution, set the Viewer > Preview Resolution back to 2K for optimal interactive performance.

Tagging and Sorting Favorite Presets

Presets can be tagged as a Favorite allowing them to be sorted separately in the Presets window as well as in the Favorites tab of the Filters window.

1. Apply an Optics filter with presets.

2. Tag a preset as a Favorite by selecting the preset and pressing the Toggle Favorite icon located at the top right of the Presets window.
Presets tagged as a favorite display a yellow star at the top right of the preset.

3 To sort the Presets window by Favorites, select Favorites in the Presets pop-up menu.

Creating Presets

1 Select an Optics filter and choose a preset.

When the Parameters tab is selected at the bottom of the Presets and Parameters window, the Parameters window is visible and displays the current filter's parameters.

2 If the Parameters window is not showing, click the Parameters tab at the bottom of the Presets window.
3 In the Parameters window, adjust the filter parameters to your liking.

Next, you can save your settings as a new custom preset, but you must first create a new name.

4 In the name field to the left of the Create Custom Preset icon, type in a new name.

5 Click the Create Custom Preset icon to create a new preset in the Presets window based on the current parameter settings.

6 Click the Presets tab at the bottom of the Parameters window to show the Presets window.

7 In the Presets window, you will see the newly created custom preset.
Applying Multiple Filters

1. Select an Optics filter and choose a preset.
2. Adjust the filter parameters if you’d like.

Before another filter can be added, the first filter must be added as a layer in the Effect window.

3. Click the Add Layer icon at the top left of the Effect window.

The first filter drops down one position in the Effect window and is added as a layer. Multiple filters can be added in this manner.

**Note:** You can also use Add Layer even if no filter is applied. This way Layer Blend Modes can be used to create effects between layers.

Applying Multiple Layer Blend Modes

Instead of adding filters to a layer, you can use only the Layer Blend Mode to create an effect.
1 Select a Layer Blend Mode.

Go to **Blend Modes** for explanations of the various modes.

2 Before another Layer Blend Mode can be added, click the Add Layer icon at the top left of the Effect window.

The first layer drops down one position in the Effect window and a new layer is added.

3 Select a different Layer Blend Mode for the new layer.

Multiple Layer Blend Mode’s can be added in this manner.

### Viewing Individual Layers

1 Apply a couple of filters to your image and add them as layers.
2 Click on the image thumbnail in the Effect window to display that layer in the Viewer.

With each click of the mouse, the Viewer displays each individual layer.

3 When you are finished, click on the top layer’s image thumbnail.

Comparing Images

Optics can compare images using Side-by-Side, Vertical Split, Horizontal Split, A/B or Snapshot comparison modes. By default, the current filter and original image are selected for comparison.

The View/Compare icon in the Effect window changes which layers are used in the comparison.

1 Apply an Optics filter and make sure it is affecting the image in some way.
2 Click on the Side-by-Side Comparison icon.
Horizontal images are stacked vertically and vertical images are placed side by side.

3 Click the Vertical Split Comparison mode icon.
You can now compare the images using a vertical split.

4 Move your cursor into the image area over the split line and when the cursor changes to a double-arrow, click and drag to move the split.

Depending on the filter used, the split line may not be obvious, so triangular sashes on the outside of the image help you find it. If you drag the sash all the way around, it will swap directions.

5 Enable the A/B Comparison icon and then click the Show Other View icon that appears to cycle the current filter with the original image.

6 When done, press the A/B Comparison icon to turn it off.

7 Press the Snapshot icon.
Once clicked, a snapshot of the image in the Viewer is taken as well as the layer’s mask, if there is one.

8 **Press the View Snapshot icon that appears.**

View Snapshot allows you to now use the various comparison modes to compare the snapshot to other layers or different filter settings.

9 **Turn off View Snapshot when done.**

**Editing Multiple Filters**

When multiple filters have been applied, you have the choice of viewing and editing one layer at a time or viewing one layer while editing another.

By default, the Viewer and Parameters window display the image and controls for the top most layer. The layer displayed in the Viewer is controlled with the View/Compare icon

while the controls shown in the Parameters and Presets window are displayed with the Edit icon.

Both of these icons are located in the Effect window above each layer’s thumbnail.
View and Edit One Layer at a Time

1. Apply a couple of filters to your image and add them as layers.

2. To simultaneously view and edit a different layer, double-click on its image thumbnail.

   The View/Compare and Edit icons automatically activate for the new layer, while the Viewer, Parameters and Presets windows update to display the new layer’s image and effect controls.

3. Use the effect controls in the Parameters window to edit the new layer.
View One Layer while Editing Another

There are many instances where it is very useful to view one layer while editing another.

1 **Double-click on the top most layer’s image thumbnail.**
   
   You are now viewing and editing the top layer. The layer that you are editing is considered the active layer and this is visually indicated by the layer's lighter gray background.

2 **Adjust the effect controls in the Parameters window or choose a new preset in the Presets window.**
   
   You are now Viewing the top layer while editing a layer below.
Creating Variations

Variations based on either one or two parameters can be created and are displayed as thumbnails in a window below the Parameters and Presets window.

1. Apply an Optics filter.
2. If the Parameters window is not showing, click the Parameters tab at the bottom of the Presets window.
3 Click on a parameter name in the Parameters window.

Variable parameters are Ranges, Toggles, and Colors.

When you select a parameter, the Variations appear and you'll see the variations being generated on that parameter.

4 Click on a second parameter and it will generate variations between the two.

The first parameter you click on will be the dominant parameter - it'll go across the top of the Variations tab. So, you can get different results depending on the order you select the parameters.

5 Click on a selected parameter to toggle it back off again.

Note: You can only have one or two parameters selected at a time. If you click on a third parameter, the last parameter you clicked on will deselect itself. If you deselect both of the parameters or switch effects, the Variations window will disappear because the variations are no longer being generated.

Variations are generated based on the current effect parameters. So, you can pick some parameters for your variation, then go back to the Presets window and pick a different Preset, and the variations will regenerate.

See Variations for more information.
Applying a Gradient Mask to a Layer

Masks allow you to limit the effect of a filter by revealing it only in white areas of the mask. White is on, black is off and gray areas in between represent a level of transparency.

Masks are displayed to the right of the filter thumbnail in the Effect window.

The following mask types can be applied to a layer: Gradient, Spot, Path, Snap, EZ Mask, Selection and Paint by clicking the Add Mask icon in the Toolbar.

1. **Apply Optics to an image.**
   Select a filter and preset that changes the image in an obvious way.

2. **For instance, select the Grads/Tints > Tint filter.**
3 Click the Add Mask icon in the Toolbar and choose Gradient.

When the mask is applied to your layer, a couple of things happen. First, a mask thumbnail appears to the right of the image thumbnail. Second, the filter that was applied to the image is now limited to the white areas of the mask. Third, controls are added to the Toolbar as well as the Viewer depending upon the type of mask selected.

4 Click and drag the corner points in the Viewer to adjust the position of the Gradient mask.
The direction and size of the Gradient can also be adjusted using the controls in the Toolbar.

5 Adjust the size of the gradient by first clicking the Gradient Size icon in the Toolbar and then dragging the slider that appears.

See Gradient Mask for more information.

Applying a Selection Mask to a Layer

Selection masks can be used to manipulate, isolate and protect specific parts of an image when making adjustments or applying filters.

Using advanced image slicing algorithms, masks are created using luminance, hue, saturation, average, red, green, blue, cyan, magenta, and yellow values.

1 Apply Optics to an image.
2 Select a filter and preset that changes the image in an obvious way.
3 Click the Add Mask icon in the Toolbar and choose Selection.

A number of controls appear in the Toolbar above the Viewer. The first control is called Extract On which determines which image values are used to create the mask. The default mask type is luminance, meaning brightness.
4 Press the M key or the Show Mask icon above the Viewer to display the mask.

Position and Range Controls

The Position and Range parameters are key to isolating specific image values.

1 Change the Position parameter if you want to select different values to be used for the mask. The parameter can be adjusted by first clicking the Position icon in the Toolbar and then dragging the slider that appears.

Using the Luminance extraction method, a higher Position value shows more white values from the original image as white values in the mask. A lower Position value shows more black values from the original image as white values in the mask.

Once you’ve selected the “Position”, you can then add or subtract the “Range” of values to be included in the mask.

2 Adjust the Range parameter by clicking it’s icon in the Toolbar and then dragging the slider that appears.
A higher Range value includes more white values in the mask while a lower Range value includes less values in the mask.

Position 100, Range 25  Original  Position 100, Range 75

![Image showing the effect of different Range values on the mask.](image-url)
In addition to using the slider controls in the Toolbar, the Position, Range and Radius parameters can be set using on-screen controls. Click on the image to place the on-screen control which consists of a center point and a solid circle. The Position value is set by the location of the center point, while the Range is set by sizing the circle. The larger the circle, the larger the range.

3 Adjust the Radius parameter by clicking it's icon in the Toolbar and then dragging the slider that appears.
When the Radius control is increased, a soft, circular mask is created to limit the selection. If the on-screen controls are used, the Radius is represented as a dashed circle.

In this case, the Radius allows me to isolate the clouds from the water.

4 You may want to adjust Black Clip to add more values to the black part of the mask and adjust White Clip to add more values to the white part of the mask.

5 If needed, Shrink/Grow can be used to make the mask smaller or larger and the Blur controls can soften the mask.

6 Press the M key to display the full color image in the Viewer.

See Selection Mask for more information.
Applying a Path Mask to a Layer

A Path is an outline created by placing sequential points along an object. Think of it as connecting the dots if you will. Although paths can be open or closed, Optics only makes use of closed paths. Drawing a path is often a good solution for objects that can’t be masked in any other way.

1. Apply Optics to an image.
2. Select a filter and preset that changes the image in an obvious way.
3. Click the Add Mask icon in the Toolbar and select Path.

Once Path is selected, the effect of the filter in the Viewer can no longer be seen until a mask is created.

4. Click repeatedly in the Viewer to create a new shape.
5 When done, click on the first point that was added to close the path.

The filter now appears only in the area contained within the path. To change the shape of the path, move the controls points.

6 Click on one point to select it or click and drag a box around a group of points.

7 Click and drag on one of the selected points to move them.

If needed, you can add new points by **Alt+clicking** on the path between two points. Points are deleted by selecting them and hitting the **Delete** key.

8 Create as many paths as you’d like.

When paths overlap, a hole in the mask occurs.

See **Path Mask** for more information.
Applying a Snap Mask to a Layer

The Snap masking tool provides instant visual feedback by snapping an editable curve to an object's boundary even if it has vague or low contrast edges. This is made possible by utilizing unique graph-cutting and segmentation algorithms.

1 Apply Optics to an image.
2 Select a filter and preset that changes the image in an obvious way.
3 Click the Add Mask icon in the Toolbar and select Snap.

Once Snap is selected, the effect of the filter in the Viewer can no longer be seen until a mask is created.

4 Define the area to be isolated by drawing a foreground line with the left mouse button.

![Image of a foot with a line drawn over it]

The Mark Foreground icon is selected by default when you apply a Snap mask and that is why you can just start drawing with the left mouse button.

5 Define background areas by drawing lines with the right mouse button.

or
6 Alternatively, you could select the Mark Background icon and draw with the left mouse button.

As soon as the first background line is drawn, Snap calculates a boundary curve that is displayed as a black and white dashed line around the object.

7 Draw additional foreground and background lines as needed until the object that you’d like to isolate is roughly surrounded by a boundary.
Where the boundary doesn’t correctly follow the edge of your object, refine the boundary by using either the Edit Points or Override Edge icons in the Toolbar. When either of these tools is selected, the boundary created in the object marking step is converted into editable polygons and you will see a noticeable refinement in the boundary.

8 Click the Edit Points icon in the Toolbar and drag a point to adjust the shape of the polygon.

Before

After

and / or
9 Click the Override Edge icon in the Toolbar and draw a mark along the edge of your object where the boundary doesn’t correctly follow the edge.

Before After

10 When happy with the boundary you have created, click the Convert Curve to a Path icon in the Toolbar to apply it to the layer and convert it to an editable path.

A slider pops up to control the amount of points to be included in the path.

11 Drag the slider to reduce the number of path points or just click it to accept the current setting.

By default, Edit Points is selected after the path is created so that you can view and edit the points.
To create a new boundary, select the Mark Foreground icon and repeat the above steps.

When boundaries overlap, a hole in the mask is created.

See Snap Mask for more information.

Applying a EZ Mask to a Layer

EZ Mask is an easy to use interactive image masking tool capable of isolating almost any object in an image—even if you are dealing with fine hair detail, smoke, or reflections.

To work this magic, EZ Mask iteratively estimates the transparency value for every pixel in the image, based on a small sample of foreground (what you want to isolate) and background pixels marked by simple strokes on the image. Results show that compared with previous approaches, our method is more efficient and requires minimal effort to extract high quality masks for foregrounds with significant semi-transparent regions.

Stroke Trimap Tutorial

EZ Mask creates masks by using a trimap—a pre-segmented image consisting of three regions of foreground (what you want to isolate), background and unknown. Partial opacity values are then computed only for pixels inside the unknown region. Two trimap methods can be used: Stroke and Filled. This tutorial will use the Stroke method.
Our trimaps can be relatively sparse consisting of individual foreground and background brush strokes. All pixels left unmarked will be treated as unknown. After processing, if any fine foreground details are missing from the mask, the Unknown brush can be used in these areas to help recover lost detail.

1. **Apply Optics to an image.**
2. **Select a filter and preset that changes the image in an obvious way.**
3. **Click the Add Mask icon in the Toolbar and select EZ Mask.**

**Note:** Once EZ Mask is selected, the effect of the filter in the Viewer can no longer be seen until a mask is created.

A good stroke technique is to draw an inner outline around the object you are extracting using the Paint Foreground brush and an outer outline using the Paint Background brush.

4. **Define the area to be cutout by drawing foreground lines with the left mouse button.** You can quickly draw straight lines if you click with the left mouse button, press Shift and then click in a different location. If you keep Shift depressed while clicking, you will create interconnected straight lines.

The Paint Foreground brush is selected by default when you enter EZ Mask and that is why you can just start drawing with the left mouse button.
The strokes should be near the boundary of the foreground, but not right up against the edge. Strokes that are closer to the boundary will dominate the creation of the mask. Also, if the foreground has varying colors, the strokes should cover these colors.

**Note:** The general rule is don’t put different stroke types too close together unless you need to.

5. Define background areas by drawing with the right mouse button.

or

6. Alternatively, you could select the Paint Background brush and draw with the left mouse button.
If the background has varying colors, the strokes should cover these colors.

**Warning:** If you only provide a few sparse strokes, a Stroke trimap will take longer to process than a filled trimap.

![Good Stroke Example](image1) ![Bad Stroke Example](image2)

7 **Click the Generate Mask icon or press the Enter key.**

Once EZ Mask is done processing, the mask will be shown in the mask thumbnail of the Effect window.

8 **Press the M key to view the Mask in the Viewer.**

In the Mask, white is foreground, black is background and any gray areas in between represent a level of transparency. If the mask is not acceptable after processing, add a few strokes near the region where the mask is not accurate.

**Note:** To quickly toggle off the display of your strokes, click on the layer’s image thumbnail. Click the mask thumbnail to re-display the strokes.
9 If you see gray areas in the foreground object that should be completely white, make additional foreground marks in those areas.

10 If you see gray areas in the background that should be completely black, make additional background marks.

When drawing a stroke trimap, certain foreground details may be missing after the mask is generated. Using the Paint Missing brush in these areas can sometimes help recover lost detail.

11 Press the M key again to view the full color image.

12 If any fine foreground details are missing from the mask, click on the Paint Missing brush and draw over them with the left mouse button as illustrated by the purple strokes in the dog’s hair.

The purple colored strokes represent the missing areas.

13 Click the Generate Mask icon or the Enter key again to see how any new foreground, background and unknown strokes affect the mask.

See EZ Mask for more information.
Filled Trimap Tutorial

EZ Mask creates masks by using a trimap--a pre-segmented image consisting of three regions of foreground (what you want to isolate), background and unknown. Partial opacity values are then computed only for pixels inside the unknown region. Two trimap methods can be used: Stroke and Filled. This tutorial will use the Filled method.

Foreground and background brush strokes are used to mark definite foreground and background pixels while the Unknown brush is used to mark unknown, or mixed regions. Using this method, the entire image is painted/filled with one of the three brushes.

1  Apply Optics to an image.
2  Select a filter and preset that changes the image in an obvious way.
3  Click the Add Mask icon in the Toolbar and select EZ Mask.

**Note:** Once EZ Mask is selected, the effect of the filter in the Viewer can no longer be seen until a mask is created.
When drawing a filled trimap, the best method is to draw the unknown areas first. Unknown areas are typically areas where the foreground is transitioning to the background. In the image below, the hairy edges of the Alpaca would be considered unknown areas.

4 Define unknown areas by selecting the Paint Unknown brush and drawing around the edges of the foreground with the left mouse button. You can quickly draw straight lines if you click with the left mouse button, press Shift and then click in a different location. If you keep Shift depressed while clicking, you will create interconnected straight lines.
Include as little solid foreground areas as possible, but be sure to draw over all of the unknown regions. Ideally, the unknown region in the trimap should only cover transparent pixels whose actual values are not completely foreground or background. In other words, the unknown region in the trimap should be as thin as possible to achieve the best masking result.

5 Define the area to be cutout by selecting the Paint Foreground brush and the Fill tool.

Using the current brush, the Fill tool fills a region defined by a brush stroke or the edges of the screen.

6 Click inside the area defined by the blue, unknown brush.
The area inside of the blue, unknown boundary automatically fills in with the green foreground brush. Using the Fill tool is much easier than drawing the entire area by hand.

7 Define background areas by using the Paint Background brush and the Fill tool. Since the Fill tool is already enabled, you don’t need to select it again.

8 Click on the background outside of the area defined by the blue, unknown brush. The background area automatically fills in with the red background brush.
9 Click the Generate Mask icon or press the Enter key.

Once EZ Mask is done processing, the mask will be shown in the mask thumbnail.

10 Press the M key to view the Mask in the Viewer.

In the Mask, white is foreground, black is background and any gray areas in between represent a level of transparency.

**Note:** To quickly toggle off the display of your strokes, click on the layer’s image thumbnail. Click the mask thumbnail to re-display the strokes.

11 If you see gray areas in the foreground object that should be completely white, make additional foreground marks in those areas.

12 If you see gray areas in the background that should be completely black, make additional background marks.
13 If there are areas that should be marked as unknown, make additional marks with the Paint Unknown brush.

14 Click the Generate Mask icon or Enter key again to see how any new foreground, background and unknown strokes affect the mask.

15 Press the M key again to view the full color image. See EZ Mask for more information.

Applying a Paint Mask to a Layer

Organic masks are created using a paint brush.

1 Apply Optics to an image.
2 Select a filter and preset that changes the image in an obvious way.
3 Click the Add Mask icon in the Toolbar and select Paint.

Once the Paint mask is selected, the effect of the filter in the Viewer can no longer be seen until a paint stroke is made.
4. To set the brush size, click on the Brush Size icon in the Toolbar, and drag the slider that appears.

or

5. Resize the brush in the Viewer by holding Ctrl/Cmd and dragging in or out. The Brush Softness and Opacity can also be adjusted by clicking their respective icons in the Toolbar.

6. Using the left mouse button, click and drag a portion of the Viewer. The filter appears only in the area of the paint stroke.

7. To quickly erase a portion of the painted mask, paint with the right mouse button. Alternatively, select a Brush Opacity and paint with the left mouse button.

Painting with a brush intensity that is a level of gray will apply the filter proportionate to that brush intensity. White areas in the mask apply the filter at full intensity while black areas show no filter.

See Paint Mask for more information.

Applying Multiple Masks to a Layer

More than one mask can be applied to a layer.

1. Apply Optics to an image.

2. Select a filter and preset that changes the image in an obvious way.
3 Click the Add Mask icon in the Toolbar and choose Selection.

![Image of Masking Options](image)

Photo by Oscar Dejean on Unsplash

4 Click the Add Mask icon again and select Spot.

![Image of Masking Options](image)

A Spot mask thumbnail appears to the right of the Selection mask and is automatically combined with it. View the Mask channel to see the results of the two masks.

5 Click the Show Mask icon above the Viewer so that you can see the combination of all your masks.

![Image of Masking Options](image)

To change how the active mask is combined with the previous mask, use the Blend modes in the Toolbar.
6 Select the Multiply blend mode to see how it affects the way the masks are combined.

7 Click the M shortcut key to switch the Viewer to display the full color image. When you have multiple masks, the mask with the gray border around it is considered the active mask and its controls are displayed in the Toolbar.

To change the active mask, simply click on the thumbnail of another mask.
Drag and Drop Layers, Filters and Masks

Drag and Drop Layers

The ordering of layers in the Effect window can be changed by dragging and dropping them to a new location.

1. Apply a filter and create a mask.
2. Click the Add Layer icon and a second filter and mask.
3. An entire layer can be moved to a new location by clicking and dragging on any open space within a layer and then releasing the mouse in the new location.

When the mouse button is released, the layer is moved to the new location.
Drag and Drop Filters and Masks

Filters and masks from one layer can be copied to another layer using drag and drop.

1. Choose a layer that has a filter applied to it.
2. Click and drag on the layer’s image thumbnail and release the mouse on the layer’s thumbnail where you want to copy the filter. When the cursor hovers over the image thumbnail of another layer, the cursor changes to a + sign indicating that it is OK to release the mouse.

When the mouse button is released, the destination filter is replaced with the source filter.
3 Click and drag on one of the layer’s mask thumbnails and release the mouse on the layer’s mask thumbnail where you want to copy the mask. When the cursor hovers over the mask thumbnail of another mask, the cursor changes to a + sign indicating that it is OK to release the mouse.

When the mouse button is released, the destination mask is replaced with the source mask. If you release the mouse over a layer without a mask, the mask will be added to the layer.
Setups

A Setup takes a snapshot of the filters and parameter settings applied to your image. Setups can be saved and loaded and are independent of the image they were originally applied to.

1. **Apply an Optics filter.**
2. **Choose a preset and make some parameter adjustments.**
3. **Add additional filters if you like by clicking the Add Layer icon at the top of the Effect Window and then selecting another filter.**

4. **Select File > Save Setup.**
5. **When the file browser opens, enter a name and click Save.**

You can now apply this setup to a different image using File > Open Setup.
**OPTICS USER INTERFACE**

Optics is comprised of 4 main components: Viewer, Filters, Presets/Parameters, and Effect.
**VIEWER**

The Viewer is where images are viewed, edited and manipulated.

---

**Zoom and Pan**

**Zoom In**

Zooms the image in.

**Zoom Level**

Displays the zoom level as a percentage.
**Zoom Out**

Zooms the image out.

**Zoom to Fit**

Fits the entire image inside the Viewer.

**Zoom**

Select the Zoom Region icon and drag select a square region in the Viewer to zoom in on that area.

**Pan**

Pans the image left, right, up and down.

See the **Viewer Keyboard Shortcuts** for more zooming and panning options.

**Preview Resolution**

Defines the default working resolution. However, when your image is saved, Optics always processes at full size.
By default, the Viewer is set to a size smaller than full resolution resulting in snappy interactive editing, but will not represent the final render for some filters. These filters include: S_BleachBypass, S_Brush, Chromatic Aberration, DeNoise, Detail, S_EdgeRays, S_Etching, S_FilmDamage, S_FilmEffect, Film Stocks, Frost, Grain, Key Light, Looks, S_NightSky, Night Vision, S_RomanTile, Silk, S_VintageColor2Strip, S_VintageColor3Strip, S_ZapFrom and S_ZapTo.

To see an accurate representation of what the above filters will look like when rendered, set the Viewer > Preview Resolution to Full and the Zoom to 100%.

**Note:** The default Preview Resolution is set in Preferences.

**1K**
Optics works at a maximum resolution of 1024 x 1024 pixels.

**2K**
Optics works at a maximum resolution of 2048 x 2048 pixels.

**4K**
Optics works at a maximum resolution of 4096 x 4096 pixels.

**8K**
Optics works at a maximum resolution of 8192 x 8192 pixels.

**Full**
Optics works at full resolution.

**Note:** Large Preview Resolutions take much longer to process when making parameter adjustments.

**Compare**
Compares images using Side-by-Side, Vertical Split, Horizontal Split, A/B or Snapshot comparison modes. By default, the current filter and original image are selected for comparison. Choose one of the comparison modes using the icons above the Viewer.
The View/Compare icon in the Effect window determines which layers are used in the comparison.

Side-by-Side Comparison

Compares images side by side in the Viewer.
Vertical Split Comparison

Compares images using a vertical split. Move your cursor into the image area over the split line and when the cursor changes to a double-arrow, click and drag to move the split. Depending on the filter used, the split line may not be obvious, so triangular sashes on the outside of the image help you find it. If you drag the sash all the way around, it will swap directions.
**Horizontal Split Comparison**

Compares images using a horizontal split. Move your cursor into the image area over the split line and when the cursor changes to a double-arrow, click and drag to move the split. Depending on the filter used, the split line may not be obvious, so triangular sashes on the outside of the image help you find it. If you drag the sash all the way around, it will swap directions.

**A/B Comparison**

When the A/B Comparison button is selected,

a Show Other View icon appears. Clicking it cycles through the images.
**Snapshot**

When the Snapshot icon is enabled, a snapshot of the image in the Viewer is taken as well as the layer’s mask, if there is one.

A View Snapshot icon then appears and allows the use of the various comparison modes to compare the snapshot to the other layers or different filter settings.

**Viewer Options**

**Show Mask**

Cycles the display between the full color image and the Mask channel.

**Histogram**

A histogram is a specialized graph that plots the number of pixels at each color intensity level. It is very useful in seeing how an image’s pixels are distributed.
## Viewer Keyboard Shortcuts

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<td>Zoom icon+Drag a square</td>
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<td>Middle-mouse double click</td>
<td>Fits the image to the window</td>
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</tbody>
</table>
The Filters window at the bottom of the screen is categorized by filter function and displays a thumbnail for each filter. The following filter categories are listed: Color, Diffusion/Blurs, Film Lab, Grads/Tints, Image, Lens, Light, Render and Stylize.

You can find detailed information on each filter later in this guide.
Search
To search for filters in the Filters window, click the Search icon at the top left of the Filters window.

Enter text into the search field and related filters will appear.

Disable the Search icon when done to return to the normal Filters window view.

**Note:** With the mouse in the Filters window, you can press the **Enter** key to enter search mode, and the **Esc** key to leave it.

Wrap Filters
Certain filter categories have a lot of filters and depending on the size of the window, there may be a horizontal scroll bar so that you can navigate to any filter not currently shown on the screen. To change to a vertical scroll bar, click the Wrap Filters icon at the far right of the Filters window.
**PRESETS AND PARAMETERS**

Presets and Parameters share the same window space on the right side of the screen, with Presets shown as the default. Either Presets or Parameters is selectable in a tab at the bottom of the window.

### Presets

The Presets window allows you to select from a set of pre-defined presets. When the Presets tab is selected at the bottom of the Presets and Parameters window (the default), the Presets window is visible and displays the current filter’s available presets.
Presets for most filters have been created so that you can easily click through the various choices.

Most filters contain multiple preset groups which are selectable at the top of the window.
Clicking once on a preset modifies the image in the Viewer. As you click on different presets, the image in the Viewer will update. This allows you to quickly try out several different presets.

Once you have found a preset that you like, click on the Add Layer icon at the top left of the Effect window to add the filter as a layer. Additional filters can then be added.

**Note:** Double-clicking on a thumbnail in the Presets window automatically adds the filter to the image in the Viewer as well as a layer in the Effect window.

**Preset Searching**

Presets can be searched for by entering text in the search field located at the top of the Presets window. The pattern remains in effect when you switch filters, but it will clear automatically when you switch layers in the Effect window or apply a preset. Clear the search text to return the Presets window to it’s normal state.

To search for a preset:

1. Select a filter, for instance Grads/Tints > Gels.
2. In the Presets window search field, type *red*.
   All presets with red in the name are shown.
3. In the search field, type *sun|blue*.
   Any preset with sun or blue in the name is shown.
Favorites
Presets can be tagged as a Favorite allowing them to be sorted separately in the Presets window as well as in the Favorites tab of the Filters window.

You can tag a preset as a Favorite by selecting the preset and pressing the Toggle Favorite icon located at the top right of the Presets window.

Presets tagged as a favorite display a yellow star at the top right of the preset.

To sort the Presets window by Favorites, select Favorites in the Presets pop-up menu.

Presets Right-Click Menu
Right-click over a preset to open Preset options.

Rename
Right-click on a preset, select Rename and type in the new name.

Delete
Right-click on a preset and select Delete.
Make Default
Right-click on a preset and select Make Default. The default preset is the one that is applied to the image when a filter is selected and the one shown in the Filter window. Changing the default will take effect the next time you start Optics.

Restore
Default Presets
Restores the Default preset for each filter. The restore happens the next time you select the filter.

Deleted Presets
Restores deleted presets.

Renamed Presets
Restores renamed presets. The restore happens the next time you select the filter.

To Factory Default
Restores all presets to the default factory settings.

Parameters
When the Parameters tab is selected at the bottom of the Presets and Parameters window, the Parameters window is visible and displays the current filter's parameters.
Adjusting the parameters will update and change the image in the Viewer.

Slider controls can be adjusted in the following ways:

- **Clicking and dragging the slider.**
- You can adjust with finer precision by pressing Ctrl/Cmd while dragging the slider.
- Clicking on the number to the right of the slider, typing in the desired value and hitting Enter.
- Hover the cursor over a slider and use the mouse scroll wheel to make the adjustment. Scrolling up raises the value while scrolling down lowers it.

Pop-up menus can be adjusted in the following ways:

- Click on the pop-up menu and make a selection.
- Hover the cursor over a pop-up menu and use the mouse scroll wheel to change the selection.
Create Custom Preset

Creates a custom preset in the Presets window based on the current parameter settings. You must name the preset prior to creating it by using the name field to the left of the Add Preset icon.

Reset to Defaults

Resets all of the parameters for the currently selected preset to the built-in defaults.
**VARIATIONS**

Variations based on either one or two parameters can be created and are displayed as thumbnails in a window below the Parameters and Presets window.

To display the Variations window and create variations, pick a filter and click on a parameter name in the Parameters window.
Ranges, Toggles, and Color parameters are available for creating variations. When you select a parameter, the Variations window appears and you'll see the variations being generated on that parameter. Click on a second parameter and it will generate variations between the two.

The first parameter you click on will be the dominant parameter - it'll go across the top of the Variations tab. So, you can get different results depending on the order you select the parameters. Click on a selected parameter to toggle it back off again.

**Note:** You can only have one or two parameters selected at a time. If you click on a third parameter, the last parameter you clicked on will deselect itself. If you deselect both of the parameters or switch effects, the Variations window will disappear because the variations are no longer being generated.

Variations are generated based on the current effect parameters. So, you can pick some parameters for your variation, then go back to the Presets window and pick a different Preset, and the variations will regenerate.

**Variation Controls**

**Maximum Number of Variations**
- Sets the number of variations.

**Parameter Value Spread**
- Determines the difference from one variation to another.
Auto Generate

Variations are constantly being generated every time you select a parameter or click on a variation thumbnail.

Generate

When Auto Generate is off, you must click the Generate icon to update the variations after new parameters are selected.
**EFFECT**

The Effect window shows all filters that have been applied to your image. The most recently applied filter is at the top of the stack, while the earlier applications are at the bottom. When you click on a thumbnail, the Viewer displays that layer.

**Layer Controls**

**Layer Name**

Displays the Layer name. Just type in this field to rename the layer.
Layer Opacity
Sets the Layer's opacity.

Layer Blend Mode
Layers can be combined with the layer below using a variety of Blend modes.

The following layer blend modes are available: Normal, Darken, Multiply, Color Burn, Linear Burn, Darker Color, Lighten, Screen, Color Dodge, Linear Dodge (Add), Lighter Color, Overlay, Soft Light, Hard Light, Vivid Light, Linear Light, Pin Light, Difference, Exclusion, Subtract, Hue, Saturation, and Color.

Go to Blend Modes for explanations of the various modes.

Add Layer
When a filter has been selected, pressing Add Layer applies the current filter to the image and creates a new layer.

Add Layer can also be used even if no filter is applied. This way Layer Blend Modes can be used to create effects between layers.

Edit
Clicking the Edit icon for a particular layer makes it active. Once active, you can adjust the filter settings or replace the current filter with a different one.
**View/Compare**

The View/Compare icon indicates which layer is shown in the Viewer and when enabled for multiple layers, the Viewer’s Side-by-Side, Vertical Split, Horizontal Split or A/B Comparison viewing modes become active. See the Compare section of the **Viewer** for more information.

Clicking on the image thumbnail in the Effect window automatically activates the View/Compare icon only for that layer and displays it in the Viewer.

**Enable Filter**

Deactivate the filter by clicking the Enable Filter icon.

**Enable Mask**

Enables masks attached to the layer. Masks can be used to limit where a filter is applied to an image and are displayed to the right of the filter thumbnail.

See **Masks** for more information.

**Using Layers, Filters and Masks**

**Adding Filters**

There are two ways to add layers.
1 Click the Add Layer icon at the top left of the Effect window.

2 Double-click on a thumbnail in the Presets window.

Duplicating Layers

Layers are duplicated by selecting Edit > Duplicate or right-clicking on the layer and selecting Duplicate Layer. The duplicated layer is added above the selected layer and becomes the new active layer.

Replacing Effects

Double-click on an image thumbnail to make it the active layer or click the Edit icon. Once active, you can replace the current filter with a different one.

Note: You can tell visually which layer is active by the active layer’s lighter gray background.

Deleting Filters

There are a number of ways to delete a filter.

1 Double-click an image thumbnail in the Effect window and hit the Delete key.
2 Click on the X at the top right of an image thumbnail.
3 Right-click on the layer and select Delete Filter.

Deleting Masks

There are a number of ways to delete a mask.

1 Double-click a mask thumbnail in the Effect window and hit the Delete key.
2 Click on the X at the top right of a mask thumbnail.
3 Right-click on a mask thumbnail and select Delete Mask.
4. Right-click on the layer and select Delete Masks to delete all masks for the selected layer.

Deleting Layers
Right-click on an image thumbnail and select Delete Layer. Delete Layer is only available when a layer has been added in the Effect window.

Drag and Drop Layers
The ordering of layers in the Effect window can be changed by dragging and dropping them to a new location. To do so, click and drag on any open space within a layer and then release in the new location.

Before

After

When the mouse button is released, the layer is moved to the new location.
Drag and Drop Filters and Masks

Drag and Drop Filters

Filters from one layer can be copied to another layer using drag and drop. Click and drag on the layer’s image thumbnail and release the mouse on the layer’s image thumbnail where you want to copy the filter. When the cursor hovers over the image thumbnail of another layer, the cursor changes to a + sign indicating that it is OK to release the mouse.

![Before and After](image)

When the mouse button is released, the destination filter is replaced with the source filter.
Drag and Drop Masks

Masks can be copied using drag and drop. Click and drag on one of the layer’s mask thumbnails and release the mouse on the layer’s mask thumbnail where you want to copy the mask. When the cursor hovers over the mask thumbnail of another mask, the cursor changes to a + sign indicating that it is OK to release the mouse.

When the mouse button is released, the destination mask is replaced with the source mask. If you release the mouse over a layer without a mask, the mask will be added to the layer.
**TOOLBAR**

The Toolbar contains Done, Cancel, Reset and Add Mask buttons. When Add Mask is clicked on and a mask type is chosen, it’s controls also appear in the Toolbar.

![Toolbar buttons](image)

**Done**
The values of the parameter adjustments in the Optics user interface are transferred to your host application.

![Done icon](image)

**Cancel**
Closes without making any changes.

![Cancel icon](image)

**Reset All**
Resets Optics back to the original image with nothing applied to it.

![Reset icon](image)

**Add Mask**
Adds a Mask to the current layer. Masks can be used to limit where a filter is applied to an image and are displayed to the right of the filter thumbnail.

![Add Mask icon](image)

See Add Mask in the Masks section for more information.
Adjusting Toolbar Controls

When certain tools are selected, for instance the masking tools, their controls appear in the Toolbar. Adjusting the controls is pretty straightforward except in the case of tools with numeric values where the slider is hidden, but can be accessed by clicking either the parameter icon or on the greater than character “>” to the right of the Spin controls.

As with the numeric controls in the Parameters window, you can also click directly on the numbers, type in a new number and hit Enter.
Masks allow you to limit the effect of a filter by revealing it only in white areas of the mask. White is on, black is off and gray areas in between represent a level of transparency.

Masks are displayed to the right of the image thumbnail in the Effect window.

**General Mask Controls**

The various mask types consist of a combination of on-screen and toolbar controls.
Add Mask

Using the Add Mask icon in the Toolbar, one of seven mask types can be applied to a layer: Gradient, Spot, Path, Snap, EZ Mask, Selection and Paint. Masks can be used to limit where a filter is applied to an image and are displayed to the right of the layer’s image thumbnail in the Effect window.

Mask Blend Mode

The Blend mode controls how the current mask is combined with the previous mask and is only active when more than one mask has been applied.

Normal

Normal blends masks based on each mask’s transparency.
Subtract
The pixels of one mask are subtracted from another mask.

Multiply
Produces a result where there is a union of pixels from two masks.

Invert Mask
Inverts the current mask.

Mask Opacity
Sets the opacity of the current mask.

Mask Blur
Sets the blur level of the EZ Mask, Path, Selection and Snap masks.

Inner Blur
The mask is blurred inward from the edge of the mask.

Centered Blur
The blur is centered on the edge of the mask, equally blurring inward and outward.
Outer Blur

The mask is blurred outward from the edge of the mask.
Gradient Mask

Creates a linear top to bottom or left to right gradient and is adjusted using the four points around the corners of the image as well as controls in the Toolbar.

Go to the Gradient Mask Tutorial to see how it works.

The Gradient Mask consists of a combination of on-screen and toolbar controls.
On-Screen Controls

Corner Points
There are four points around the four corners of the image. By clicking and dragging any of the four points, the Gradient mask can be adjusted.

Toolbar Controls

Top-to-bottom
The direction of the Gradient mask is from top to bottom.

Bottom-to-top
The direction of the Gradient mask is from bottom to top.

Left-to-right
The direction of the Gradient mask is from left to right.

Right-to-left
The direction of the Gradient mask is from right to left.

Gradient Size
The size of the Gradient mask.
Spot Mask

Creates a circular spot mask and is adjusted using the two circular on-screen controls as well as parameters in the Toolbar.

Spot Mask consists of a combination of on-screen and toolbar controls.

**On-Screen Controls**

**Radius**

The un-blurred radius of the spot is controlled using the inner on-screen circle.
Falloff Radius
The blurred edge radius is controlled using the outer on-screen circle.

Toolbar Controls

Aspect Ratio
The aspect ratio of the spot.

Falloff
Moves the falloff towards the spot centerpoint.
Path Mask

A Path is an outline created by placing sequential points along an object. Think of it as connecting the dots if you will. Although paths can be open or closed, Optics only makes use of closed paths. Drawing a path is often a good solution for objects that can’t be masked in any other way.

Photo by Patrick Fore on Unsplash

Go to the Path Mask Tutorial to see how it works.
Create a Path

Create a path by clicking on the image in the Viewer. With each click of the mouse, a point is created. When done, click on the first point that was added to close the shape.

Note: If shapes overlap, a hole in the path is created.

Closing Open Paths

If you neglect to close a path and would later like to close it, select one of the end points and then select the other end point. The path will then close.

Selecting Points

Individual or multiple points can be selected. Once selected, various point editing operations are available.
Point Selecting Shortcuts

<table>
<thead>
<tr>
<th>Shortcut</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click a point</td>
<td>Selects one point</td>
</tr>
<tr>
<td>Click and drag over multiple</td>
<td>Selects multiple points</td>
</tr>
<tr>
<td>points</td>
<td></td>
</tr>
<tr>
<td>Ctrl+click on a point</td>
<td>Toggles the selection on or off</td>
</tr>
<tr>
<td>Shift+click a point</td>
<td>Adds the point to the current selection</td>
</tr>
</tbody>
</table>

Point Editing

Significant modification to the path is made possible by point editing controls available through pop-up menus or keyboard shortcuts.

Point Editing Shortcuts

<table>
<thead>
<tr>
<th>Shortcut</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alt+click on a path</td>
<td>Inserts a new point along the path</td>
</tr>
<tr>
<td>Delete key</td>
<td>Delete all selected points</td>
</tr>
<tr>
<td>Click and drag selected points</td>
<td>All selected points move</td>
</tr>
<tr>
<td>Click and drag an unselected</td>
<td>Moves one point</td>
</tr>
<tr>
<td>point</td>
<td></td>
</tr>
<tr>
<td>Alt+click+drag on a point</td>
<td>Opens a slider to adjust the point’s tension. Left of center forces the path to curve through the point (Cardinal spline). The center position creates a corner point while the right position moves the curve towards the center of the path (B-Spline). If multiple points have been selected, they will all be set to the same tension.</td>
</tr>
<tr>
<td>Alt+click+drag+Shift on a point</td>
<td>Snaps the point tension to Cardinal, Corner or B-Spline positions</td>
</tr>
</tbody>
</table>
Point Editing Pop-up Menu

Right-click over a path point or set of path points to open the Point pop-up menu.

<table>
<thead>
<tr>
<th>Menu Option</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardinal</td>
<td>Creates a path that passes smoothly through each point</td>
</tr>
<tr>
<td>Corner</td>
<td>Creates a corner point</td>
</tr>
<tr>
<td>B-Spline</td>
<td>Creates a path that is determined by the surrounding points</td>
</tr>
</tbody>
</table>

Show Control Points

It is sometimes helpful to turn off the display of path points to see the accuracy of your path. When turned off, you can still adjust the hidden points by click+dragging on the path and the nearest point will be adjusted.
Snap Mask

Snap is an easy to use interactive image masking tool. Snap provides instant visual feedback by snapping an editable curve to an object's boundary even if it has vague or low contrast edges.

Go to the **Snap Mask Tutorial** to see how it works.

Snap consists of a combination of on-screen and toolbar controls.
**Workflow**

Using a coarse to fine editing approach, an area of the image is selected by first marking the object and then refining the boundary. Object marking occurs at a coarse level, which roughly defines an object by marking a few lines. Next, boundary editing works at a finer scale by either clicking and dragging polygon points to edit the object boundary or drawing a stroke along the object’s edge.
Object Marking

Instead of tracing the boundary of an object, Snap uses lines and curves to define the object.
Mark Foreground

Click the Mark Foreground icon and draw lines to mark the foreground area—the region to be isolated. With each click and drag of the mouse, a green line is drawn.
Mark Background

Click the Mark Background icon and draw lines to mark the background area. With each click and drag of the mouse, a red line is drawn.

Note: You can automatically draw background lines by clicking the right mouse button and dragging.

As soon as the first background line is drawn, Snap calculates a boundary curve that is displayed as a black and white dashed line around the object.
Add additional FG and BG lines as needed so that your object is surrounded by the boundary. Don't be concerned at this point if the boundary is not exactly following your object. The curve can be refined further using the boundary editing tools.

**Boundary Editing**

Even though object marking does a pretty good job of creating an accurate boundary, there can still be some errors, especially around vague or low contrast edges. To remedy these errors, there are simple polygon point editing tools to refine the object's boundary. Two tools are provided for polygon editing: Edit Points and Override Edge. When either of these tools is selected, the boundary created in the object marking step is converted into editable polygons and you will see a noticeable refinement in the boundary.
Edit Points

Click the Edit Points icon and drag points to adjust the shape of the polygon.

Compared with a simple polygon where you need to modify many points, Snap uses far fewer points to define the object shape. You should see variation in the boundary even though there are no points directly over the variations.

**Note:** The Edit Points icon can also be used to display and edit control points after the boundary is converted to a path.

### Point Editing Shortcuts

<table>
<thead>
<tr>
<th>Shortcut</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alt+click between two points</td>
<td>Add points</td>
</tr>
<tr>
<td>Hover over point + <strong>Delete</strong> Key</td>
<td>Delete points</td>
</tr>
<tr>
<td>Alt+drag a point</td>
<td>Uses magnetism to snap a point to an object’s boundary</td>
</tr>
</tbody>
</table>

### Override Edge

Click the Override Edge icon and draw a stroke along the edge of your object where the boundary doesn’t correctly follow the edge.
Once a stroke has been drawn, Snap optimizes the object boundary. The optimized boundary automatically snaps to the object boundary even though the polygon points may not be on it.

An entire segment of the polygon is replaced by drawing a single stroke and is much easier than dragging individual points.

**Clear Foreground / Background Marks**

Clears all foreground and background marks.
Convert Curve to a Path

When happy with the boundary you have created, click the Convert Curve to a Path icon to apply it to the layer and convert it to an editable path. Additional boundaries can be created and applied to the layer. When boundaries overlap, a hole in the mask is created.

Show Control Points

It is sometimes helpful to turn off the display of path points to see the accuracy of your path. When turned off, you can still adjust the hidden points by click+dragging on the path and the nearest point will be adjusted.
EZ Mask

EZ Mask is an easy to use interactive image masking tool capable of isolating almost any object in an image—even if you are dealing with fine hair detail, smoke, or reflections.

To work this magic, EZ Mask iteratively estimates the transparency value for every pixel in the image, based on a small sample of foreground (what you want to isolate) and background pixels marked by simple strokes on the image.

Results show that compared with previous approaches, our method is more efficient and requires minimal effort to extract high quality masks for foregrounds with significant semi-transparent regions.

Go to the **EZ Mask Tutorial** to see how it works.

EZ Mask consists of a combination of on-screen and toolbar controls.
Mask Creation

Trims

EZ Mask creates masks by using a trimap--a pre-segmented image consisting of three regions of foreground (what you want to isolate), background and unknown. Partial opacity values are then computed only for pixels inside the unknown region. Two trimap methods can be used: Stroke and Filled. When creating masks, start with the Stroke method and move on to the Filled method if the results are not satisfying.

Stroke

Unlike previous approaches, our trimaps can be relatively sparse consisting of individual foreground and background brush strokes. All pixels left unmarked will be treated as unknown. After processing, if any fine foreground details are missing from the mask, the Unknown brush can be used in these areas to help recover lost detail.

Stroke trimaps require little user input, but when color ambiguity exists between the foreground and background, a Filled trimap may create a more accurate mask. In addition, Stroke trimaps will also take longer to render as they require an extra calculation step.

Stroke Trimap Creation Tips & Tricks

- Make sure you place enough foreground and background strokes. A good stroke technique is to draw an inner outline around the object you are extracting using the Paint Foreground brush and an outer outline using the Paint Background brush.
• The strokes should be near the boundary of the object, but not right up against the edge.

• Strokes that are closer to the boundary will dominate the creation of the mask.

• If the foreground or background has varying colors, the strokes should cover these colors.

• After processing the mask, if you see gray areas in the foreground object that should be completely white, make additional foreground marks in those areas.

• If you see gray mask areas in the background that should be completely black, make additional background marks.

• If any fine foreground details are missing from the mask, click on the Unknown brush and draw over them with the left mouse button. This instructs EZ Mask to pay special attention to these areas and will help recover lost detail.

• The general rule is don’t put different stroke types too close together unless you need to.

**Warning:** If you only provide a few sparse strokes, a Stroke trimap will take longer to process than a filled trimap.

![Good Stroke Example](image1.png) ![Bad Stroke Example](image2.png)
Filled

Foreground and background brush strokes are used to mark definite foreground and background pixels while the Unknown brush is used to mark unknown, or mixed regions. Using this method, the entire image is painted/filled with one of the three brushes.

Filled trimaps process faster than Stroke trimaps and can result in extracting a more accurate mask, most notably when color ambiguity exists between the foreground and background. However, they can be tedious to create and tend to fail for images with large portions of semi-transparent foreground where the trimap is difficult to create manually.

Filled Trimap Creation Tips & Tricks

- First, define unknown areas by selecting the Paint Unknown brush and drawing around the edges of the foreground (what you want to isolate) with the left mouse button. Include as little solid foreground areas as possible.

- Ideally, the unknown region in the trimap should only cover transparent pixels whose actual values are not completely foreground or background. In other words, the unknown region in the trimap should be as thin as possible to achieve the best masking result.

- Next, fill in the solid foreground area by selecting the Paint Foreground brush and the Fill tool. Click inside the area defined by the blue, Unknown brush. The foreground area automatically fills in with the green foreground color.

- Last, mark background areas by using the Paint Background brush and the Fill tool. Since the Fill tool is already enabled, you don’t need to select it again. Click outside of the area defined by the blue, Unknown brush. The background area automatically fills in with the red background color.

**Note:** Large foreground objects take longer to process than small ones.
**Brushes**

**Paint Foreground**

Click the Paint Foreground icon and draw to mark the foreground area--the region to be isolated. With each click and drag of the mouse, a green line is drawn.

**Note:** If you click with the left mouse button, press Shift and then click in a different location, a straight line is drawn. This will work with any brush type. If you keep Shift depressed while clicking, you will create interconnected straight lines. This is very useful when using a mouse.

**Paint Background**

Click the Paint Background icon and draw to mark the background area. With each click and drag of the mouse, a red line is drawn.

**Note:** You can quickly create background strokes without selecting the Paint Background brush by painting with the right-mouse button. This temporarily draws with the Paint Background brush and when the right-mouse button is released, the previously selected brush becomes active.

**Paint Unknown**

Click the Paint Unknown icon and draw to mark the unknown area. With each click and drag of the mouse, a blue line is drawn.

When drawing a stroke trimap, certain foreground details may be missing after the mask is generated. Using the Paint Unknown brush in these areas can sometimes help recover lost detail.
Paint Missing

The Paint Missing brush is used to mark missing foreground areas—fine details such as strands of hair that may be missing after the mask is generated. Using the Paint Missing brush in these areas can sometimes help recover lost detail. With each click and drag of the mouse, a purple line is drawn.

**Note:** The Paint Missing brush has a Sensitivity parameter located in Settings (Wrench icon) > Process Options. It’s preset value will work for most images. However, the higher the value, the more details are brought out.

Eraser

Erases existing brush strokes.

Fill

Using the current brush, the Fill tool fills a region defined by a brush stroke or the edges of the screen.

Brush Parameters

Size

Sets the size of the brush.
To set the brush size:

1. Click on the Brush Size icon, and drag the slider that appears.

or

2. Enter a value in the number field next to the Brush Size icon and hit Enter.

or

3. Resize the brush in the Viewer by holding Ctrl/Cmd and dragging in or out.

Paint Overlay Opacity
Sets the opacity of the foreground, background and unknown brush strokes.

To set the paint overlay opacity:

1. Click on the Paint Overlay Opacity icon, and drag the slider that appears.
or

2 Enter a value in the number field next to the Paint Overlay Opacity icon and hit Enter.

**Settings**

Various EZ Mask preferences can be set by clicking the Settings icon.

![Settings](image)

**Foreground Color**

Sets the color of the Paint Foreground brush.

**Background Color**

Sets the color of the Paint Background brush.

**Unknown Color**

Sets the color of the Paint Unknown brush.

**Missing Color**

Sets the color of the Paint Missing brush.

**Process Options**

**Deartifact**

Blurry artifacts can be generated while attempting to extract objects that have drop shadows, similar colors to the background or out of focus edges. Deartifact can be used to limit these artifacts.

**Deartifact**

Turns deartifact on or off.

**Amount**

Sets the amount of deartifacting.

**Missing Brush**

**Sensitivity**

Sets the sensitivity of the Missing Brush. The higher the value, the more details are brought out.
Reset

Clears all brush strokes.

Mask Processing (Enter)

Generate Mask

Generates the mask. Click this after creating either foreground and background strokes or a filled trimap. You can use the Enter key to trigger the mask processing.
Selection Mask

Selection masks, also known as mattes, can be used to manipulate, isolate and protect specific parts of an image when making adjustments or applying filters.

Using advanced image slicing algorithms, masks are created using luminance, hue, saturation, average, red, green, blue, cyan, magenta, and yellow values.

Go to the Selection Mask Tutorial to see how it works.

The Selection Mask consists of a combination of on-screen and toolbar controls.
Extract On

Extract On selects the type of mask. Select whichever type isolates the desired values.

A mask is created based on one of the following:

**Luminance**
A mask is created based on the luminance of the image.

**Hue**
A mask is created based on the hue of the image. When adjusting the Position parameter, you are selecting different hues.

**Saturation**
A mask is created based on the saturation of the image.

**Average**
A mask is created based on the average of the image's RGB values.

**Red**
A mask is created based on the image’s red values.

**Green**
A mask is created based on the image’s green values.

**Blue**
A mask is created based on the image’s blue values.
**Cyan**
A mask is created based on the image’s cyan values.

**Magenta**
A mask is created based on the image’s magenta values.

**Yellow**
A mask is created based on the image’s yellow values.

**Position**
The Position value pinpoints the color values to be used in the mask. For a luminance mask, a Position value of 100 would make a white mask of the highlights and a value of 0 would make a white mask of the shadows. In our flower image, look at how the mask varies for different Position values in a red extraction. When the Position is at a value of 100, the red flowers are shown as white in the mask.

- **Position=100, Range=25**

When the Position is moved to 50, the red flowers turn black.

- **Position=50, Range=25**
Range

Increases or decreases the range of values in the mask. A low Range value indicates a narrow range of values. A high Range value indicates a large range of values included in the mask.

Radius

When the Radius control is increased, a soft, circular mask is created to limit the mask.

On-Screen Controls

When using the Selection Mask, the Position, Range and Radius parameters can be set using on-screen controls. Click on the image to place the on-screen control which consists of a center point and a solid circle. The Position value is Position=100, Range=50, Radius=50.
set by the location of the center point, while the Range is set by sizing the circle. The larger the circle, the larger the range. If Radius is used, a dashed circle will also appear.

\[\text{Black Clip}\]

Blacks in the mask are made blacker by increasing this value. As the value increases, more values are clipped to black. This is helpful for getting rid of unwanted gray areas in what should be the black part of the mask.
**White Clip**

Whites in the mask are made whiter by increasing this value. As the value increases, more values are clipped to white. This is helpful for getting rid of unwanted gray areas in what should be the white part of the mask.

![Mask with No White Clip](image1.png) ![White Clip=50](image2.png)
Paint Mask

Organic masks are created using a paint brush and the filter appears only in the area of the paint stroke.

Go to the **Paint Mask Tutorial** to see how it works.

Paint Mask consists of a combination of on-screen brushes and toolbar controls.

**Note:** If you have a large area that needs to be masked out, it may be more efficient to first use the Path Mask since Paint’s brush size does not exceed 500 pixels.

**Brush Size**

Sets the size of the brush.

**To set the brush size:**

1. Click on the Brush Size icon in the Toolbar, and drag the slider that appears.
or

2 Enter a value in the number field next to the Brush Size icon and hit Enter.

or

3 Resize the brush in the Viewer by holding Ctrl/Cmd and dragging in or out.
Brush Softness

Sets the brush softness.

**To set the brush softness:**

1. Click on the Brush Softness icon in the Toolbar, and drag the slider that appears.

2. Enter a value in the number field next to the Brush Softness icon and hit Enter.
Brush Opacity

Sets the brush opacity. Painting with the right-mouse button automatically paints with 0 opacity or black.

To set the brush opacity:
1. Click on the Brush Opacity icon in the Toolbar, and drag the slider that appears.

or

2. Enter a value in the number field next to the Brush Opacity icon and hit Enter.
The Optics Interface contains multiple windows. Windows can be closed, torn off to be a floating window, or moved to a new location.

**Opening and Closing Windows:**

- Double-click on a window’s title bar to make it a floating window.
- A floating window can be re-docked by double-clicking it’s title bar.
- Click the Close (X) icon to close a window.
- Once a window has been closed, it can be reopened by selecting it from the View > Window pull-down menu.

**Moving Windows:**

- Click and drag a docked window’s title bar and place it in a new location in the user interface. Note how the interface adjusts to accommodate the moved window.
- Click and drag a floating window’s title bar and place it in a new location.
- If you drop the window in the center of an existing window, a tab will be created so that both windows will share the same space.
Sashes

By clicking and dragging the sashes, dividing lines between areas of the screen, you can customize the Optics Interface.

Tool Tips

Hovering the cursor over an icon will pop up a tool tip that displays its function.
Value Field Length

You can resize the Value field by clicking and dragging the dividing line between Parameter and Value at the top of the Parameters window. This is useful if the Parameter names are getting cut off.

Parameter Groups

Parameter groups in the Parameters window can be expanded and collapsed using the plus and minus icons located to the left of the group.

Slider Precision

You can adjust any slider with finer precision by pressing \textbf{Ctrl/Cmd} while dragging the slider.
Combo Box Adjustment

Combo boxes allow you to adjust a parameter in various ways.

- **Spin Controls**
- **Number Field**
- **Slider Pop-Up**

**Number Field**
Highlight the numbers, type in a new number and hit **Enter**.

**Spin Controls**
Click on the up and down triangles of the Spin controls to adjust the value.

**Slider Pop-Up**
The slider is hidden but can be accessed by clicking either the parameter icon or on the greater than character “>” to the right of the Spin controls.

**Image Info**
Located at the bottom-right of the Optics Interface, the Image Info displays the image size and bit depth.
**PULL-DOWN MENUS**

**File**

**Setups**
A Setup takes a snapshot of the filters and masks applied to your image in the Effect window. Setups can be saved and loaded and are independent of the image they were originally applied to.

**Open Setup**
Opens a previously saved Setup.

**Save Setup**
Takes a snapshot of all filters and masks applied to your image in the Effect window and saves it as a Setup file. This Setup file can later be loaded to the same or a different image.

**Recent Setups**
The last five recently opened or saved Setups can be selected and opened here.

**Preferences**
Preferences allow you to customize default settings.

**Thumbnail Size**
You can select whether the Optics Interface uses either a small or large thumbnail size. Medium thumbnails are the default.

**Small**
Small thumbnails are used in the Optics Interface.

**Medium**
Medium thumbnails are used in the Optics Interface.

**Large**
Large thumbnails are used in the Optics Interface.
Live Thumbnails
Determines whether or not the Sapphire filters use live or pre-generated thumbnails.

Preview Resolution
Defines the default working resolution. However, when your image is saved, Optics always processes at full size.

1K
Optics works at a maximum resolution of 1024 x 1024 pixels.

2K
Optics works at a maximum resolution of 2048 x 2048 pixels.

4K
Optics works at a maximum resolution of 4096 x 4096 pixels.

8K
Optics works at a maximum resolution of 8192 x 8192 pixels.

Full
Optics works at full resolution.

Note: Large Preview Resolutions take much longer to process when making parameter adjustments.

Preview Scaling

Point
Uses a lower quality scaling method when displaying the image in the Viewer. Point is more accurate when applying filters such as grain and sharpen, but when zooming in, the image will display “chunky” artifacts.

Bicubic
Uses a smooth scaling method when displaying the image in the Viewer. Bicubic can mask the effect of grain and sharpen filters because of its inherent smoothing, but doesn’t suffer from the Point methods chunkiness when zooming in.
GPU Rendering
Enables or disables GPU rendering.

Downsampling
At large preview sizes, interaction may slow down when adjusting filter parameters. To maintain fast processing during adjustments, you can enable Downsampling.

Adaptive
Automatically downsamples the image if required.

2:1
Automatically downsamples the image by a factor of 2.

4:1
Automatically downsamples the image by a factor of 4.

8:1
Automatically downsamples the image by a factor of 8.

Save Setup With Image

Lightroom
Lightroom can now retrieve your Optics setup information consisting of filters, layers and masks. To do this, you need to use “Edit Copy with Lightroom Adjustments” and render the result. If you then apply Optics to the newly rendered version and use “Edit Original”, your previous Optics setup will be shown and can be modified.

Photoshop
By default, Photoshop remembers your previous Optics setup consisting of filters, layers and masks will all be displayed when you reapply Optics and they can all be modified.

Record Anonymous Usage Statistics
When enabled, anonymous usage statistics are recorded and transmitted to Boris FX.
Edit

**Undo/Redo**
Undo or redo operations.

**Undo/Redo History**
Undo/Redo has a history, so you can jump to any item in the history by picking it from the menu.

**Delete**
Deletes the selected filter.

View

**Window**
The Optics user interface is broken up into individual windows which can be opened or closed by selecting or deselecting them from the View menu. The following windows can be opened or closed:

**Color Wheels**
Open or closes the Color Correct Wheels window.

**Console**
Displays diagnostic information.

**Copy to Clipboard**
Copies the contents of the Console to the Clipboard.

**Options**

**OpenGL**
Displays the OpenGL version information.

**Rendering Statistics**
Displays rendering times.

**Effect**
Opens or closes the Effect window. See Effect for more information.
**Filters**
Opens or closes the Filters window. See Filters for more information.

**Histogram**
Opens or closes the Histogram window. See Histogram for more information.

**Parameters**
Opens or closes the Parameters window. See Parameters for more information.

**Presets**
Opens or closes the Presets window. See Presets for more information.

**Variations**
Opens or closes the Variations window. See Variations for more information.

**Reset**
Resets the window layout the next time Optics is started. This is useful if you have tweaked your windows beyond recognition.

**Zoom In**
Zooms the image in.

**Zoom Out**
Zooms the image out.

**Zoom to 100%**
Sets the Viewer > Zoom to 100%.

**Fit Image to Window**
Fits the image to the window.

**Layouts**
There are 4 preset layouts that automatically arrange the interface windows into different configurations.
Default Layout
The interface is configured with the default Optics layout where all windows are shown.

Edit Layout
The Edit Layout shows the Viewer, Presets and Parameters windows.

View Layout
The View Layout shows only the Viewer.

Dual Monitor Layout
The Dual Monitor Layout shows the Viewer on the left monitor and all other windows on the right monitor.
### Layout Shortcuts

<table>
<thead>
<tr>
<th>Shortcut</th>
<th>Action</th>
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<tbody>
<tr>
<td>F2</td>
<td>Selects the Default Layout</td>
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<tr>
<td>F3</td>
<td>Selects the Edit Layout</td>
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<tr>
<td>F4</td>
<td>Selects the View Layout</td>
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<tr>
<td>F5</td>
<td>Selects the Dual Monitor Layout</td>
</tr>
</tbody>
</table>

### Help

#### User Guide

Opens the Optics User Guide.

#### Help Shortcuts

<table>
<thead>
<tr>
<th>Shortcut</th>
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<tbody>
<tr>
<td>F1</td>
<td>Opens the Optics User Guide</td>
</tr>
</tbody>
</table>

#### About

Shows the Optics version.

#### License

Opens the Deactivation Options window which has two choices: Internet Deactivate (Recommended) and Advanced Options.
COMMON FILTER CONTROLS

There are a number of common filter controls that appear in Optics. For simplicity they are listed here.

Blur

**Horizontal**
The image is blurred by a quality blur along the X-axis.

**Vertical**
The image is blurred by a quality blur along the Y-axis.

**Gang**
The horizontal and vertical slider values can be ganged together. When ganged, moving the slider affects both values.

Black and White

Selects the type of black and white filter to be applied to your color image.

**Normal**
Converts the color image to a monochrome image.

**Red**
Simulates a red filter in black and white photography.

**Green**
Simulates a green filter in black and white photography.

**Blue**
Simulates a blue filter in black and white photography.

**Yellow**
Simulates a yellow filter in black and white photography.
Orange
Simulates an orange filter in black and white photography.

Grad
Grad is the gradient transition area between the filtered image and the original. Its direction, corners, size and angle can be adjusted.

Enable
Turns the grad on and off.

ND Brightness
Darkens the colored portion of the grad.

Type
Controls the direction of the grad.

Top-to-bottom
The direction of the grad is from top to bottom.

Bottom-to-top
The direction of the grad is from bottom to top.

Left-to-right
The direction of the grad is from left to right.

Right-to-left
The direction of the grad is from right to left.

Horizontal Strip
Horizontal strip grad.

Vertical Strip
Vertical strip grad.

Size
The size of the grad.
**Angle**

The angle of the grad.

**Corner Pin**

There are four points around the four corners of the image. By clicking and dragging any of the four points, the Grad can be adjusted.

![Corner Pin Image](image-url)

**Matte**

In some of the filters, a matte is generated to create the desired effect. The Matte controls consist of Position, Range and Blur parameters, and they work the same in all of the filters. The white areas of the matte are the areas that will be affected by the filter, while the black areas remain unaffected. The matte is extracted based on luminance, in most cases, and is created using the Position and Range parameters.
Position

Selects the values to be included in the matte. A higher Position value shows more white values from the original image as white values in the matte. A lower Position value shows more black values from the original image as white values in the matte.

Position 0, Range 25  Original  Position 100, Range 25

Photo © THINKSTOCK LLC--www.thinkstock.com
Range

Controls the range of values to be used for the matte. Once you’ve selected the “Position”, you can then add or subtract the “Range” of values to be included in the matte. A higher Range value includes more white values in the matte while a lower Range value includes less values in the matte.

Position 100, Range 25  Original  Position 100, Range 75

Blur

The matte is blurred by a quality blur.

Spot

A spot in the form of a radial gradient is used to limit the effect of the filter.

Position

There is an on-screen control in the center of the image. By clicking and dragging the on-screen control, the position of the spot can be adjusted.

Aspect

The aspect ratio of the spot.

Radius

The un-blurred radius of the spot.

Falloff Radius

The blurred edge radius.
Falloff
Moves the falloff towards the spot center point.

Invert
Inverts the spot.

Temperature

Color
Sets the color through the use of a standard color picker.

Opacity
Sets the opacity of the warming or cooling.

Preserve Highlights
Preserves the white areas of the image.

Exposure Compensation
Exposure Compensation adds back the brightness loss as a result of the warming or cooling.

Transform
Transform your image using Position, Scale, Rotation, Corner-Pin, Shear and Crop controls.

Crop

Top
Crops the image from the top down.

Bottom
Crops the image from the bottom up.

Left
Crops the image from left to right.
Right
Crops the image from right to left.

Corner Pin
There are four points around the four corners of the image. By clicking and dragging any of the four points, the image can be adjusted.

Position
Position can be adjusted by clicking and dragging an on-screen control in the center of the image.

Scale
Scale X
The horizontal scale.

Scale Y
The vertical scale.

Gang Scale
The Scale X and Scale Y slider values can be ganged together.

Rotate
In addition to the standard position and scale controls, you can rotate. Positive values rotate clockwise and negative values rotate counter-clockwise.

Shear
Shear X
Skews left and right.

Shear Y
Skews up and down.

Anchor
Anchor X
Defines the point on the X axis around which position, rotation, scaling or shearing takes place.
Anchor Y
Defines the point on the Y axis around which position, rotation, scaling or shearing takes place.

Filter
Chooses the filtering method when transforming the image. Mitchell is the default.

Triangle
The Triangle filter is not the highest quality, but fine for scaled images.

Quadratic
Quadratic is like triangle, but more blur with fewer artifacts. It offers a good compromise between speed and quality.

Cubic
Cubic is the default filter in Photoshop. It produces better results with continuous tone images, but is slower than Quadratic. If the image contains fine details, the result may be blurrier than desired.

Catmull-Rom
This produces good results with continuous tone images which are scaled down, producing sharp results with fine detailed images.

Gaussian
Gaussian lacks in sharpness, but is good with ringing and aliasing.

Mitchell
A good balance between sharpness and ringing, Mitchell is a good choice when scaling up.

Sinc
Keeps small details when scaling down with good aliasing.

View
Chooses what to view. The choices in this menu will change depending on the filter.
**Ambient Light**

**Description**

Ambient creates light without a defined source and contributes to the overall brightness of a scene without casting shadows.

**Category**

Light.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Brightness**

Sets the intensity of the light.

**Gels**

Photographers, cinematographers and lighting designers use colored filters or gels in front of lights. Whatever mood you wish to create, we have the colors needed to achieve the effect. Select one of the Gels presets from the pop-up menu.

**Color**

Sets the color of the light through the use of a standard color picker.
S_AURORA

Description
Generates a two colored swirl of light along a user controlled spline reminiscent of the Aurora Borealis (Northern Lights).

Before
After

Photo by Joakim Honkasalo on Unsplash

The S_Aurora filter comes from the Emmy award winning Boris FX Sapphire filter set.

Category
Light.

Controls

Presets
To select a preset, pick one from the Presets window.

Start Color
Sets the color at the starting control point.

End Color
Sets the color at the ending control point.

Color Phase
Adjusts the phase of the gradient between Start Color and End Color.
Stroke Size
Influences the width of the Aurora along the spline. This parameter controls the size of the underlying color gradient before it's distorted.

Brightness
Scales the brightness of the Aurora.

Softness
The amount of blur applied to the Aurora. Set to 0 to get a colored point cloud.

Softness Rel Y
The relative vertical amount of softness.

Swirling
Swirl Complexity
Specifies how many layers should be rendered in the Aurora. The more layers rendered, the more complex pattern generated along the spline.

Swirl Magnitude
The magnitude or amplitude of the swirls along the spline. Setting this to 0 will render a color gradient along the spline.

Magnitude Rel Y
The relative vertical magnitude of the swirls.

Swirl Frequency
The frequency of the swirls along the spline.

Frequency Rel Y
The relative vertical frequency along the spline.

Lighting
Light Brightness
Lights a circular area of the Aurora. Set to 0 to disable the light. Increase value to increase the intensity of the light.
Light Color
The color of the light.

Ambient Light
The level of illumination outside the light.

Light Radius
Distance from the center of the light to the edge of the brightest section.

Light Softness
How quickly the edge of the light should taper off to darkness.

Seed
Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.

Bg Brightness
Scales the brightness of the image.

Combine
Determines how the Aurora is combined with the source image.

Screen
The Aurora is blended with the source using a screen operation.

Add
The Aurora is added to the source.

Aurora Only
Renders the Aurora with no source.

Show Spline
Enables/disables the on-screen control for adjusting the Start parameter.

Show Light Pos
Enables/disables the on-screen control for adjusting the Light Pos parameter.
**AUTO ADJUST**

**Description**

Automatically adjusts the image using Auto Color, Auto Contrast and Auto Levels processes.

**Category**

Color.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Type**

Selects from one of the three automatic adjustment processes.

**Auto Color**

Auto Color adjusts the contrast and color of an image and is good for neutralizing color casts.

**Auto Contrast**

Auto Contrast automatically adjusts image contrast.
Auto Levels

Auto Levels automatically adjusts the white point and black point in an image. Since each color channel is adjusted individually, it may remove or introduce color casts.

Opacity

Sets the amount of auto adjustment.
**S_Autopaint**

**Description**
Generates a paint-brushed version of the image.

![Before After](https://unsplash.com/photos/234567890)

*Photo by Boris Smokrovic on Unsplash*

The S_Autopaint filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**
Stylize.

**Controls**

**Presets**
To select a preset, pick one from the Presets window.

**Style**
Selects the style of brush strokes.

**Van Gogh**
The stroke directions align with the edges found within the image.

**Hairy Paint**
The strokes are perpendicular to the edges within the image.
**Pointalize**

The strokes are cellular pointy shapes with no direction.

**Frequency**

The density of brush strokes in the frame. Increase for smaller strokes.

**Stroke Length**

Determines the length of the brush strokes along the directions of edges in the image. If this is negative, you can switch from VanGogh to HairyPaint styles and vice versa.

**Stroke Align**

Increase to smooth out the directions of the strokes so nearby strokes are more parallel.

**Smooth Colors**

Blurs the source by this amount before generating the brush strokes. Increase to cause the colors of nearby strokes to be more consistent.

**Seed**

Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.

**Sharpen**

The amount of post-process sharpening applied.

**Sharpen Width**

The width at which to apply the post-process sharpening filter, relative to the stroke sizes. Higher values affect wider areas from the edges, lower values only affect areas near sharp edges.

**Mix With Source**

Interpolates between the result (0) and the original source (1).
**S_Beauty**

**Description**

Applies smoothing, color correction, soft focus, and glow to skin regions.

![Before and After Images](Photo by Andrey Zvyagintsev on Unsplash)

The S_Beauty filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Diffusion/Blurs.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Skin Detection**

**Enable Skin Detection**

Generates and internal mask of skin regions based on Skin Color, Luma and Chroma Range, etc.

**Skin Color**

Representative skin color to use during detection. This parameter can be adjusted using the Skin Color Widget.
Luma Range
Difference in luma from Skin Color to consider skin.

Chroma Range
Difference in chroma from Skin Color to consider skin. This parameter can be adjusted using the Chroma Range Widget.

Rel Orange
Relative amount of orange in Chroma Range. The orange axis is along the human skin tone line common to all the human races, and is also known as the I-line in vectorscope terminology. Reducing this parameter can help eliminate blond or red hair (and similar highlights in other hair colors), some red/orange/yellow sports uniforms, warm backgrounds, etc. from the skin mask.

Rel Purple
Relative amount of purple in Chroma Range. The purple axis is perpendicular to the orange axis, and is thus most un-skin-like. In most cases, this parameter can be made smaller to eliminate lips, eyes, clothing, and jewelry from the skin mask. Increase this parameter to add purple and green shades to the skin detect mask, for example eye shadow, bad lighting, or alien skin tones (i.e. non-human).

Range Softness
Controls the softness of the skin detection mask. A value of one means only pixels that exactly match Skin Color will produce a mask value of one with each other pixel's mask value being proportional to its distance from Skin Color. A value of zero means a hard mask where all pixels within the luma/chroma range of the Skin Color will produce a mask value of one.

Clip White
Skin detection mask values greater than this value will be set to one.

Clip Black
Skin detection mask values less than this value will be set to zero.
Post Blur
Blur the skin detection mask by this amount.

Show
Selects the type of output.

Final
Show the final output.

Skin Detect Mask
Show the mask generated by the internal skin detector.

Skin
Show result of applying skin detection mask to source.

Show Color Helper
Display an interactive overlay to help set Skin Color, Chroma Range, Rel Orange, and Rel Purple. The overlay shows all possible colors that match the brightness (luma) of the Skin Color parameter. Orange is in the upper left corner, and purple is in the upper right (this orientation is similar to a traditional broadcast vectorscope). Colors matching the skin detection algorithm are highlighted. Changing Skin Color will move the highlighted region, adjusting Chroma Range changes the size of the highlighted region, and adjusting Rel Orange/Purple stretches the region along the diagonals of the square.

Suppress Background
Suppress BG
Only apply Beauty to the region specified by Face Center and related parameters.

Face Center
Center position of face region when Suppress BG is enabled. This parameter can be adjusted using the Face Center Widget.
Face Softness
Makes the face region softer when Suppress BG is enabled. This will provide a smoother transition from the face region to the background, but also possibly reduce the strength of Beauty in the face region.

Face Radius
Size of face region when Suppress BG is enabled. This parameter can be adjusted using the Face Radius Widget.

Face Rel Height
Relative height of face region when Suppress BG is enabled.

Face Rotate
Rotation of face region when Suppress BG is enabled. This parameter can be adjusted using the Face Rotate Widget.

Show Face Widget
Display an interactive overlay to assist in placing and sizing the face region.

Pore Size
Features smaller than this size (pores, etc.) will be preserved even when blurring.

Blur Amount
Scales the width of the blur.

Edge Threshold
Color regions separate by an edge larger than this value will not blur into each other.

Soften Shadows
Positive values reduce the appearance of shadows, while negative values make shadows more pronounced. Reducing shadows can make the subject look younger, while darkening shadows will make them look older.

Shadow Thresh
Dark regions less than this value will be enhanced/reduced by Soften Shadows.
Reduce Shine
Darken bright, shiny areas. The darkening process can lead to a lack of color, and if so, use Shine Saturation to bring back a natural skin tone in the affected region.

Shine Saturation
Scales the color saturation in bright regions. Useful for adding a natural skin tone to shiny areas that required darkening.

Shine Thresh
Regions brighter than this value will be affected by Reduce Shine.

Color Correct

Hue Shift
Shifts the hue of the source colors, in revolutions from red to green to blue to red.

Saturation
Scales the color saturation of the result. Increase for more intense colors. Set to 0 for monochrome. You can also invert the chroma of the result by making this negative.

Brightness
Scales the brightness of the result.

Tint
Scales the result by this color, thus tinting the lighter regions.

Soft Focus
Scales the width of the soft focus blur.

Glow Brightness
Scales the brightness of the skin glow.

Glow Details

Glow Color
Scales the color the skin glow.
**Glow Threshold**
Glows are generated from locations in the skin regions that are brighter than this value. A value of 0.9 causes glows at only the brightest spots. A value of 0 causes glows for every non-black area.

**Glow Width**
Scales the skin glow distance.

**Mix With Source**
Interpolates between the blurred result (0) and the original source (1). 0.1 can give a nice misty effect since it mixes only a little of the source in.
**BLACK AND WHITE**

Description

Black and White converts color images to black and white simulating the look of Black and White photographic filters.

![Before and After Images](Image)

Photo by Anthony Delanoix on Unsplash

**Category**

Color.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Filter**

The Filter pop-up selects the type of black and white filter to be applied to your color image. Go to the Black and White section of Common Filter Controls to see how the Black and White controls work.

**Brightness**

Adjusts the brightness of the image. Positive values brighten, negative values darken.
**Contrast**

Adjusts the contrast of the image. Positive values increase contrast, negative values decrease contrast.

**Gamma**

Adjusts the gamma of the image. The gamma adjustment leaves the white and black points the same and only modifies the values in-between. Positive values lighten the midtones, negative values darken the midtones.
**S_BLACHBYPASS**

**Description**

Simulates a film process in which silver is not removed from the negative. The result has increased contrast and reduced color saturation.

Before After

Photo by Ray Hennessy on Unsplash

The S_BleachBypass filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Film Lab.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Amount**

Controls the intensity of the effect by interpolating between the original source and the result.

**Soft Focus**

If positive, a soft focus effect is also applied. Increase for a broader soft focus look.
Sharpen
The amount of post-process sharpening applied.

Saturation
Scales the color saturation. Increase for more intense colors. Set to 0 for monochrome.

Scale Lights
Scales the result by this value. Increase for a brighter result.

Offset Darks
Adds this gray value to the darker regions of the result. This can be negative to increase contrast.

Grain Amp
Scales the amplitude of the film grain that is added to the result. Set this to 0 to disable all grain.

Grain Parameters
Grain Amp Red
Scales the red grain amplitude.

Grain Amp Green
Scales the green grain amplitude.

Grain Amp Blue
Scales the blue grain amplitude. Note that grain is added and subtracted from the image, so for example, increasing Grain Amp Blue will amplify both the blue and yellow speckles.

Grain Amp Darks
The relative amount of grain applied to the darkest regions of the image, per channel. This defaults to less than 1 because dark areas usually have less grain than midtones.
**Grain Amp Brights**
The relative amount of grain applied to the brightest regions of the image, per channel. This defaults to zero because bright areas usually have less grain than midtones. Note that highly saturated colors can be affected by both Grain Amp Darks and Grain Amp Brights because they are dark in some color channels and bright in others.

**Grain Blur**
The grain is smoothed by this amount. Increase for coarser grain.

**Grain Blur Red**
The relative blur amount for the red grain.

**Grain Blur Green**
The relative blur amount for the green grain.

**Grain Blur Blue**
The relative blur amount for the blue grain.

**Grain Mono**
When enabled, the same grain pattern is used for the red, green, and blue channels. To make truly monochrome grain you should also set Grain Amp Red/Green/Blue equal to each other, make sure Midtone Pos Red/Green/Blue are equal, and if GrainBlur is positive also set Grain Blur Red/Green/Blue to be equal.

**Grain Seed**
Initializes the random number generator for the grain generation. The actual seed value is not significant, but different seeds produce different grain patterns and the same value should give a repeatable pattern.

**Scale Colors**
Scales the color of the result.
**BLUR**

**Description**
Blurs the image with individual horizontal and vertical controls. It’s fast, high quality and blurs outside the frame which removes the dark inward bleeding edges of most blurs.

**Category**
Diffusion/Blurs.

**Controls**

**Blur**

**Horizontal**
The image is blurred by a fast, quality blur along the X-axis.

**Vertical**
The image is blurred by a fast, quality blur along the Y-axis.

**Gang**
The horizontal and vertical slider values can be ganged together. When ganged, moving the slider affects both values.
**S_BlurChannels**

**Description**

Blurs each channel of the image by an arbitrary amount using a gaussian, triangle, or box filter.

**Category**

Diffusion/Blurs.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Blur Amount**

Scales the width of the blur for all channels. This parameter can be adjusted using the Blur Amount Widget.

**Blur Red**

The blur width of the red channel, relative to Blur Amount. This parameter can be adjusted using the Blur Amount Widget.
Blur Green
The blur width of the green channel, relative to Blur Amount. This parameter can be adjusted using the Blur Amount Widget.

Blur Blue
The blur width of the blue channel, relative to Blur Amount. This parameter can be adjusted using the Blur Amount Widget.

Blur Rel
The relative horizontal and vertical blur widths. Set Blur Rel X to 0 for a vertical-only blur, or set Blur Rel Y to 0 for a horizontal-only blur. This parameter can be adjusted using the Blur Amount Widget.

Brightness

Brightness
Scales the brightness of the result.

Scale Red
Scales the blurred red channel.

Scale Green
Scales the blurred green channel.

Scale Blue
Scales the blurred blue channel.

Offset

Offset Darks
Adds this gray value to the darker regions of the result. This can be negative to increase contrast.

Offset Red
Adds this value to the red channel of the result.

Offset Green
Adds this value to the green channel of the result.
Offset Blue
Adds this value to the blue channel of the result.

Mix With Source
Interpolates between the blurred result (0) and the original source (1). 0.1 can give a nice misty effect since it mixes only a little of the source in.

Filter
The type of convolution filter to blur with.

Box
Uses a rectangular shaped filter.

Triangle
Smoother, uses a pyramid shaped filter.

Gauss
Smoothest, uses a gaussian shaped filter.

Subpixel
Enables blurring by subpixel amounts. Use this for smoother animation of any of the blur amount parameters.

Soft Borders
If enabled, transparent borders are added to the image before processing. This allows the result to include soft edges beyond the original image size. When off, the effect only occurs within the frame and the result will retain an edge at the borders.

Show Blur Amount
Enables/disables the on-screen control for adjusting the blur amount parameters.
**S_BLURCHROMA**

**Description**

Separates the source into luminance and chrominance components, blurs the chrominance and/or the luminance independently, and recombines them.

**Category**

Diffusion/Blurs.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Blur Chroma**

The amount to blur the chrominance. This parameter can be adjusted using the Blur Chroma Widget.

**Blur Luminance**

The amount to blur the luminance. This parameter can be adjusted using the Blur Luminance Widget.
Blur Rel
The relative horizontal and vertical blur widths. Set Blur Rel X to 0 for a vertical-only blur, or set Blur Rel Y to 0 for a horizontal-only blur. This parameter can be adjusted using the Blur Chroma Widget.

Scale Chroma
Scales the chrominance by this amount. Increase for more intense colors, decrease for muted colors.

Scale Luminance
Scales the brightness of the result.

Offset Result
Adds this gray value to the result (or subtracts if negative). 0 has no effect, .5 is middle gray, and 1 is white.

Mix With Source
Interpolates between the blurred result (0) and the original source (1). 0.1 can give a nice misty effect since it mixes only a little of the source in.

Filter
The type of convolution filter to blur with.

Box
Uses a rectangular shaped filter.

Triangle
Smoother, uses a pyramid shaped filter.

Gauss
Smoothest, uses a gaussian shaped filtered filter.

Subpixel
Enables blurring by subpixel amounts.

Show Blur Chroma
Enables/disables the on-screen control for adjusting the Blur Chroma parameter.
Show Blur Luminance

Enables/disables the on-screen control for adjusting the Blur Luminance parameter.
Description

Blurs the image in a given direction using a gaussian, triangle, or box filter.

Category

Diffusion/Blurs.

Controls

Presets

To select a preset, pick one from the Presets window.

Blur Amount

Scales the width of the blur. This parameter can be adjusted using the Blur Amount Widget.

Angle

The direction of the blur. An angle of 0 produces a horizontal blur and an angle of 90 produces a vertical blur. This parameter can be adjusted using the Angle Widget.
**Shift**
Shifts the image in the direction of the blur. A negative shift amount shifts the image in the opposite direction.

**Bias**
Varies the weight of the pixels along the path of the blur which gives the appearance of trails or streaks in a single direction. A value of 0.5 weights all pixels evenly. A value of 1 causes the weight to increase toward the direction of the blur while a value of 0 has the opposite effect.

**Blur RGB**
- **Blur Red**
The blur width of the red channel relative to Blur Amount.
- **Blur Green**
The blur width of the green channel relative to Blur Amount.
- **Blur Blue**
The blur width of the blue channel relative to Blur Amount.

**Shift RGB**
- **Shift Red**
Additional amount to shift the red color channel.
- **Shift Green**
Additional amount to shift the green color channel.
- **Shift Blue**
Additional amount to shift the blue color channel.

**Brightness**
Scales the brightness of the result.

**Offset Darks**
Adds this gray value to the darker regions of the result. This can be negative to increase contrast.
Mix With Source
Interpolates between the blurred result (0) and the original source (1). 0.1 can give a nice misty effect since it mixes only a little of the source in.

Filter
The type of convolution filter to blur with.

Box
Uses a rectangular shaped filter.

Triangle
Smooother, uses a pyramid shaped filter.

Gauss
Smoothest, uses a gaussian shaped filter.

Edge Mode
Determines the behavior when accessing areas outside the source image.

Transparent
Areas outside the source image are treated as transparent, which can produce transparency around the edges of the image. Select this for fastest rendering.

Repeat
Repeats the last pixel outside the border of the image.

Reflect
Reflects the image outside the border.

Soft Borders
If enabled, transparent borders are added to the image before processing. This allows the result to include soft edges beyond the original image size. When off, the effect only occurs within the frame and the result will retain an edge at the borders.

Show Blur Amount
Enables/disables the on-screen control for adjusting the blur amount parameters.
Show Angle

Enables/disables the on-screen control for adjusting the Angle parameter.
S_BLURMOTION

Description
Performs a motion blur between the specified From and To transformations. This can be used to perform radial zoom blurs, rotate blurs, directional blurs, or any combination of these.

Controls

Presets
To select a preset, pick one from the Presets window.

From Z Dist
The 'distance' of the From transformation. This zooms about the Center location when Shift is 0. Increase to zoom out, decrease to zoom in. This parameter can be adjusted using the From Transfm Widget.
**From Rotate**
The rotation angle of the From transformation, in degrees, about the center. This parameter can be adjusted using the From Transfm Widget.

**From Shift**
The horizontal and vertical translations of the From transformation. This can be used for directional motion. If it is non-zero the center location becomes less meaningful. This parameter can be adjusted using the From Transfm Widget.

**To Z Dist**
The 'distance' of the To transformation. Increase to zoom out, or decrease to zoom in. This parameter can be adjusted using the To Transform Widget.

**To Rotate**
The rotation angle of the To transformation, in degrees, about the center. Note that if the From and To Rotate angles are very different, the interpolation between them will become less accurate. This parameter can be adjusted using the To Transform Widget.

**To Shift**
The horizontal and vertical translations of the To transformation. This can be used for directional motion. If it is non-zero, the center location becomes less meaningful. This parameter can be adjusted using the To Transform Widget.

**Exposure Bias**
Determines the variable amount of exposure along the path between the From and To transformations. A value of 0 causes more exposure at the From end, 0.5 causes equal exposure along the path, and 1 causes more exposure at the To end. If you have bright spots on a dark background, a 0 value would cause the processed spots to be brighter at the From end and dark at the To end, and a 1 value would cause the opposite.

**Brightness**
Scales the brightness of the result.

**Wrap**
Determines the method for accessing outside the borders of the source image.
No
Gives black beyond the borders.

Tile
Repeats a copy of the image.

Reflect
Repeats a mirrored copy. Edges are often less visible with this method.

Blur Res
Selects the resolution factor for the motion blur. This is similar to the general 'Res' factor parameter, but does a better job of averaging down to lower resolution and interpolating back up to the result. Higher resolutions give better quality, lower resolutions give faster processing.

Full
Full resolution is used.

Half
The motion blurring is performed at half resolution.

Quarter
The motion blurring is performed at quarter resolution.

Subpixel
If enabled, uses a better quality, but slightly slower method for performing the blur.

Crop Input
These 4 parameters, Crop Top, Crop Bottom, Crop Left, and Crop Right, allow selecting a rectangular subsection of the image to be processed. If the Wrap parameters are set to "No", the exposed borders will be transparent. If the Wrap is "Tile" or "Reflect", the source image is wrapped on the new cropped borders to fill the frame. This can make it easier to avoid artifacts due to distorting an image with bad edges.
**Show Center**
Enables/disables the on-screen control for adjusting the Center parameter.

**Show From Transfm**
Enables/disables the on-screen control for adjusting the From Z Dist and From Rotate parameters.

**Show To Transform**
Enables/disables the on-screen control for adjusting the To Z Dist and To Rotate parameters.

**Show From Shift**
Enables/disables the on-screen control for adjusting the Center parameter.

**Show To Shift**
Enables/disables the on-screen control for adjusting the Center parameter.
BORDERS

Description

Select from a variety of different pre-made borders or create your own.

Category

Stylize.

Controls

Presets

To select a preset, pick one from the Presets window.

Border

Type

Choose from 11 different borders or Custom to create variable colored, softened borders.

Orientation

The orientation of border.

O degrees

The default orientation of the border.
90 degrees
Rotates the border 90 degrees.

180 degrees
Rotates the border 180 degrees.

270 degrees
Rotates the border 270 degrees.

Invert
Inverts the color of the border.

Note: Orientation and Invert are only used for the pre-made Border's 1-11.

Size
The size of the border.

Color
The border color.

Softness
The softness of the border.

Roughness
The roughness of the border.

Randomize
Randomizes the roughness of the border.

Transform
Transform the border using Scale and Rotate controls. Go to the Transform section of Common Filter Controls to see how the Transform Controls work.
**S_Brush**

**Description**

Simulates the look of an oil painting or a chalk drawing by layering brush strokes of different sizes and directions. This effect can be used with one of the following brushes: felt tip, splat, water color, stipple, pencil, pastel, sponge, splodge, round, or cubes.

![Before After](Photo by Nomad Bikers on Unsplash)

The S_Brush filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Style**

**Brush Oil**

Simulates the look of an oil painting by layering brush strokes of different sizes and directions.
**Brush Chalk**
Simulates the look of a chalk drawing by layering brush strokes of different sizes and directions.

**Shape**
The shape of the brush.

**Match To Style**
Use the brush shape that matches the current paint style. Round matches to Oil and Sponge matches to Chalk.

**Felt Tip**
An opaque, triangular shape.

**Splat**
A shape of sparsely packed fine dots.

**Water Color**
A coarse, blobby shape.

**Stipple**
A soft, rectangular shape with holes.

**Pencil**
A long, thin shape.

**Pastel**
A long, funnel shape, like a comet.

**Sponge**
A very coarse, rectangular shape.

**Splodge**
A soft, misty, rectangular shape.

**Round**
A soft oval shape with coarse trails, like a jellyfish.
**Cubes**
A square shape.

**Max Size**
Sets the maximum brush size. No brushes will be larger than this size.

**Size Range**
Scales the range of the brush sizes measured from the maximum brush size.

**Angle**
Rotates the orientation of the brushes.

**Vary Angle**
Randomly rotates the brushes up to this amount in one direction.

**Contour Alignment**
Interpolates between the brush stroke direction being fully aligned to the angle parameter (0) and the contours of the original source (1). Vary angle offsets of the stroke in both directions from this interpolated direction.

**Layers**
The number of layers to paint.

**Density**
Sets the overall density of brush strokes per layer.

**Rel X Density**
Scales the density of brush strokes in the X–direction.

**Rel Y Density**
Scales the density of brush strokes in the Y–direction.

**Vary Position**
Shifts the brush positions randomly in all directions. A value of zero places all the brushes on a regular grid.

**Roughness**
Scales the intensity of the highlights on the paint, similar to increasing the thickness of paint.
Intensity
Scales the saturation of the brush opacity, growing the perimeter of the brush.

Deterioration
Scales the shadows created by roughness, similar to cracking or peeling paint.

Smooth Colors
Blurs the source to smooth the color palette and help reduce some brush stroke jitter.

Use Source Color
Interpolates between the paint color parameter (0) and the original source color (1).

Paint Color
The paint color to use.

Bg Opacity
Scales the opacity of the background before combining with the brushes. If 0, the result will contain only the brush image over alpha.

Seed
Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.

Soft Borders
If enabled, transparent borders are added to the image before processing. This allows the result to include soft edges beyond the original image size. When off, the effect only occurs within the frame and the result will retain an edge at the borders.
**S_Cartoon**

**Description**
Generates a cartoon look. Finds the edges in the image and draws new outlines for those edges. Smooths the colors of the areas between the edges, and optionally posterizes the colors into fewer color values.

![Before](image1.jpg) ![After](image2.jpg)

Photo by Nong Vangh on Unsplash

The S_Cartoon filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**
Stylize.

**Controls**

**Presets**
To select a preset, pick one from the Presets window.

**Edge Width**
The width of the outlined edges. Increase for thicker outlines.

**Edge Strength**
Scales the strength of the outlined edges by this amount. Increase for heavier edges.
**Edge Threshold**
Subtracts this value from outline image. Increase to remove unwanted noise and minor edges.

**Edge Color**
Outline the edges of the clip in this color.

**Suppress Small Edges**
Increase this value to remove smaller edges while keeping the larger edges.

**Edge Sharpen**
Amount to sharpen the outlines. Increase this value for sharper sides to the edges.

**Smooth**
The amount to blur the colors in the non-edge regions.

**Posterize**

**Posterize Amount**
If positive, generates a posterized look by limiting the number of colors in the result. Increase this for fewer and larger regions of solid colors. Decrease for more colors and more steps between colors.

**Posterize Smooth**
Amount to smooth the edges between color regions when posterizing. Increase this value to reduce aliasing between the colored areas. If set to 1, the areas will be completely smoothed together and no posterize effect will occur.

**Posterize Phase**
Amount to shift color boundaries when posterizing. Adjust this to fine-tune the location of the edges between the color regions. A phase of 1 is equivalent to 0.

**Color Correct**

**Saturation.**
Scales the color saturation. Increase for more intense colors. Set to 0 for monochrome.
Scale Lights
Scales the result by this value. Increase for a brighter result.

Tint Lights
Scales the result by this color, thus tinting the lighter regions.

Tint Darks
Adds this color to the darker regions of the source.

Offset Darks
Adds this gray value to the darker regions of the source. This can be negative to increase contrast.

Mix With Source
Interpolates between the result (0) and the original source (1).
**S_CartoonPaint**

**Description**

Auto-generates a version of the image with a cartoon paint-brushed look. Finds the edges in the image and draws new outlines for those edges. Replaces the colors of the areas between the edges with paint brush shapes.

![Before](image1) ![After](image2)

Photo by Nong Vangh on Unsplash

The S_CartoonPaint filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Edge Width**

The width of the outlined edges. Increase for thicker outlines.

**Edge Strength**

Scales the strength of the outlined edges by this amount. Increase for heavier edges.
**Edge Threshold**
Subtracts this value from outline image. Increase to remove unwanted noise and minor edges.

**Edge Color**
Outline the edges of the clip in this color.

**Suppress Small Edges**
Increase this value to remove smaller edges while keeping the larger edges.

**Edge Sharpen**
Amount to sharpen the outlines. Increase this value for sharper sides to the edges.

**Paint**

**Frequency**
The density of brush strokes in the frame. Increase for smaller strokes.

**Stroke Length**
Determines the length of the brush strokes along the directions of edges in the image. If this is negative, you can switch from VanGogh to HairyPaint styles and vice versa.

**Stroke Align**
Increase to smooth out the directions of the strokes so nearby strokes are more parallel.

**Smooth Colors**
Blurs the source by this amount before generating the brush strokes. Increase to cause the colors of nearby strokes to be more consistent.

**Seed**
Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.
**Posterize**

**Posterize Amount**
If positive, generates a posterized look by limiting the number of colors in the result. Increase this for fewer and larger regions of solid colors. Decrease for more colors and more steps between colors.

**Posterize Smooth**
Amount to smooth the edges between color regions when posterizing. Increase this value to reduce aliasing between the colored areas. If set to 1, the areas will be completely smoothed together and no posterize effect will occur.

**Posterize Phase**
Amount to shift color boundaries when posterizing. Adjust this to fine-tune the location of the edges between the color regions. A phase of 1 is equivalent to 0.

**Color Correct**

**Saturation.**
Scales the color saturation. Increase for more intense colors. Set to 0 for monochrome.

**Scale Lights**
Scales the result by this value. Increase for a brighter result.

**Tint Lights**
Scales the result by this color, thus tinting the lighter regions.

**Tint Darks**
Adds this color to the darker regions of the source.

**Offset Darks**
Adds this gray value to the darker regions of the source. This can be negative to increase contrast.

**Mix With Source**
Interpolates between the result (0) and the original source (1).
**S_Caustics**

**Description**

Simulates the patterns created when light rays are reflected or refracted by a curved surface. Caustics can often be seen at the bottom of a swimming pool in bright sunlight or on objects viewed underwater.

![Before After](Photo by Geoffrey Baumbach on Unsplash)

The S_Caustics filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Render.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Ray**

**Ray Focus**

Alter this to bring the caustic pattern into focus.

**Ray Density**

Increasing this value will increase the quality of the caustic pattern.
Ray Blur
Softens the caustic pattern.

Caustic

Frequency
The frequency of the caustic pattern. Increase for more and smaller elements, or decrease for fewer and larger.

Complexity
The complexity of the caustic pattern. Increase for more high frequency components within the caustic pattern.

Shift
Translation of the caustic pattern. This parameter can be adjusted using the Shift Widget.

Seed
Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.

Colors

Brightness
Scales the brightness of Color1. Increase for more contrast.

Color1
The color of the brighter parts of the texture. The colors of the result are determined by an interpolation between Color0 and Color1.

Color0
The color of the darker parts of the texture.

Offset0
Adds this value to color0. Decrease to a negative value for more contrast.

Bg Brightness
Scales the brightness of the image.
Bg Combine
Determines how the texture is combined with the Background.

Caustic Only
Renders only the caustic texture with no Background.

Mult
The texture is multiplied by the Background.

Add
The texture is added to the Background.

Screen
The texture is blended with the Background using a screen operation.

Difference
The result is the difference between the texture and Background.

Overlay
The texture is combined with the Background using an overlay function.

Show Shift
Enables/disables the on-screen control for adjusting the Shift parameter.
**CENTER SPOT**

Description

**Center Spot**

Diffuses and blurs distracting backgrounds while keeping a center spot in focus. The center spot can be moved, sized and the amount of blur can be controlled.

**Warm Center Spot**

Combines the benefits of Center Spot with a warming filter making it ideal for portraits and skintones.
Category
Diffusion/Blurs.

Controls

Presets
To select a preset, pick one from the Presets window. If you would like to view presets from a different category, use the pop-up menu at the top left of the Presets window.

Blur
Sets how much the image is blurred.

Spot
A spot in the form of a radial gradient is used to control where blur is added to the image. Go to the Spot section of Common Filter Controls to see how the Spot controls work.

Temperature
Applies a warming filter to the image. Go to the Temperature section of Common Filter Controls to see how the Temperature controls work.
**S_CHANNEL SWITCHER**

**Description**

Reorders the RGB channels of the image. Allows mapping any source channel into any output channel, with scaling and offset for each output channel.

Before

After

Photo by Jeremy Bishop on Unsplash

The S_ChannelSwitcher filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Color.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Red ←**

Selects which channel of the source to use as the output red channel.

**Red**

Use the red input channel as the source for this output channel.

**Green**

Use the green input channel as the source for this output channel.
Blue
Use the blue input channel as the source for this output channel.

Luma
Use the input luminance as the source for this output channel.

1
Use a constant 1 value (fully on) as the source for this output channel.

0
Use a constant 0 value (fully off) as the source for this output channel.

Green ←
Selects which channel of the source to use as the output green channel.

Blue ←
Selects which channel of the source to use as the output blue channel.

Scale Lights Red
Scales the brightness of the output red channel by this amount.

Scale Lights Green
Scales the brightness of the output green channel by this amount.

Scale Lights Blue
Scales the brightness of the output blue channel by this amount.

Offset Darks Red
Adds this value to the darker regions of the red output channel. This can be negative to increase contrast.

Offset Darks Green
Adds this value to the darker regions of the green output channel. This can be negative to increase contrast.

Offset Darks Blue
Adds this value to the darker regions of the blue output channel. This can be negative to increase contrast.
Mix With Source

Interpolates between the result (0) and the original source (1).
**CHROMATIC ABERRATION**

**Description**

Chromatic aberration is caused by a lens having a different refractive index for different wavelengths of light and is seen as fringes of color around the edges of the image. This fringing is removed by un-distorting the individual color channels.

There are some new types of color fringes that are not chromatic aberration. These effects might be visible as purple or blue fringes and are visible around overexposed areas in most cases. If the following conditions apply, your image most likely has true chromatic aberration as opposed to color fringing caused by sensor overloading:

- **Corners should show most color fringes whereas the center should show none.**
- **Color fringes should be not only at the edges of overexposed areas but at lower contrast edges, too.**
- **Color fringes should be of complementary color (red-cyan, green/magenta, and blue-yellow) on opposite sides of a dark or bright area.**
• Color fringes should be in all corners with the same direction and pointing out from the center.

**Note:** Chromatic Aberration must be applied as the first layer (bottom of the layer stack) when multiple layers are used. Otherwise, all filters below will not be rendered.

**Category**
Lens.

**Controls**

**Red/Cyan, Green/Magenta, Blue/Yellow**
Use the appropriate color group to remove the chromatic aberration. For instance, if you see red/cyan fringing, use the Red/Cyan group. Start by adjusting the Distortion parameter.

**Distortion**
Pulls the corners of the image in or out. Negative values pull the corners of the image inward while positive values pull the corners of the image outward.

**Anamorphic Squeeze**
Anamorphic Squeeze corrects for the squeeze found in anamorphic motion picture lenses.

**Curvature X and Y**
Curvature X and Y correct for non-radial, asymmetric distortions found in anamorphic motion picture lenses.

**Note:** Anamorphic Squeeze and Curvature X and Y only work once the Distortion parameter has been adjusted.

**Center X and Y**
Determines the center point for the distortion.
S_CLOUDS

Description
Generates a procedural noise texture.

Before
After

Photo by Jerry Zhang on Unsplash

The S_Clouds filter comes from the Emmy award winning Boris FX Sapphire filter set.

Category
Render.

Controls

Presets
To select a preset, pick one from the Presets window.

Frequency
The spatial frequency of the clouds. Increase to zoom out, decrease to zoom in. Very high values of Frequency are clamped internally so the grain size is no smaller than a few pixels.

Frequency Rel X
The relative horizontal frequency of the texture. Increase to stretch it vertically or decrease to stretch it horizontally.
Octaves
The number of summed layers of noise. Each octave is twice the frequency and half the amplitude of the previous. A single octave gives a smooth texture. Adding octaves makes the result approach a fractal (1/f) noise texture.

Seed
Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.

Shift Start X & Y
Translation offset of the texture. Since the texture is procedurally generated, it can be shifted with no repeating units or seams occurring. This parameter can be adjusted using the Shift Start Widget.

Brightness1
Scales the brightness of Color1. Increase for more contrast.

Color1
The color of the brighter parts of the texture. The colors of the result are determined by an interpolation between Color0 and Color1.

Color0
The color of the darker parts of the texture.

Offset0
Adds this value to color0. Decrease to a negative value for more contrast.

Bg Brightness
The image brightness is scaled by this value before being combined with the clouds.

Combine
Determines how the texture is combined with the Background.

Clouds Only
Renders only the clouds texture with no Background.
**Mult**
The texture is multiplied by the Background.

**Add**
The texture is added to the Background.

**Screen**
The texture is blended with the Background using a screen operation.

**Difference**
The result is the difference between the texture and Background.

**Overlay**
The texture is combined with the Background using an overlay function.

**Show Shift Start**
Enables/disables the on-screen control for adjusting the Shift Start parameter.
**S_CLOUDSCOLORSMOOTH**

### Description
Generates a full color clouds texture. The procedural noise texture is independently generated for each of the red, green, and blue output channels.

![Before After](image.jpg)

Photo by Jerry Zhang on Unsplash

The S_CloudsColorSmooth filter comes from the Emmy award winning Boris FX Sapphire filter set.

### Category
Render.

### Controls

**Presets**
To select a preset, pick one from the Presets window.

**Frequency**
The spatial frequency of the clouds. Increase to zoom out, decrease to zoom in. Very high values of Frequency are clamped internally so the grain size is no smaller than a few pixels.

**Frequency Rel X**
The relative horizontal frequency of the texture. Increase to stretch it vertically or decrease to stretch it horizontally.
Octaves
The number of summed layers of noise. Each octave is twice the frequency and half the amplitude of the previous. A single octave gives a smooth texture. Adding octaves makes the result approach a fractal (1/f) noise texture.

Seed
Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.

Shift Start X & Y
Translation offset of the texture. Since the texture is procedurally generated, it can be shifted with no repeating units or seams occurring. This parameter can be adjusted using the Shift Start Widget.

Brightness
Scales the brightness of the result.

Scale Colors
Scales the color of the result. For example, if it is yellow [1 1 0], the blue of the result will be 0.

Saturation
Scales the color saturation. Increase for more intense colors. Set to 0 for monochrome.

Offset
Adds this gray value to the result or subtracts if negative. 0 has no effect, .5 is middle gray, and 1 is white.

Bg Brightness
The image brightness is scaled by this value before being combined with the clouds.

Combine
Determines how the texture is combined with the Background.
Clouds Only
Renders only the clouds texture with no Background.

Mult
The texture is multiplied by the Background.

Add
The texture is added to the Background.

Screen
The texture is blended with the Background using a screen operation.

Difference
The result is the difference between the texture and Background.

Overlay
The texture is combined with the Background using an overlay function.

Show Shift Start
Enables/disables the on-screen control for adjusting the Shift Start parameter.
**S_CLOUDSMULTCOLOR**

**Description**
Generates a procedural noise texture like Clouds and tints the colors using an additional color noise texture.

Before

After

Photo by Jerry Zhang on Unsplash

The S_CloudsMultColor filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**
Render.

**Controls**

**Presets**
To select a preset, pick one from the Presets window.

**Frequency**
The spatial frequency of the clouds. Increase to zoom out, decrease to zoom in. Very high values of Frequency are clamped internally so the grain size is no smaller than a few pixels.

**Frequency Rel X**
The relative horizontal frequency of the texture. Increase to stretch it vertically or decrease to stretch it horizontally.
Octaves
The number of summed layers of noise. Each octave is twice the frequency and half the amplitude of the previous. A single octave gives a smooth texture. Adding octaves makes the result approach a fractal (1/f) noise texture.

Seed
Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.

Color Amount
The amplitude of the color tinting.

Color Freq
The frequency of the colors. Increase for finer color variation, decrease for softer color changes.

Color Freq Relx
The relative horizontal frequency of the colors. Increase to stretch vertically, decrease to stretch horizontally.

Color Octaves
The number of octaves of color noise to include. Each octave is twice the frequency and half the amplitude of the previous.

Color Seed
The random number generator seed to use for the color noise. The actual seed value is not significant, but different values produce different results.

Shift Start X & Y
Translation offset of the texture. Since the texture is procedurally generated, it can be shifted with no repeating units or seams occurring. This parameter can be adjusted using the Shift Start Widget.

Brightness
Scales the brightness of the result.
Color
Scales the color of the result.

Color Noise Color
Scales the color of the noise used for tinting.

Offset
Adds this gray value to the result or subtracts if negative. 0 has no effect, .5 is middle gray, and 1 is white.

Bg Brightness
The image brightness is scaled by this value before being combined with the clouds.

Combine
Determines how the texture is combined with the Background.

Clouds Only
Renders only the clouds texture with no Background.

Mult
The texture is multiplied by the Background.

Add
The texture is added to the Background.

Screen
The texture is blended with the Background using a screen operation.

Difference
The result is the difference between the texture and Background.

Overlay
The texture is combined with the Background using an overlay function.

Show Shift Start
Enables/disables the on-screen control for adjusting the Shift Start parameter.
**S_CLOUDSPERSPECTIVE**

**Description**
Generates a procedural noise texture transformed onto a 3D plane with perspective.

**Category**
Render.

**Controls**

**Presets**
To select a preset, pick one from the Presets window.

**Frequency**
The spatial frequency of the clouds. Increase to zoom out, decrease to zoom in. Very high values of Frequency are clamped internally so the grain size is no smaller than a few pixels.

**Frequency Rel X**
The relative horizontal frequency of the texture. Increase to stretch it vertically or decrease to stretch it horizontally.

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Photo by Jerry Zhang on Unsplash

The S_CloudsPerspective filter comes from the Emmy award winning Boris FX Sapphire filter set.
Octaves
The number of summed layers of noise. Each octave is twice the frequency and half the amplitude of the previous. A single octave gives a smooth texture. Adding octaves makes the result approach a fractal (1/f) noise texture.

Seed
Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.

Z Dist
Scales the distance of the image. Values greater than 1 move it farther away and make it smaller. Values less than 1 move the image closer and enlarge it.

Latitude
Positive latitude tilts the image down and negative tilts it up. Keep latitude in the range of around −35 to 35 degrees to avoid aliasing towards the horizon.

Swing
Rotation of the image in degrees in its initial frame.

Roll
Tilts the result from side to side in counterclockwise degrees.

Tele Lens Width
The amount of lens telescoping. Increase to zoom in with less perspective, decrease for a wider viewing angle with more perspective.

Shift Start X & Y
Translation offset of the texture. Since the texture is procedurally generated, it can be shifted with no repeating units or seams occurring. This parameter can be adjusted using the Shift Start Widget.

Brightness1
Scales the brightness of Color1. Increase for more contrast.
**Color1**
The color of the brighter parts of the texture. The colors of the result are determined by an interpolation between Color0 and Color1.

**Color0**
The color of the darker parts of the texture.

**Offset0**
Adds this value to color0. Decrease to a negative value for more contrast.

**Bg Brightness**
The image brightness is scaled by this value before being combined with the clouds.

**Combine**
Determines how the texture is combined with the Background.

- **Clouds Only**
Renders only the clouds texture with no Background.

- **Mult**
The texture is multiplied by the Background.

- **Add**
The texture is added to the Background.

- **Screen**
The texture is blended with the Background using a screen operation.

- **Difference**
The result is the difference between the texture and Background.

- **Overlay**
The texture is combined with the Background using an overlay function.

**Show Shift Start**
Enables/disables the on-screen control for adjusting the Shift Start parameter.
COLOR

Description
Generates a solid field of color.

Category
Color.

Controls

Color
The color can be set through the use of a standard color picker.
**COLOR CORRECT**

**Description**

Color Correct manipulates hue, saturation, brightness, contrast, gamma, temperature, cyan/magenta, red, green and blue values of the overall image and separately in user definable shadow, midtone and highlight areas. In addition to traditional slider controls, a visual Color Wheels interface can be used to make adjustments.

**Category**

Color.

**Master, Shadows, Midtones, Highlights**

All of the color correctors can adjust an image by using it’s master, shadows, midtones and highlight groups. The master settings affect the entire image while adjusting parameters within the shadows, midtones and highlights will only affect those specific areas.

If you are unsure about what values are included in the shadows, midtones and highlights, you can use the View pop-up menu. It will allow you to view the shadows, midtones and highlights as a black and white matte. The white areas are the areas that will be adjusted by that particular group. For instance, if you see white areas while viewing the midtones, then midtone color adjustments will affect only those white areas. If you want to change the default areas defined by the shadows, midtones and highlights, you would use the Position and Range sliders.
Position
The Position slider pinpoints the values to be considered as shadows, midtones, or highlights. A low Position value uses the darkest image values, while a high Position value uses the brightest.

Range
Increases or decreases the range of values considered as shadows, midtones or highlights. A low Range value indicates a narrow range of values, while a high Range value indicates a large range of values.

Go to the Matte section of Common Filter Controls to see how the Position and Range controls work.

Color Correct

Presets
To select a preset, pick one from the Presets window.

Hue
Rotates the hue of the image.

Saturation
Adjusts the saturation of the image. Positive values saturate, negative values desaturate.

Brightness
Adjusts the brightness of the image. Positive values brighten, negative values darken.

Contrast
Adjusts the contrast of the image. Positive values increase contrast, negative values decrease contrast.

Gamma
Adjusts the gamma of the image. The gamma adjustment leaves the white and black points the same and only modifies the values in-between. Positive values lighten the midtones, negative values darken the midtones.
**Temperature**
Sets the color of the image to be either warmer or cooler. Dragging the slider to the right makes the image cooler (bluer) and dragging the slider to the left makes the image warmer (redder).

**Cyan/Magenta**
Adds either Cyan or Magenta to the image. Dragging the slider to the right makes the image more magenta and dragging the slider to the left makes the image more cyan.

**Red**
Adds or subtracts red from the image.

**Green**
Adds or subtracts green from the image.

**Blue**
Adds or subtracts blue from the image.

**Flashing**
The Flash parameters mix a color into the image through the use of a standard color picker. The default color is white. What in the world is this for? It is a great way to add atmosphere to an element. Flash comes from the film term "flashing", which describes the optical process of lowering the contrast of an image by flashing it with light.

**Flash Amount**
Sets the opacity of the Flash Color.

**Flash Color**
The Flash Color can be set through the use of a standard color picker.
**Color Wheels**

The Color Wheel window allows you to adjust the color of the brightness, hue and saturation of the master, shadows, midtones and highlights.

The color wheels have the following controls:

- **Saturation Offset**
- **Hue Rotate**
- **Hue/Saturation**
- **Brightness**
- **Red, Green, Blue Value Display**

**Hue/Saturation (Center Point)**

As the center point is moved, both Hue and Saturation are adjusted.

**Hue Rotate**

Dragging the colored dash on the outside of the wheel rotates the hue.
**Saturation**

Increases or decreases the selected color’s saturation.

**Brightness**

Adjusts the brightness.

**Note:** The Hue and Saturation adjustments are achieved by simultaneously changing the Red, Green and Blue parameters in the respective group: Master, Shadows, Midtones, or Highlights. The current Red, Green and Blue values are displayed below the Color Wheel.

**Reset**

Right-clicking on any color wheel will open a context menu that contains Reset > All, Shadows, Midtones, and Highlights options.
COLOR GRADIENT

Description

Color Gradient colors and or darkens only a portion of the image giving you the ability to simulate any Color Gradient filter. Presets for your favorite color gradient filters are provided as well as the ability to create custom colors. There is a graduated transition for a smooth color blend between the colored/darkened portion and the original image. Color Gradient is especially useful for changing and enhancing the color of the sky.

Category

Grads/Tints.

Filters

Presets
To select a preset, pick one from the Presets window.

Color
The Color parameter sets the color of the grad through the use of a standard color picker.

Opacity
Sets the opacity of the color filter.
Preserve Highlights
Preserves the white areas of the image.

Exposure Compensation
Exposure Compensation adds back the brightness loss as a result of the filter application.

Grad
Grad is the transition area that goes from the tinted image to the original image. Its direction, corners and size can be adjusted. Go to the Grad section of Common Filter Controls to see how the Grad controls work.
COLOR INFRARED

Description

Color Infrared simulates infrared filters used in conjunction with infrared sensitive film or sensors to produce very interesting false-color images with a dreamlike or sometimes lurid appearance.

Before

After

Photo by Karsten Wurth on Unsplash

Category

Stylize.

Controls

Presets

To select a preset, pick one from the Presets window.

Magenta

Adjusts the amount of magenta.

Blue

Adjusts the amount of blue.

Hue

Adjusts the hue in any non-blue areas.

Contrast

Adjusts the contrast of the image.
**COLOR SHADOW**

**Description**

Creates a high contrast image overlayed with a gradient.

![Before](image1.jpg) ![After](image2.jpg)

*Photo by Emre Karatas on Unsplash*

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Threshold**

Sets the amount of image detail.

**Invert**

Changes whether the gradient is in the background or foreground.
Background Color
Sets the color of the background. Select the desired color using the color picker.

Color 1
Sets the color for the top half of the image. Select the desired color using the color picker.

Color 2
Sets the color for the bottom half of the image. Select the desired color using the color picker.

Grad
Grad is the transition area between the two colors. Its direction, corners and size can be adjusted. Go to the Grad section of Common Filter Controls to see how the Grad controls work.
COLOR SPOT

Description

Tints the image using presets for common photographic filters except for a center spot which retains normal color. The center spot can be moved, sized and the amount of blur can be controlled.

Category
Grads/Tints.

Controls

Presets
To select a preset, pick one from the Presets window.

Color

Color
The Color parameter sets the color through the use of a standard color picker.

Opacity
Sets the opacity of the color filter.

Preserve Highlights
Preserves the white areas of the image.

Before

After

Photo by Bill Williams on Unsplash
Exposure Compensation

Exposure Compensation adds back the brightness loss as a result of the filter application.

Spot

A spot in the form of a radial gradient is used to control where color is added to the image. Go to the Spot section of Common Filter Controls to see how the Spot controls work.
COLORIZE GRADIENT

Description
Using multiple colors, Colorize Gradient colorizes the image according to the image’s brightness values.

Category
Grads/Tints.

Controls

Presets
To select a preset, pick one from the Presets window.

Opacity
Sets the overall opacity of the colorization.

Shadows
Enable
Determines whether or not the color contributes to the gradient.

Color
Picks the color that the image will be colorized with. Select the desired color using the color picker.

Photo by David Marcu on Unsplash
Position
Determines where the colorization is applied to the image. By default, Shadows are set to 0, which is the shadow areas. A value of 50 would be the midtones, while 100 would be highlights.

Midtones
The Midtones controls are the same as the controls for the Shadows, except by default, the colorization is applied to the midtones of the image.

Highlights
The Highlights controls are the same as the controls for the Shadows, except by default, the colorization is applied to the highlights of the image.

Grad
You can optionally use a gradient that limits where the filter is applied. Grad is the transition area that goes from the colorized image to the original image. Its direction, corners and size can be adjusted. Go to the Grad section of Common Filter Controls to see how the Grad controls work.
CROSS PROCESSING

Description

Cross-processing is a photographic technique where print film (C41) is processed in the set of chemicals usually used to process slide film (E6) or vice versa. The final result yields images with oddly skewed colors and increased contrast and saturation.

Category

Film Lab.

Controls

Presets
To select a preset, pick one from the Presets window.

Amount
Sets the amount of the selected preset.
Curves

RGB
Adjusts the RGB values and has the effect of brightening or darkening the image.

Red
Adjusts the red values in the image.

Green
Adjusts the green values in the image.

Blue
Adjusts the blue values in the image.
Selecting Curves

- Select RGB, Red, Green or Blue from the Curve Type pop-up menu.

- Click directly on an existing curve in the graph to select it.

Adding and Deleting Points:

- Click directly on the curve to add a new point. Up to five points can be added.
- Points can be deleted by clicking and dragging a point to the edge of the graph.

Adjusting Points:

- Moving a point in the bottom portion of the curve adjusts the shadows.
- Moving a point in the center of the curve adjusts the midtones.
- Moving a point in the top portion of the curve adjusts the highlights.
- Moving the curve upward or downward lightens or darkens the image. The steeper sections of the curve represent areas of higher contrast; flatter sections represent areas of lower contrast.
- To darken highlights, move a point near the top of the curve downward. Moving a point either down or to the right maps the input value to a lower output value, and the image darkens.
- To lighten the shadows, move a point near the bottom of the curve upward. Moving a point either up or to the left maps a lower input value to a higher output value, and the image lightens.

Sliders

RGB
Globally adjusts the RGB curve.

Red
Globally adjusts the Red curve.

Green
Globally adjusts the Green curve.
Blue

Globally adjusts the Blue curve.
**S_CROSSHATCH**

**Description**

Simulates a pen-sketch crosshatched look using overlapping strokes. The source is divided into four bands based on luma; each band from dark to light gets a different pattern of strokes.

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Stroke Style**

**Stroke Frequency**

Increase for smaller, finer strokes; decrease for broader strokes.

**Stroke Length**

Average length of the strokes, compared to their width.
**Stroke Strength**
Overall size and strength; decrease for fewer, smaller strokes. At 0, strokes will vanish. Increase for bolder, more overlapping strokes. At 1, there will be strokes everywhere, so you won't see the stroke pattern.

**Stroke Softness**
Softness of the edges of each stroke. Decrease for hard edged pen strokes; increase for a softer chalk like look.

**Stroke Angle**
Angle of the strokes in degrees; zero makes strokes horizontal and vertical.

**Threshold Darks**
The darkest areas get double overlapping strokes (or pure black in chalk mode). Source areas with luma darker than this threshold are considered in the darkest band and get those double strokes. Increasing this, or any threshold, will darken the overall result since more of the image will fall into the darkest band.

**Threshold Mids**
Midtones are divided into darker−mids and brighter−mids. This threshold sets the luma value that separates those two bands. The darker mids get darker and denser strokes.

**Threshold Brights**
The brightest areas get the lightest strokes--normally just white, unless you are in chalk mode. Areas brighter than this threshold are considered brights.

**Thresholds Add**
Adds or subtracts from all the thresholds. Increase to darken the overall result or decrease to lighten the overall result.

**Mix Threshold**
Softens the borders between the dark/mid/light luma bands.
Stroke Colors

Strokes Use Source
Increase to use more of the source color to color the strokes. 0 means use the stroke color, while 1 means use the color of the underlying image. In between strokes, the background color shows through. If you have Back Style set to Source, the strokes will disappear when set to 1.

Stroke Color
The color to use for the strokes. In Pencil mode, this defaults to black. In Chalk mode, it defaults to white.

Posterize Amount
Posterizes the source, giving a more cartoony look with areas of solid color. This only has an effect when using the source to colorize the strokes or when using the source as the background.

Posterize Smooth
When posterizing, smooth the edges of the solid-color areas. This avoids aliasing and usually looks better.

Posterize Phase
Adjusts the phase of the posterization. Use this to position the areas of flat color and avoid edges in the middle of areas you'd like to keep flat.

Edges

Edge Strength
Adds cartoon like edges to the look.

Edge Width
Adjusts the width of the edge strokes. Increasing this value also softens the edges.

Edge Threshold
Increase to remove minor, insignificant edge strokes, giving a bolder look.
**Edge Color**
Sets the color for the edge strokes.

**Suppress Small Edges**
Increase to suppress small, minor edges.

**Edge Sharpen**
Sharpens the edge strokes.

**Background Color**

**Back Style**
What to use as the background, underneath the pen strokes.

**Source**
Use the source as the background. This gives a much more colorful look, as if the strokes are drawn over the original clip. You may want to adjust Stroke Color when using this.

**Solid Color**
Use the specified Solid Color background.

**Solid Color**
The color to use for the background when in Solid Color mode.

**Pre Blur Bg**
Blur the source before using it as background or to color the strokes. This can help reduce sparkling due to a noisy or grainy source.

**Color Correct**

**Saturation**
Increase or decrease the overall saturation of the output.

**Scale Lights**
Scales the brightness of the result by this amount.
**Offset Darks**
Add a gray value to the darker regions of the source. This can be negative to increase contrast.

**Tint Lights**
Scales the result by this color, thus tinting the lighter regions.

**Tint Darks**
Adds this color to the darker regions of the result.

**Mix With Source**
Interpolates between the result (when set to 0) and the original source (when set to 1). 0.7 can give a nice effect by blending some of the source in with the strokes.

**Seed**
Initialize the random number generator for the strokes. Different values produce different random stroke patterns.
**CURVES**

Description

Curves adjusts the entire tonal range of an image by changing the shape of RGB, Red, Green or Blue curves. Curve points can be adjusted throughout the range of shadows to highlights.

Before

After

Photo by Annie Spratt on Unsplash

**Category**

Color.
Controls

Curves

**RGB**
Adjusts the RGB values and has the effect of brightening or darkening the image.

**Red**
Adjusts the red values in the image.

**Green**
Adjusts the green values in the image.

**Blue**
Adjusts the blue values in the image.
Selecting Curves

- Select RGB, Red, Green or Blue from the Curve Type pop-up menu.

- Click directly on an existing curve in the graph to select it.

Adding and Deleting Points:

- Click directly on the curve to add a new point. Up to five points can be added.
- Points can be deleted by clicking and dragging a point to the edge of the graph.

Adjusting Points:

- Moving a point in the bottom portion of the curve adjusts the shadows.
- Moving a point in the center of the curve adjusts the midtones.
- Moving a point in the top portion of the curve adjusts the highlights.
- Moving the curve upward or downward lightens or darkens the image. The steeper sections of the curve represent areas of higher contrast; flatter sections represent areas of lower contrast.
- To darken highlights, move a point near the top of the curve downward. Moving a point either down or to the right maps the input value to a lower output value, and the image darkens.
- To lighten the shadows, move a point near the bottom of the curve upward. Moving a point either up or to the left maps a lower input value to a higher output value, and the image lightens.

Sliders

RGB
Globally adjusts the RGB curve.

Red
Globally adjusts the Red curve.

Green
Globally adjusts the Green curve.
Blue
Globally adjusts the Blue curve.
**Day for Night**

**Description**

Day for Night simulates a technique used for shooting exteriors in daylight made to look like they were photographed at night. Typically, it involves underexposing by two to two-and-a-half stops and using a filter to provide a tint, that is often a lavender-blue, as it mimics twilight and appears to emulate the mood of moonlight.

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Diffusion**

**Blur**

Sets how much the image is diffused.

**Opacity**

Sets the amount of diffusion mixed into the original image. The higher the setting, the more the image is blurred.
**Moonlight**

**Color**
The Color parameter sets the color of the moonlight through the use of a standard color picker. The default color is blue.

**Opacity**
Sets the opacity of the moonlight color.

**Preserve Highlights**
Preserves the white areas of the image.

**Exposure Compensation**
Exposure Compensation adds back the brightness loss as a result of the color application.

**Color Correct**
Go to the **Color Correct** filter to see how the Color Correct controls work.
**DeBand**

**Description**

DeBand removes banding artifacts from an image by smoothing pixels in banded areas while retaining detail.

![Before After](Image)

*Photo by Frantzou Fleurine on Unsplash*

**Category**

Image.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Amount**

Sets the amount of debanding.
**DeBlock**

**Description**

Blocking artifacts created as a result of high compression factors can be removed with the DeBlock filter.

*Before*  
*After*  

![Photo by Nolan Issac on Unsplash](image-url)

**Category**

Image.

**Controls**

There are no controls for the DeBlock filter since it automatically finds blocks and removes them.
**DEFOG**

**Description**

Using advanced deweathering algorithms, Defog restores clear day contrasts and colors of a scene taken in bad weather such as fog and mist. It is also successful in removing the effects of optical Fog and Diffusion filters.

![Before After](https://unsplash.com/photos/)

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Defog**

**Color**

The Color parameter sets the color of the fog to be removed through the use of a standard color picker. The default color is white.

**Vanishing Point**

A vanishing point along the direction of increasing distance in the image is used to remove fog. By default, the vanishing point is set to the center of the screen. Essentially, the fog is removed in a radial pattern emanating from the vanishing point.
point. So at the default center position, fog is removed in a circular pattern with a greater amount of fog being removed from the center while falling off at the edges. For instance, if your fog moves in the direction of top right to bottom left, set your vanishing point towards the top right corner and the fog removal will be more intense at the upper right and fall off at the bottom left. However, in most cases, the vanishing point can be left in the center of the screen and you will obtain acceptable results.

There is an on-screen control in the center of the image. By clicking and dragging the on-screen control, the position of the vanishing point can be adjusted.

**Defog**

Sets the amount of fog to be removed from the scene.

**Min Depth**

Controls how much fog is removed from the darker areas of the image.

**Max Depth**

Controls how much fog is removed from the brighter areas of the image.

**Color Correct**

Go to the Color Correct filter to see how the Color Correct controls work.
**DeFringe**

**Description**

Purple or blue fringing around overexposed areas is a result of sensor overloading in video as well as digital still cameras. DeFringe isolates and removes the various types of color fringing.

**Category**

Lens.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Red**

**Red**

Adjusts the saturation of red values in areas defined by the Position and Range controls. Positive values saturate, negative values desaturate.

**Position**

A matte is generated to isolate red fringing. The areas that are white in the red matte are the areas that will be defringed. Moving the Position slider will change the hue that is used for the red matte.
Range

Increases or decreases the range of values considered as red fringing. A low Range value indicates a narrow range of values, while a high Range value indicates a large range of values.

Go to the **Matte** section of Common Filter Controls to see how the Position and Range controls work.

**Green, Blue, Cyan, Magenta, and Yellow**

The Green, Blue, Cyan, Magenta and Yellow groups work in a similar fashion to the Red group.
**DeNoise**

**Description**

Removes film grain and noise.

**Category**

Image.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Amount**

Sets the amount of denoising.

Photo by Brady Bellini on Unsplash
**DEPTH OF FIELD**

**Description**

Depth of Field can be added to a scene by isolating and blurring only a portion of the image. The amount of blurring is directly proportionate to the luminance of the matte settings, a gradient or an input image.

![Before After](before_after.jpg)

**Category**

Diffusion/Blurs.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Depth**

Selects the source for the selective blur effect.

**Matte**

Use a matte for the depth source.

**Grad**

Use a gradient for the depth source.
Input
Use an image as the depth source. This is useful for 3D programs which render out depth mattes.

To use an image as the depth source:
• Change Depth > Depth to Input.
• Click the Depth > Input > Browse button.
• Select a file.

Blur
Sets how much the image is blurred.

Grad
Depth of Field can optionally use a gradient that limits where the filter is applied. Grad is the transition area that goes from the blurred portion to the original image. Its direction, corners and size can be adjusted. Go to the Grad section of Common Filter Controls to see how the Grad controls work.

Matte
A matte can be used to create the depth of field effect. Go to the Matte section of Common Filter Controls to see how the Matte controls work.
Description

Detail presents a new technique for performing selective sharpening, detail enhancement and edge aware smoothing. Our approach decomposes the image into three detail layers: Coarse, medium and fine. Each of the detail layers can be manipulated separately in various ways, for instance, sharpening or smoothing. Add to that sophisticated, but easy to use masking and you have quick isolation of image features for selective filtering.

Category

Image.
Controls

Presets
To select a preset, pick one from the Presets window.

Coarse
Adjusts the Coarse detail layer. Increasing the value sharpens while decreasing the value smooths.

Medium
Adjusts the medium detail layer. Increasing the value sharpens while decreasing the value smooths.

Fine
Adjusts the fine detail layer. Increasing the value sharpens while decreasing the value smooths.

Gang
The Coarse, Medium and Fine slider values can be ganged together so that they all move simultaneously. This will generate an overall sharpening effect if the sliders are increased and an overall smoothing effect if decreased.

Matte
A matte can be used to limit the detail effect. Wherever there is white in the matte is where the detail adjustment will occur. Go to the Matte parameters to see how they work.
Description

Provides useful developing controls for globally adjusting the color and tonal scale of your images.

Category

Color.

Controls

Auto-Equalize

Auto-Equalize uses the calculated white point for camera RAW images. This is disabled when Develop is applied to non camera RAW images, since adjusting the white point does nothing in this case.

Temperature

Sets the color of the image to be either warmer or cooler. Dragging the slider to the right makes the image cooler (bluer) and dragging the slider to the left makes image warmer (redder).
Tint

Adds either Green or Magenta to the image. Dragging the slider to the right makes the image more magenta and dragging the slider to the left makes the image more green.

Exposure

Sets the overall image brightness, with a greater effect in the high values. Adjust the slider until the image looks good and the whites are at the right level. Use Recovery to bring highlight values down. Exposure values are in increments equivalent to f-stops. An adjustment of +1.00 is similar to increasing the aperture 1 stop. Similarly, an adjustment of –1.00 is similar to reducing the aperture 1 stop.

Recovery

Reduces the tones of extreme highlights and attempts to recover highlight detail lost because of overexposure.

Fill Light

Lightens shadows to reveal more detail while maintaining blacks. Take care not to over apply the setting and reveal image noise.

Blacks

Specifies which image values map to black. Moving the slider to the right increases the areas that become black, sometimes creating the impression of increased image contrast. The greatest effect is in the shadows, with much less change in the midtones and highlights.

Brightness

Adjusts image brightness, mainly affecting midtones. Set the overall tonal scale by setting Exposure, Recovery, and Blacks. Then set the overall image brightness. Large brightness adjustments can affect shadow or highlight clipping, so you may want to readjust the Exposure, Recovery, or Blacks slider after adjusting brightness.
**Contrast**

Increases or decreases image contrast, mainly affecting midtones. When you increase contrast, the middle-to-dark image areas become darker, and the middle-to-light image areas become lighter. The image tones are inversely affected as you decrease contrast.

**Vibrance**

Adjusts the saturation so that clipping is minimized as colors approach full saturation, changing the saturation of all lower-saturated colors with less effect on the higher-saturated colors. Vibrance also prevents skin tones from becoming over saturated.

**Saturation**

Adjusts the saturation of all image colors equally.
DIFFUSION

Description
Diffusion creates atmosphere by reducing contrast while creating a glow around highlights or shadows using an extensive texture library.

Category
Diffusion/Blurs.

Controls

Presets
To select a preset, pick one from the Presets window.

Diffusion

Blend
Determines the blend mode to be used to create the diffusion effect.

Add
The diffusion is added to your image.

Screen
The diffusion is combined with the image using a Screen blend mode. This looks kind of like the Add blend mode, but highlights are retained.
Brightness
Sets the intensity of the diffusion.

Blur
Sets the softness of the diffusion.

Color
The Color parameter sets the color of the diffusion through the use of a standard color picker. The default color is white.

Color Correct
Go to the Color Correct filter to see how the Color Correct controls work.

Texture

Texture
Selects the texture which will be used to add diffusion to the image.

Blend
Textures can be used as the source of the diffusion as well as combined with a matte using a variety of Blend modes. Go to Blend Modes for explanations of the various modes.

I like the Multiply blend mode for combining textures with the matte because it only puts the texture within the areas of the generated matte.

Transform
Transform the texture using Position, Scale, Rotate, Corner-Pin, Shear and Crop controls. Go to the Transform section of Common Filter Controls to see how the Transform Controls work.

Matte
A matte can be used to create the diffusion effect. Go to the Matte section of Common Filter Controls to see how the Matte controls work.
**S_DigitalDamage**

**Description**

Simulates bad digital TV transmission with many options, including freeze-frames, shifting and flowing blocks, various kinds of blocky noise, and pixelization. Can give looks similar to MPEG stream errors, digital dropouts, and satellite feed data corruption.

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Intensity**

Overall intensity of the damage.

**Damage Size**

Turn up to increase the average size of the damaged areas.

Photo by Jonathan Roger on Unsplash

The S_DigitalDamage filter comes from the Emmy award winning Boris FX Sapphire filter set.
**Damage Size Rel X**

Turn up to elongate the damage areas horizontally. This doesn't stretch the image, just changes the aspect ratio of the damage areas and noise patterns.

**Seed**

Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.

**Freeze**

Enable freeze-frame damage.

**Freeze Details**

**Freeze Threshold**

Decrease for more frozen areas on each frame.

**Freeze Saturation**

Boost the saturation of frozen areas for a more damaged look.

**Freeze Quality**

Reduce to give the frozen areas a JPEG-quantized look.

**Freeze Errs**

Adds JPEG quantization errors to the frozen areas.

**Brights Noise**

Enable noise that appears in the bright areas of the image.

**Brights Noise Details**

**Brights Threshold**

Areas brighter than this will be subject to brights noise.

**Brights Band Threshold**

This damage type occurs in bands. Increase this parameter to make more damage bands, and thus increase the amount of overall damage.
Brights Band Freq
Controls the average height of the damage bands. Decrease for larger bands, increase for shorter, finer bands.

**Pixelate**
Enable pixelation damage.

**Pixelate Details**

**Pixelate Frequency**
Controls the size of the blocky pixels. Increase for more, smaller pixels. Decrease for fewer, larger pixels.

**Pixelate Hold**
Controls how the pixelate damaged areas move. Increase to make the damaged areas stay in one place over more frames. Decrease to make it more random.

**Pixelate Threshold**
Decrease for more overall pixelation per frame. Increase for less.

**Pixelate Overdrive**
Pixelate damage can invert and distort the damaged area. Increase this parameter to make it look more damaged.

**Block Noise**
Enable blocky−noise damage. This is commonly seen with bad satellite TV transmission. Bands and blocks of noise overlay and interact with the source footage.

**Block Noise Details**

**Blocks Intensity**
Increase the intensity of the block damage.

**Blocks Threshold**
Decrease for more overall damage per frame or increase for less.
Blocks Softness
This parameter softens the damage pattern as it's increased.

Blocks Chroma
Increase to overdrive the chroma of the block noise and make it look more damaged.

Invert
Enable image-inverting damage that inverts and recolors bands of the image.

Invert Details

Invert Threshold
Decrease for more overall damage per frame or increase for less.

Invert Darken
Increase to darken the inverted areas more which makes them stand out more and look more damaged.

Invert Pattern Freq
Controls the spatial frequency of the invert damage pattern. Increase to make the inverted area pattern finer or decrease for larger areas of damage.
__S_DogVision__

Description

Generates a dual color-channel version of the image, as might be perceived by the limited color vision system of dogs. Humans have three color receptors (for red, green, and blue) while dogs have only two receptors (for yellow and blue).

![Before After](Photo by Rodion Kutsaev on Unsplash)

The S_DogVision filter comes from the Emmy award winning Boris FX Sapphire filter set.

Category

Stylize.

Controls

Presets

To select a preset, pick one from the Presets window.

Channels

Selects which two complementary color channels to use.

Yellow–Blue

The result is made using yellow and blue.
**Cyan–Red**
The result is made using cyan and red.

**Magenta–Green**
The result is made using magenta and purple.

**Rotate Channels**
Allows hue shifting the two color channels selected above.

**Note:** When this is non-zero, the channels may no longer match the name selected.

**Blur Channel1**
Smoothes the first color channel by this amount.

**Blur Channel2**
Smoothes the second color channel by this amount.

**Mix Original**
Interpolates between the 2-color result and the original source. Set this to 1 for the original, or use negative values to exaggerate the dog vision effect.

**Brightness**
Scales the brightness of the result.

**Offset Darks**
Adds a gray value to the darker regions of the result. This can be negative to increase contrast.

**Saturation**
Scales the color saturation. Increase for more intense colors. Set to 0 for monochrome.

**Weight Source RGB**

**Weight Source R**
Scales the red of the image before processing.

**Weight Source G**
Scales the green of the image before processing.
Weight Source B
Scales the blue of the image before processing.
**DOUBLE FOG**

Description

The Double Fog filter creates a soft, misty atmosphere over the image by first applying fog using a vanishing point along the direction of increasing distance in the image. Then, a second pass blooms image highlights.

Before After

Photo by Martin Knize on Unsplash

Category

Diffusion/Blurs.

Controls

Presets

To select a preset, pick one from the Presets window.

Fog

Color

The Color parameter sets the color of the fog to be added through the use of a standard color picker. The default color is white.

Vanishing Point

A vanishing point along the direction of increasing distance in the image is used to add fog. By default, the vanishing point is set to the center of the screen. Essentially, the fog is added in a radial pattern emanating from the vanishing point.
point. So at the default center position, fog is added in a circular pattern with a
greater amount of fog being added in the center while falling off at the edges.
For instance, if you would like your fog to move in the direction of top right to
bottom left, set your vanishing point towards the top right corner and the fog will
be more intense at the upper right and fall off at the bottom left. However, in
most cases, the vanishing point can be left in the center of the screen and you
will obtain acceptable results.

There is an on-screen control in the center of the image. By clicking and
dragging the on-screen control, the position of the vanishing point can be
adjusted.

**Fog**
Sets the amount of fog to be added to the scene.

**Min Depth**
Controls how much fog is added in the darker areas of the image.

**Max Depth**
Controls how much fog is added in the brighter areas of the image.

**Glow**
The Glow controls are used to add additional atmosphere and are useful in
adding glow to highlights. By default, a wide matte of highlights are glowed in
the image and blended with the Screen blend mode. This works well for adding
additional fog. To add glow around highlights such as light sources, it is best to
set the Blend mode to Add and lower the Matte > Range parameter to limit the
areas of glow to only include the light sources.

**Blend**
Determines the blend mode to be used to create the glow effect.

**Add**
The glow is added to your image.

**Screen**
The glow is combined with the image using a Screen blend mode. This looks
kind of like the Add blend mode, but highlights are retained.
**Brightness**
Sets the intensity of the glow.

**Blur**
Sets the softness of the glow.

**Color**
The Color parameter sets the color of the glow through the use of a standard color picker. The default color is white.

**Matte**
A matte is used to create the glow effect. Go to the Matte section of Common Filter Controls to see how the Matte controls work.
**DUAL GRADIENT**

**Description**

Dual Gradient applies two photographic filters to the image which are blended together with a gradient. Presets for your favorite Color Gradient filters are provided as well as the ability to create custom colors.

![Before and After images](Photo by Heather Emond on Unsplash)

**Category**

Grads/Tints.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Color 1**

Sets the color for the top half of the image. Select the desired color using the color picker or choose a filter preset.

**Presets**

Select one of the filters from the pop-up menu.

**Color**

The Color parameter sets the color of the grad through the use of a standard color picker.
Opacity
Sets the opacity of the color filter.

Color 2
The Color 2 controls are the same as the controls for Color 1 except it is applied to the bottom half of the image.

Preserve Highlights
Preserves the white areas of the image.

Exposure Compensation
Exposure Compensation adds back the brightness loss as a result of the filter application.

Grad
Grad is the transition area between the two tints. Its direction, corners and size can be adjusted. Go to the Grad section of Common Filter Controls to see how the Grad controls work.
**S_DUOTONE**

**Description**

Performs an interpolation between two specified colors using the brightness of the image.

**Category**
Grads/Tints.

**Controls**

**Presets**
To select a preset, pick one from the Presets window.

**Color1**
The color to use at the brighter source regions.

**Color0**
The color to use at the darker source regions.

**Invert**
If enabled, the resulting texture colors are inverted. This is similar to swapping Color0 and Color1.
Threshold
The source brightness value to use as the mid-point of the color interpolation. This is often a middle gray around 0.5.

Softness
The source brightness distance over which to perform the Color0 to Color1 interpolation. Decrease for sharper transitions between the two colors.

Mix With Source
Interpolates between the result (0) and the original source (1).
**S_EdgeAwareBlur**

**Description**
Blur regions of similar color while preserving edges between regions of different colors.

**Category**
Diffusion/Blurs.

**Controls**

**Presets**
To select a preset, pick one from the Presets window.

**Blur Amount**
Scales the width of the blur. This parameter can be adjusted using the Blur Amount Widget.

**Blur Rel X & Y**
The relative horizontal and vertical blur widths. Set Blur Rel X to 0 for a vertical only blur, or set Blur Rel Y to 0 for a horizontal only blur. This parameter can be adjusted using the Blur Amount Widget.

The S_EdgeAwareBlur filter comes from the Emmy award winning Boris FX Sapphire filter set.
Edge Threshold
Color regions separate by an edge larger than this value will not blur into each other.

Edge Smooth
Blur the Edge Source by this amount before calculating edge strength.

Blur Type
Determines the style of blur effect.

**Sharp Edges**
Reinforces strong edges, producing a watercolor or cartoon like effect.

**Soft Edges**
Doesn't emphasize edges, producing a more natural blur effect.

**Softer Edge**
Blurs pixels near edges a little, producing a soft focus like effect.

Filter
The type of convolution filter to blur with.

**Box**
Uses a rectangular shaped filter.

**Triangle**
Smoother, uses a pyramid shaped filter.

**Gauss**
Smoothest, uses a gaussian shaped filter.

**Smooth**
Repeatedly applies a gaussian filter to eliminate artifacts from edges.

Subpixel
Enables blurring by subpixel amounts. Only affects the Sharp Edges blur type.
Show Blur Amount

Enables/disables the on-screen control for adjusting the blur amount parameters.
S_Edgerays

Description

Generates beams of light emitting from the edge details in the image.

Category

Light.

Controls

Presets

To select a preset, pick one from the Presets window.

Rays Length

The length of the rays. A length of 1 gives rays that continue forever, although they may still fade out as they go. To make the rays look longer, you can also increase the Bias Outer Bright parameter. If Rays Length is negative, the rays can beam inwards instead of outwards. Please note that processing times increase for longer rays. This parameter can be adjusted using the Center Widget.
**Length Red**  
The relative length of the red channel of the rays. Adjust this, along with Length Green and Length Blue, to create color fringing effects.

**Length Green**  
The relative length of the green channel of the rays.

**Length Blue**  
The relative length of the blue channel of the rays.

**Reverse Rays**  
Extend rays inward as well as outward. The length of the reversed rays is controlled by Rays Length as well as this parameter.

**Rays Brightness**  
Scales the brightness of the ray beams.

**Rays Color**  
Scales the color of the ray beams.

**Enable Dark Rays**  
Allow rays to darken the source as well as brighten it. If enabled, a dark Rays Color will cause rays to darken the source. A bright Rays Color will brighten the source as usual.

**Bias Outer Bright**  
Determines the variable amount of brightness along the rays. This is normally near 0 so the rays fade away at their outer ends, 0.5 causes equal brightness along the rays, and 1 causes maximum brightness at the ends.

**Rays Res**  
Selects the resolution factor for the rays. Higher resolutions give sharper rays, lower resolutions give smoother rays and faster processing. This 'Res' factor only affects the rays: the background is still combined with the rays at full resolution.

**Full**  
Full resolution is used.
Half
The rays are calculated at half resolution.

Quarter
The rays are calculated at quarter resolution.

Show
Selects between output options.

Result
Outputs the rays over the Background.

Edges
Outputs only the edge image. This can be useful during the adjustment of the edge or shimmer parameters.

Rays
Outputs the rays on a black background.

Edge Thickness
The thickness of the edges which generate the rays.

Edge Brightness
Scales the brightness of the edges which generate the rays.

Edge Subpixel
Enables subpixel Edge Thickness amounts. Turn this on if you want finer control of small values.

Shimmer

Shimmer Amp
Modulates the ray source image with this amount of noise texture to give the rays a shimmering look.

Shimmer Freq
The frequency of the shimmer texture. Increase for a finer grained shimmer effect or decrease for a larger, softer shimmer. This has no effect unless Shimmer Amp is positive.
**Shimmer Seed**
Used to initialize the random number generator for the shimmer texture. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.

**Shimmer Shift X & Y**
Translation of the shimmer texture. This has no effect unless Shimmer Amp is positive.

**Atmosphere**

**Atmosphere Amp**
Atmosphere gives the effect of rays shining through a dusty atmosphere and picking up light or getting shadowed. This parameter adjusts the amount, or amplitude, of the atmospheric effect. A value of 0 creates smooth rays while higher values give a more dusty look.

**Atmosphere Freq**
Controls the spatial frequency of the atmospheric noise. Turn this up higher to get finer details or turn down for broader overall variation.

**Atmosphere Detail**
Controls the amount of fine detail in the atmosphere simulation. Decrease to get smoother atmosphere or increase for a more crunchy, grainy look.

**Rays Under Source**
Set to 1 to composite the image over the rays.

**Source Opacity**
Scales the opacity of the image when combined with the rays. This does not affect the generation of the rays themselves.

**Show Center**
Enables/disables the on-screen control for adjusting the Center and Rays Length parameters.
**ENHANCING**

**Description**
Selectively enhance any color to make it pop with little to no effect on other colors.

![Before and After Photos](Photo by Phil Coffman on Unsplash)

**Category**
Color.

**Controls**

**Presets**
To select a preset, pick one from the Presets window.

**Enhancing**
Adjusts the saturation of red, green or blue hues.

**Matte**

**Presets**
A matte is created based on the hue of the image to create the enhancement effect. Select from Red, Green or Blue preset hue mattes from the pop-up menu or use the Hue eyedropper to pick a color off of the screen.
Hue

When adjusting the Hue parameter, you are selecting the hue of the image which will be enhanced.

Range

Increases or decreases the range of values in the hue matte. A low Range value indicates a narrow range of values. A high Range value indicates a large range of values included in the matte.

Blur

Sets the softness of the matte by using a fast, quality blur.

Go to the Matte parameters to see how they work.
**S_ETCHING**

**Description**

Generates a version of the image using two sets of black and white lines of varying thickness to give an etching or lithograph look.

Before

![Before](Image)

After

![After](Image)

The S_Etching filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Lines Frequency**

The frequency of the etched lines. Increase for a finer line pattern or decrease for fewer lines.

**Lines1 Frequency**

Scales the frequency of the first set of etched lines. Increase for a finer line pattern or decrease for fewer lines.
**Lines2 Frequency**
Scales the frequency of the second set of etched lines.

**Lines Angle**
Rotation of the etched lines pattern in counterclockwise degrees.

**Lines1 Angle**
The relative angle of the first set of etched lines in counterclockwise degrees.

**Lines2 Angle**
The relative angle of the second set of etched lines in counterclockwise degrees.

**Lines Shift X & Y**
Shifts the pattern of lines. This location will also be the center of rotation when the line angle parameters are adjusted. This parameter can be adjusted using the Lines Shift Widget.

**Lines Sharpness**
The sharpness of the etched lines. Decrease for softer edges.

**Lines Add Width**
Increase for thicker lines.

**Smooth Source**
If positive, the source is blurred by this amount before the etching is applied.

**Color1**
The brighter color of the lines pattern.

**Color0**
The darker color of the lines pattern.

**Wave Frequency**
The frequency of the waviness of the etched lines. Increase for more waves.

**Warp Amp**
The amount the output is warped using the source brightness.
Warp Smooth
The smoothness of the warping. This has no effect if Warp Amp is 0.

Edges Scale
Adjusts the amount of source edges to be included in the result. If positive, edges in the source image are found and added to the etching pattern.

Edges Threshold
Determines which edges are included in the result. Increase to remove minor edges and speckles. This has no effect unless Edges Scale is positive.

Edges Width
The width of the edges added to the result. Increase for wider edges. This has no effect unless Edges Scale is positive.

Edges Sharpness
Increase for sharper edges or decrease for softer edges. This has no effect unless Edges Scale is positive.

Show Lines Shift
Enables/disables the on-screen control for adjusting the Lines Shift parameter.
**EYE LIGHT**

**Description**

Creates a targeted light to be placed around a person's eyes.

**Category**

Light.

**Controls**

**Light**

**Blend**

Determines the blend mode to be used to add the light.

**Add**

The light is added to your image.

**Screen**

The light is combined with the image using a Screen blend mode. This looks kind of like the Add blend mode, but highlights are retained.

**Brightness**

Sets the intensity of the light.

**Blur**

Sets the softness of the light.
Gels
Photographers, cinematographers and lighting designers use colored filters or gels in front of lights. Whatever mood you wish to create, we have the colors needed to achieve the effect. Select one of the Gels presets from the pop-up menu.

Color
Sets the color of the light through the use of a standard color picker.

Shadow

Brightness
Sets the intensity of the shadows. The Brightness parameter will darken only those areas that are not being brightened by the Light settings.

Transform
Transform the eye light pattern using Scale and Rotate controls. Go to the Transform section of Common Filter Controls to see how the Transform Controls work.
Description

Simulates damaged film with many options, including dust, hairs, stains, scratches, flicker, and shake.

Category

Film Lab.

Controls

Presets

To select a preset, pick one from the Presets window.

Grain Amp

Scales the amplitude of the film grain that is added to the result. Set this to 0 to disable all grain.

Grain Details

Grain Amp Red

Scales the red grain amplitude.
**Grain Amp Green**  
Scales the green grain amplitude.

**Grain Amp Blue.**  
Scales the blue grain amplitude. Note that grain is added and subtracted from the image, so for example, increasing Grain Amp Blue will amplify both the blue and yellow speckles.

**Grain Amp Darks**  
The relative amount of grain applied to the darkest regions of the image per channel. This defaults to less than 1 because dark areas usually have less grain than midtones.

**Grain Amp Brights**  
The relative amount of grain applied to the brightest regions of the image per channel. This defaults to 0 because bright areas usually have less grain than midtones. Note that highly saturated colors can be affected by both Grain Amp Darks and Grain Amp Brights because they are dark in some color channels and bright in others.

**Grain Blur**  
The grain is smoothed by this amount. Increase for coarser grain.

**Grain Blur Red**  
The relative blur amount for the red grain.

**Grain Blur Green**  
The relative blur amount for the green grain.

**Grain Blur Blue**  
The relative blur amount for the blue grain.

**Grain Mono**  
When enabled, the same grain pattern is used for the red, green, and blue channels.
**Color Correct**

**Saturation**
Scales the color saturation. Increase for more intense colors. Set to 0 for monochrome.

**Scale Lights**
Scales the result by this gray value. Increase for a brighter result.

**Offset Darks**
Adds a gray value to the darker regions of the source. This can be negative to increase contrast.

**Tint Lights**
Scales the result by this color, thus tinting the lighter regions.

**Tint Darks**
Adds this color to the darker regions of the source.

**Stain Density**
The number of stains.

**Stains Details**

**Stain Print**
Relative density of stains on the print.

**Stain Negative**
Relative density of stains on the negative.

**Stain Size**
Scales the width and height of stains.

**Vary Stain Size**
Amount to vary the size from one stain to the next.

**Stain Opacity**
Scales the opacity of the stains.
**Vary Stain Opacity**
Amount to vary opacity from one stain to the next.

**Vary Stain Brightness**
Amount to vary brightness from one stain to the next.

**Vary Stain Color**
Amount of additional, random color variation for each stain. If this parameter is greater than zero, stain colors can vary outside the range defined by Stain Color1 and Stain Color2.

**Stain Color1**
Beginning of the range of colors for stains.

**Stain Color2**
End of the range of colors for stains. Each stain will have a random color between Stain Color1 and Stain Color2.

**Dust Density**
The number of dust elements.

**Dust Details**

**Dust On Print**
Relative density of dust on the print.

**Dust On Negative**
Relative density of dust on the negative.

**Dust Size**
Scales the width and height of dust.

**Vary Dust Size**
Amount to vary the size from one piece of dust to the next.

**Dust Opacity**
Scales the opacity of the dust.
Vary Dust Opacity
Amount to vary opacity from one piece of dust to the next.

Vary Dust Brightness
Amount to vary brightness from one piece of dust to the next.

Vary Dust Color
Amount of additional, random color variation for each piece of dust. If this parameter is greater than zero, dust colors can vary outside the range defined by Dust Color1 and Dust Color2.

Dust Color1
Beginning of the range of colors for dust.

Dust Color2
End of the range of colors for dust. Each piece of dust will have a random color between Dust Color1 and Dust Color2.

Hairs
The number of hairs.

Hair Details

Hair Wiggle Amp
Controls the amount of random movement and stretching that each hair exhibits.

Hair Opacity
Scales the opacity of the hairs.

Hair Size
Scales the width and height of the hairs.

Vary Hair Size
Amount to vary the size from one hair to the next.

Hair Color
The color of the hairs.
Scratches
The number of scratches.

Scratches Details

Black Scratches
Number of black scratches, relative to the Scratches parameter value.

White Scratches
Number of white scratches, relative to the Scratches parameter value.

Black Scratch Length
The length of the black scratches.

White Scratch Length
The length of the white scratches.

Scratch Width
Width of the average scratch, in approximate NTSC−sized pixels.

Vary Scratches Width
If this is 0, all the scratches will be the same width. Increase to let each scratch have its own width.

Scratches Taper
Controls the pointiness of the ends of each scratch. A larger value makes a longer taper on each end.

Scratch Opacity
Maximum opacity of the scratches. Setting this to 0 will fade the scratches out.

Scratch Roughness
Amount to roughen the edges of each scratch to simulate the random character of a real scratch.

Scratch Rough Freq
Sets the frequency of the roughness on the scratch edges.
Gaps
Like real analog scratches, the dust particle creating the scratch sometimes rolls around and the scratch skips. This controls how much that happens.

Gaps Freq
The frequency of the scratch gaps.

Scratch Area Center
The center coordinate of the area of the screen covered by the scratches. 0 is in the middle of the screen, −1 is the left edge, and 1 is the right edge.

Scratch Area Width
The width of the area of the screen covered by scratches. 1 means the scratches cover the full screen area. To produce scratches only in one strip, adjust the Scratch Area Width smaller.

Vignette Darkness
Vignetting is darkening of the image towards the corners and sides of the image. This parameter controls how much the outer corners of the screen should be darkened or vignetteed. 0 produces no vignetting, while a value of 1 creates maximum darkening.

Vignette Details

  Vignette Radius
  Distance from the center to apply the vignette.

  Vignette Edge Softness
  The width of the vignette's soft edge. Larger values give softer, less visible edges.

  Vignette Rel Height
  Controls the aspect ratio of the vignette ellipse. This should normally be set to the aspect ratio of the image.
Seed

Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.
**S_Filmeffect**

**Description**

Provides a physically accurate model of film exposure and processing to make your digital image look like it was shot on particular film stocks. It can perform color correction for specific film types, add film grain, and apply glow or soft focus effects.

![Before After](Photo by Brandon Mowinkel on Unsplash)

The S_FilmEffect filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Film Lab.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Neg Film**

Selects the negative film stock.

**None**

Ignore any effect of negative film. This is not normally useful unless you also select None in the Print film parameter to disable both.
Kodak 5245
Eastman EXR 50D, low speed, daylight balanced, very fine grain.

Kodak 5246
Kodak VISION 250D, higher contrast, medium speed, daylight balanced, fine grain.

Kodak 5248
Eastman EXR 100T, medium speed, tungsten light balanced, very fine grain.

Kodak 5274
Kodak VISION 200T, medium speed, tungsten light balanced, fine grain.

Kodak 5277
Kodak VISION 320T, lower contrast, medium speed, tungsten light balanced, medium−fine grain.

Kodak 5279
Kodak VISION 500T, high speed, tungsten light balanced, somewhat grainy.

Kodak 5284
Kodak VISION Expression 500T, lower contrast, high speed, tungsten light balanced, medium grain.

Kodak 5289
Kodak VISION 800T, very fast, tungsten light balanced, grainy.

Kodak 5293
Eastman EXR 200T, reduced contrast, tungsten light balanced, medium grain.

Kodak 5298
Eastman EXR 500T, high speed, tungsten light balanced, grainy.

K SFX200T
Special effects film, medium grain.

Kodak 5217
Kodak Vision2 200T, tungsten light balanced, fine grain.
Kodak 5218
Kodak Vision2 500T, tungsten light balanced, fine grain.

Print Film
Selects the print film stock.

None
Ignore any effect of the print film. This causes the negative to be output directly. If the Negative Film parameter is also set to None, the color correction and grain are disabled.

Kodak 2383
Kodak VISION Color Print Film, rich blacks.

Kodak 2393
Kodak VISION Premier Color Print Film, rich blacks, some grain.

Kodak 2395
Kodak VISION Color Teleprint Film, low contrast.

Kodak 5386
Eastman EXR Color Print Film (discontinued by Kodak, replaced by 2383).

Kodak 5285 Rev
Ektachrome 100D Reversal film, daylight balanced, high contrast and grainy. Note that the negative film is ignored when using reversal film.

Kodak 7270 Rev
Kodachrome 40 Movie Film, tungsten balanced reversal film, high contrast and somewhat grainy. Note that the negative film is ignored when using reversal film.

Blur Input
The image is smoothed by this amount. This can be used to remove noise or compression artifacts before processing.
**Color Correct**

**Scale CC**
Scales the amount of color correction performed due to the film types, gamma values, and exposure values. Set to 0 to disable color correction. If you increase this above 1, it exaggerates the color correction, which normally increases the contrast.

**Input Gamma**
The gamma that your original image was shot for. For video, this is normally 2.2; for synthetic computer graphics, it may be less.

**Output Gamma**
The intended viewing gamma of the output.

**Neg Exposure**
Adjusts the simulated exposure of the negative film in stops. Increase for overexposed and brighter.

**Print Exposure**
Adjusts the simulated exposure of the print film in stops. Increase for overexposed and darker.

**Print Lights Red**
Adjusts the red exposure of the print film in printer light points. 1 light point is 1/12 stop. Increase to overexpose red and give a more cyan result.

**Print Lights Green**
Adjusts the green exposure of the print film in printer light points. 1 light point is 1/12 stop. Increase to overexpose green and give a more magenta result.

**Print Lights Blue**
Adjusts the blue exposure of the print film in printer light points. 1 light point is 1/12 stop. Increase to overexpose blue and give a more yellow result.

**Scale Brights**
Scales the bright areas of the final result after the other color correction, glow, and grain are applied. This parameter is not affected by Scale CC.
Offset Darks

Adds a gray value to the darker regions of the final result after the other color correction, glow, and grain are applied. This can be negative to increase contrast. This parameter is not affected by Scale CC.

Glow

Glow Brightness

If positive, the image is combined with a blurred version of itself to give a glowing look. Increase for a brighter glow.

Glow Soft Focus

If positive, the image is mixed with a blurred version of itself to give a soft focus look. The effect of this parameter is similar to Glow Brightness, but this does not brighten the overall result. Increase this to mix in more of the blurred version and less of the original. If this is 1 and Glow Brightness is 0, you will get only the blurred version.

Glow Width

The width of the blur used by the glow and/or soft focus.

Glow Width Red

The relative glow width for the red channel.

Glow Width Green

The relative glow width for the green channel.

Glow Width Blue

The relative glow width for the blue channel.

Grain Amp

Scales the amplitude of the film grain that is added to the result. Set this to 0 to disable all grain.

Grain Details

Grain Amp Red

Scales the red grain amplitude.
Grain Amp Green
Scales the green grain amplitude.

Grain Amp Blue.
Scales the blue grain amplitude. Note that grain is added and subtracted from the image, so for example, increasing Grain Amp Blue will amplify both the blue and yellow speckles.

Grain Amp Darks
The relative amount of grain applied to the darkest regions of the image per channel. This defaults to less than 1 because dark areas usually have less grain than midtones.

Grain Amp Brights
The relative amount of grain applied to the brightest regions of the image per channel. This defaults to 0 because bright areas usually have less grain than midtones. Note that highly saturated colors can be affected by both Grain Amp Darks and Grain Amp Brights because they are dark in some color channels and bright in others.

Midtone Pos Red
The position of the midtones in the red channel that will normally receive the maximum amount of grain. The red grain amplitude is interpolated from Grain Amp Darks at black, up to 1 at this midtone position, then down to Grain Amp Brights at white. This whole curve is then scaled by the Grain Amp Red parameter.

Midtone Pos Green
The position of the midtones in the green channel that will normally receive the maximum amount of grain. The green grain amplitude is interpolated from Grain Amp Darks at black, up to 1 at this midtone position, then down to Grain Amp Brights at white. This whole curve is then scaled by the Grain Amp Green parameter.
Midtone Pos Blue
The position of the midtones in the blue channel that will normally receive the maximum amount of grain. The blue grain amplitude is interpolated from Grain Amp Darks at black, up to 1 at this midtone position, then down to Grain Amp Brights at white. This whole curve is then scaled by the Grain Amp Blue parameter.

Grain Blur
The grain is smoothed by this amount. Increase for coarser grain.

Grain Blur Red
The relative blur amount for the red grain.

Grain Blur Green
The relative blur amount for the green grain.

Grain Blur Blue
The relative blur amount for the blue grain.

Grain Mono
When enabled, the same grain pattern is used for the red, green, and blue channels. To make truly monochrome grain you should also set Grain Amp Red/Green/Blue equal to each other, make sure Midtone Pos Red/Green/Blue are equal, and if GrainBlur is positive then also set Grain Blur Red/Green/Blue to be equal.

Vignette Darkness
Vignetting is darkening of the image towards the corners and sides of the image. This parameter controls how much the outer corners of the screen should be darkened or vignetted. 0 produces no vignetting, while a value of 1 creates maximum darkening.

Vignette Details

Vignette Radius
Distance from the center to apply the vignette.
Vignette Edge Softness
The width of the vignette's soft edge. Larger values give softer, less visible edges.

Vignette Rel Height
Controls the aspect ratio of the vignette ellipse. This should normally be set to the aspect ratio of the image.
**Film Stocks**

### Description

Film Stocks is a unique filter that simulates 294 different color and black and white still photographic film stocks, motion picture films stocks and historical photographic processes.

![Before and After](Photo by Teresa Kluge on Unsplash)

### Category

Film Lab.

### Controls

#### Presets

To select a preset, pick one from the Presets window. If you would like to view presets from a different category, use the pop-up menu at the top left of the Presets window.

#### Amount

Sets the amount of the selected preset.

#### Black and White

Red, Green and Blue controls allow you to determine the contribution of each color channel in the black and white conversion.
Enable
Enables the Black and White conversion.

Red
Sets the amount of the red channel that contributes to the black and white conversion.

Green
Sets the amount of the green channel that contributes to the black and white conversion.

Blue
Sets the amount of the blue channel that contributes to the black and white conversion.

Film Response
To mimic the characteristics of a particular film stock, a combination of settings for the RGB channels have been set.
**Curves**

You can use Curves to adjust the entire tonal range of an image by changing the shape of the curve in the Curves adjustment. The Curves adjustment lets you adjust points throughout the tonal range of an image (from shadows to highlights).

**Note:** Curves are only available in the Optics Interface.

**Selecting Curves**

- Select RGB, Red, Green or Blue from the Curve Type pop-up menu.

- Click directly on an existing curve in the graph to select it.

**Adding and Deleting Points:**

- Click directly on the curve to add a new point. Up to five points can be added.

- Points can be deleted by clicking and dragging a point to the edge of the graph.

**Adjusting Points:**

- Moving a point in the top portion of the curve adjusts the shadows.

- Moving a point in the center of the curve adjusts the midtones.
• Moving a point in the top portion of the curve adjusts the highlights.

• Moving the curve upward or downward lightens or darkens the image. The steeper sections of the curve represent areas of higher contrast; flatter sections represent areas of lower contrast.

• To darken highlights, move a point near the top of the curve downward. Moving a point either down or to the right maps the input value to a lower output value, and the image darkens.

• To lighten the shadows, move a point near the bottom of the curve upward. Moving a point either up or to the left maps a lower input value to a higher output value, and the image lightens.

**RGB**
Controls the RGB film response curve. If you are using a black and white preset, the grayscale film response curve will be adjusted.

**Red**
Controls the Red film response curve.

**Green**
Controls the Green film response curve.

**Blue**
Controls the Blue film response curve.

**Color Correct**
Go to the Color Correct filter to see how the Color Correct controls work.

**Filter**
Adds a color filter to the image.

**Presets**
Select one of the filters from the pop-up menu.

**Color**
Sets the color through the use of a standard color picker.

**Opacity**
Sets the opacity of the color filter.
Highlights
Preserves the white areas of the image.

Sharpen
Amount
Determines how much contrast is added at the edges.

Radius
Controls the size of the edges you wish to sharpen.

Threshold
The threshold setting is used to sharpen more pronounced edges, while leaving more subtle edges untouched. Low values sharpen more image areas while higher threshold values sharpen less.

Diffusion
Blend
Determines the blend mode to be used to create the diffusion/glow effect.

Add
The diffusion/glow is added to your image.

Normal
The diffusion is mixed with the original image. In this mode, the Amount slider only shows changes up to a value of 100.

Screen
The diffusion/glow is combined with the image using a Screen blend mode. This looks kind of like the Add blend mode, but highlights are retained.

Amount
Sets the amount of diffusion.

Blur
Sets the softness of the image.
**Color**

The Color parameter sets the color of the diffusion/glow through the use of a standard color picker or eyedropper. The default color is white.

**Position**

When using the Add and Screen blend modes, Position selects the values used to create the glow effect. A higher Position value uses the brightest image values to create the glow. A lower Position value uses the darkest image values to create the glow.

**Range**

When using the Add and Screen blend modes, Range controls the range of values to be used for the glow. Once you’ve selected the “Position”, you can then add or subtract the “Range” of values to be used in the glow source. A higher Range value includes more values in the glow source while a lower Range value includes less values.

**Vignette**

A vignette is a popular photographic effect where the photo gradually fades into a color. Go to the Vignette filter to see how it works.

**Grain**

Grain simulates film grain with control of the size, softness and intensity. In addition, a Film Response parameter controls where you will see grain in the image. Go to the Grain filter to see how it works.
**FLAG / DOT**

**Description**

Flags and Dots are rectangular and circular lighting control devices used to create shadow areas on a motion picture or photographic set. This concept has been extended to digital so that areas of the image can be selectively darkened.

![Before After](Photo by Marcelo Matarazzo on Unsplash)

**Category**

Light.

**Controls**

**Flag / Dot**

**Brightness**

Sets the intensity of the flag or dot.

**Blur**

Sets the softness of the flag or dot.

**Transform**

Transform the flag or dot shape using Scale and Rotate controls. Go to the **Transform** section of Common Filter Controls to see how the Transform Controls work.
**FLASHING**

**Description**

Flashing allows you to use photographic filters to lower the contrast of your shadows or highlights. The motion picture lab can expose a small amount of light to the film at various stages of the developing and printing process. For example, Negative plus Dupe Negative flashing lifts blacks, while Print plus Master Positive flashing softens whites.

**Category**

Film Lab.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Shadows**

**Brightness**

Raises the brightness of the shadows using either the Shadow > Color or Shadow > Presets.

**Presets**

Select one of the filters from the pop-up menu.
Color
The Color parameter sets the color of the flashing through the use of a standard color picker.

Position
Selects the shadow values to be adjusted.

Range
Controls the range of values to be used for the shadows. A higher Range value considers more values as shadows.

Highlights
Brightness
Lowers the brightness of the highlights using either the Highlights > Color or Highlights > Presets.

Presets
Select one of the filters from the pop-up menu.

Color
The Color parameter sets the color of the flashing through the use of a standard color picker.

Position
Selects the highlight values to be adjusted.

Range
Controls the range of values to be used for the highlights. A higher Range value considers more values as highlights.

Go to the Matte section of Common Filter Controls to see how the Position and Range controls work.
**FLUORESCENT**

**Description**

Removes the green cast caused by fluorescent bulbs.

Before | After
--- | ---
![Before](image1.jpg) | ![After](image2.jpg)

Photo by Jens Lindner on Unsplash

**Category**

Color.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Temperature**

Removes the greenish tone caused by photographing under fluorescent lights.
S_FlysEyeCircles

Description

Breaks the image into circle shaped tiles and transforms the image within each shape to create a fly's eye view effect.

Before

After

Photo by JR Korpa on Unsplash

The S_FlysEyeCircles filter comes from the Emmy award winning Boris FX Sapphire filter set.

Category

Stylize.

Controls

Presets

To select a preset, pick one from the Presets window.

Tile Frequency

The frequency of the tile pattern. Increase for more smaller tiles. This parameter can be adjusted using the Tile Freq Widget.

Tile Rel Height

The relative height of the tile shapes. Increase for taller tiles.
**Tile Shift X & Y**

Translates the tile pattern. This parameter can be adjusted using the Tile Shift Widget.

**Circle Overlap**

Determines the method used to combine the overlapping regions of the circles.

- **Ave**
  Uses a weighted average across the overlapping region for a smooth transition.

- **Screen**
  Uses a screen operation.

- **Max**
  Uses the lighter.

- **Min**
  Uses the darker.

- **Mult**
  Uses a multiply operation.

**Circle Radius**

The radius of the circles relative to each other. If this is less than 1, you will get empty spaces between the circles. The color of these empty spaces will be either transparent, black, or white depending on the Combine mode.

**Edge Softness**

The softness of the edges of the circles. If this is increased, it may also be necessary to lower the Circle Radius to avoid rectangular artifacts where the soft edges overlap.

**Inside Zdist**

Determines the zoom factor of the image inside each tile. Values greater than 1 zoom out, values less than 1 zoom in. If this is 1, Inside Rotate is 0, and Overall Zdist is 1, the result should be the same as the original image.
Inside Rotate
The rotation angle of the image inside each tile, in degrees.

Overall Zdist
Creates an overall zooming effect by making each tile look toward or away from the image center. Decrease to zoom in or increase to zoom out. When 0, all tiles should contain identical images.

Wrap
Determines the method for accessing outside the borders of the source image.

  No
  Gives black beyond the borders.

  Tile
  Repeats a copy of the image.

  Reflect
  Repeats a mirrored copy. Edges are often less visible with this method.

Filter
If enabled, the Source image is resampled using pixel averaging. This removes aliasing and gives a higher quality result especially when Inside Zdist is large. It may not be necessary if your original image is smooth or Inside Zdist is small.

Crop Input
These 4 parameters, Crop Top, Crop Bottom, Crop Left, and Crop Right, allow selecting a rectangular subsection of the image to be processed. If the Wrap parameters are set to "No", the exposed borders will be transparent. If the Wrap is "Tile" or "Reflect", the source image is wrapped on the new cropped borders to fill the frame. This can make it easier to avoid artifacts due to distorting an image with bad edges.

Show Tile Freq
Enables/disables the on-screen control for adjusting the Tile Frequency parameter.
Show Tile Shift

Enables/disables the on-screen control for adjusting the Tile Shift parameter.
**S_FLYSEYEHEX**

**Description**

Breaks the image into hexagonal shaped tiles and transforms the image within each shape to create a fly’s eye view effect.

Before After

![Image before and after using S_FlysEyeHex filter](Photo by JR Korpa on Unsplash)

The S_FlysEyeHex filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Tile Frequency**

The frequency of the tile pattern. Increase for more smaller tiles. This parameter can be adjusted using the Tile Freq Widget.

**Tile Rel Height**

The relative height of the tile shapes. Increase for taller tiles.
**Tile Shift X & Y**
Translates the tile pattern. This parameter can be adjusted using the Tile Shift Widget.

**Tile Rotate**
The rotation angle of the tile pattern, in degrees.

**Edge Softness**
The softness of the edges of the circles. If this is increased, it may also be necessary to lower the Circle Radius to avoid rectangular artifacts where the soft edges overlap.

**Inside Zdist**
Determines the zoom factor of the image inside each tile. Values greater than 1 zoom out, values less than 1 zoom in. If this is 1, Inside Rotate is 0, and Overall Zdist is 1, the result should be the same as the original image.

**Inside Rotate**
The rotation angle of the image inside each tile, in degrees.

**Overall Zdist**
Creates an overall zooming effect by making each tile look toward or away from the image center. Decrease to zoom in or increase to zoom out. When 0, all tiles should contain identical images.

**Wrap**
Determines the method for accessing outside the borders of the source image.

- **No**
  Gives black beyond the borders.

- **Tile**
  Repeats a copy of the image.

- **Reflect**
  Repeats a mirrored copy. Edges are often less visible with this method.
Filter
If enabled, the Source image is resampled using pixel averaging. This removes aliasing and gives a higher quality result especially when Inside Zdist is large. It may not be necessary if your original image is smooth or Inside Zdist is small.

Crop Input
These 4 parameters, 
Crop Top, Crop Bottom, Crop Left, and Crop Right, allow selecting a rectangular subsection of the image to be processed. If the Wrap parameters are set to "No", the exposed borders will be transparent. If the Wrap is "Tile" or "Reflect", the source image is wrapped on the new cropped borders to fill the frame. This can make it easier to avoid artifacts due to distorting an image with bad edges.

Show Tile Freq
Enables/disables the on-screen control for adjusting the Tile Frequency parameter.

Show Tile Shift
Enables/disables the on-screen control for adjusting the Tile Shift parameter.
**S_FlysEyeRect**

**Description**

Breaks the image into rectangular shaped tiles and transforms the image within each shape to create a fly's eye view effect.

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Tile Frequency**

The frequency of the tile pattern. Increase for more smaller tiles. This parameter can be adjusted using the Tile Freq Widget.

**Tile Rel Height**

The relative height of the tile shapes. Increase for taller tiles.
Tile Shift X & Y

Translates the tile pattern. This parameter can be adjusted using the Tile Shift Widget.

Inside Zdist

Determines the zoom factor of the image inside each tile. Values greater than 1 zoom out, values less than 1 zoom in. If this is 1, Inside Rotate is 0, and Overall Zdist is 1, the result should be the same as the original image.

Inside Rotate

The rotation angle of the image inside each tile, in degrees.

Overall Zdist

Creates an overall zooming effect by making each tile look toward or away from the image center. Decrease to zoom in or increase to zoom out. When 0, all tiles should contain identical images.

Wrap

Determines the method for accessing outside the borders of the source image.

No

Gives black beyond the borders.

Tile

Repeats a copy of the image.

Reflect

Repeats a mirrored copy. Edges are often less visible with this method.

Filter

If enabled, the Source image is resampled using pixel averaging. This removes aliasing and gives a higher quality result especially when Inside Zdist is large. It may not be necessary if your original image is smooth or Inside Zdist is small.

Crop Input

These 4 parameters, Crop Top, Crop Bottom, Crop Left, and Crop Right, allow selecting a rectangular subsection of the image to be processed. If the Wrap parameters are set to "No", the exposed borders will be transparent. If the
Wrap is "Tile" or "Reflect", the source image is wrapped on the new cropped borders to fill the frame. This can make it easier to avoid artifacts due to distorting an image with bad edges.

**Show Tile Freq**
Enables/disables the on-screen control for adjusting the Tile Frequency parameter.

**Show Tile Shift**
Enables/disables the on-screen control for adjusting the Tile Shift parameter.
**Fog**

**Description**

The Fog filter creates a soft, misty atmosphere over the image and glows highlights.

**Category**

Diffusion/Blurs.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Fog**

**Blend**

Determines the blend mode to be used to create the fog effect.

**Add**

The fog is added to your image.

**Screen**

The fog is combined with the image using a Screen blend mode. This looks kind of like the Add blend mode, but highlights are retained.

Photo by Alex Klopcic on Unsplash
Brightness
Sets the intensity of the fog.

Blur
Sets the softness of the fog.

Color
The Color parameter sets the color of the fog through the use of a standard color picker. The default color is white.

Matte
A matte is used to create the fog effect. Go to the Matte section of Common Filter Controls to see how the Matte controls work.
S_FREELENS

Description

Generates a distorted, defocused and light leaked version of the image to simulate the in-camera technique of holding a detached lens in front of the camera and moving it to create focus and light effects.

The S_FreeLens filter comes from the Emmy award winning Boris FX Sapphire filter set.

Category

Diffusion/Blurs.

Controls

Presets

To select a preset, pick one from the Presets window.

Lens Manipulation

Tilt X

Rotates the lens left or right about a vertical axis. This parameter can be adjusted using the Tilt X Widget.
**Tilt Y**
Rotates the lens up or down about a horizontal axis. You can use Tilt X and Tilt Y together to rotate about an arbitrary diagonal axis. This parameter can be adjusted using the Tilt X Widget.

**Distance**
Moves the lens away from or toward the camera. This parameter can be adjusted using the Distance Widget.

**Rotate Highlights**
Rotates the lens about the line of sight. In a real lens, this would rotate the iris, so the rotation is perceived as a rotation of any defocus highlights in the image.

**Perspective Amount**
Controls the amount of lens telescoping while applying Tilt X and Tilt Y. Increase for more 3D perspective.

**Wrap X & Y**
Determines the method for accessing outside the borders of the source images.

- **No**
  Gives black beyond the borders.

- **Tile**
  Repeats a copy of the image.

- **Reflect**
  Repeats a mirrored copy. Edges are often less visible with this method.

**Filter**
If enabled, the image is adaptively filtered when it is resampled. This gives a better quality result when parts of the image are warped smaller.

**Defocus**

**Defocus Width**
Scales the overall amount of defocus blur and highlights.
Chroma Distort
Adds some chromatic aberration around the edges of the image. Red and blue wavelengths of light refract differently in real lenses, producing fringes of color where the rays strike the lens at oblique angles.

Rel Height
The relative height of the iris shape. If it is not 1, circles become ellipses, etc.

Show
Selects the type of output.

Result
Shows the final output.

DepthMap
Shows the depth map generated for the current lens position and orientation.

Highlight Shape
Determines the shape of the simulated camera iris.

Circle
Round.

3 sides
Triangle.

4 sides
Square.

5 sides
Pentagon.

6 sides
Hexagon.

7 sides
Seven sided polygon.

8 sides
Eight sided polygon.
9 sides
Nine sided polygon.

10 sides
Ten sided polygon.

11 sides
Eleven sided polygon.

12 sides
Twelve sided polygon.

**Highlight Roundness**
Modifies the shape of the simulated camera iris. A value of 1 produces a circle, while 0 creates a flat−sided polygon with a number of sides defined by the Shape parameter. Less than 0 causes the sides to squeeze inward producing a star shape, while a value greater than 1 causes the corners to squeeze inward, creating a flowery shape. This has no effect if the Shape is set to Circle.

**Boost Highlights**
The amount to increase the luma of the highlights in the image. Increase this parameter to blow out the highlights without affecting the darks or midtones.

**Highlight Threshold**
The minimum luma value for highlights. Pixels brighter than this will be brightened according to the Boost Highlights parameter.

**Distortion**
Enables distortion.

**Distortion Details**

**Link Distortion To Lens**
Controls whether distortion is adjusted by the lens or set manually.

**Distortion Amount**
Distorts the image radially for barrel or pincushion.
Scale Width
Scales the distortion in the horizontal direction.

Scale Height
Scales the distortion in the vertical direction.

Light Leak
Enables light leak.

Light Leak Details

Link Leak To Lens
Controls whether light leak is adjusted by the lens or set manually.

Leak Intensity
Scales the intensity of the light leak elements.

Leak Rel Height
Controls the aspect ratio of the light leak elements.

Leak Size
Scales the width and height of the light leak elements.

Vary Size
Amount to vary the size from one light leak element to the next.

Leak Roundness
Rounds the corners of the light leak element.

Sides
Controls how many edges there are for each light leak element.

Copies
Controls how many light leak elements there are.

Spread
Controls how far apart the light leak elements are.
Outer Color
Controls the color at the outer edge of each light leak element.

Mid Color
Controls the color midway from the center to the outer edge of each light leak element.

Center Color
Controls the color at the center of each light leak element.

Midpoint
Moves the location of the Mid Color between the center and outer of each light leak element. Set to 0 to place the Mid Color at the center or 1 to place it at the edge.

Softness
Blurs the color gradient of each light leak element. Increase for a smoother gradient or decrease for sharper bands of color.

Glow Brightness
Scales the brightness of the glow which is applied to the entire image after combining the light leak with the background.

Glow Width
The width of the glow. Increase for a softer glow and decrease for a sharper, brighter glow.

Glow Threshold
Parts of the image that are brighter than this value get glowed.

Vignette
Enables vignette.

Vignette Details
Link Vig To Lens
Controls whether vignette is adjusted by the lens or set manually.
Vig Intensity
The opacity of the vignette.

Vig Squareness
Determines how square the vignette shape is. Set to 1 for a square or rectangle shape. Set to 0 for a circle or ellipse. Values in between give rectangles with rounded corners by varying amounts.

Vig Radius
Distance from the center to apply the vignette.

Vig Rel Height
The relative height of the iris shape. If it is not 1, circles become ellipses, etc.

Vig Rel Width
The relative horizontal size of the vignette shape. Increase for a wider shape or decrease for a taller one.

Vig Rotate
Rotates the iris shape.

Vig Edge Softness
The width of the vignette's soft edge. Larger values create softer, less visible edges.

Vig Smooth Curve
If 0, a linear gradient is used across the screen in the soft edge area. Increase this value to use a smoother S shaped curve for interpolation which can reduce the visual perception of the gradient's start and end locations.

Vig Color
The color of the vignette.

Vig Blur Amount
Blurs the borders of the image in addition to darkening them.
Vig Blur Inside
If checked, the center (undarkened) area of the image is blurred instead of the border.

Vig Source Brightness
Scales the brightness of the image. To see only the vignette, set this to zero.

Vig Combine
Determines how the vignette is combined with the Source.

Composite
Composites the vignette over the image.

Mult
The vignette color is multiplied by the image. If the Color is not black, this will selectively colorize the vignette area.

Add
The vignette color is added to the image. This will have no effect if the vignette color is black.

Screen
The vignette color is combined with the image using a screen operation. This will have no effect if the vignette color is black.

Subtract Inv
The inverse of the vignette color is subtracted from the image. Inverse means white for black, yellow for blue, and so on. This mode looks similar to Mult, but a bit more severe. It crushes the blacks, but retains highlights. This will have no effect if the vignette color is white.

Vignette Only
Shows the vignette pattern without the image. The output will be white where the amount of vignetting is greatest, for example, where the image would be darkened completely.
Vignette Only Inv
Shows the inverted vignette pattern without the image. The output will be white where there is no vignetting, for example, where the image would not be darkened at all.

Show Distance
Enables/disables the on-screen control for adjusting the Shift parameter.

Show Tilt X
Enables/disables the on-screen control for adjusting the Shift parameter.

Show Focal Point Offset
Enables/disables the on-screen control for adjusting the Focal Point Offset parameter.

Show Light Leak Hotspot
Enables/disables the on-screen control for adjusting the Light Leak Hotspot parameter.

Show Light Leak Pivot
Enables/disables the on-screen control for adjusting the Light Leak Pivot parameter.

Show Vig Center
Enables/disables the on-screen control for adjusting the Vig Center parameter.
**FROST**

**Description**

**Frost**

Frost glows highlights and reduces contrast while softening facial blemishes and wrinkles.

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**Black Frost**

Black Frost offers all the benefits of the Frost filter in a more subtle form. This filter subtly controls highlights, reduces contrast and provides a harder look than the Frost filter, while suppressing facial blemishes and wrinkles.

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**Category**

Diffusion/Blurs.
Controls

Presets
To select a preset, pick one from the Presets window. If you would like to view presets from a different category, use the pop-up menu at the top left of the Presets window.

Detail
Smoothing
Fine image details, such as facial wrinkles and blemishes, are minimized using edge aware smoothing.

Mist
The Mist controls add a mild glow to image highlights.

Blend
Determines the blend mode to be used to create the mist effect.

Add
The mist is added to your image.

Screen
The mist is combined with the image using a Screen blend mode. This looks kind of like the Add blend mode, but highlights are retained.

Brightness
Sets the intensity of the mist.

Blur
Sets the softness of the mist.

Color
Sets the color of the mist.

Color Correct
Go to the Color Correct filter to see how the Color Correct controls work.
Matte

A matte is used to create the mist effect. Go to the Matte section of Common Filter Controls to see how the Matte controls work.
**GELS**

**Description**

Photographers, cinematographers and lighting designers use colored filters or gels in front of lights. Whatever mood you wish to create, we have the colors needed to achieve the effect.

![Before After](Photo by Jacob Sapp on Unsplash)

**Category**

Grads/Tints.

**Controls**

**Presets**

To select a gel, pick one from the Presets window. If you would like to view presets from a different category, use the pop-up menu at the top left of the Presets window.

**Color**

**Color**

The Color parameter sets the color through the use of a standard color picker.

**Opacity**

Sets the opacity of the color filter.
Preserve Highlights
Preserves the white areas of the image.

Exposure Compensation
Exposure Compensation adds back the brightness loss as a result of the gel application.

Grad
Gels can optionally use a gradient that limits where the filter is applied. Grad is the transition area between the colored portion and the original image. Its direction, corners and size can be adjusted. Go to the Grad section of Common Filter Controls to see how the Grad controls work.
S_Glint

Description
Generates star shaped glints at locations where the image is brighter than the threshold.

Before

After

The S_Glint filter comes from the Emmy award winning Boris FX Sapphire filter set.

Category
Light.

Controls

Presets
To select a preset, pick one from the Presets window.

Brightness
Scales the brightness of all the glints.

Brightness Details
Scale Colors
Scales the color of the glints.
**Brightness X**
Scales the brightness of the horizontal glint rays.

**Brightness Y**
Scales the brightness of the vertical glint rays.

**Brightness Diag1**
Scales the brightness of the diagonal rays from top right to bottom left.

**Brightness Diag2**
Scales the brightness of the diagonal rays from top left to bottom right.

**Threshold**
Glints are generated from locations in the image that are brighter than this value. A value of .9 causes glints at only the brightest spots. A value of 0 causes glints for every non-black area.

**Threshold Add Color**
This can be used to raise the threshold on a specific color and thereby reduce the glints generated on areas of the image containing that color.

**Threshold Blur**
Increase to smooth out the areas creating glints. This can be used to eliminate glints generated from small speckles or to simply soften the glints. Increasing this may put more highlights below the threshold and darken the resulting glints, but you can decrease the Threshold parameter to compensate.

**Size**
Scales the length of all glint rays. This and all the size parameters can be adjusted using the Size Widget. Note that a 0 glint size still enhances the bright areas. Set the brightness parameter to 0 if you want to pass the image through unchanged.

**Size Details**

**Size X**
Scales the length of the horizontal glint rays.
Size Y
Scales the length of the vertical glint rays.

Size Diag1
Scales the length of the diagonal rays from top right to bottom left.

Size Diag2
Scales the length of the diagonal rays from top left to bottom right.

Size Red
Scales the length of the red component of the rays. If the red, green, and blue sizes are equal, the glints will be uniform in color and will match the color of the image. If they are not equal, the glint colors can vary along the lengths of the rays.

Size Green
Scales the length of the green component of the rays.

Size Blue
Scales the length of the blue component of the rays.

Blur Glint
The glints are blurred by this amount before being combined with the background.

Hue Shift
Shifts the hue of the glint, in revolutions from red to green to blue to red.

Glint Under Source
Set to 1 to composite the image over the glints.

Source Opacity
Scales the opacity of the image when combined with the glints. This does not affect the generation of the glints themselves.
Expand Borders
If enabled, transparent borders are added to the image before processing. This allows the result to include soft edges beyond the original image size. When off, the effect only occurs within the frame and the result will retain an edge at the borders.

Show Size
Enables/disables the on-screen control for adjusting the size parameters.
**S_GlintRainbow**

**Description**

Generates star shaped rainbow colored glints at locations where the image is brighter than the threshold.

![Before](before.jpg) ![After](after.jpg)

Photo by Nicola Fioravanti on Unsplash

The S_GlintRainbow comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Light.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Brightness**

Scales the brightness of all the glints.

**Brightness Details**

**Scale Colors**

Scales the color of the glints.
**Brightness X**
Scales the brightness of the horizontal glint rays.

**Brightness Y**
Scales the brightness of the vertical glint rays.

**Brightness Diag1**
Scales the brightness of the diagonal rays from top right to bottom left.

**Brightness Diag2**
Scales the brightness of the diagonal rays from top left to bottom right.

**Threshold**
Glints are generated from locations in the image that are brighter than this value. A value of .9 causes glints at only the brightest spots. A value of 0 causes glints for every non-black area.

**Threshold Add Color**
This can be used to raise the threshold on a specific color and thereby reduce the glints generated on areas of the image containing that color.

**Threshold Blur**
Increase to smooth out the areas creating glints. This can be used to eliminate glints generated from small speckles or to simply soften the glints. Increasing this may put more highlights below the threshold and darken the resulting glints, but you can decrease the Threshold parameter to compensate.

**Size**
Scales the length of all glint rays. This and all the size parameters can be adjusted using the Size Widget. Note that a 0 glint size still enhances the bright areas. Set the brightness parameter to 0 if you want to pass the image through unchanged.

**Size Details**

**Size X**
Scales the length of the horizontal glint rays.
Size Y
Scales the length of the vertical glint rays.

Size Diag1
Scales the length of the diagonal rays from top right to bottom left.

Size Diag2
Scales the length of the diagonal rays from top left to bottom right.

Shift Out
Shifts the glint rays outwards from their source highlights by this amount relative to the glint size.

Shift Red
Shifts the red component of the glints in or out relative to the blue. The green is centered between blue and red for a complete spectrum.

Shift Blue
Shifts the blue component of the glints in or out relative to the red and green. This can be used with Shift Red to adjust the range of hues in the glints.

Blur Glint
The glints are blurred by this amount before being combined with the background.

Hue Shift
Shifts the hue of the glint, in revolutions from red to green to blue to red.

Glint Under Source
Set to 1 to composite the image over the glints.

Source Opacity
Scales the opacity of the image when combined with the glints. This does not affect the generation of the glints themselves.
Expand Borders
   If enabled, transparent borders are added to the image before processing. This allows the result to include soft edges beyond the original image size. When off, the effect only occurs within the frame and the result will retain an edge at the borders.

Show Size
   Enables/disables the on-screen control for adjusting the size parameters.
**S_Glow**

**Description**
Generates glowing light from areas of the image that are brighter than the given threshold.

Before After

Photo by Johannes Plenio on Unsplash

The S_Glow filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**
Light.

**Controls**

**Presets**
To select a preset, pick one from the Presets window.

**Brightness**
Scales the brightness of all the glows.

**Color**
Scales the color of the glows.

**Threshold**
Glows are generated from locations in the image that are brighter than this value. A value of 0.9 causes glows at only the brightest spots. A value of 0 causes glows for every non-black area.
Threshold Add Color
This can be used to raise the threshold on a specific color and thereby reduce the glows generated on areas of the source clip containing that color.

Glow Width
Scales the glow distance. This and all the width parameters can be adjusted using the Width Widget. Note that a 0 glow width still enhances the bright areas. Set the brightness parameter to 0 if you want to pass the original image through unchanged.

Width X
Scales the horizontal glow width. Set to 0 for vertical only.

Width Y
Scales the vertical glow width. Set to 0 for horizontal only.

Width Red
Scales the red glow width. If the red, green, and blue widths are equal, the glows will match the color of the image. If they are not equal, the glows will vary in color with distance.

Width Green
Scales the green glow width.

Width Blue
Scales the blue glow width.

Subpixel
Enables glowing by subpixel widths.

Show
Selects the type of output.

Result
Shows the final result of combining the glow and image.

Threshold
Shows the thresholded image that is used to generate the glow.
**Glow Under Source**
Set to 1 to composite the image over the glows.

**Light Background**
Increase this to give a look of the glow casting light onto the background image. To see this more clearly, you can also lower the Scale Background parameter or raise the Brightness parameter.

**Source Opacity**
Scales the opacity of the image when combined with the glows. This does not affect the generation of the glows themselves.

**Combine**
Determines how the glow is combined with the image. This parameter has no effect if Light Background is set to 1.

- **Mult**
The image is multiplied by the glow.

- **Add**
The glow is added to the image.

- **Screen**
The glow is blended with the image using a screen operation.

- **Difference**
The result is the difference between the glow and the image.

- **Overlay**
The glow is combined with the image using an overlay function.

**Edge Mode**
Determines the behavior when accessing areas outside the image.

- **Transparent**
Areas outside the image are treated as transparent, which can produce transparency around the edges of the image. Select this for fastest rendering.
Reflect
Reflects the image outside the border.

Expand Borders
If enabled, transparent borders are added to the image before processing. This allows the result to include soft edges beyond the original image size. When off, the effect only occurs within the frame and the result will retain an edge at the borders.

Atmosphere

Atmosphere Amp
Atmosphere gives the effect of the glow shining through a dusty atmosphere and picking up light or getting shadowed. This parameter adjusts the amount, or amplitude, of the atmospheric effect. 0 gives a smooth glow, higher values give more dusty look.

Atmosphere Freq
Controls the spatial frequency of the atmospheric noise. Turn this up higher to get finer details, turn down for broader overall variation.

Atmosphere Detail
Controls the amount of fine detail in the atmosphere simulation. Decrease to get smoother atmosphere, increase for a more crunchy or grainy look.

Atmosphere Seed
Used to initialize the random number generator for the atmospheric noise. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.

Show Glow Width
Enables/disables the on-screen control for adjusting the Glow.
**S_GlowDarks**

**Description**

Areas of the image darker than the given threshold are blurred and combined with the image to give a deep smoky look.

![Before after images](Photo by Boris Misevic on Unsplash)

The S_GlowDarks filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Light.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Darkness**

The magnitude of the dark glows.

**Threshold**

Dark glows will be generated from locations in the image that are darker than this value. A value of .1 causes glows at only the darkest areas. A value of 1 causes glows on every non-white area.

**Glow Saturation**

Scales the saturation of the dark colors. Increase for more intense colors.
Glow Width
Scales the glow distance. This and all the width parameters can be adjusted using the Width Widget. Note that a 0 glow width still affects the dark areas. Set the darkness parameter to 0 if you want to pass the original image through unchanged.

Width X
Scales the horizontal glow width. Set to 0 for vertical only.

Width Y
Scales the vertical glow width. Set to 0 for horizontal only.

Subpixel
Enables glowing by subpixel widths.

Show
Selects the type of output.

Result
Shows the final result of combining the glow and image.

Darks
Outputs the dark areas of the image which will generate the glow. Colors are inverted, so darks will appear bright and vice versa.

Glow Under Source
Set to 1 to composite the image over the glows.

Source Opacity
Scales the opacity of the image when combined with the glows. This does not affect the generation of the glows themselves.
Atmosphere

**Atmosphere Amp**
Atmosphere gives the effect of the glow shining through a dusty atmosphere and picking up light or getting shadowed. This parameter adjusts the amount, or amplitude, of the atmospheric effect. 0 gives a smooth glow, higher values give more dusty look.

**Atmosphere Freq**
Controls the spatial frequency of the atmospheric noise. Turn this up higher to get finer details, turn down for broader overall variation.

**Atmosphere Detail**
Controls the amount of fine detail in the atmosphere simulation. Decrease to get smoother atmosphere, increase for a more crunchy or grainy look.

**Atmosphere Seed**
Used to initialize the random number generator for the atmospheric noise. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.

**Show Glow Width**
Enables/disables the on-screen control for adjusting the Glow.
**S_GLOWEDGES**

**Description**

Creates glowing light from the edges of the image. This differs from the default Glow in that small or thin objects generate as much glow around their edges as large objects.

Before

After

Photo by Claudio Schwarz on Unsplash

The S_GlowEdges filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Light.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Glow Brightness**

Controls the overall glow brightness.

**Color**

Scales the color of the glows.
Glow Width
Scales the glow distance. This and all the width parameters can be adjusted using the Width Widget. Note that a 0 glow width still enhances the bright areas. Set the brightness parameter to 0 if you want to pass the original image through unchanged.

Width X
Scales the horizontal glow width. Set to 0 for vertical only.

Width Y
Scales the vertical glow width. Set to 0 for horizontal only.

Width Red
Scales the red glow width. If the red, green, and blue widths are equal, the glows will match the color of the image. If they are not equal, the glows will vary in color with distance.

Width Green
Scales the green glow width.

Width Blue
Scales the blue glow width.

Subpixel
Enables glowing by subpixel widths.

Edges Smooth
Determines the width of the extracted edges which generate the glows.

Edges Brightness
Scales the brightness of the edges before the glows are applied.

Edges Threshold
Increase to remove glows on the less sharp edges.

Show
Selects the type of output.
Result
Shows the final result of combining the glow and image.

Edges
The edge image only is output, before any glows are applied. This can be helpful while adjusting the various edge parameters.

Glow Under Source
Set to 1 to composite the image over the glows.

Light Background
Increase this to give a look of the glow casting light onto the background image. To see this more clearly, you can also lower the Scale Background parameter or raise the Brightness parameter.

Source Opacity
Scales the opacity of the image when combined with the glows. This does not affect the generation of the glows themselves.

Combine
Determines how the glow is combined with the image. This parameter has no effect if Light Background is set to 1.

Mult
The image is multiplied by the glow.

Add
The glow is added to the image.

Screen
The glow is blended with the image using a screen operation.

Difference
The result is the difference between the glow and the image.

Overlay
The glow is combined with the image using an overlay function.
Expand Borders

If enabled, transparent borders are added to the image before processing. This allows the result to include soft edges beyond the original image size. When off, the effect only occurs within the frame and the result will retain an edge at the borders.

Show Glow Width

Enables/disables the on-screen control for adjusting the Glow.
**S_GLOWRINGS**

**Description**

Generates glows of colored rings around the areas of the image that are brighter than the given threshold.

The S_GlowRings filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Light.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Brightness**

Scales the brightness of all the glows.

**Color**

Scales the color of the glows.
Threshold
Glows are generated from locations in the image that are brighter than this value. A value of 0.9 causes glows at only the brightest spots. A value of 0 causes glows for every non-black area.

Threshold Add Color
This can be used to raise the threshold on a specific color and thereby reduce the glows generated on areas of the image containing that color.

Glow Width
Scales the glow distance. This and all the width parameters can be adjusted using the Width Widget. Note that a 0 glow width still enhances the bright areas.

Width X
Scales the horizontal glow width. Set to 0 for vertical only.

Width Y
Scales the vertical glow width. Set to 0 for horizontal only.

Width Red
Scales the red glow width. If the red, green, and blue widths are equal, the glows will match the color of the image. If they are not equal, the glows will vary in color with distance.

Width Green
Scales the green glow width.

Width Blue
Scales the blue glow width.

Subpixel
Enables glowing by subpixel widths.

Thickness Red
Scales the thickness of the red region.

Thickness Green
Scales the thickness of the green region.
**Thickness Blue**
Scales the thickness of the blue region.

**Show**
Selects the type of output.

**Result**
Shows the final result of combining the glow and image.

**Threshold**
Shows the thresholded image that is used to generate the glow.

**Glow Under Source**
Set to 1 to composite the image over the glows.

**Source Opacity**
Scales the opacity of the image when combined with the glows. This does not affect the generation of the glows themselves.

**Combine**
Determines how the glow is combined with the image.

**Mult**
The image is multiplied by the glow.

**Add**
The glow is added to the image.

**Screen**
The glow is blended with the image using a screen operation.

**Difference**
The result is the difference between the glow and the image.

**Overlay**
The glow is combined with the image using an overlay function.
Expand Borders

If enabled, transparent borders are added to the input image before processing. This allows the result to include soft edges beyond the original image size. When off, the effect only occurs within the frame and the result will retain an edge at the borders.

Show Glow Width

Turns on or off the on-screen control for adjusting the Glow Width parameter.
**GRAIN**

**Description**

Grain simulates film grain with control of size, intensity and softness. In addition, a Film Response parameter controls where you will see grain in the image. Popular film stock presets are provided as a starting point to adding grain.

**Category**

Film Lab.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Monochrome**

When checked, the grain is monochrome. In this mode, only the Red Size, Red Amount and Red Softness sliders are active. Since the grain is monochrome, only one slider is needed.
Size
The Size parameter controls the size of the grain. The larger the Size setting, the larger the grain will be.

Amount
The Amount parameters set the red, green and blue intensities of the grain. Film stocks generally have varying amounts of red, green and blue intensities with the blue intensity generally higher than the rest. If you turn the red, green and blue amount sliders to a value of 0, the grain will disappear.

Red Amount
Controls the intensity of the red grain.

Green Amount
Controls the intensity of the green grain.

Blue Amount
Controls the intensity of the blue grain.

Softness
The Softness parameter controls the softness of the grain. Normally, only minor softness adjustments are necessary, usually between a value of 0-1.

Film Response
The Film Response parameter allows the adjustment of where you will see grain in the image. In most cases, film grain is apparent over the entire image except the brightest whites with the black areas being the most affected.

Position
The Position slider defines the portions of the image where grain will be added. A low Position value places grain in the darkest image values, while a high Position value places grain in the brightest areas.

Range
Increases or decreases the area where grain is added to the image based on the value of the Position slider. A low Range value indicates a narrow range of values, while a high Range value indicates a large range of values.
Minimum

Sets the minimum level of grain that is always added to the image.

Note: A Position value of 0 and a Range of 80 is typical of standard film, with grain applied to the entire range except the brightest whites with black being the most affected.
**S_GRUNGE**

**Description**
Simulates many different kinds of grunge including dirt, stains, flecks, grime, scratches, and paint. Up to three different kinds of grunge can be combined.

![Before After](Photo by Frankie Cordoba on Unsplash)

The S_Grunge filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**
Render.

**Controls**

**Presets**
To select a preset, pick one from the Presets window.

**Stamp Density**
The overall number of stamps over the frame. Increase for more stamps, decrease for fewer.

**Stamp Size**
Scales the overall size of the grunge stamps.

**Stamp Opacity**
The overall opacity of the grunge stamps.
Stamp Brightness
Controls the brightness of the grunge stamps.

Seed
Used to initialize the random number generator for the stamp positioning, size, and variation. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.

Frame Amount
Controls the brightness of the grunge inside the frame or border. If Frame Amount is set to anything other than 0, Grunge will create a picture frame border of grunge around the frame center. At a Frame Amount of 1, stamps inside the frame are completely invisible and at a Frame Amount of 0, there is no frame.

Frame Details

Frame Softness
The width of the frame's soft edge. Larger values give the grunge frame a softness as the grunge brightness fades on the edges.

Frame Radius
Distance from the center to apply the grunge frame. This parameter can be adjusted using the Frame Radius Widget.

Frame Rel Height
The relative vertical size of the frame shape. Increase for a taller shape, decrease for a wider one.

Invert Frame
If enabled, shows the grunge in the center of the frame instead of at the edge of the frame.

Stamp1-3
The style of grunge to apply. Up to three styles may be selected.

None
No grunge.
Plaster
Large low detail grunge simulating plaster.

Garage Floor
Large speckled grunge reminiscent of pavement.

Speckles
Groups of small, similar sized, dots of grunge similar to paint spray.

Paint Spray
Groups of small and medium splashes of paint similar to speckles.

Paint Splatters
Long splashes of paint.

Hairline Cracks
Long, narrow, wiggly cracks with no branches.

Tile Cracks
Long, straight jagged cracks.

Pavement Cracks
Very branchy cracks with very varied widths.

Hairs
Curly and straight hairs of varying sizes.

Scratches
Straight scratches biased towards the diagonals.

Frost
Patches of frost.

Glass Cracks
Patches of webbed glass cracks.

Clouds
Puffs of clouds similar to smoke and watercolor drops.
Smoke
Whisps of smoke, similar to clouds and watercolor drops.

Splotches
Paint splotches with lots of streaks of paint spreading outward.

Corrosion
Patches of rust like damage.

Watercolor Drops
Low detail splashes of grunge similar to clouds and smoke.

Dust
Small particles of grunge varying in shape similar to flecks.

Stains
Coffee and water stains.

Flecks
Small to medium particles of grunge varying in shape and size similar to dust.

Stampt1-3 Details

Stamp1-3 Rel Density
Scales the density for the specific stamp collection.

Stamp1-3 Color1
Beginning of the range of colors for the stamp collection.

Stamp1-3 Color2
End of the range of colors for the stamp collection. Each piece of grunge will have a random color between Stamp Color1 and Stamp Color2.

Stamp1-3 Rel Brightness
Scales the brightness for the specific stamp collection.

Stamp1-3 Rel Opacity
Scales the opacity for the specific stamp collection.
Stamp1-3 Rel Size
Scales the size for the specific stamp collection.

Vary Stamp1-3 Brightness
Amount to vary the brightness from one piece of grunge to the next.

Vary Stamp1-3 Opacity
Amount to vary the opacity from one piece of grunge to the next.

Vary Stamp1-3 Size
Amount to vary the size from one piece of grunge to the next.

Emboss

Emboss Bumps Scale
Scales the amplitude of the bumps.

Emboss Light Angle
Adjusts the angle of light for the emboss. This parameter can be adjusted using the Emboss Light Angle Widget.

Emboss Smooth.
Smoothes the small details of the image so they don't get embossed as strongly as the big features. Set to 0 to emboss all details. Increase to smooth out more details.

Emboss Threshold
Any grunge brighter than the threshold will be a bump and any grunge darker than the threshold will be a pit.

Blur Grunge

Blur Grunge
Blurs the grunge. Increase for more blur. Doesn't affect the image.

Blur Grunge Rel X & Y
Scales the width of the blur.
**Combine**

Determines how the grunge is combined with the image.

**Grunge Only**

The grunge image with no background.

**Comp**

Composites the grunge image over the original image.

**Mult**

This can be used as an intersection operation on two images. White is the identity for Multiply, where one image contains white, the other is not affected, so the result only contains white where both inputs are white.

**Add**

Adds the grunge image to the original image.

**Screen**

Performs a blend function which can help prevent overly bright results.

**Difference**

Similar to Subtract, but the absolute value of the result is used, which tends to give more resulting colors in bounds. This can be used to select the regions of two images where one or the other is white, but not both.

**Subtract**

Subtracts the grunge image from the original image.

**Overlay**

Combines grunge and original image using an overlay function.

**Hard Light**

Similar to overlay but with grunge and the original image swapped.

**Soft Light**

Darkens or lightens the original image depending on the grunge image.
**Color Dodge**
Brightens the original image depending on the grunge image.

**Color Burn**
Darkens the original image depending on the grunge image.

**Darken**
The minimum of the grunge image and the original image. This can also be used as an intersection operation with slightly different results than Multiply.

**Lighten**
The maximum of the grunge image and the original image. This can also be used as a union operation with slightly different results than Screen.

**Exclusion**
Similar to Difference but with smoother results.

**Linear Dodge**
Adds the grunge image to the original image and clamps the result at white.

**Linear Burn**
Adds the grunge image to the original image but offsets to make the result darker. Similar to multiply in that combining with white provides no change and combining with black results in black.

**Linear Light**
Performs a linear burn or linear dodge depending on if the grunge image is more or less than 50 percent gray.

**Scale Background**
Scales the brightness of the background before combining with the grunges. If 0, the result will contain only the grunge image over black.

**Show Emboss Light Angle**
Enables/disables the on-screen control for adjusting the Emboss Light Angle parameter.
Show Frame Radius

Enables/disables the on-screen control for adjusting the Frame Radius parameter.

Show Frame Center

Enables/disables the on-screen control for adjusting the Frame Center parameter.
**S_HALFTONE**

**Description**

Generates a halftone version of the image using a black and white pattern of dots.

![Before](image1.jpg) ![After](image2.jpg)

Before After

Photo by Igor Ovsyannykov on Unsplash

The S_Halftone filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Dots**

Selects the dots' color model.

**Black**

Dark dots are used on a bright background.

**White**

Bright dots are used on a dark background.
Dots Frequency
The frequency of the dots pattern. Increase for finer dots, decrease for larger dots.

Dots Angle
The angle of the overall dots pattern in counterclockwise degrees.

Dots Rel Width
The relative width of the dots. Increase for wider dots, decrease for taller ones.

Dots Sharpness
Scales the sharpness of the edges of the dots.

Dots Lighten
Increase to lighten the resulting dot pattern.

Smooth Source
If positive, the source is blurred by this amount before the halftone is applied. This can be used to remove some detail in the dots and make them more consistently round.

Color1
The bright color to use for the dots pattern.

Color0
The dark color to use for the dots pattern.

Dots Shift X & Y
The horizontal and vertical translation of the dots pattern.
S_HALFTONECOLOR

Description

Generates a version of the image using a colored dot pattern.

Before

After

Photo by Igor Ovsyannykov on Unsplash

The S_HalfToneColor filter comes from the Emmy award winning Boris FX Sapphire filter set.

Category

Stylize.

Controls

Presets

To select a preset, pick one from the Presets window.

Dots Color

Selects the dots' color model.

CMY

Cyan, magenta, and yellow dots are used on a white background.

RGB

Red, green, and blue dots are used on a black background.
Dots Frequency
The frequency of the dots pattern. Increase for finer dots, decrease for larger dots.

Dots Angle
The angle of the overall dots pattern in counterclockwise degrees.

Dots Rel Width
The relative width of the dots. Increase for wider dots, decrease for taller ones.

Dots Sharpness
Scales the sharpness of the edges of the dots.

Dots Lighten
Increase to lighten the resulting dot pattern.

Smooth Source
If positive, the source is blurred by this amount before the halftone is applied. This can be used to remove some detail in the dots and make them more consistently round.

Saturation
Scales the color saturation. Increase for more intense colors. Set to 0 for monochrome.

Dots Shift X & Y
The horizontal and vertical translation of the dots pattern.

Dots Shift RGB
Dots Shift X & Y
The horizontal and vertical translation of the dots pattern.

Shift Red X & Y
The translation of the red color channel.

Shift Green X & Y
The translation of the green color channel.
Shift Blue X & Y
The translation of the blue color channel.
**S_HALFTONERINGS**

**Description**

Generates a duotone version of the image using a repeating pattern of concentric rings.

![Before](image1.png) **Before**  ![After](image2.png) **After**

Photo by Igor Ovsyannykov on Unsplash

The S_HalfToneRings filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Rings Frequency**

The frequency of the overall rings pattern. Increase for smaller rings, decrease for larger rings.

**Rings Angle**

The angle of the overall rings pattern in counterclockwise degrees.
Rings Rel Width
   The relative width of the rings. Increase for wider rings, decrease for taller ones.

Rings Sharpness
   Scales the sharpness of the edges of the rings.

Rings Lighten
   Increase to lighten the resulting rings pattern.

Ring Number
   Determines the number of concentric rings in each tile of the repeating pattern.

Ring Phase
   Shifts the rings in or out within each tile of the pattern.

Rings Shift X & Y
   The horizontal and vertical translation of the overall rings pattern.

Smooth Source
   If positive, the image is blurred by this amount before the halftone is applied. This can be used to remove some detail in the dots and make them more consistently round.

Color1
   The bright color to use for the dots pattern.

Color0
   The dark color to use for the dots pattern.
**HALO**

**Description**

**Halo**

Halo glows highlights, reduces contrast and softens facial imperfections while retaining image clarity.

**Before**

![Before Image](Photo by Alexandru Zdrobau on Unsplash)

**After**

![After Image](Photo by Alexandru Zdrobau on Unsplash)

**Warm Halo**

Combines all of the benefits of Halo with a warming filter.

**Before**

![Before Image](Photo by Alexandru Zdrobau on Unsplash)

**After**

![After Image](Photo by Alexandru Zdrobau on Unsplash)

**Category**

Diffusion/Blurs.
Controls

Presets
To select a preset, pick one from the Presets window. If you would like to view presets from a different category, use the pop-up menu at the top left of the Presets window.

Halo

Blur
Sets the softness of the image.

Opacity
Sets the amount of diffusion mixed into the original image. The higher the setting, the more the image is blurred.

Mist
The Mist controls add a mild glow to image highlights.

Blend
Determines the blend mode to be used to create the mist effect.

Add
The mist is added to your image.

Screen
The mist is combined with the image using a Screen blend mode. This looks kind of like the Add blend mode, but highlights are retained.

Brightness
Sets the intensity of the mist.

Blur
Sets the softness of the mist.

Color
Sets the color of the mist.
Color Correct

Go to the Color Correct filter to see how the Color Correct controls work.

Matte

A matte is used to create the mist effect. Go to the Matte section of Common Filter Controls to see how the Matte controls work.
HARRIS SHUTTER

Description

Invented by Robert S. “Bob” Harris of Kodak, the Harris Shutter was originally a strip device with three color filters used for making color photographs with the different primary color layers exposed in separate time intervals in succession. The same frame of film was re-exposed through red, green and blue filters in turn, while keeping the camera steady.

Our digital version of the Harris Shutter can use separate images for the red, green and blue channels or offset the individual channels of a sequence in time. Offsetting the channels creates a rainbow of color around any object that moves within the frame. Some good candidates for subjects include waterfalls, clouds blowing over a landscape or people walking across a busy street.

Category

Stylize.
Controls

Red / Green / Blue

Source
Sets the source image to be used as the Red, Green and Blue channels. If an image is not assigned using Source, the original image’s color channel will be used.

Note: Only JPG, PNG and TIFF files can be loaded.

Amount
Controls how much of the Red, Green or Blue image is contributed to the composite image.
HAZE / SKY

Description

Haze
Reduces excessive blue by absorbing UV light and eliminates haze which tends to wash out color and image clarity.

![Before](before_haze.jpg) ![After](after_haze.jpg)

Sky
Reduces UV light, haze and is pink tinted for added warmth and better colors. It is especially useful for images shot in outdoor open shade and on overcast days.

![Before](before_sky.jpg) ![After](after_sky.jpg)

Photo by Thomas Kelley on Unsplash
**Category**
Color.

**Controls**

**Presets**
To select a preset, pick one from the Presets window.

**Haze**
Sets the amount of haze to be removed from the scene.

**Temperature**
Sets the color of the image to be either warmer or cooler. Dragging the slider to the right makes the image cooler (bluer) and dragging the slider to the left makes the image warmer (redder).

**Cyan/Magenta**
Adds either Cyan or Magenta to the image. Dragging the slider to the right makes the image more magenta and dragging the slider to the left makes the image more cyan.

**Note:** Cyan/Magenta is only included in the Sky filter.
High Contrast

Description

Creates an extreme high contrast image.

Category
Color.

Controls

Presets
To select a preset, pick one from the Presets window.

Contrast
Sets the amount of contrast to be applied to the scene.

Amount
Sets the mix amount between the original and filtered version.
**S_Hotspots**

**Description**

Generates a hotspot image containing areas of the image brighter than a given threshold.

![Before](image1.png) ![After](image2.png)

The S_Hotspots filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Color.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Blur Input**

Allows smaller spots to be smoothed away before the hotspots are determined.

**Threshold**

Include hotspots at any image areas that are brighter than this value.

**Threshold Add Color**

This can be used to raise the threshold on a specific color and thereby reduce the hotspots generated on areas of the image containing that color.
Saturation
Scales the color saturation. Increase for more intense colors. Set to 0 for monochrome.

Brightness
Scales the brightness of the result.
**ICE HALOS**

### Description

Ice halos are created when small ice crystals in the atmosphere generate halos by reflecting and refracting light. Most notably, circles form around the sun or moon as well as rare occurrences when the entire sky is painted with a web of arcing halos.

![Before and After](Photo by Ales Krivec on Unsplash)

### Category

Light.

### Controls

**Presets**

To select a preset, pick one from the Presets window.

**Light**

**Blend**

Determines the blend mode to be used to add the ice halo.

**Add**

The ice halo is added to your image.

**Screen**

The ice halo is combined with the image using a Screen blend mode. This looks kind of like the Add blend mode, but highlights are retained.
**Brightness**
Sets the intensity of the ice halo.

**Displacement**
Displaces the ice halo by the luminance values of the image. This “fakes” the effect of the ice halo wrapping over objects in the image.

**Blur**
Sets the softness of the ice halo.

**Halo**

**Blend**
The ice halo can be added to the entire image or limited to a matte.

**Halo Only**
The ice halo is added to the entire image.

**Matte**
The ice halo is added only in areas of the matte.

**Sun Altitude**
Selects the appropriate ice halo pattern based on the sun’s altitude.

**Position**
The ice halo position can be adjusted by clicking and dragging an on-screen control in the center of the image.

**Scale**

**Scale X**
The horizontal scale of the ice halo.

**Scale Y**
The vertical scale of the ice halo.

**Gang Scale**
The Scale X and Scale Y slider values can be ganged together.
Matte

A matte can be used to limit where the ice halo will be placed. Wherever there is white in the matte is where the ice halo will be added. Go to the Matte parameters to see how they work.

**Note:** To use a matte to limit where the ice halo will be added, Halo > Blend must be set to Matte.
**S_InfiniteZoom**

**Description**

Zooms into endlessly repeating copies of an image reminiscent of M.C. Escher drawings.

The *S_InfiniteZoom* filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Shrink Per Level**

How much to shrink each smaller copy compared to the previous larger copy. .8 means each level will be .8 times as big as the previous, so small values here mean the copies are much smaller at each level. Large values give closer spacing between levels.
Zoom
Overall zoom of the image.

Twist
Amount of twist between levels. Increase or decrease to get spiral zooms. In No Spiral mode, this is in units of 30 degrees per unit of twist. In the spiral modes, it's nonlinear, so it's best to adjust by eye.

Spiral Strands
When set to No Spiral, the effect makes direct copies of the image at each level, although they still may be twisted depending on Twist. With the other spiral options, it warps each copy of the image so each level joins seamlessly to the next level in an ever decreasing spiral.

No Spiral
The image isn't warped to provide a continuous spiral. This is good for picture frames.

1 Clockwise
Warp the image to create one continuous spiral strand in a clockwise direction.

1 Counterclockwise
Warp the image to create one continuous spiral strand in a counterclockwise direction.

2 Clockwise
Warp the image to create two continuous spiral strands in a clockwise direction.

2 Counterclockwise
Warp the image to create two continuous spiral strands in a counterclockwise direction.

Rotate
Overall rotation of the result image.
**Shift X & Y**

Overall shift of the result image.

**Show Zoom Center**

Enables/disables the on-screen control for adjusting the Zoom Center parameter.
INFRARED

Description

Infrared simulates infrared filters used in conjunction with infrared sensitive film or sensors to produce very interesting black and white images with glow in highlight areas.

Category

Stylize.

Controls

Presets

To select a preset, pick one from the Presets window.

Black and White

Selects the type of black and white filter to be applied to your color image. Go to the Black and White section of Common Filter Controls to see how the Black and White controls work.

Mist

Blend

Determines the blend mode to be used to create the glow effect.
Add
The glow is added to your image.

Screen
The glow is combined with the image using a Screen blend mode. This looks kind of like the Add blend mode, but highlights are retained.

Brightness
Sets the intensity of the glow.

Blur
Sets the softness of the glow.

Color Correct
Go to the Color Correct filter to see how the Color Correct controls work.

Matte
A matte is used to create the glow effect. Go to the Matte section of Common Filter Controls to see how the Matte controls work.
**S_KALEIDO**

**Description**

Reflects the image into a kaleidoscope pattern.

![Before After](Photo by David Clode on Unsplash)

The S_Kaleido filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Pattern**

Selects whether a diamond, octagon, square or triangular pattern is used.

**Diamonds**

Uses a diamond pattern.

**Oct**

Uses an octagonal pattern.
**Squares**
Uses a square pattern.

**Triangles**
Uses a triangular pattern.

**Z Dist**
Scales the distance of the entire result in or out from the Center. Increase to zoom out, decrease to zoom in.

**Rotate**
Rotates the kaleidoscope's reflection pattern about the Center by this many counterclockwise degrees.

**Inside Shift X & Y**
Translates the image inside the kaleidoscope before it is reflected.

**Inside Z Dist**
Zooms the image in or out inside the kaleidoscope before it is reflected.

**Inside Rotate**
Rotates the image inside the kaleidoscope before it is reflected.

**Kaleido Amount**
Adjusts the overall amount of distortion applied to the image. Set this to 0 to leave the image unchanged or to 1 for a normal kaleidoscope pattern.

**Wrap X & Y**
Determines the method for accessing outside the borders of the image. This is used only if the image inside the kaleidoscope is not contained within the shape of mirrors.

**No**
Creates black beyond the borders.

**Tile**
Repeats a copy of the image.
Reflect
Repeats a mirrored copy. Edges are often less visible with this method.

Filter
If enabled, the image is resampled using pixel averaging. This removes aliasing and gives a higher quality result, although it may not be necessary if your image is smooth with no sharp edges or high frequencies.

Crop Input
These 4 parameters, Crop Top, Crop Bottom, Crop Left, and Crop Right, allow selecting a rectangular subsection of the image to be processed. If the Wrap parameters are set to "No" the exposed borders will be transparent. If the Wrap is "Tile" or "Reflect", the image is wrapped on the new cropped borders to fill the frame. This can make it easier to avoid artifacts due to distorting an image with bad edges.

Show Center
Enables/disables the on-screen control for adjusting the Center parameter.
**S_KALEIDOPOLAR**

**Description**

Warp the image around in a disk shape and reflects radially as if viewed through a reflecting cylinder resulting in a kaleidoscope pattern.

![Before After]

Photo by David Clode on Unsplash

The S_KaleidoPolar filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Z Dist**

Scales the distance of the entire result in or out from the Center. Increase to zoom out, decrease to zoom in.

**Rotate**

Rotates the kaleidoscope's reflection pattern about the Center by this many counterclockwise degrees.
**Stretch X & Y**
Scales the horizontal or vertical size of the result.

**Inside Shift Y**
Shifts the image up by this amount before it is reflected. This causes the resulting pattern of images to radiate outward from the center.

**Angle Repeats**
The number of copies of the image to wrap around. This should be an even integer to avoid a seam where the first copy connects to the last.

**Kaleido Amount**
Adjusts the overall amount of distortion applied to the image. Set this to 0 to leave the image unchanged or to 1 for a normal kaleidoscope pattern.

**Filter**
If enabled, the image is resampled using pixel averaging. This removes aliasing and gives a higher quality result, although it may not be necessary if your image is smooth with no sharp edges or high frequencies.

**Crop Input**
These 4 parameters, *Crop Top*, *Crop Bottom*, *Crop Left*, and *Crop Right*, allow selecting a rectangular subsection of the image to be processed. If the Wrap parameters are set to "No" the exposed borders will be transparent. If the Wrap is "Tile" or "Reflect", the image is wrapped on the new cropped borders to fill the frame. This can make it easier to avoid artifacts due to distorting an image with bad edges.

**Show Center**
Enables/disables the on-screen control for adjusting the Center parameter.
**S_KALEIDORADIAL**

**Description**

Simulates a traditional 2 or 3 mirror kaleidoscope. You see a pie-slice shaped piece of the image through the angle between the mirrors, and mirror-reflected copies of it in the rest of the image.

![Before After](Photo by David Clode on Unsplash)

The S_KaleidoRadial filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Z Dist**

Scales the distance of the entire result in or out from the Center. Increase to zoom out, decrease to zoom in.
Slices
Sets how many slices the image will be broken up into. Each slice corresponds to the area between the mirrors in a traditional kaleidoscope. Turn this up to get a more abstract look, and down to get fewer, wider slices. Fractional numbers here will get you one fractional slice. For a fully symmetrical look, use integers like 3, 4, 5, and so on.

Rotate
Rotates the whole pattern about the Center by this many degrees.

Rotate Kaleido
Rotates the kaleidoscope itself without rotating the image under or inside it.

Rotate Inside
Rotates the image under the kaleidoscope about the Center, much like rotating the object box at the end of a traditional kaleidoscope.

Kaleido Amount
Adjusts the overall amount of distortion applied to the image. Set this to 0 to leave the image unchanged or to 1 for a normal kaleidoscope pattern.

Wrap
Determines the method for accessing outside the borders of the image. This is used only if the image inside the kaleidoscope is not contained within the shape of mirrors.

No
Creates black beyond the borders.

Tile
Repeats a copy of the image.

Filter
If enabled, the image is resampled using pixel averaging. This removes aliasing and gives a higher quality result, although it may not be necessary if your image is smooth with no sharp edges or high frequencies.
Show Center

Enables/disables the on-screen control for adjusting the Center parameter.
**Kelvin**

**Description**

Degrees Kelvin is the standard unit of measure for color temperature which is a way to characterize the spectral properties of a light source. Low color temperature implies warmer (redder) light, while high color temperature implies a colder (bluer) light. Presets for a number of different light sources and conditions are provided in degrees Kelvin.

![Before and After Comparison](Photo by Christiane Nuetzel on Unsplash)

**Category**

Color.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Color Temperature**

The Color Temperature of the image is determined by the difference of the Destination and Source Kelvin parameters. For instance, if your Source Kelvin is 3200 degrees Kelvin and you adjust the Destination Kelvin to 6500 degrees, your image would turn blue. This is the same as using tungsten indoor film meant to be used with lighting balanced for 3200 degrees Kelvin outside in daylight which is 6500 degrees Kelvin.
**Destination Kelvin**
Sets the destination color temperature of the image in degrees Kelvin.

**Source Kelvin**
Sets the source color temperature of the image in degrees Kelvin.

**Opacity**
Sets the opacity of the color temperature adjustment.

**Preserve Highlights**
Preserves the white areas of the image.

**Exposure Compensation**
Exposure Compensation adds back the brightness loss as a result of the color temperature application.

**Grad**
Kelvin can optionally use a gradient that limits where the filter is applied. Grad is the transition area between the colored portion and the original image. Its direction, corners and size can be adjusted. Go to the Grad section of Common Filter Controls to see how the Grad controls work.
**Key Light**

**Description**

Using Key Light, an image can be relit by with either a directional or point light. The result looks natural even though the relighting is done without computing any scene geometry.

![Before After](Photo by Samuel Zeller on Unsplash)

**Category**

Light.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Type**

**Parallel**

A directional light source.

**Point**

A point light where the light either emanates from or fades into a vanishing point. Move the point control in the center of the screen to change the Point light location.
**Strength**
Sets the strength of the light.

**Angle**
Used in conjunction with Parallel, Angle sets the direction of the light source.

**Invert**
Used in conjunction with Point, Invert determines whether the light source emanates from or fades into a vanishing point.
**S_LASERBEAM**

**Description**

Simulates the beam from a science fiction style laser blaster.

Before

After

Photo by Donald Giannatti on Unsplash

The S_LaserBeam filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Render.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Shift X & Y**

Moves the Start and Stop points shifting the whole beam to a different location. This parameter can be adjusted using the Shift Widget.

**Position**

Where the drawn beam segment should appear along the beam trajectory. At values between 0 and 1, the beam segment will appear along the beam trajectory.

**Note:** Nothing will be drawn at Position values of 0 or 1.
Length
Length of the drawn beam segment.

Width
Width of the drawn beam segment.

Core Color
Color at the center of the beam.

Edge Color
Color at the edge of the beam.

Color Balance
Adjusts the balance between the core and edge colors.

Brightness
Brightness of the beam.

Softness
Softness of the texturing in the beam.

Fade Back
Fades out the brightness of the back half of the beam. Setting this to 1 will fade to black at the very back of the beam. Higher values will fade out more quickly.

Fade Front
Fades out the brightness of the front half of the beam. Setting this to 1 will fade to black at the very front of the beam. Higher values will fade out more quickly.

Laser Shape
The shape of the drawn segment of the beam.

Smooth
The segment is drawn with a circular profile.

Spear
The segment is drawn as a symmetrical shape with sharpened ends.
**Forward**
The segment is drawn as an asymmetrical shape with the leading end wider than the trailing end.

**Backward**
The segment is drawn as an asymmetrical shape with the trailing end wider than the leading end.

**Perspective**
The strength of the perspective effect. At 0, there is no effect. Positive values move the bolt nearer to the target than it otherwise would be at a given beam position, while negative values move it nearer to the source.

**Breakup**
As this increases, the drawn beam segment become more and more ragged.

**Smooth**
Overall smoothing applied to the beam segment.

**Atmosphere**

**Atmosphere Amp**
Atmosphere gives the effect of the laser shining through a dusty atmosphere and picking up light or getting shadowed. This parameter adjusts the amount, or amplitude of the atmospheric effect. 0 gives a smooth beam while higher values give a more dusty look.

**Atmosphere Freq**
Controls the spatial frequency of the atmospheric noise. Turn this up higher to get finer details or turn down for broader overall variation.

**Atmosphere Detail**
Controls the amount of fine detail in the atmosphere simulation. Decrease to get smoother atmosphere or increase for a more crunchy, grainy look.
**Atmosphere Seed**
Used to initialize the random number generator for the atmospheric noise. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.

**Combine**
Determines how the beam image is combined with the background.

**Screen**
Blends the beam with the image which can help prevent overly bright results.

**Add**
Add the beam image to the image.

**Beam Only**
Shows the beam over a transparent black background.

**Show Start**
Enables/disables the on-screen control for adjusting the Start parameter.

**Show Stop**
Enables/disables the on-screen control for adjusting the Stop parameter.

**Show Shift**
Enables/disables the on-screen control for adjusting the Shift parameter.
**LENS DISTORTION**

**Description**

Lens Distortion corrects for pin-cushioning and barrel distortion of camera lenses. It is also useful for creating the look of a wide angle lens.

![Before After](Photo by Vincent Guth on Unsplash)

**Category**

Lens.

**Note:** Lens Distortion must be applied as the first layer (bottom of the layer stack) when multiple layers are used. Otherwise, all filters below will not be rendered.
Controls

**Distortion**
Pulls the corners of the image in or out. Negative values pull the corners of the image outward while positive values pull the corners of the image inward.

**Anamorphic Squeeze**
Anamorphic Squeeze corrects for the squeeze found in anamorphic motion picture lenses.

**Curvature X and Y**
Curvature X and Y correct for non-radial, asymmetric distortions found in anamorphic motion picture lenses.

*Note:* Anamorphic Squeeze and Curvature X and Y only work once the Distortion parameter has been moved.
**Center**

Determines the center point for the distortion. There is an on-screen control in the center of the image. By clicking and dragging the on-screen control, the Center can be adjusted.
**S_LENSFLARE**

**Description**

Renders a lens flare image over the image, aligning various flare elements between the hotspot and pivot locations.

![Before and After](image)

Photo by Andrey Grinkevich on Unsplash

The S_LensFlare filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Light.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Edit Lens**

Opens the Flare Designer where you can select Lens Flare presets and modify their elements.

See the Flare Designer for more information.

**Scale Widths**

Scales the sizes of all the flare elements. This parameter can be adjusted using the Scale Widths Widget.
Rel Heights
Scales the vertical dimension of all the flare elements, making them elliptical instead of circular. This can also be adjusted using the Scale Widths Widget.

Blur Flare
If positive, the flare image is blurred by this amount before being combined with the image.

Brightness
Scales the brightness of all the flare elements.

Color
Scales the color of all flare elements.

Gamma
Increasing gamma brightens the flare and especially boosts the darker elements.

Saturation
Scales the color saturation of the flare elements. Increase for more intense colors. Set to 0 for a monochrome lens flare.

Hue Shift
Shifts the hue of the flare in revolutions from red to green to blue to red.

Rays
Rays Brightness
Scales the brightness of the ray elements only.

Rays Rotate
Rotates the ray elements of the lens flare, if any, in counterclockwise degrees.

Rays Num Scale
Increases or decreases the number of rays.

Rays Length
Adjusts the length of the rays without changing their thickness or changing the size of the other flare elements.
Rays Thickness
Adjusts the thickness of the individual rays within the flare.

Hotspot
Hotspot Bright
Scales the brightness of the hotspot elements only.

Hotspot Color
Scales the color of the hotspot elements only.

Other
Other Brightness
Scales the brightness of all flare elements that are not at the hotspot location.

Other Color
Scales the color of all flare elements that are not at the hotspot location.

Other Width
Scales the width of all flare elements that are not at the hotspot location.

Atmosphere
Atmosphere Amp
Atmosphere gives the effect of the flare shining through a dusty atmosphere and picking up light or getting shadowed. This parameter adjusts the amount, or amplitude of the atmospheric effect. 0 creates a smoother flare while higher values provide a more dirty look.

Atmosphere Freq
Controls the spatial frequency of the atmospheric noise. Turn this up higher to get finer details or turn down for broader overall variation.

Atmosphere Detail
Controls the amount of fine detail in the atmosphere simulation. Decrease to get smoother atmosphere or increase for a more crunchy, grainy look.
Atmosphere Seed
Used to initialize the random number generator for the atmospheric noise. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.

Bg Brightness
Scales the brightness of the image before combining with the flare. If 0, the result will contain only the flare image over black.

Combine
Determines how the flare is combined with the image.

Screen
Performs a blend function which can help prevent overly bright results.

Add
Adds the flare to the image.

Flare Only
Renders only the flare with no background.

Tint Bg Whites
If this is enabled, the chroma of the flare is added only after the result is clamped to the maximum brightness. This allows the color of the flare image to still be visible even over bright white backgrounds. For the majority of images, there will be no observable difference.

Edge Triggers

Edge Width
Creates a trigger zone at the edge of the screen which affects the brightness and size of the flare. This parameter controls the width of the zone. Setting it to zero will disable Edge Triggers.
Edge Falloff

Controls the speed with which the intensity of the trigger decreases when moving away from the edge. A value of 1 results in a linear ramp. Values greater than one result in a steeper initial drop which gradually levels out. Values less than one result in a slope that starts gradually and gets steeper at the end.

Shift Out

Shifts the trigger zone outward from the edge of the screen, placing the peak off-screen. Negative values will shift the trigger zone inward toward the center of the image.

One Way

If this box is checked, the trigger will stay at maximum intensity when the Hotspot moves off-screen instead of ramping back down as it moves farther from the edge.

Edge Scale Brightness

Scales the Brightness by this amount when the trigger is at peak intensity. For example, a value of 3 will cause the flare to ramp up to 3 times its normal brightness as it passes through the trigger zone. If less than 1, the trigger will dim the flare instead of brightening it.

Edge Scale Widths

Scales the width of the flare by this amount when the trigger is at peak intensity. For example, a value of 3 will cause the flare to expand to 3 times its normal size as it passes through the trigger zone. If less than 1, the trigger will shrink the flare instead of growing it.

Show Edge Zones

Overlays the output with a grayscale image which shows the location intensity of the Edge Triggers.
Center Triggers

Center Radius
Creates a trigger zone centered on the Pivot which affects the brightness and size of the flare. This parameter controls the radius of the zone. Setting it to zero will disable Center Triggers.

Center Falloff
Controls the speed with which the intensity of the trigger decreases when moving away from the edge. A value of 1 results in a linear ramp. Values greater than one result in a steeper initial drop which gradually levels out. Values less than one result in a slope that starts gradually and gets steeper at the end.

Center Scale Brightness
Scales the Brightness by this amount when the trigger is at peak intensity. For example, a value of 3 will cause the flare to ramp up to 3 times its normal brightness as it passes through the trigger zone. If less than 1, the trigger will dim the flare instead of brightening it.

Center Scale Widths
Scales the width of the flare by this amount when the trigger is at peak intensity. For example, a value of 3 will cause the flare to expand to 3 times its normal size as it passes through the trigger zone. If less than 1, the trigger will shrink the flare instead of growing it.

Show Center Zone
Overlays the output with a grayscale image which shows the location intensity of the Center Trigger.

Show Scale Widths
Enables/disables the on-screen control for adjusting the Scale Widths and Rel Heights parameters.

Show Hotspot
Enables/disables the on-screen control for adjusting the Hotspot parameter.
Show Pivot

Enables/disables the on-screen control for adjusting the Pivot parameter.

Flare Designer

The Flare Designer lets you completely customize a lens flare. You can add or remove elements, copy them, customize how each element looks, and even how it reacts to the center or edge of the image. You can also interactively move the flare around to see how it will look as it moves.

All the windows of the Flare Designer are movable, so you can adjust the user interface itself to suit your work flow. The main windows are the Viewer, where you see the flare you’re working on, the Elements window which lists all the elements of the flare, and the Properties window, which lets you adjust the properties of the currently selected element or elements. There’s also a toolbar of element templates at the top.

Note: Clicking Edit Lens opens the Flare Designer.

Viewer

The Viewer displays the lens flare over the background or over black. Click and drag to move the flare around, adjust the gamma, or solo only selected elements. If you change the Preview Mode pop-up menu to Use Plug-in Settings, the Flare Designer imports the Lens Flare settings from Optics.
**Elements**

The Elements window shows you all the elements as thumbnails. If you hover over them, an overlay shows where they are in the Viewer. If you click on an element to select it, it flashes brighter in the Viewer to help you find it. Clicking Identify in the Properties window also flashes the element.

**Add Elements**

To add new elements, click an element template in the top toolbar. You can then rename the element, move it in the list by dragging and dropping, or hide it by unchecking the checkbox.

**Delete Elements**

To delete an element, select it and press **Delete**. There is full undo, so feel free to experiment.

**Duplicate Elements**

Duplicate an element using standard copy/paste operations. You can then adjust the copy’s parameters in the Properties window.

**Advanced Element Type**

The Advanced Element Type has a number of controls and is very customizable, but it’s recommended for advanced users only.

The standard element types get you most of the same looks with simpler parameters. Along with all the standard element types, you can import your own images to use as elements. Click the Add Texture icon to import an image file.

The image data will become part of the flare, so a reference to the original file is not needed.
To combine two flares into one, or add many elements at once, you can import another flare into your current flare. This will add all the other flare's elements to your current flare. You can also replace the current flare with a new one.

- To import and add to your flare, click the Insert button or File > Insert Lens.
- To import and replace, use the Load button or use File > Open Lens.

**Properties**

The Properties window is where you adjust all the details of a single element or multiple elements together. Use Shift-click or Ctrl/Cmd-click to select multiple elements.

**Numeric Fields**

Drag in the number field to increase or decrease the value. You can also click in the number field and type any value you want.

**Color Controls**

Color controls are just a swatch of color. Click to bring up a standard color picker.

**Gradient**

Some elements have a special gradient control.

The stops are below the color swatch. You can drag them left and right to move them. Drag down to delete. Click in the color gradient to add a stop. Ctrl/Cmd-drag to stretch neighboring colors and Shift-drag to push neighboring colors. The triangles above the color gradient allow you to control the interpolation of the colors between stops.

**Ring Thickness**

Ring Thickness lets you easily turn a spot or fan of rays into a ring. Turning Ring Thickness lower than 1 hollows out the center. This lets you still have fine control of the colors within the ring even if it's very thin.
**Common Parameters**

Different element types will have various parameters you can adjust, but you will find common ones below.

**Position**

The Position is where the element occurs along the line between the hotspot and pivot point. Position 1 is at the hotspot while 0 is at the pivot. Note that you don't have to stay in that range. You can use any value you like. Bigger than 1 will be past the hotspot, and less than zero will look like a reflection because it's on the other side of the pivot point.

**Size**

How big the image is.

**Rel Width / Rel Height**

Use these to squash and stretch.

**Rotate**

Rotates the element in degrees.

**Reset**

There's a Reset icon to the right of each parameter group as well as at the bottom of the Properties window to reset the current element(s) to default settings.
Levels

Description

Levels is an image adjustment tool which can move and stretch the brightness levels of an image histogram. It has the power to adjust brightness, contrast, and tonal range by specifying the location of complete black, complete white, and midtones in a histogram.

Before After

Photo by Mohamed Nohassi on Unsplash

Category

Color.
Since every photo's histogram is unique, there is no single way to adjust the levels for all your photos. A proper understanding of how to adjust the levels of an image histogram will help you better represent tones in the final image.

**Input Levels**

The outer two Input Levels sliders map the black point and white point to the settings of the Output sliders. By default, the Output sliders are at level 0, where the pixels are black, and level 100, where the pixels are white. With the Output sliders in the default positions, moving the black Input slider maps the pixel value to level 0 and moving the white Input slider maps the pixel value to level 100. The remaining levels are redistributed between levels 0 and 100. This redistribution increases the tonal range of the image, in effect increasing the overall contrast of the image.

**Note:** When shadows are clipped, the pixels are black, with no detail. When highlights are clipped, the pixels are white, with no detail.

The middle Input slider adjusts the gamma in the image. It moves the midtone and changes the intensity values of the middle range of gray tones without dramatically altering the highlights and shadows.
Output Levels

The Output Levels decrease the contrast of the image.
**LIGHT**

Description

Light can be added to a scene where none existed before just as if you were adding light at the time of shooting. Realistic lighting and shadow is introduced using digital versions of lighting gobos.

Gobos (patterns) are widely used by designers in theatre, film, photography and television to create atmosphere, project scenery, and generally enhance the visual impact of their lighting. Normally used in front of lights during photography, these same exact gobos can be applied digitally to the entire image or inside a matte.

Category

Light.
Presets

To select a gobo, pick one from the Presets window. If you would like to view gobos from a different category, use the pop-up menu at the top left of the Presets window.

Light

Blend

Determines the blend mode to be used to add the light.

Add

The light is added to your image.

Screen

The light is combined with the image using a Screen blend mode. This looks kind of like the Add blend mode, but highlights are retained.

Subtract

The light is subtracted from your image creating shadow instead of light.
**Brightness**
Sets the intensity of the light.

**Displacement**
Displaces the gobo by the luminance values of the image. This “fakes” the effect of light wrapping over objects in the image.

Displaced Gobo

**Blur**
Sets the softness of the light.

**Gels**
Photographers, cinematographers and lighting designers use colored filters or gels in front of lights. Whatever mood you wish to create, we have the colors needed to achieve the effect. Select one of the Gels presets from the pop-up menu.

**Color**
Sets the color of the light through the use of a standard color picker.
Shadow

**Brightness**

Sets the intensity of the shadows. The Brightness parameter will darken only those areas that are not being affected by the Light settings.

Gobos

The gobos are organized into various categories including: Abstract, Doors, Elements, Foliage, Snowflakes, Textures and Windows groups.

Gobo

Clicking the Gobo > Browse button allows you to load your own image as the light source.

**To use your own image as a light source:**

- Select Gobo > Gobo > Browse.
- When the file browser opens, navigate to your image and select it.
**Blend**

The gobo can be added to a matte using a variety of Blend modes. Go to Blend Modes for explanations of the various modes.

I like the Multiply blend mode for combining gobos with the matte because it only puts the gobo within the areas of the matte.

![Blend Modes](image)

- **Opacity**
  - Sets the opacity of the gobo.

- **Blur**
  - Sets the softness of the gobo.

- **Transform**
  - Transform your gobo using Position, Scale, Rotate, Corner-Pin, Shear and Crop controls. Go to the Transform section of Common Filter Controls to see how the Transform Controls work.
Matte

A matte can be used to create areas of light or limit where gobos will be added. Wherever there is white in the matte is where the light will be added. When using the Light and Gobo filters, it is usually helpful to blur the matte. Go to the Matte parameters to see how they work.

**Note:** To use a matte to create light, Gobo > Blend must be set to something other than Gobo Only for the Matte controls to be active.
**S_LightLeak**

**Description**

Renders abstract patterns of color that simulate light leaking through gaps in a camera body. The light leak consists of three distinct elements which can be adjusted individually.

The S_LightLeak filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Light.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Scale Lights**

Scales the light leak by this value. Increase for a brighter result.

**Offset Darks**

Adds this gray value to the darker regions of the result. This can be negative to increase contrast.
**Color**

The overall color of the light leak.

**Hue Shift**

Shifts the hue of the light leak in revolutions from red to green to blue to red.

**Saturation**

Scales the color saturation of the light leak. Increase for more intense colors. Set to 0 for a monochrome light leak.

**Gamma**

Increasing Gamma brightens the light leak and especially boosts the darker areas.

**Shift X & Y**

Shifts the position of all elements.

**Seed**

Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.

**Bg Brightness**

Scales the brightness of the image before combining it with the light leak. If 0, the result will contain only the light leak image over black.

**Combine**

Determines how the light leak is combined with the image.

**Screen**

The light leak is blended with the image using a function that helps prevent overly bright results.

**Add**

The light leak is added to the image.

**Leaks Only**

The light leak is shown on its own with no background.
Glow

Glow Brightness
Scales the brightness of the glow which is applied to the entire image after combining the light leak with the background.

Glow Width
The width of the glow. Increase for a softer glow and decrease for a sharper, brighter glow.

Glow Threshold
Parts of the image that are brighter than this value get glowed.

Element1-3 Enable
Turns these elements on and off.

Element1-3

Size1-3
Adjusts the size. This parameter can be adjusted using the Size Widget.

Rel Height1-3
Scales the vertical dimension making it elliptical instead of circular.

Brightness1-3
Scales the brightness.

Angle1-3
The angle of this element's path across the screen. The element moves along a line at this angle, passing through the center position at the midpoint of the image. This parameter can be adjusted using the Angle Widget.

Outer Color1-3
The color at the outer edge.

Mid Color1-3
The color at the midpoint, between the Outer and Center Colors. The exact location depends on the Midpoint parameter.
Center Color1-3
The color at the center.

Midpoint1-3
Moves the location of the Mid Color between the center and outer edge of the element. Set to 0 to place the Mid Color at the center, or 1 to place it at the edge.

Softness1-3
Blurs the color gradient. Increase for a smoother gradient or decrease for sharper bands of color.

Noise Amp1-3
The amount of noise applied.

Noise Freq1-3
The frequency of the noise applied. Increase for smaller blobs or decrease for larger ones.

Noise Freq Rel Y1-3
The relative vertical frequency of the noise pattern. Increase to flatten the noise or decrease to stretch it out vertically.

Noise Detail1-3
Controls the amount of fine detail in the noise simulation. Decrease to get smoother noise or increase for a more crunchy, grainy look.
**Looks**

**Description**

Looks is a unique filter meant to simulate a variety of color and black and white photographic/film looks, diffusion and color grad camera filters, lighting gels, film stocks and optical lab processes. By selecting from the available presets, parameters in the various modules are automatically set to achieve a variety of different effects.

![Before After](Photo by Mickey O'neil on Unsplash)

**Category**

Film Lab.

**Controls**

The Looks filters are made up of Color Correct, Diffusion, Color Gradient, Gels, Lab, Grain and Post Color Correct groups. Together, they simulate a variety of photographic and film looks. By selecting from the available presets, parameters in the various groups are automatically set to achieve a variety of different effects.
Presets
To select a preset, pick one from the Presets window. If you would like to view presets from a different category, use the pop-up menu at the top left of the Presets window.

Color Correct
Color Correct manipulates the Black and White, Hue, Saturation, Brightness, Contrast, Gamma, Red, Green and Blue values of the image. Go to the Color Correct filter to see how it works.

Diffusion
Diffusion creates atmosphere by reducing contrast while creating a glow around highlights or shadows. It simulates diffusion and fog filters as well as glows. Go to the Diffusion section of the Film Stocks filter to see how it works.

Color Gradient
Color Gradient colors and or darkens only a portion of the image giving you the ability to simulate any Color Gradient filter. Presets for your favorite color gradient filters are provided as well as the ability to create custom colors. There is a graduated transition for a smooth color blend between the colored/darkened portion and the original image. Color Gradient is especially useful for changing and enhancing the color of the sky. Go to the Color Gradient filter to see how it works.

Gels
Photographers, cinematographers and lighting designers use colored filters or gels in front of lights. Whatever mood you wish to create, we have the colors needed to achieve the effect. Go to the Gels filter to see how it works.

Lab
The Lab group simulates a variety of different optical lab processes including Bleach Bypass, Cross Processing, Flashing and Overexposure. Go to the Bleach Bypass filter, Cross Processing filter, Flashing and the Overexpose filter to see how they work.
Grain

Grain simulates film grain with individual control of red, green, and blue grain size, softness and intensity. In addition, a Film Response parameter controls where you will see grain in the image. Go to the Grain filter to see how it works.

Post Color Correct

Post Color Correct gives you further color correction after all other operations have been processed. This is often helpful as some of the operations affect the brightness, contrast and color of the image. In addition, Temperature controls allow you to make the scene warmer or cooler, and cyan or magenta. Go to the Color Correct filter to see how it works.


**LOW CONTRAST**

**Description**

Low Contrast spreads highlights into darker areas, lowers contrast and keeps bright areas bright.

![Before and After](https://unsplash.com/photos/MY5oAwJLc7U)

**Category**

Color.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Contrast**

**Light Brightness**

Sets the intensity of the light that is spread into darker areas.

**Light Spread**

Sets how far light is spread from bright areas to darker areas.
Shadow Brightness
Adjusts the brightness of the shadow areas.

Matte
A matte is used to create the light spread effect. Go to the Matte section of Common Filter Controls to see how the Matte controls work.
**S_LUNA**

**Description**
Renders the Earth's Moon. You can adjust phase, color, and add atmospheric effects.

**Category**
Render.

**Controls**

**Presets**
To select a preset, pick one from the Presets window.

**Mode**
Selects how the moon's phase is chosen. You can adjust it directly in Luna mode, or select LunaDate mode to choose a date and time and the effect will use the proper phase for that date.

**Luna**
Select this mode to adjust the moon phase manually.

Photo by Noah Silliman on Unsplash

The S_Luna filter comes from the Emmy award winning Boris FX Sapphire filter set.
**LunaDate**

Select this mode to have the effect compute the phase from the given date and time.

**Size**

Size of the moon. This parameter can be adjusted using the Size Widget.

**Lunar Phase**

Phase of the moon in degrees; 0 is new, 90 is first quarter, 180 is full, and 270 is last quarter. Only available in Luna mode.

**Note:** The Year, Month, Day, Hour, Minute, and GMT Offset parameters are only available in LunaDate mode.

**Year**

Year to use when computing the phase.

**Month**

Month to use when computing the phase.

**Day**

Day to use when computing the phase.

**Hour**

Hour to use when computing the phase.

**Minute**

Minute to use when computing the phase.

**GMT Offset**

GMT offset to use when computing the phase. For instance, −5 is Eastern Standard Time while −8 is Pacific Standard Time.

**Rotation**

Rotation of the moon image in degrees.
Bumpiness

The moon has craters that catch and reflect light. This parameter can be used to adjust how bumpy those craters look. 0 is completely smooth, 1 is very rough, and .3 is physically realistic on a clear night.

Contrast

Adjusts the contrast of the moon. Values toward 0 brighten the dark areas.

Brightness

Scales the brightness of the result.

Color

Scales the color of the result. For example, if it is yellow [1 1 0], the blue of the result will be 0.

Earth Glow

Adds earth-glow which you often see near sunset when the moon is crescent. The sun's light reflects off the earth and some of that reflected light illuminates even the dark part of the moon. This gives an especially nice look during a lunar eclipse.

Gamma

Sets the overall gamma of the moon image. Good for reducing contrast in a different way from the contrast parameter.

Sky Color

If you want to make a complete sky image with the moon and a colored sky, you can put the moon in a blue sky by setting Sky Color to blue. This will also tint the moon toward the sky color.

Glow

Glow Brightness

Adds some glow to the moon. You can see this often in real life when there's some haze or light clouds.
Threshold
Threshold for the glow. Only parts of the moon brighter than this threshold will glow.

Glow Size
Size of the moon glow. Larger values create a more diffuse glow.

Halo

Halo Brightness
With certain kinds of high, diffuse clouds, you can sometimes see a subtle rainbow halo around the moon. Increase this parameter to see that halo.

Halo Rel Size
Sets the size of the halo relative to the moon. A value of 1 would be the same size as the moon while 2 is twice as large.

Color Fringing
Increases or decreases the amount of color fringing in the moon halo. Fringing separates the colors into a rainbow.

Inner Softness
Sets the softness or spread of the inside of the halo closest to the moon.

Outer Softness
Sets the softness or spread of the outside of the halo farthest from the moon.

Halo Saturation
Sets the overall saturation of the moon halo. Increase for a more graphic look.

Halo Tint
Tints the halo toward this color.

Atmosphere

Atmosphere Amp
The Atmosphere parameters add a little noise to the glow and halo for a more realistic look. Atmosphere Amp controls the amount of atmospheric noise.
**Atmosphere Freq**
Controls the frequency of the atmospheric noise.

**Atmosphere Turbulence**
Controls the turbulence (amount of detail) in the atmospheric noise.

**Atmosphere Seed**
Sets the seed of the atmospheric noise.

**Combine**
Combines the moon with the image using various blend modes.

**Moon Only**
Renders only the moon including its glow and halo.

**Overlay**
Uses an Overlay blend mode to composite the moon over the image.

**Add**
Adds the moon to the background.

**Screen**
Screens the moon with the background. Nice for daytime shots.

**Max**
Where the moon is brighter than the background, show it. This can be useful for daytime shots with clouds. Where the clouds are brighter than the moon, they'll obscure it.

**Transparent Shadow**
Composite only the lit part of the moon over the background leaving the dark part transparent. This is not physically realistic, since the dark part of the moon obscures the sky and stars behind it, but it can be used for graphic effect.

**Bg Brightness**
Scales the brightness of the image before combining with the moon. If 0, the result will contain only the moon over black.
Show Size
   Enables/disables the on-screen control for adjusting the Center parameter.

Show Center
   Enables/disables the on-screen control for adjusting the Center parameter.
**MATCH**

**Description**

Matches the brightness and color from one image and applies it to another.

**Category**

Color.

**Controls**

**Source**

Selects a source image to be matched. Click the Browse button to select an image.

**Brightness**

Sets the amount of the brightness match.

**Color**

Sets the amount of the color match.
**Matching Clips:**

1. **Apply the Match filter to a target image.**

2. **Select the source image to be matched with the Source selector.**
   
   The color and brightness of the source image are analyzed and applied to your target image.

3. **Adjust the Color and Brightness parameters to your liking.**
MIST

Description

**Mist**

Creates atmosphere by reducing contrast while creating a glow around highlights.

**Before**

![Before Image](Photo by Christopher Campbell on Unsplash)

**After**

![After Image](Photo by Christopher Campbell on Unsplash)

**Warm Mist**

Same as Mist but combined with a warming filter.

**Before**

![Before Image](Photo by Christopher Campbell on Unsplash)

**After**

![After Image](Photo by Christopher Campbell on Unsplash)
**Cool Mist**

Same as Mist but combined with a cooling filter.

![Before After](https://unsplash.com/photos/1234567890)

Photo by Christopher Campbell on Unsplash

**Black Mist**

A more subtle version of Mist, the Black Mist filter creates atmosphere by reducing contrast, but with minimal glow around highlights.

![Before After](https://unsplash.com/photos/0987654321)

Photo by Christopher Campbell on Unsplash
Warm Black Mist

Same as Black Mist but combined with a warming filter.

Category

Diffusion/Blurs.

Controls

Presets

To select a preset, pick one from the Presets window.

Mist

The Mist controls add a mild glow to image highlights.

Blend

Determines the blend mode to be used to create the glow effect.

Add

The glow is added to your image.

Screen

The glow is combined with the image using a Screen blend mode. This looks kind of like the Add blend mode, but highlights are retained.

Brightness

Sets the intensity of the glow.
Blur
Sets the softness of the glow.

Color
Sets the color of the glow.

Color Correct
Go to the Color Correct filter to see how the Color Correct controls work.

Matte
A matte is used to create the mist effect. Go to the Matte section of Common Filter Controls to see how the Matte controls work.
**S_MuzzlEFlash**

**Description**

Simulates the flash and smoke that is generated when a gun is fired. The flash from several types of guns can be simulated. All guns have a primary flash and guns with suppressors may have secondary flashes.

The S_MuzzleFlash filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Render.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Flash**

**Elevation**

The angle of the gun barrel in the vertical plane relative to horizontal. This parameter can be adjusted using the MuzzleFlash Widget.
Rotation
The angle of the gun barrel in the horizontal plane relative to due east. This parameter can be adjusted using the MuzzleFlash Widget.

Radius
The overall size of the gun blast. This parameter can be adjusted using the MuzzleFlash Widget.

Brightness
The overall brightness of the flash.

Shift Out
The muzzle flash will be drawn this far from the end of the gun barrel.

Gun
The type of gun being fired.

AK47
AK47 assault rifle.

Beretta
Beretta pistol.

Colt45
Colt 45 revolver.

M16
M16 assault rifle.

12Gauge
Shotgun.

Variant
Variations on the muzzle flash pattern.

One
First variation.
Two
Second variation.

Three
Third variation.

Random
Randomly pick one of the variations each time a shot is fired.

Seed
Random number seed. Many aspects of the muzzle flash appearance depend on the seed. To get a different result for a given set of control values, try changing this seed value.

Octaves
Increasing this increases the detail in the smoke.

Blur
How much blur is to be applied to the muzzle flash.

Mid Density
How dense the muzzle flash should be at half its radius.

Mid Color
The color of the muzzle flash at half its radius.

Combine
Determines how the muzzle flash is combined with the image.

Screen
The muzzle flash is blended with the image using a Screen operation.

Add
The muzzle flash is added to the image.

MuzzleFlash Only
Renders only the muzzle flash.
Primary

Primary Length
Length of the primary flash. This is always aligned with the gun barrel and is present in all guns.

Primary Width
Width of the primary flash.

Primary Brightness
Overall density and brightness of the primary flash.

Primary Puff
How puffy (as opposed to smooth) the primary flash should appear.

Primary Detail
How much detail should appear in the primary flash.

Secondaries

Secondary Number
The amount of secondary flashes that should be generated for those guns that have secondary flashes. These flashes appear from holes in the suppressor and only guns with suppressors have them. The flashes appear at an angle in the vertical plane with respect to the gun barrel direction. This control specifies how many holes there are in the suppressor. The holes are assumed to be evenly distributed around the circumference of the suppressor.

Secondary Angle
The angle the secondary flashes make in the vertical plane with respect to the gun barrel.

Secondary Length
The length of the secondary flashes.

Secondary Width
The width of the secondary flashes.
Secondary Brightness
The overall density and brightness of the secondary flashes.

Secondary Puff
How puffy (as opposed to smooth) the secondary flashes should appear.

Secondary Detail
How much detail should appear in the secondary flashes.

Glow
Glow Color
The color of an overall glow around the bright parts of the muzzle flash.

Glow Bright
The brightness of an overall glow around the muzzle flash.

Glow Width
The size of an overall glow around the muzzle flash.

Glow Threshold
Muzzle flash intensities above this threshold will glow.

Show MuzzleFlash
Enables/disables the on-screen control for adjusting the Location parameter.
ND GRADIENT

Description

ND (Neutral Density) Gradient darkens only a portion of the image using a graduated transition between the darkened portion and the original image. It selectively adjusts brightness without affecting color balance. The most likely use for ND Gradient would be to balance the difference between the sky and ground in a landscape.

Category

Grads/Tints.

Controls

Presets

To select a preset, pick one from the Presets window.

F-Stop

Presets

Select one of the ND Gradient presets from the pop-up menu.

Exposure

Darkens the image using F-Stops as the unit of measure.

Photo by Sam Ferrara on Unsplash
Preserve Highlights

Preserves the white areas of the image.

Grad

Grad is the transition area between the darkened portion and the original image. Its direction, corners and size can be adjusted. Go to the Grad section of Common Filter Controls to see how the Grad controls work.
Net

Description

Net
Softens and minimizes facial imperfections while retaining image clarity. Great for portraits and people photography.

Warm Net
Combines all of the benefits of Net with a warming filter.

Category
Diffusion/Blurs.
Presets
To select a preset, pick one from the Presets window. If you would like to view presets from a different category, use the pop-up menu at the top left of the Presets window.

Blur
Sets the softness of the image.

Opacity
Sets the amount of diffusion mixed into the original image. The higher the setting, the more the image is blurred.

Color Correct
Go to the Color Correct filter to see how the Color Correct controls work.
**S_NIGHTSKY**

**Description**
Generates a realistic starry night sky as viewed from a major city or a specified longitude and latitude. The stars are generated using a star database so that major constellations are visible where expected.

Before ![Before Image](image1.jpg)  After ![After Image](image2.jpg)

The S_NightSky filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**
Render.

**Controls**

**Presets**
To select a preset, pick one from the Presets window.

**Mode**
Controls how the location is determined.

**Night Sky**
Location is set by adjusting Latitude, Longitude, and GMT Offset parameters.

**Night Sky Locations**
Location is set by choosing a city from the Location list.
**Latitude**
Latitude for specifying the location of the camera.

**Longitude**
Longitude for specifying location of the camera.

**GMT Offset**
Number of hours the specified time is offset from Coordinated Universal Time (UTC) or Greenwich Mean Time (GMT).

**Location**
Specifies which city to use to determine position on the Earth's surface. Available cities are scattered around each of the continents.

**Note:** The Location parameter is only visible in Night Sky Locations mode.

**Anchorage**
Anchorage, Alaska, United States, North America.

**Astana**
Astana, Kazakhstan, Asia.

**Beijing**
Beijing, China, Asia.

**Boston**
Boston, Massachusetts, United States, North America.

**Cairo**
Cairo, Egypt, Africa.

**Caracas**
Caracas, Venezuela, South America.

**Chicago**
Chicago, Illinois, United States, North America.

**Hong Kong**
Hong Kong, China, Asia.
Istanbul
Istanbul, Turkey, Asia/Europe.

Johannesburg
Johannesburg, South Africa, Africa.

Lagos
Lagos, Nigeria, Africa.

Lima
Lima, Peru, South America.

London
Longon, England, Europe.

Los Angeles
Los Angeles, California, United States, North America.

Madrid
Madrid, Spain, Europe.

Mexico City
Mexico City, Mexico, North America.

Moscow
Moscow, Russia, Europe.

Mumbai
Mumbai, India, Asia.

Nairobi
Nairobi, Kenya, Africa.

New York City
New York City, New York, United States, North America.

Nuuk
Nuuk, Greenland, North America.
Perth
Perth, Australia, Australia.

Punta Arenas
Punta Arenas, Chile, South America.

Rio de Janeiro
Rio de Janeiro, Brazil, South America.

Central Siberia
Siberia, Russia, Europe.

Stockholm
Stockholm, Sweden, Europe.

Sydney
Sydney, Australia, Australia.

Tokyo
Tokyo, Japan, Asia.

Vancouver
Vancouver, Canada, North America.

Yellowknife
Yellowknife, Canada, North America.

Warsaw
Warsaw, Poland, Europe.

Star Size
The size of stars in pixels.

Star Brightness
The overall brightness of the stars.
**Altitude**

Camera rotation up and down. An altitude of 0 points out towards the horizon. 90 degrees points straight up. 180 looks backwards and upside down.

**Azimuth**

Camera rotation left and right. An azimuth of zero points North and positive values rotate East (right).

**Field Of View**

Camera field of view.

**Time**

**Year**

Which year to use to look up star locations.

**Month**

Which month to use to look up star locations.

**Day**

Which day of the month to use to look up star locations.

**Hour**

The hour of the day to use to look up star locations. This should be specified in military (24 hour) format.

**Minute**

The minute to use to look up star locations. Animate this parameter if you want to animate the stars over a period of real world time.

**Magnitude Limit**

This controls which stars are currently visible based on their apparent magnitude.

Brighter stars have smaller magnitudes and dimmer stars have larger magnitudes, opposite from what you might think. The brightest stars in the sky have magnitude 0 or even −1. With the naked eye you can see stars up to magnitude 5 or 6, but a backyard telescope can see much fainter stars, up to 12 or more.
The larger Magnitude Limit, the more stars visible on screen. Increasing this parameter will add stars dimmer than the currently visible ones.

**Vary Size By Mag**
Make brighter stars larger and dimmer stars smaller so that brighter stars appear brighter and smaller stars appear dimmer. A value of 0 will make all stars the same size, while a value of 1 will approximate the apparent size differences naturally occurring in the sky. Magnitude 0 stars will remain the same size regardless of the value of this parameter. Negative magnitude stars (very bright stars) will grow with an increased parameter value. Positive magnitude stars (dim stars) will shrink with an increased parameter value.

**Star Saturation**
Scales the color saturation of the star. Set to 0 for all white stars. Increase for more intense colors.

**Glare**

**Glare Brightness**
The overall brightness of the glares.

**Glare Size**
Scales the size of the glares.

**Rel Height**
Scales the vertical dimension of the glares making them elliptical instead of circular.

**Glare Color**
Scales the color of the glares.

**Glare Rotate**
Rotates the ray elements of the glares, if any, in degrees.

**Rays Length**
Adjusts the length of the rays without changing their thickness.
Glare Star Mag
Specify which stars should be glazed based on magnitude. Stars brighter than this (i.e. lower magnitude) will get glares.

Streaks

Streak Length
Length of streaks or rays radiating out from the brightest stars.

Streak Brightness
Brightness of streaks radiating out from the brightest stars.

Streak Number
Number of streaks radiating out from the brightest stars.

Streak Rotation
Rotation of the streaks emanating from the stars. A 0 value means that the first streak will be vertical from the star if Streak Symmetry is set to 1.

Streak Symmetry
How symmetrically the rays are drawn. This affects both spacing and length.

Streak Star Mag
Specify which stars should have streaks based on magnitude. Stars brighter than this (i.e. lower magnitude) will get streaks.

Bg Brightness
Scales the brightness of the image.

Combine
Determines how the stars are combined with the image.

Stars Only
Renders only the stars.

Mult
The stars are multiplied by the image.
Add
The stars are added to the image.

Screen
The stars are blended with the image using a Screen operation.

Difference
The result is the difference between the stars and image.

Overlay
The stars are combined with the image using an Overlay function.

Seed
Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.
**NIGHT VISION**

**Description**

The Night Vision filter creates the effect of a Night Vision lens--that green, glowy, grainy look.

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Black and White**

Selects the type of black and white filter to be applied to your color image. Go to the Black and White section of Common Filter Controls to see how the Black and White controls work.

**Tint**

**Color**

Sets the color that the image will be tinted with. The color is preset to a night vision green, but feel free change it by using the color picker.

Photo by Thomas Shellberg on Unsplash
Opacity
Sets the opacity of the tint color.

Glow

Blend
Determines the blend mode to be used to create the glow effect.

Add
The glow is added to your image.

Screen
The glow is combined with the image using a Screen blend mode. This looks kind of like the Add blend mode, but highlights are retained.

Brightness
Sets the intensity of the glow.

Blur
Sets the softness of the glow.

Additional Controls

Grain

Grain Size
Controls the size of the grain.

Grain Amount
Controls the intensity of the grain.

Color Correct
Go to the Color Correct filter to see how the Color Correct controls work.

Matte
A matte is used to create the glow effect. Go to the Matte section of Common Filter Controls to see how the Matte controls work.
OVEREXPOSE

Description

Overexpose simulates the overexposure that occurs when a film camera is stopped.

Before

After

Photo by Mads Schmidt on Unsplash

Category

Light.

Controls

Presets

To select a preset, pick one from the Presets window.

Amount

Controls the amount of overexposure.

Intensity

Sets the intensity of the overexposure.
Blur

Sets the softness of the overexposure.
Description

Ozone allows you to manipulate the color of an image with incredible flexibility and accuracy.

Before

After

Photo by Annie Spratt on Unsplash

Inspired by Ansel Adams’ Zone System for still photography, we have created “The Digital Zone System”. Just what is the Digital Zone System? The world around us contains an infinite palette of colors, tones and brightness. To reproduce this vast range of brightness, the Digital Zone System takes the spectrum of image values and divides them into 11 discrete zones using proprietary image slicing algorithms.

Zones can be created using luminance, hue, saturation, average, red, green, blue, cyan, magenta, and yellow values. Look at how the image below is divided into hue zones.
With Ozone, the color values of each zone can be independently adjusted until you’ve painted a new picture. Your adjustments occur on a zone by zone basis, but you view the result of all color corrections simultaneously.

**Category**
Color.

**Controls**

**Zone**
Selects one of the 11 zones. Once you click in the Zone selector, you can use the left and right arrow keys to cycle through the zones.

**Extract On**
The Extract On pop-up menu allows you to specify the image values to be used for dividing the image into the 11 individual zones.

- **Luminance**
  Zones are created using the image’s luminance values.

- **Hue**
  Zones are created using the image’s hue. When adjusting the Position parameter, you are selecting different hues.

- **Saturation**
  Zones are created using the image’s saturation values.

- **Average**
  Zones are created based on the average of the image’s RGB values.

- **Red**
  Zones are created using the image’s red values.

- **Green**
  Zones are created using the image’s green values.

- **Blue**
  Zones are created using the image’s blue values.
Cyan
Zones are created using the image’s cyan values.

Magenta
Zones are created using the image’s magenta values.

Yellow
Zones are created using the image’s yellow values.

Zone Controls

When using Luminance as the method for slicing up the image, the Position and Range sliders are preset so that each zone is twice as bright as the previous zone, proceeding from black towards white.

Pure black is defined as Zone 0, Zone 5 as middle gray and pure white as Zone 10. By using the View menu, you can look at the zone which is helpful in determining the portions of the image you are going to adjust. The values shown as white in the selected zone are the areas of the image that will be modified by the color adjustments. Alternatively, at the bottom of the Parameter window is a small image thumbnail of the selected zone.

Position
The Position value pinpoints the color values to be used in the selected zone. This value has been preset according to the Digital Zone System, but can be changed if you choose. If the zones are created using Luminance, a high Position value shows the brightest image values as white values in the zone. A low Position value shows the darkest image values as white values in the zone.

Range
The Range value increases or decreases the range of values in the selected zone. This value has been preset according to the Digital Zone System, but can be changed if you want.
Go to the **Matte** section of Common Filter Controls to see how the Position and Range controls work.

**Hue**
Rotates the hue of the zone.

**Saturation**
Adjusts the saturation of the zone. Positive values saturate, negative values desaturate.

**Brightness**
Adjusts the brightness of the zone. Positive values brighten, negative values darken.

**Contrast**
Adjusts the contrast of the zone. Positive values increase contrast, negative values decrease contrast.

**Gamma**
Adjusts the gamma of the zone. The gamma adjustment leaves the white and black points the same and only modifies the values in-between. Positive values lighten the midtones, negative values darken the midtones.

**Red**
Adds or subtracts red from the zone.

**Green**
Adds or subtracts green from the zone.

**Blue**
Adds or subtracts blue from the zone.

**Temperature**
Sets the color temperature of the zone. Dragging the slider to the right makes the image cooler (bluer) and dragging the slider to the left makes the image warmer (redder).
**Cyan/Magenta**

Adds either Cyan or Magenta to the zone. Dragging the slider to the right makes the image more magenta and dragging the slider to the left makes the image more cyan.

**Zone Thumbnail**

At the bottom of the Parameter window is a thumbnail of the selected zone to help you see which areas of the image will be adjusted.
**Paint**

**Description**

Paints your image using Black/White, Blur, Clone, Color, Eraser, Mosaic, Red-Eye, Repair and Scatter brushes.

Before

![Moon image before](Photo by Katie Hetland on Unsplash)

After

**Category**

Image.

**Brushes**

When Paint is selected in the Filter window, its controls appear in the Toolbar.

**Black/White (B)**

The Black/White brush converts color images to black and white simulating the look of Black and White photographic filters.

**Mode**

Selects the method by which the color image is converted to a monochrome image.

**Luminance**

Creates a monochrome image using the brightness of the image.
Average
Creates a monochrome image using the average of the red, green and blue channels.

Red
Simulates a red filter in black and white photography.

Green
Simulates a green filter in black and white photography.

Blue
Simulates a blue filter in black and white photography.

Yellow
Simulates a yellow filter in black and white photography.

Orange
Simulates an orange filter in black and white photography.

Blur (Shift+B)
Blurs the image.

Amount
Sets the amount of blur to be applied.

Clone (C)
Paints the image using another part of the image.

Using the Clone brush:
1 Select the Clone brush in the Toolbar.
2 Press and hold down the Shift key.
3 Click, drag and release to set the clone offset.
   The first click sets the clone source and where you drag and release is the clone destination.
4 Use your pen and tablet or mouse to paint with the Clone brush.

**To quickly reset the clone offset:**

- Press shift and without moving the cursor, click your mouse or tap your pen on the screen once.

The clone offset is quickly reset.

**Nudging the Clone Source**

The Clone source can be nudged using the *Arrow* keys. One press of the *Arrow* key moves the Clone source 1 pixel. Using the *Shift* key in conjunction with the *Arrow* keys moves the Clone source 10 pixels.

**Color (Shift+C)**

Paints the image with the current color.

**Color**

Displays the currently selected color. Clicking on the Color icon opens a standard color picker.

**Eyedropper**

Colors can be picked off of the screen using the eyedropper icon.

**Mode**

Selects how color is applied to the image.

**Normal**

The current color is added to the image.

**Tint**

The current color is used to tint the image by replacing hue and saturation.

**Hue**

The current color is used to tint the image by only replacing hue.
Lighten
Pixels darker than the paint color are replaced, and pixels lighter than the paint color do not change.

Darken
Pixels lighter than the paint color are replaced, and pixels darker than the paint color do not change.

Eraser (E)
Erases previously painted brush strokes.

Painting with the right-mouse button automatically paints with the Eraser brush.

Mosaic (Shift+M)
Divides the picture up into square tiles.

Size
Controls the size of the square tiles. A small size value will create many square tiles.

Red-Eye (R)
Removes red-eye.

To remove red-eye:
1 Select the Red-Eye brush in the Toolbar.
2 Use Ctrl(Win) or Cmd(Mac) and drag in or out to size the brush to roughly match the size of the red pupil.

3 Paint in the area of the red pupil being careful not to paint on any skin areas.

**Repair (Shift+R)**

Paints the image with the color level sampled at the beginning of each stroke.

**Scatter (S)**

Scatters pixels in a random fashion.

**Radius**

Sets the amount of scattering.

**Brush Settings**

Customize your brush using the following settings:
Profile
The profile setting controls the shape of the brush.

Circle
The brush profile is set to a circular shape.

Square
The brush profile is set to a square shape.

Size
Sets the size of the brush.

To set the brush size:
1. Click on the Brush Size icon, and drag the slider that appears.

or

2. Enter a value in the number field next to the Brush Size icon and hit Enter.

or

3. Resize the brush in the Viewer by holding Ctrl/Cmd and dragging in or out.
**Softness**
Sets the brush softness.

**To set the brush softness:**
1. Click on the Brush Softness icon, and drag the slider that appears.

   ![Softness Slider](image)

   or

2. Enter a value in the number field next to the Brush Softness icon and hit Enter.

**Opacity**
Sets the brush opacity.

**To set the brush opacity:**
1. Click on the Brush Opacity icon, and drag the slider that appears.

   ![Opacity Slider](image)
2. Enter a value in the number field next to the Brush Opacity icon and hit Enter.

## Paint Keyboard Shortcuts

<table>
<thead>
<tr>
<th>Shortcut</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Selects the Black/White brush</td>
</tr>
<tr>
<td>Shift+B</td>
<td>Selects the Blur brush</td>
</tr>
<tr>
<td>C</td>
<td>Selects the Clone brush</td>
</tr>
<tr>
<td>Shift+C</td>
<td>Selects the Color brush</td>
</tr>
<tr>
<td>E</td>
<td>Selects the Eraser brush</td>
</tr>
<tr>
<td>Shift+M</td>
<td>Selects the Mosaic brush</td>
</tr>
<tr>
<td>R</td>
<td>Selects the Red-Eye brush</td>
</tr>
<tr>
<td>Shift+R</td>
<td>Selects the Repair brush</td>
</tr>
<tr>
<td>S</td>
<td>Selects the Scatter brush</td>
</tr>
<tr>
<td>Ctrl/Cmd+drag</td>
<td>Sizes the brush</td>
</tr>
<tr>
<td>[ ]</td>
<td>Sizes the brush</td>
</tr>
<tr>
<td>Shift + with clone brush</td>
<td>Sets the clone offset</td>
</tr>
<tr>
<td>Shift+click or tap</td>
<td>Resets the clone offset</td>
</tr>
<tr>
<td>Arrow keys</td>
<td>Moves the Clone source by 1 pixel</td>
</tr>
<tr>
<td>Shift+Arrow keys</td>
<td>Moves the Clone source by 10 pixels</td>
</tr>
<tr>
<td>Hold down Arrow keys</td>
<td>Moves the Clone source continuously</td>
</tr>
<tr>
<td>Right-mouse drag</td>
<td>Paints with the Eraser brush</td>
</tr>
</tbody>
</table>
**S_PARALLAXSTRIPS**

**Description**

Applies a collection of 3d refracting glass strips to break up the image, while the image is shifted within each strip.

![Before After](Photo by Alex Simon on Unsplash)

The S_ParallaxStrips filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Manual Amount**

Controls the strength of the effect.

**Ensure Full Coverage**

Adjusts the number of strips to the minimum needed to fully cover the frame.

**N Strips**

Number of strips.
Size
Size of the strips.

Rel Height
Height of the strips relative to their width. Increase to make the strips taller.

Size Vary X & Y
Increase to make each strip randomly larger or smaller.

Angle
Angle of the strips with 0 being horizontal. The strips move along their angle, and also shift the image along the same angle.

Depth
Make the front most strips larger so it appears they're in front, simulating a 3d look.

Shift Amount
Sets how much the image shifts, or refracts, within each strip. Shifting is always along the major axis of the strip.

Shift Vary
Increase to make the amount of shift in each strip more random.

All Strips Shift X & Y
Move all strips around on the screen.

Z Dist
Zoom in or out on the image before applying the parallax strips.

Show
Show the effect result, or the strips themselves, which is useful during effect setup.

Result
Show the result of the effect.
Strips Over Source
Show each strip as a gray rectangle with brightness set by depth. Uncovered areas display the original image.

Strips Over Black
Show each strip as a gray rectangle with brightness set by depth. Uncovered areas display as black.

Wrap
Determines the method for accessing outside the borders of the image.

No
Produces black beyond the borders.

Tile
Repeats a copy of the image.

Reflect
Repeats a mirrored copy. Edges are often less visible with this method.

Seed
Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.
**PASTEL**

**Description**

Converts the image into pastel artwork.

**Category**

Stylize.

**Controls**

**Amount**

Adjusts the amount of the pastel effect.

**Detail**

Adjusts the detail. If the slider is increased, you will see more detail while decreasing the slider will have an overall smoothing effect.

Photo by Boris Smokrovic on Unsplash
**PENCIL**

**Description**

Pencil converts your image to a pencil sketch.

![Before After](Photo by Ludde Lorentz on Unsplash)

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Amount**

Sets the intensity of the pencil effect.

**Color**

The Color parameter sets the color of the pencil effect through the use of a standard color picker.

**Background**

Mixes in the original image.
PHOTOGRAPHIC

Description

The most complete line of Kodak® filters for photographic uses is available in the form of gelatin films and are known as Wratten® Gelatin Filters. Our Photographic filter is a digital equivalent of the Wratten set and were created using the spectral transmission curves for each optical filter. The Color Conversion, Light Balancing and Color Compensating preset groups are subsets of the Photographic filters.

Before  

After

Photo by Paul Morris on Unsplash

Photographic

Digital versions of the complete line of Kodak® Wratten® Gelatin Filters.

Color Conversion

Color Conversion filters correct for significant differences in color temperature between your light source and recording media.

Light Balancing

Light Balancing filters correct for minor differences in color temperature between your light source and recording media.

Color Compensating

Color Compensating filters control color by attenuating specific parts of the spectrum. They can be used to make changes in color balance or compensate for deficiencies in the image’s spectral quality.
Category
Grads/Tints.

Controls

Presets
To select a preset, pick one from the Presets window. If you would like to view presets from a different category, use the pop-up menu at the top left of the Presets window.

Color

Color
The Color parameter sets the color of the filter through the use of a standard color picker.

Opacity
Sets the opacity of the color filter.

Preserve Highlights
Preserves the white areas of the image.

Exposure Compensation
Exposure Compensation adds back the brightness loss as a result of the filter application.

Grad
These filters can optionally use a gradient that limits where the filter is applied. Grad is the transition area between the colored portion and the original image. Its direction, corners and size can be adjusted. Go to the Grad section of Common Filter Controls to see how the Grad controls work.
**Polarizer**

Description

**Polarizer**

The greatest use of polarizing filters is to achieve a darkened, deep blue sky. Our digital version of the Polarizer is designed to do just that. Through the use of a matte and an adjustable gradient, the color of the sky can be adjusted.

Before | After
---|---
![Photo by Takahiro Sakamoto on Unsplash](https://via.placeholder.com/150)

**Warm Polarizer**

Combines the benefits of the Polarizer with a warming filter making it ideal for portraits and scenics.

Before | After
---|---
![Photo by Takahiro Sakamoto on Unsplash](https://via.placeholder.com/150)
Category
Color.

Controls

Preset
To select a preset, pick one from the Presets window. If you would like to view
presets from a different category, use the pop-up menu at the top left of the
Presets window.

Sky
Color Correct controls are provided to adjust the sky.

Hue
Rotates the hue of the sky.

Saturation
Adjusts the saturation of the sky. Positive values saturate, negative values
desaturate.

Brightness
Adjusts the brightness of the sky. Positive values brighten, negative values
darken.

Contrast
Adjusts the contrast of the sky. Positive values increase contrast, negative
values decrease contrast.

Gamma
Adjusts the gamma of the sky. The gamma adjustment leaves the white and
black points the same and only modifies the values in-between. Positive values
lighten the midtones, negative values darken the midtones.

Red
Adds or subtracts red from the sky.
**Green**
Adds or subtracts green from the sky.

**Blue**
Adds or subtracts blue from the sky.

**Temperature**
Sets the color temperature of the sky. Dragging the slider to the right makes the sky cooler (bluer) and dragging the slider to the left makes the sky warmer (redder).

**Temperature**
Applies a warming filter to the image. Go to the Temperature section of Common Filter Controls to see how the Temperature controls work.

**Grad**
The Polarizer can optionally use a gradient that limits where the filter is applied. For instance, if the polarization is affecting areas other than the sky, enable the Grad and adjust it to limit the areas of polarization. Go to the Grad section of Common Filter Controls to see how the Grad controls work.

**Matte**

**Hue**
The Polarizer isolates the sky using a matte based on a blue hue. Use the Hue eyedropper to select the exact color of the sky if you are not seeing enough polarization.

**Range**
Increases or decreases the range of values in the hue matte. A low Range value indicates a narrow range of values. A high Range value indicates a large range of values included in the matte.

**Blur**
Sets the softness of the matte by using a quality blur.

Go to the Matte parameters to see how they work.
**S_PSEUDOCOLOR**

**Description**

Colorizes the image by calculating the hue from the brightness.

![Before and After comparison](image)

The S_PseudoColor filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Frequency**

The frequency of the colorization. Increase for more cycles of hue through the spectrum--decrease for fewer.

**Hue Shift**

Shift the color hues by this amount.

**Saturation**

Scales the color saturation. Increase for more intense colors.
Brightness
Scales the brightness of the result.

Scale By Source
The brightness of the output is scaled down by the original image brightness as this is increased to 1.

Scale By Src Amp
This amplifies the effect of Scale By Source, so if it is increased above 1, the middle grays can still retain their full brightness. It has no effect unless Scale By Source is positive.

Mix With Source
Interpolates between the result (0) and the original image (1).
**S_QuadTone**

**Description**

Performs an interpolation between four specified colors using the brightness of the image.

*Before*  
*After*

Photo by Sergey Pesterev on Unsplash

The S_QuadTone filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Grads/Tints.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Color3**

The color to use at the brighter image regions.

**Color2**

The color to use at the light gray image regions.

**Color1**

The color to use at the dark gray image regions.
**Color0**
The color to use at the darker image regions.

**Softness**
The softness of the interpolation between the three colors. Use lower values for sharper contours between more solid regions of color.

**Softness 23**
Scales the softness of the interpolation between Color2 and Color3.

**Softness 12**
Scales the softness of the interpolation between Color1 and Color2.

**Softness 01**
Scales the softness of the interpolation between Color0 and Color1.

**Color3 At Bright**
The image brightness value to replace with Color3.

**Color2 At Bright**
The image brightness value to replace with Color2. This value should normally be in-between the Color1 and Color3 At Bright values.

**Color1 At Bright**
The image brightness value to replace with Color1. This value should normally be in-between the Color0 and Color2 At Bright values.

**Color0 At Bright**
The image brightness value to replace with Color0.

**Mix With Source**
Interpolates between the result (0) and the original source (1).
**S_RackDefocus**

**Description**

Generates a defocused version of the image using a 'circle of confusion' convolution. This effect is often preferable to a gaussian blur for simulating a real defocused camera lens, because bright spots can be defocused into clean shapes instead of being smoothed away.

![Before After](Before_after.png)

Photo by Gian D on Unsplash

The *S_RackDefocus* filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Diffusion/Blurs.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Defocus Width**

The width of the defocus. This parameter can be adjusted using the Defocus Width Widget.

**Rel Height**

The relative height of the iris shape. If it is not 1, circles become ellipses, etc.
**Lens**

**Shape**
Determines the shape of the simulated camera iris.

**Circle**
Round.

**3 - 12 sides**
3 to 12 sided shapes.

**Show Shape**
Show the iris shape instead of the defocused image.

**Roundness**
Modifies the shape of the simulated camera iris. A value of 1 produces a circle while 0 produces a flat–sided polygon with a number of sides defined by the Shape parameter. Less than 0 causes the sides to squeeze inward creating a star shape, while a value greater than 1 causes the corners to squeeze inward, generating a flowery shape. Roundness has no effect if Shape is set to Circle.

**Rotate**
Rotates the iris shape.

**Bokeh**
Softens the outer edge of the iris shape, which creates a softer look to the defocused highlights. A negative value darkens the center of the iris shape, producing a ring–like defocus shape.

**Lens Noise**
Increase to add noise to the iris shape, dirtying up the defocus. Can make the result more realistic. Turn up past 1 for a more stylistic result.

**Noise Freq**
The frequency of the added noise. Ignored if Lens Noise is zero.
Noise Freq Rel X
The relative horizontal frequency of the added iris noise. Increase to stretch it vertically or decrease to stretch it horizontally.

Noise Seed
The seed value for the added noise.

Gauss Blur
If positive, a gaussian blur is applied which smooths out the edges of the shapes. This might also darken the highlights because Gamma is not considered in the gaussian blur.

Use Gamma
Values above 1 cause highlights in the image to retain their brightness after the defocus is applied.

Boost Highlights.
The amount to increase the luma of the highlights in the image. Increase this parameter to blow out the highlights without affecting the darks or midtones.

Highlight Threshold
The minimum luma value for highlights. Pixels brighter than this will be brightened according to the Boost Highlights parameter.

Chroma Distort
Adds some chromatic aberration around the edges of the image. Red and blue wavelengths of light refract differently in real lenses, producing fringes of color where the rays strike the lens at oblique angles.

Color Fringing
Color Fringing produces rings of color around every object in the image by varying the focal distance for each color channel. It generates a different style of chromatic aberration from Chroma Distort because it's not just in the image corners.

Brightness
Scales the brightness of the result.
Offset Darks
Adds a gray value to the darker regions of the result. This can be negative to increase contrast.

Mix With Source
Interpolates between the defocused result and the original image.

Edge Mode
Determines the behavior when accessing areas outside the image.

  Transparent
  Areas outside the image are treated as transparent, which can produce transparency around the edges. Select this option for fastest rendering.

  Repeat
  Repeats the last pixel outside the border of the image.

  Reflect
  Reflects the image outside the border.

Soft Borders
If enabled, transparent borders are added to the image before processing. This allows the result to include soft edges beyond the original image size. When off, the effect only occurs within the frame and the result will retain an edge at the borders.

Show Defocus Width
Enables/disables the on-screen control for adjusting the Defocus Width parameter.
**RADIAL EXPOSURE**

**Description**

Lightens and/or darkens the center or edges of an image to correct lens vignetting.

![Before After](Photo by Joshua Earle on Unsplash)

**Category**

Lens.

**Controls**

**Exposure**

**Edges**

Lightens or darkens the edges of the image.

**Center**

Lightens or darkens the center of the image.

**Spot**

A radial gradient is used to lighten or darken the edges or center of the image. Go to the **Spot** section of Common Filter Controls to see how the Spot controls work.
RADIAL TINT

Description

Tints the image using multi-color, radially graduated filters.

Before

After

Photo by Jason Wong on Unsplash

Category

Grads/Tints.

Controls

Presets

To select a preset, pick one from the Presets window.

Tint Mode

Selects how color is applied to the image.

Normal

Tints the image while retaining highlights.

Tint

The image is tinted by replacing hue and saturation.

Hue

The image is tinted by only replacing hue.
**Lighten**
Pixels darker than the color are replaced, and pixels lighter than the color do not change.

**Darken**
Pixels lighter than the color are replaced, and pixels darker than the color do not change.

**Color 1**
Sets the color for the top left quadrant of the image.

**Color**
Sets the color through the use of a standard color picker.

**Opacity**
Sets the opacity of the color.

**Color 2**
The Color 2 controls are the same as the controls for Color 1 except it is applied to the top right quadrant of the image.

**Color 3**
The Color 3 controls are the same as the controls for Color 1 except it is applied to the bottom right quadrant of the image.

**Color 4**
The Color 4 controls are the same as the controls for Color 1 except it is applied to the bottom left quadrant of the image.

**Radial Grad**
Sets the position, rotation and aspect ratio of the radial gradient.

**Position**
There is an on-screen control in the center of the image. By clicking and dragging the on-screen control, the position of the grad can be adjusted.

**Size**
The size of the grad.
Rotation
The rotation of the grad.

Aspect
The aspect ratio of the grad.

Highlights
Preserve Highlights
Preserves the white areas of the image.

Exposure Compensation
Exposure Compensation adds back the brightness loss as a result of the filter application.

Spot
A spot in the form of a radial gradient can optionally be used to control where color is added to the image. Go to the Spot section of Common Filter Controls to see how the Spot controls work.
RAINBOW

Description
Recreates arced rainbows of spectral colors, usually identified as red, orange, yellow, green, blue, indigo, and violet, that appear in the sky as a result of the refractive dispersion of sunlight in drops of rain or mist.

Category
Light.

Controls

Light

Blend
Determines the blend mode to be used to add the rainbow.

Add
The rainbow is combined with the image using an Add blend mode.

Screen
The rainbow is combined with the image using a Screen blend mode. This looks kind of like the Add blend mode, but highlights are retained.

Normal
The rainbow is added to the image using a normal composite function.
Amount
Sets the intensity of the rainbow.

Displacement
Displaces the rainbow by the luminance values of the image. This “fakes” the effect of the rainbow wrapping over objects in the image.

Blur
Sets the softness of the rainbow.

Rainbow

Blend
The rainbow can be added to the entire image or limited to a matte.

Rainbow Only
The rainbow is added to the entire image.

Matte
The rainbow is added only in areas of the matte.

Position
The rainbow position can be adjusted by clicking and dragging an on-screen control in the center of the image.

Radius
The size of the rainbow.

Aspect
Sets the aspect ratio of the rainbow. Positive values stretch the rainbow horizontally and negative values stretch it vertically.

Thickness
Sets the thickness of the rainbow’s bands.
Crop

Offset
The rainbow is cropped based on the Offset value. The higher the value, the more rainbow you see. A value of -100 shows no rainbow at all while 100 displays a complete 360 degree rainbow.

Angle
Sets the angle of the crop.

Softness
Sets the softness of the crop's edge.

Matte
A matte can be used to limit where the rainbow will be placed. Wherever there is white in the matte is where the rainbow will be added. Go to the Matte parameters to see how they work.

**Note:** To use a matte to limit where the rainbow will be added, Rainbow > Blend must be set to Matte.
### Description
Generates beams of light emitting from the bright areas of the image.

![Before and After Images](Photo by Filipe Dos Santos Mendes on Unsplash)

The S_Rays filter comes from the Emmy award winning Boris FX Sapphire filter set.

### Category
Light.

### Controls

#### Presets
To select a preset, pick one from the Presets window.

#### Mode
Selects between light and dark rays.

**Light Rays**
Generates beams of light emitting from the bright areas of the source.

**Dark Rays**
Generates beams of darkness emitting from the dark areas of the source.
**Rays Length**

The length of the rays. A length of 1 gives rays that continue forever, although they may still fade out as they go. To make the rays look longer, you can also increase the Bias Outer Bright parameter. If Rays Length is negative, the rays can beam inwards instead of outwards. Please note that processing times increase for longer rays. This parameter can be adjusted using the Center Widget.

**Length Red**

The relative length of the red channel of the rays. Adjust this, along with Length Green and Length Blue, to create color fringing effects.

**Length Green**

The relative length of the green channel of the rays.

**Length Blue**

The relative length of the blue channel of the rays.

**Reverse Rays**

Extend rays inward as well as outward. The length of the reversed rays is controlled by Rays Length as well as this parameter.

**Rays Brightness**

Scales the brightness of the ray beams.

**Rays Darkness**

Scales the intensity of the dark ray beams.

**Rays Color**

Scales the color of the ray beams.

**Rays Color Dark**

Scales the color of the dark ray beams.

**Bias Outer Bright**

Determines the variable amount of brightness along the rays. This is normally near 0 so the rays fade away at their outer ends, 0.5 causes equal brightness along the rays, and 1 causes maximum brightness at the ends.
Rays Res
Selects the resolution factor for the rays. Higher resolutions give sharper rays, lower resolutions give smoother rays and faster processing. This 'Res' factor only affects the rays: the background is still combined with the rays at full resolution.

Full
Full resolution is used.

Half
The rays are calculated at half resolution.

Quarter
The rays are calculated at quarter resolution.

Threshold
Rays are generated from locations in the image that are brighter than this value. A value of .9 creates rays at only the brightest spots, while a value of 0 creates rays for every non-black area.

Threshold Add Color
This can be used to raise the threshold on a specific color and thereby reduce the rays generated on areas of the image containing that color.

Shimmer
Shimmer Amp
Modulates the ray source image with this amount of noise texture to give the rays a shimmering look.

Shimmer Freq
The frequency of the shimmer texture. Increase for a finer grained shimmer effect or decrease for a larger, softer shimmer. This has no effect unless Shimmer Amp is positive.
**Shimmer Seed**

Used to initialize the random number generator for the shimmer texture. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.

**Shimmer Shift X & Y**

Translation of the shimmer texture. This has no effect unless Shimmer Amp is positive.

**Atmosphere**

**Atmosphere Amp**

Atmosphere gives the effect of rays shining through a dusty atmosphere and picking up light or getting shadowed. This parameter adjusts the amount, or amplitude, of the atmospheric effect. A value of 0 creates smooth rays while higher values give a more dusty look.

**Atmosphere Freq**

Controls the spatial frequency of the atmospheric noise. Turn this up higher to get finer details or turn down for broader overall variation.

**Atmosphere Detail**

Controls the amount of fine detail in the atmosphere simulation. Decrease to get smoother atmosphere or increase for a more crunchy, grainy look.

**Rays Under Source**

Set to 1 to composite the image over the rays.

**Source Opacity**

Scales the opacity of the image when combined with the rays. This does not affect the generation of the rays themselves.

**Use Source Chroma**

If this is 1, the chroma of the image affects the chroma of the resulting rays. If it is 0, only the brightness of the image affects the brightness of the rays and the rendering speed should also be faster. Values between 0 and 1 interpolate between these two options.
Show Center

Enables/disables the on-screen control for adjusting the Center and Rays Length parameters.
**Description**

One of the oldest and still most popular means of lighting an exterior set is by taking a reflective surface and redirecting sunlight or artificial light exactly where it is needed. Unfortunately, it is nearly impossible for actors to keep their eyes open when looking into a reflector, resulting in squinting eyes. Our silver and gold reflectors allow you to add white or gold light into shadow areas without the squinting.

**Category**

Light.

**Controls**

**Presets**

To select a preset, pick one from the Presets window. If you would like to view presets from a different category, use the pop-up menu at the top left of the Presets window.

**Brightness**

Sets the intensity of the reflector.
Color
The Color parameter sets the color of the reflector through the use of a standard color picker. The default color is gold for Gold Reflector and white for Silver Reflector.

Position
Selects the shadow values that will be adjusted with the Brightness slider.

Range
Controls the range of shadow values that will be adjusted with the Brightness slider.

Go to the Matte section of Common Filter Controls to see how the Position and Range controls work.
**ReLight**

**Description**

Light can be added to a scene where none existed before. A complete set of light source controls allow you to adjust the light just as you would at the time of shooting.

![Before and After Images](https://unsplash.com/photos/1234567890)

Photo by Blake Lisk on Unsplash

**Category**

Light.

**Light**

**Blend**

Determines the blend mode to be used to add the light.

**Add**

The light is added to your image.
Screen

The light is combined with the image using a Screen blend mode. This looks kind of like the Add blend mode, but highlights are retained.

Brightness

Sets the intensity of the light.

Displacement

Displaces the light source by the luminance values of the image. This “fakes” the effect of light wrapping over objects in the image.

Blur

Sets the softness of the light.

Gels

Photographers, cinematographers and lighting designers use colored filters or gels in front of lights. Whatever mood you wish to create, we have the colors needed to achieve the effect. Select one of the Gels presets from the pop-up menu.

Color

Sets the color of the light through the use of a standard color picker.

Light Source

Blend

The light source can be added to the matte using a variety of Blend modes. Go to Blend Modes for explanations of the various modes.

I like the Multiply blend mode for combining the light source with the matte because it only puts the light source within the areas of the matte.

Opacity

Sets the opacity of the light source.

Aspect

The aspect ratio of the light source.
**Radius**
The un-blurred radius of the light source.

**Falloff Radius**
The blurred edge radius.

**Falloff**
Moves the falloff towards the light centerpoint.

**Invert**
Inverts the light source.

**Transform**
Transform your light pattern using Position, Scale, Rotate, Corner-Pin, Shear and Crop controls. Go to the **Transform** section of Common Filter Controls to see how the Transform Controls work.

**Matte**
A matte can be used to limit the area of added light. Wherever there is white in the matte is where the light will be added. When using ReLight, it is usually helpful to blur the matte. Go to the **Matte** parameters to see how they work.

**Note:** Light Source > Blend must be set to something other than Shape Only for the Matte controls to be active.
**S_RomanTile**

**Description**
Generates a mosaic pattern.

**Category**
Stylize.

**Controls**

**Presets**
To select a preset, pick one from the Presets window.

**Tile Size**
The width of an individual tile.

**Tile Shape**
Determines the shape of the tiles.

**Square**
Four-sided tiles.

The S_RomanTile filter comes from the Emmy award winning Boris FX Sapphire filter set.
Hexagon
Six-sided tiles.

Vary Shape
Controls the variation of the tile shape. Set to 0 for regularly shaped tiles. Set to 1 for randomly shaped tiles.

Tile Edge Sharpness
How sharp to make the 3d lighting roll off on the edge of the tile. Set to 1 for a very sharp tile edge. Set to a lower number for a softer, more curved tile.

Tile Texture Freq
Controls the coarseness of the tile’s bumpy texture.

Tile Roughness
The height of the bumpy texture on the tiles.

Tile Height
The strength of the lighting on the edge of the tiles.

Tile Opacity
The opacity of the tiles. Set to 0 to show the image. Set to 1 to show only the tile.

Cracked Tiles
How likely a tile is to crack along edges in the image. Set to 0 to get no cracked tiles. Set to 1 to see tiles with detectable edges crack. At .5 only tiles with strong edges will crack. Tiles with a very slow gradient will never crack.

Smooth Colors
Control the variation in the color palette. Increase to make only very sharp image edges change tile colors.

Edge Attract
How strongly the corners of the tiles should attract to the edges in the image.
**Grout**

**Grout Color**
The color of the grout between the tiles.

**Grout Width**
The width of the grout between the tiles as a percentage of the tile size.

**Grout Texture Freq**
Controls the coarseness of the grout’s bumpy texture.

**Grout Roughness**
The height of the bumpy texture in the grout.

**Grout Opacity**
The opacity of the grout between the tiles. Set to 0 to show the image. Set to 1 to show only the grout.

**Light**

**Light Brightness**
The tiles are lit with a 3d point light source. This parameter sets the brightness of that light. Set to 0 to disable the light. Increase this value to increase the intensity of the light.

**Light Color**
The color of the light.

**Light Z**
The height of the light source.

**Bg Brightness**
Scales the brightness of the image before combining it with the tiles. If 0, the result will contain only the tile image over black.

**Seed**
Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.
Show Light Position

Enables/disables the on-screen control for adjusting the Light Position parameter.
**SELECTIVE COLOR CORRECT**

**Description**

Colors can be selectively isolated through the use of a matte and adjusted using hue, saturation, brightness, gamma, contrast, temperature, cyan/magenta, red, green, and blue controls.

**Category**

Color.

**Color Correct**

Certain parts of the image are isolated by the creation of a matte. Whatever is shown as white in the matte can be adjusted by the color controls below.

**Hue**

Rotates the hue of the image.

**Saturation**

Adjusts the saturation of the image. Positive values saturate, negative values desaturate.

**Brightness**

Adjusts the brightness of the image. Positive values brighten, negative values darken.
**Contrast**
Adjusts the contrast of the image. Positive values increase contrast, negative values decrease contrast.

**Gamma**
Adjusts the gamma of the image. The gamma adjustment leaves the white and black points the same and only modifies the values in-between. Positive values lighten the midtones, negative values darken the midtones.

**Temperature**
Sets the color of the image to be either warmer or cooler. Dragging the slider to the right makes the image cooler (bluer) and dragging the slider to the left makes the image warmer (redder).

**Cyan/Magenta**
Adds either Cyan or Magenta to the image. Dragging the slider to the right makes the image more magenta and dragging the slider to the left makes the image more cyan.

**Red**
Adds or subtracts red from the image.

**Green**
Adds or subtracts green from the image.

**Blue**
Adds or subtracts blue from the image.

**Temperature**
Sets the color temperature of the image. Dragging the slider to the right makes the image cooler (bluer) and dragging the slider to the left makes the image warmer (redder).
Matte

A matte is created to isolate areas to be color corrected. Using advanced image slicing algorithms, mattes are created using luminance, hue, saturation, average, red, green, blue, cyan, magenta, and yellow values.

Before After

Matte

Extract On

Extract On selects the type of matte. Select whichever type isolates the desired values.

Hue Matte

A matte is created based on one of the following:

Luminance

A matte is created based on the luminance of the image.
Hue
A matte is created based on the hue of the image. When adjusting the Position parameter, you are selecting different hues.

Saturation
A matte is created based on the saturation of the image.

Average
A matte is created based on the average of the image’s RGB values.

Red
A matte is created based on the image’s red values.

Green
A matte is created based on the image’s green values.

Blue
A matte is created based on the image’s blue values.

Cyan
A matte is created based on the image’s cyan values.

Magenta
A matte is created based on the image’s magenta values.

Yellow
A matte is created based on the image’s yellow values.

Position
The Position value pinpoints the color values to be used in the matte. For a luminance matte, a Position value of 100 would make a white matte of the highlights and a value of 0 would make a white matte of the shadows. In the
flower image below, look at how the matte varies for different Position values in a red extraction. When the Position is at a value of 100, the red flowers are shown as white in the matte.

Position=100, Range=25

When the Position is moved to 50, the red flowers turn black.

Position=50, Range=25

**Range**

Increases or decreases the range of values in the matte. A low Range value indicates a narrow range of values. A high Range value indicates a large range of values included in the matte.

Position=100, Range=50
**Black Clip**

Blacks in the matte are made blacker by increasing the value of the slider. As the slider value increases, more values are clipped to black. This is helpful for getting rid of unwanted gray areas in what should be the black part of the matte.

![Matte with No Black Clip](Matte with No Black Clip) ![Black Clip=50](Black Clip=50)

**White Clip**

Whites in the matte are made whiter by increasing the value of the slider. As the slider value increases, more values are clipped to white. This is helpful for getting rid of unwanted gray areas in what should be the white part of the matte.

![Matte with No White Clip](Matte with No White Clip) ![White Clip=50](White Clip=50)
**Shrink/Grow**

Shrinks or grows the matte. Negative values shrink and positive values grow the matte.

- Shrink=-2
- Grow=1.5

---

**Blur**

Blurs the matte.

- No Blur
- Blur=10

---

**Invert**

- Off

Does nothing to the matte.
**On**

Inverts the luminance values of the matte.

![Invert Off](image1.png)  ![Invert On](image2.png)
**SELECTIVE SATURATION**

**Description**

The saturation of the image can be adjusted independently in the shadows, midtones and highlights.

![Before and After Images](Photo by Oswaldo Martinez on Unsplash)

**Category**

Color.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Shadows**

**Saturation**

Adjusts the saturation of the image in the shadows. Positive values saturate, negative values desaturate.

**Position**

Selects the shadow values to be adjusted.
Range
Controls the range of values to be used for the shadows. A higher Range value considers more values as shadows.

Midtones
Saturation
Adjusts the saturation of the image in the midtones. Positive values saturate, negative values desaturate.

Position
Selects the midtones values to be adjusted.

Range
Controls the range of values to be used for the midtones. A higher Range value considers more values as midtones.

Highlights
Saturation
Adjusts the saturation of the image in the highlights. Positive values saturate, negative values desaturate.

Position
Selects the highlight values to be adjusted.

Range
Controls the range of values to be used for the highlights. A higher Range value considers more values as highlights.

Go to the Matte section of Common Filter Controls to see how the Position and Range controls work.
**SEPIA**

Description

**Sepia**

Creates a warm brown tone for that nostalgic feeling.

Category

Grads/Tints.

Controls

**Presets**

To select a preset, pick one from the Presets window.

**Color**

**Amount**

Determines the intensity of the color added to the image.

**Opacity**

Sets the opacity of the filter.

**Preserve Highlights**

Preserves the white areas of the image.
Exposure Compensation

Exposure Compensation adds back the brightness loss as a result of the filter application.

Grad

Sepia can optionally use a gradient that limits where the filter is applied. Grad is the transition area between the colored portion and the original image. Its direction, corners and size can be adjusted. Go to the Grad section of Common Filter Controls to see how the Grad controls work.
**SHADOWS/HIGHLIGHTS**

**Description**

Shadows/Highlights lowers contrast evenly throughout the image by brightening shadow areas and darkening highlights. It is useful for correcting dark foreground subjects due to strong backlighting as well as highlights that are slightly washed out.

![Before and After Images](Photo by Jonatan Pie on Unsplash)

**Category**

Color.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Shadows**

**Shadows**

Raises the brightness of the shadows.

**Position**

Selects the shadow values to be adjusted.
**Range**
Controls the range of values to be used for the shadows. A higher Range value considers more values as shadows.

**Highlights**

**Highlights**
Lowers the brightness of the highlights.

**Position**
Selects the highlight values to be adjusted.

**Range**
Controls the range of values to be used for the highlights. A higher Range value considers more values as highlights.

Go to the **Matte** section of Common Filter Controls to see how the Position and Range controls work.
**SHARPEN**

**Description**
Enhances the sharpness or focus by selectively increasing the contrast between adjacent pixels along edges in an image.

**Category**
Image.

**Controls**

**Presets**
To select a preset, pick one from the Presets window.

**Amount**
Determines how much contrast is added at the edges.

**Radius**
Controls the size of the edges you wish to sharpen.

**Threshold**
The threshold setting is used to sharpen more pronounced edges, while leaving more subtle edges untouched. Low values sharpen more image areas while higher threshold values sharpen less.
**SILK**

Description

**Silk**

Silk softens wrinkles, blemishes and fine detail to produce smooth skin textures while retaining detail in coarse features such as the eyes, nose and mouth.

**Warm Silk**

Warm Silk offers all the benefits of the Silk filter while adding a diffuse warm tint to the shadows.

**Category**

Diffusion/Blurs.
Controls

Preset
To select a preset, pick one from the Presets window. If you would like to view presets from a different category, use the pop-up menu at the top left of the Presets window.

Detail
Smoothing
Fine image details, such as facial wrinkles and blemishes, are minimized using edge aware smoothing.

Color Correct
Go to the Color Correct filter to see how the Color Correct controls work.

Matte
A matte can be used to limit the smoothing effect. Wherever there is white in the matte is where the smoothing will occur. Go to the Matte parameters to see how they work.
SKIN TONE

Description

A set of colorization filters to enhance skin tones.

Category

Grads/Tints.

Controls

Presets

To select a preset, pick one from the Presets window.

Color

Color

The Color parameter sets the color through the use of a standard color picker.

Opacity

Sets the opacity of the color filter.
Preserve Highlights
Preserves the white areas of the image.

Exposure Compensation
Exposure Compensation adds back the brightness loss as a result of the filter application.

Grad
The Skin Tone filters can optionally use a gradient that limits where the filter is applied. Grad is the transition area between the colored portion and the original image. Its direction, corners and size can be adjusted. Go to the Grad section of Common Filter Controls to see how the Grad controls work.
**SOFT LIGHT**

**Description**

Provides soft, digitally diffused and virtually shadowless light.

**Category**

Light.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Blend**

Determines the blend mode to be used to add the light.

**Add**

The light is added to your image.

**Screen**

The light is combined with the image using a Screen blend mode. This looks kind of like the Add blend mode, but highlights are retained.

**Brightness**

Sets the intensity of the light.
Blur
Sets the softness of the light.

Gels
Photographers, cinematographers and lighting designers use colored filters or gels in front of lights. Whatever mood you wish to create, we have the colors needed to achieve the effect. Select one of the Gels presets from the pop-up menu.

Color
Sets the color of the light through the use of a standard color picker.
**S_Sparkles**

**Description**
Generates a field of sparkling glint effects.

Before  |  After
---|---

Photo by Rhett Wesley on Unsplash

The S_Sparkles filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**
Light.

**Controls**

**Presets**
To select a preset, pick one from the Presets window.

**Frequency**
The frequency of the sparkles. Increase to zoom out or decrease to zoom in.

**Density**
Increase to add more sparkles.

**Seed**
Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.
**Brightness**
Scales the brightness of all the sparkles.

**Brightness Details**

**Color**
Scales the color of all the sparkles.

**Brightness X**
Scales the brightness of the horizontal glint rays.

**Brightness Y**
Scales the brightness of the vertical glint rays.

**Brightness Diag1**
Scales the brightness of the diagonal rays from top right to bottom left.

**Brightness Diag2**
Scales the brightness of the diagonal rays from top left to bottom right.

**Size**
Scales the length of all the glint rays. This and all the size parameters can be adjusted using the Size Widget.

**Size Details**

**Size X**
Scales the length of the horizontal glint rays.

**Size Y**
Scales the length of the vertical glint rays.

**Size Diag1**
Scales the length of the diagonal rays from top right to bottom left.

**Size Diag2**
Scales the length of the diagonal rays from top left to bottom right.
**Size Red**
Scales the length of the red component of the rays. If the red, green, and blue sizes are equal the sparkles will be monochrome.

**Size Green**
Scales the length of the green component of the rays.

**Size Blue**
Scales the length of the blue component of the rays.

**Shift Start X & Y**
Translation offset of the result.

**Bg Brightness**
Scales the brightness of the image before combining with the sparkles. If 0, the result will contain only the sparkles over black.

**Show Size**
Enables/disables the on-screen control for adjusting the size parameters.

**Show Shift Start**
Enables/disables the on-screen control for adjusting the Shift Start parameter.
**S_SparklesColor**

**Description**

Generates a field of sparkling glint effects with varying colors.

![Before After](Photo by Rhett Wesley on Unsplash)

The S_SparklesColor filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Light.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Frequency**

The frequency of the sparkles. Increase to zoom out or decrease to zoom in.

**Density**

Increase to add more sparkles.

**Seed**

Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.
Brightness
Scales the brightness of all the sparkles.

Brightness Details

Color
Scales the color of all the sparkles.

Color Variation
Scales the saturation of the sparkles. Increase for more intense colors or decrease for more subtle colors.

Brightness X
Scales the brightness of the horizontal glint rays.

Brightness Y
Scales the brightness of the vertical glint rays.

Brightness Diag1
Scales the brightness of the diagonal rays from top right to bottom left.

Brightness Diag2
Scales the brightness of the diagonal rays from top left to bottom right.

Size
Scales the length of all the glint rays. This and all the size parameters can be adjusted using the Size Widget.

Size Details

Size X
Scales the length of the horizontal glint rays.

Size Y
Scales the length of the vertical glint rays.

Size Diag1
Scales the length of the diagonal rays from top right to bottom left.
**Size Diag2**  
Scales the length of the diagonal rays from top left to bottom right.

**Size Red**  
Scales the length of the red component of the rays. If the red, green, and blue sizes are equal the sparkles will be monochrome.

**Size Green**  
Scales the length of the green component of the rays.

**Size Blue**  
Scales the length of the blue component of the rays.

**Shift Start X & Y**  
Translation offset of the result.

**Bg Brightness**  
Scales the brightness of the image before combining with the sparkles. If 0, the result will contain only the sparkles over black.

**Show Size**  
Enables/disables the on-screen control for adjusting the size parameters.

**Show Shift Start**  
Enables/disables the on-screen control for adjusting the Shift Start parameter.
**SPLIT FIELD**

Description

Split Field splits the image with a line that can be positioned, rotated and blurred. On one side of the line, the image is blurred and on the other, it is in focus.

![Before and After Split Field Example](https://unsplash.com/photos/Anthony Cantin)

**Category**

Diffusion/Blurs.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Blur**

Sets the softness of the split portion of the image.

**Split**

The Split controls manipulate the position, rotation and blur of the split line.

**Position**

There is an on-screen control in the center of the image. By clicking and dragging the on-screen control, the position of the split line can be adjusted.
**Rotate**
Rotates the split line.

**Blur**
Blurs the split line using a quality blur.
**SPLIT TONE**

**Description**

Shadows, midtones and highlights can be individually tinted with the Split tone filter.

**Category**

Grads/Tints.

**Controls**

**Shadows**

**Opacity**

Set the opacity of the tint color.

**Color**

The Color parameter sets the color of the shadow tint through the use of a standard color picker.

**Position**

Selects the shadow values to be adjusted.
Range
Controls the range of values to be used for the shadows. A higher Range value considers more values as shadows.

Midtones
Opacity
Set the opacity of the tint color.

Color
The Color parameter sets the color of the midtone tint through the use of a standard color picker.

Position
Selects the midtone values to be adjusted.

Range
Controls the range of values to be used for the midtones. A higher Range value considers more values as midtones.

Highlights
Opacity
Set the opacity of the tint color.

Color
The Color parameter sets the color of the highlight tint through the use of a standard color picker.

Position
Selects the highlight values to be adjusted.

Range
Controls the range of values to be used for the highlights. A higher Range value considers more values as highlights.

Go to the Matte section of Common Filter Controls to see how the Position and Range controls work.
Preserve Highlights
   Preserves the white areas of the image.

Exposure Compensation
   Exposure Compensation adds back the brightness loss as a result of the tinting.
**S_SpotLight**

**Description**

Lights the input clip using one or two spotlights. For each enabled light, the intersection of a 3D light cone with the image plane is calculated using the given light source position, aim location, and beam angle. Ambient light can also be applied to affect the entire image evenly. A wide variety of lighting shapes can be produced.

![Before After](Photo by Steve Barker on Unsplash)

The S_SpotLight filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Light.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Light1-2**

**Light1-2 Enable**

Turns the spotlight on or off.
**Light1-2 Bright**
Scales the brightness of the spotlight. This value can be made negative for a dark spotlight effect.

**Light1-2 Color**
Determines the color of the spotlight.

**Light1-2 Z**
The distance of the light source from the image plane. Decreasing this brings the light source closer to the surface and causes the direction of the beam to be more parallel to the surface which can stretch the spot into an ellipse or hyperbola shape.

**Spread Angle1-2**
The spread angle of the spotlight beam in degrees. Larger values open up the beam for a larger spot.

**Softness1-2.**
Determines the amount of penumbra or the softness of the spotlight edges relative to the Spread Angle. Lower values make crisp edged shapes while higher values make softer shapes.

**Falloff Power1-2**
Determines how much the spotlight brightness fades with distance. A value of 0 causes no fading, 1 fades the light as distance increases, and 2 fades it faster with distance. A value of 2 is correct for a physically realistic point light.

**Ambient Bright**
The amount of ambient light included in the entire frame. This allows parts of the image outside of the spotlights to still be visible.

**Ambient Color**
Determines the color of the ambient light.

**All Lights**

**All Lights Bright**
Scales the brightness of all the spotlights together.
**All Lights Color**
Scales the color of all the spotlights together.

**All Aims Shift X & Y**
Adds this amount to all lights Aim parameters. This can be used to easily make all lights aim at the same location. This parameter can be adjusted using the All Aims Shift Widget.

**All Shift X & Y**
Shifts the entire spotlight pattern without changing their shapes by adding this amount to all light and aim positions.

**Combine**
Determines how the light is combined with the image.

**Lights Only**
Renders only the light.

**Mult**
The light is multiplied by the image. This is the effect that a real light would typically have.

**Add**
The light is added to the image.

**Screen**
The light is blended with the image using a Screen operation.

**Overlay**
The light is combined with the image using an Overlay function.

**Show Light1**
Enables/disables the on-screen control for adjusting the Light1 parameter.

**Show Aim1**
Enables/disables the on-screen control for adjusting the Aim1 parameter.
Show Light2
   Enables/disables the on-screen control for adjusting the Light2 parameter.

Show Aim2
   Enables/disables the on-screen control for adjusting the Aim2 parameter.

Show All Aims Shift
   Enables/disables the on-screen control for adjusting the All Aims Shift parameter.
**Description**

User definable multi-point star patterns are generated on highlights in the image.

**Category**

Light.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Star**

The Star settings control the various qualities of the generated star patterns.

**Blend**

Determines the blend mode to be used when adding the stars.

**Add**

The stars are added to your image.
Screen
The stars are combined with the image using a Screen blend mode. This looks kind of like the Add blend mode, but highlights are retained.

Brightness
Determines the brightness of the stars.

Spokes
Controls the number of star spokes.

Size
Sets the star size.

Angle
Rotates the stars.

Color
Sets the star color.

Matte
A matte is used to create the star effect. Go to the Matte section of Common Filter Controls to see how the Matte controls work.
**S_Streaks**

**Description**

Motion blurs the bright areas of the image into streaks defined by From and To locations. This can be used to create an extended film exposure effect or simulate soft beams of light.

![Before After](Photo by Anton Darius on Unsplash)

The S_Streaks filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Light.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Streaks Brightness**

Scales the brightness of the streaks.

**Exposure Bias**

Determines the variable amount of exposure along the path between the From and To transformations. A value of 0 creates more exposure at the From end, .5 causes equal exposure along the path, and 1.0 generates more exposure at
the To end. If you have bright spots on a dark background, a 0 value would cause the processed spots to be brighter at the From end and dark at the To end, and a 1 value would cause the opposite.

**Threshold**

Streaks are generated from locations in the image that are brighter than this value. A value of .9 creates streaks at only the brightest spots. A value of 0 generates streaks for every non-black area.

**Threshold Add Color**

This can be used to raise the threshold on a specific color and thereby reduce the streaks generated on areas of the source clip containing that color.

**From Z Dist**

The distance of the From transformation. This zooms about the Center location when Shift is 0. Increase to zoom out or decrease to zoom in. This parameter can be adjusted using the From Transfm Widget.

**From Rotate**

The rotation angle of the From transformation, in degrees, about the center. This parameter can be adjusted using the From Transfm Widget.

**From Shift X & Y**

The horizontal and vertical translations of the From transformation. This can be used for directional motion. If it is non-zero, the center location becomes less meaningful. This parameter can be adjusted using the From Transfm Widget.

**To Z Dist**

The 'distance' of the To transformation. Increase to zoom out or decrease to zoom in. This parameter can be adjusted using the To Transform Widget.

**To Rotate**

The rotation angle of the To transformation, in degrees, about the center. Note that if the From and To Rotate angles are very different, the interpolation between them will become less accurate. This parameter can be adjusted using the To Transform Widget.
To Shift X & Y

The horizontal and vertical translations of the To transformation. This can be used for directional motion. If it is non-zero, the center location becomes less meaningful. This parameter can be adjusted using the To Transform Widget.

Mix Source Darks

The dark non-streaked components of the Source are scaled by this amount and added to the result. This allows combining the streaked and non-streaked versions of the image.

Mix Source Brights

The original bright components of the image that were used to generate the streaks are scaled by this amount and added to the result. This allows combining some non-streaked bright areas of the image with the output.

Result Brightness

Scales the brightness of the result.

Combine

Determines how the streaks are combined with the image.

Add

 Adds the streaks to the image.

Screen

Performs a blend function which can help prevent overly bright results.

Wrap

Determines the method for accessing outside the borders of the image.

No

Produces black beyond the borders.

Tile

Repeats a copy of the image.

Reflect

Repeats a mirrored copy. Edges are often less visible with this method.
**Streaks Res**

Selects the resolution factor for the streaks. This is similar to the general 'Res' factor parameter, but it only affects the streaks. The original mixed with the streaks remains at full resolution. Higher resolutions have better quality while lower resolutions provide faster processing.

**Full**

Full resolution is used.

**Half**

The streaks are calculated at half resolution.

**Quarter**

The streaks are calculated at quarter resolution.

**Subpixel**

If enabled, uses a better quality but slightly slower method for rendering the streaks.

**Show Center**

Enables/disables the on-screen control for adjusting the Center parameter.

**Show From Transfm**

Enables/disables the on-screen control for adjusting the From Z Dist and From Rotate parameters.

**Show To Transform**

Enables/disables the on-screen control for adjusting the To Z Dist and To Rotate parameters.

**Show From Shift**

Enables/disables the on-screen control for adjusting the From Shift parameter.

**Show To Shift**

Enables/disables the on-screen control for adjusting the To Shift parameter.
Sunset applies three photographic filters to the image which are blended together with a gradient. Presets for your favorite Color Gradient filters are provided as well as the ability to create custom colors.

Category
Grads/Tints.

Controls

Presets
To select a preset, pick one from the Presets window.

Color 1
Sets the color for the top third of the image. Select the desired color using the color picker or choose a filter preset.

Presets
Select one of the filters from the pop-up menu.

Color
The Color parameter sets the color of the grad through the use of a standard color picker.
Opacity
Sets the opacity of the color filter.

Color 2
The Color 2 controls are the same as the controls for Color 1 except it is applied to the middle third of the image.

Color 3
The Color 3 controls are the same as the controls for Color 1 except it is applied to the bottom third of the image.

Highlights
Preserve Highlights
Preserves the white areas of the image.

Exposure Compensation
Exposure Compensation adds back the brightness loss as a result of the filter application.

Grad
Grad is the combination of the three blended tints. Its direction, corners and size can be adjusted. Go to the Grad section of Common Filter Controls to see how the Grad controls work.
Texture

Description
Applies textures to an image for a stylized look.

Category
Stylize.

Controls

Presets
To select a preset, pick one from the Presets window.

Amount
Sets the amount of texture applied to the image.

Complexity
Generates a more detailed, repetitive texture.

Randomize
Randomizes the texture.
Transform

Transform the texture using Position, Scale, Rotate, Corner-Pin, Shear and Crop controls. Go to the Transform section of Common Filter Controls to see how the Transform Controls work.
**S_THRESHOLD**

**Description**
Sets the color channels of the image to full on or full off using a given softness and threshold. This can be used to increase the contrast of each color channel independently.

Before

[Image of Before state]

After

[Image of After state]

The S_Threshold filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**
Color.

**Controls**

**Presets**
To select a preset, pick one from the Presets window.

**Threshold**
The source brightness value to use as the midpoint of the thresholding. This is often a middle gray around .5.

**Threshold Add Color**
Raises the thresholds on each color channel using this color. It has no effect when black.
Softness
The softness of the transition between full off and on. Increase for smoother transitions or decrease for sharper ones.

Soft Rel Red
The relative softness of the red thresholding.

Soft Rel Green
The relative softness of the green thresholding.

Soft Rel Blue
The relative softness of the blue thresholding.

Saturation
Scales the color saturation. Increase for more intense colors. Set to 0 for monochrome.
TINT

Description

Tints the entire image with a selected color using a variety of colorization modes.

Category

Grads/Tints.

Controls

Presets

To select a preset, pick one from the Presets window. If you would like to view presets from a different category, use the pop-up menu at the top left of the Presets window.

Black and White

Enable

Converts the image to Black and White.
Filter
The Filter pop-up selects the type of black and white filter to be applied to your color image. Go to the Black and White section of Common Filter Controls to see how the Black and White controls work.

Brightness
Adjusts the brightness of the image. Positive values brighten, negative values darken.

Contrast
Adjusts the contrast of the image. Positive values increase contrast, negative values decrease contrast.

Gamma
Adjusts the gamma of the image. The gamma adjustment leaves the white and black points the same and only modifies the values in-between. Positive values lighten the midtones, negative values darken the midtones.

Tint
Color
Sets the color that the image will be colorized with. Select the desired color using the color picker.

Opacity
Sets the opacity of the color.

Mode
Selects how color is applied to the image.

Normal
Tints the image while retaining highlights.

Tint
The image is tinted by replacing hue and saturation.

Hue
The image is tinted by only replacing hue.
Lighten
Pixels darker than the color are replaced, and pixels lighter than the color do not change.

Darken
Pixels lighter than the color are replaced, and pixels darker than the color do not change.

Grad
Tint can optionally use a gradient that limits where the filter is applied. Grad is the transition area that goes from the tinted image to the original image. Its direction, corners and size can be adjusted. Go to the Grad section of Common Filter Controls to see how the Grad controls work.
**TONE ADJUST**

**Description**

Tone Adjust approximates the appearance of high dynamic range images by adjusting the tonal values. Specifically, detail is recovered from the darker portions of the images and can optionally be denoised.

**Category**

Color

**Controls**

**Amount**

Lightens shadows to reveal more detail. Take care not to over apply this setting and reveal image noise.

**DeNoise**

Removes film grain and noise in the shadow areas.

**Position**

Selects the shadow values to be adjusted.

**Range**

Controls the range of values to be used for the shadows. A higher Range value considers more values as shadows.
**S_TriTone**

**Description**
Perform an interpolation between three specified colors using the brightness of the image.

![Before and After](https://via.placeholder.com/150)

Photo by Simon Berger on Unsplash

The S_TriTone filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**
Grads/Tints.

**Controls**

**Presets**
To select a preset, pick one from the Presets window.

**Color2**
The color to use at the brighter image regions.

**Color1**
The color to use at the midtone image regions.

**Color0**
The color to use at the darker image regions.
**Softness**
The softness of the interpolation between the three colors. Use lower values for sharper contours between more solid regions of color.

**Softness 12**
Scales the softness of the interpolation between Color1 and Color2.

**Softness 01**
Scales the softness of the interpolation between Color0 and Color1.

**Color2 At Bright**
The image brightness value to replace with Color2.

**Color1 At Bright**
The image brightness value to replace with Color1. This value should normally be in between the other two.

**Color0 At Bright**
The image brightness value to replace with Color0.

**Mix With Source**
Interpolates between the result (0) and the original source (1).
**TV Damage**

**Description**

Simulates a TV with transmission and reception problems, VCR issues, and TV hardware difficulties. Simulates static, interference, ghosting, horizontal and vertical hold, hum bars, color stripes, visible scanlines, VCR fast-forward, dropouts, vignetting, orthicon, and fisheye.

The TV Damage filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Mode**

Types of TV damage to simulate.

**TVDamage Color**

Simulates color TV damage.
**TVDamage Mono**

Simulates black & white TV damage.

**Reception Master**

Master control for all reception oriented artifacts: static, interference, ghosting, horizontal and vertical hold, hum bars, and color stripes. Set to 0 to get perfect reception, for example, 0 of each of the above artifacts.

**Interference Amp**

Simulates interference from nearby electrical devices such as electric motors, cordless phones, etc. The look is a pattern of semi-regularly spaced random color dots.

**Ghost Amp**

Ghosts are copies of the image that result from multi-path distortion between the transmitter and the TV.

**Horizontal Hold**

This causes the image to shift horizontally in a semi-random way, simulating a TV with a bad horizontal hold circuit or a signal not strong enough to engage the horizontal hold.

**Vertical Hold**

This causes the image to shift vertically in a rolling motion and is normally caused by a weak signal preventing the TV from locking on.

**Bars Brightness**

Power line hum and other TV problems can cause rolling light and dark bars to crawl up the screen. This can also be caused by failure to synchronize a video camera to the TV output.

**Color Stripes Amplitude**

Another common form of interference caused by phase shifts in the chroma signal.

**Fast Forward Amount**

Generates a VCR fast forward look with torn bars across the screen.
Tape Dropout Brightness
Generates VCR dropouts.

Vignette Darkness
Vignetting is darkening of the image towards the corners and sides of the image.

Static

Static Amplitude
Scales the brightness of the static noise.

Static Density
Density of the static. Turn up to get more static pixels or turn down to get only occasional static pixels.

Interference Details

Interference Frequency
Interference frequency. The look is very sensitive to this parameter. Fractional values like 0.3 or 1.23 look better than integers.

Ghosting Details

Num Ghosts
The number of ghost images. Some may be to the left of the image, but most will be to the right. Some will be positive and some negative (inverted).

Negative Ghosts
The fraction of the ghosts that are negative (inverted).

Spacing
The fraction of the image width over which ghost images are spread out.

Vary Position
Controls the regularity of the ghost image spacing. Set to 0 for regularly spaced ghosts or set to 1 for random positioning.

Shift
Shifts the ghost images to the left or right without shifting the main image.
Blur
Blurs the ghost images without blurring the main image or any other artifacts.

**Horiz. Hold Details**

**H Frequency**
Vertical frequency of the horizontal hold waves.

**H Octaves**
Octaves for the horizontal hold waves. Increase for spikier look or decrease for smoother waves.

**Border Width**
A TV signal has a black border outside the displayed area. This becomes visible when the horizontal hold isn't working. This parameter controls the width of that black border. On the other side of the border, you see another copy of the image.

**Vert. Hold Details**

**V Frequency**
The frequency of vertical hold.

**Border Height**
Like Border Width, this controls the vertical border between frames that becomes visible when vertical hold is not locked. Some static and closed captioning and timecode information will typically be visible in this border.

**Border Data**
Brightness of the dots and lines that appear in the vertical blanking interval specified by Border Width.

**Bars Details**

**Bar Sharpness**
Sharpens or smooths the top and bottom edges of the main bars. Set to 0 for no main bars and you will only see the smaller bars.
**Bar Frequency**
The frequency of the bars. Turn up for more thinner bars or turn down for fewer fat bars.

**Bar1 Width**
Fraction of the main bar that is light and the rest is dark.

**Bar2 Rel Frequency**
Controls the frequency of the smaller bars.

**Bar2 Sharpness**
Sharpens or smooths the top and bottom edges of the smaller bars. Set to 0 for no small bars and you will only see the main bars.

**Stripe Details**

**Color Frequency.**
Spatial frequency of the color stripes.

**Color Angle**
Angle of the stripes.

**Fast Forward Details**

**FF Band Frequency**
How many fast forward bands to create.

**FF Band Shift**
Shifts the fast forward bands up or down.

**FF Band Height**
The height of each fast forward band.

**Dropout Details**

**Dropout Length**
The average length of each dropout scanline.

**Dropout Gap Length**
The average length of the gaps between the dropouts.
**Dropout Y Freq**

The dropouts appear on random scanlines according to a noise function with this frequency. Decrease to get a few large bands of dropouts or increase to get lots of small bands.

**Dropout Y Threshold**

Increase to cover more of the screen with dropouts or decrease to cover less of it. If you don't see any dropouts at all on some frames, increase this parameter.

**Vignette Details**

**Vignette Radius**
Distance from the center where the vignetting starts.

**Vignette Edge Softness**
The width of the vignette's soft edge. Larger values give softer, less visible edges.

**Vignette Rel Height**
Controls the aspect ratio of the vignette ellipse.

**Scanlines**

**Scanlines**
Creates visible scanlines in the image. Increase to get more intense scanlines or set to 0 for no scanlines.

**Scanlines Rel Freq**
Relative frequency of the TV scanlines. Increase to get more scanlines or decrease to get fewer large scanlines. Note that the number of scanlines is also controlled by the TV Pixels parameter.

**Orthicon**

**Orthicon**
Darkens the clip at areas around parts of the source clip that are brighter than the given threshold to simulate a 1950s orthicon TV camera look. Most useful in black & white mode.
Threshold
Darkening will occur around locations in the source clip that are brighter than this value. A value of .9 causes dark glows from only the brightest spots. A value of 0 causes glows for every non-black area.

Darks Width
Scales the dark glow distance.

Color Correct

Hue Shift
Shift the color hues by this amount.

Saturation
Scales the color saturation. Increase for more intense colors. Set to 0 for monochrome.

Scale Lights
Scales the result by this gray value. Increase for a brighter result.

Offset Darks
Adds this gray value to the darker regions of the result. This can be negative to increase contrast.

Tint Lights
Scales the result by this color thus tinting the lighter regions.

Tint Darks
Adds this color to the darker regions of the result. Set this to a dark red-orange color for a negative film effect look.

Fish Eye
Expands the center of the source clip as if viewed through a fish eye lens. This gives an old time slightly rounded TV look.
Tv Pixels
The number of TV pixels across the screen. Controls the size of the static, interference, scanlines, and dropouts. Lower this to simulate a lower resolution TV.

Seed
Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.
**S_VIGNETTE**

**Description**

Darkens the border areas of the image to create a vignette effect.

![Before and After](Photo by Atul Vinayak on Unsplash)

The S_Vignette filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Lens.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Squareness**

Determines how square the vignette shape is. Set to 1 for a square or rectangle shape. Set to 0 for a circle or ellipse. Values in between give rectangles with rounded corners by varying amounts.

**Radius**

Distance from the center to apply the vignette. This parameter can be adjusted using the Radius Widget.
Rel Height
The relative vertical size of the vignette shape. Increase for a taller shape or decrease for a wider one.

Rel Width
The relative horizontal size of the vignette shape. Increase for a wider shape or decrease for a taller one.

Rotate
Rotation in degrees of the vignette shape. Note that rotation will have no effect if Squareness is 0 and Rel Width and Rel Height are equal. This parameter can be adjusted using the Rotate Widget.

Edge Softness
The width of the vignette's soft edge. Larger values give softer, less visible edges.

Smooth Curve
If 0, a linear gradient is used across the screen in the soft edge area. Increase this value to use a smoother 'S' shaped curve for interpolation which can reduce the visual perception of the gradient's start and end locations.

Color
The color of the vignette.

Opacity
The opacity of the vignette.

Blur Amount
Blurs the borders of the image in addition to darkening them.

Blur Inside
If checked, the center (undarkened) area of the image is blurred instead of the border.

Source Brightness
Scales the brightness of the source clip. To see only the vignette, set this to zero.
**Combine**

Determines how the vignette is combined with the image.

**Composite**

Composites the vignette over the image.

**Mult**

The vignette color is multiplied by the image. If the Color is not black, this will selectively colorize the vignette area.

**Add**

The vignette color is added to the image. This will have no effect if the vignette color is black.

**Screen**

The vignette color is combined with the image using a Screen operation. This will have no effect if the vignette color is black.

**Subtract Inv**

The inverse of the vignette color is subtracted from the image. Inverse means white for black, yellow for blue, and so on. This mode looks similar to Mult, but is a bit more severe. It crushes the blacks and retains the highlights. This will have no effect if the vignette color is white.

**Vignette Only**

Shows the vignette pattern without the image. The output will be white where the amount of vignetting is greatest, in other words, where the image would be darkened completely.

**Vignette Only Inv**

Shows the inverted vignette pattern without the image. The output will be white where there is no vignetting, in other words, where the source clip would not be darkened at all.

**Show Radius**

Enables/disables the on-screen control for adjusting the Radius parameter.
Show Rotate
Enables/disables the on-screen control for adjusting the Rotate parameter.

Show Center
Enables/disables the on-screen control for adjusting the Center parameter.
**S_VINTAGECOLOR2STRIP**

**Description**

Simulates the old color 2-strip film process from the 1920s. The scene is exposed twice through red and green filters onto alternating frames of a monochrome film strip. Then, the red print is dyed with a red dye and the green print is dyed cyan. Those two strips are cemented together back to back to form the final print. The result contains mostly red and green colors with some synthetic blue from the blue components of the dyes. This effect simulates the two filter colors and the two dye colors as well as adding grain and color correction.

**Category**

Film Lab.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Amount**

Amount of the effect to use. Set to 0 to get the original image. Increase beyond to oversaturate.
Red Filter
The color of the red filter.

Bluegreen Filter
The color of the green filter.

Red Dye
The dye color for the red strip.

Cyan Dye
The dye color for the cyan strip. Adjust slightly greener for a warmer look.

Brightness
Scales the brightness of the result.

Saturation
Scales the color saturation. Increase for more intense colors. Set to 0 for monochrome.

Offset Darks
Adds a gray value to the darker regions of the result. This can be negative to increase contrast.

Grain Amp
Scales the amplitude of the film grain that is added to the result. Set this to 0 to disable all grain.

Grain Blur
The grain is smoothed by this amount. Increase for coarser grain.

Show
Shows either the final result or any of various intermediate parts of the process.

Result
Shows the final result.

Red Strip
Shows the red-filtered source as monochrome as it would be on the real film.
BlueGreen Strip
Shows the blue–green–filtered source as monochrome as it would be on the real film.

Red Dye
Shows the red–dyed red strip.

Cyan Dye
Shows the cyan–dyed green strip.
**S_VINTAGECOLOR3STRIP**

**Description**

Simulates the color 3-strip film process from 1935 through 1955. Three-strip color was a subtractive process which exposed three separate film strips through color filters which were then applied complementary color dyes to the print according to the density of the original records. This process was used for many films such as The Wizard Of Oz, Fantasia, and Gone With The Wind.

Modern color film has much broader color filtering in the emulsion layers, so this effect simulates the narrower filters and sharper colored dyes of the era which gave it its characteristic vibrancy. This effect also allows adding grain and color correction.

Before

![Before](image1)

After

![After](image2)

Photo by Frances Gunn on Unsplash

The S_VintageColor3Strip filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Film Lab.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.
Amount
Amount of the effect to use. Set to 0 to get the original image. Increase beyond to oversaturate.

Key Layer Density
From 1932 up to about 1945, the blank print started with a 50 percent black and white duplicate of the green original record. This increased apparent sharpness and improved contrast. Set this to .5 for a historically accurate key layer, but it will decrease the overall brightness. After 1945, the key layer was no longer needed due to improvements in the process.

Brightness
Scales the brightness of the result.

Tint
Tints the image towards the given color.

Saturation
Scales the color saturation. Increase for more intense colors. Set to 0 for monochrome.

Offset Darks
Adds a gray value to the darker regions of the result. This can be negative to increase contrast.

Grain Amp
Scales the amplitude of the film grain that is added to the result. Set this to 0 to disable all grain.

Grain Blur
The grain is smoothed by this amount. Increase for coarser grain.

Show
Shows either the final result or any of various intermediate parts of the process.

Result
Shows the final result.
Pure Colors
Shows an RGB mask containing only the pure colors in the image.

Complementary Masks
Shows a mask of the complementary colors used to apply the dyes to the final print.
**S_WARPCHROMA**

**Description**

Separates the image into spectral bands and warps them by different amounts. The red is warped by the From transformation, the blue by the To transformation, with the other colors of the spectrum in between.

![Before After](Photo by Kassey Downard on Unsplash)

The S_WarpChroma filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Steps**

The number of spectrum samples to include along the path between the From (red) and To (blue) transformations. More steps give a smoother result but require more time to process.
From Z Dist
The distance of the From transformation. This zooms about the Center location when Shift is 0. Increase to zoom out or decrease to zoom in. This parameter can be adjusted using the From Transfm Widget.

From Rotate
The rotation angle of the From transformation, in degrees, about the center. This parameter can be adjusted using the From Transfm Widget.

From Shift X & Y
The horizontal and vertical translations of the From transformation. This can be used for directional motion. If it is non-zero, the center location becomes less meaningful. This parameter can be adjusted using the From Transfm Widget.

To Z Dist
The distance of the To transformation. Increase to zoom out or decrease to zoom in. This parameter can be adjusted using the To Transform Widget.

To Rotate
The rotation angle of the To transformation, in degrees, about the center. Note that if the From and To Rotate angles are very different, the interpolation between them will become less accurate. This parameter can be adjusted using the To Transform Widget.

To Shift X & Y
The horizontal and vertical translations of the To transformation. This can be used for directional motion. If it is non-zero, the center location becomes less meaningful. This parameter can be adjusted using the To Transform Widget.

Warp Amount
Adjusts the overall amount of warping by scaling the From and To transformations. Setting this to zero disables both transforms and leaves the image unchanged.

Brightness
Scales the brightness of the result.
Color1
The color at the From transformation.

Color2
The color midway between the From and To transformations.

Color3
The color at the To transformation.

White Balance
When enabled, the three colors are adjusted internally so they sum to white. In this case, the colors of unwarped regions are not affected and the average color of the result remains the same.

Wrap X & Y
Determines the method for accessing outside the borders of the image.

No
Renders black beyond the borders.

Tile
Repeats a copy of the image.

Reflect
Repeats a mirrored copy. Edges are often less visible with this method.

Filter
If enabled, the image is adaptively filtered when it is resampled. This gives a better quality result when parts of the image are warped smaller.

Crop Input
These 4 parameters, Crop Top, Crop Bottom, Crop Left, and Crop Right, allow selecting a rectangular subsection of the image to be processed. If the Wrap parameters are set to No, the exposed borders will be transparent. If the Wrap is Tile or Reflect, the image is wrapped on the new cropped borders to fill the frame. This can make it easier to avoid artifacts due to distorting an image with bad edges.
Show Center
   Enables/disables the on-screen control for adjusting the Center parameter.

Show From Transfm
   Enables/disables the on-screen control for adjusting the From Z Dist and From Rotate parameters.

Show To Transform
   Enables/disables the on-screen control for adjusting the To Z Dist and To Rotate parameters.

Show From Shift
   Enables/disables the on-screen control for adjusting the From Shift parameter.

Show To Shift
   Enables/disables the on-screen control for adjusting the To Shift parameter.
**S_WARPFISHEYE**

**Description**

Expands the center of the image as if viewed through a fish eye lens.

![Before After Image]

Photo by Pascal Meier on Unsplash

The S_WarpFishEye filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Lens.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Amount**

The amplitude of the fish eye warping. Set this to a negative value with a large Z Dist for some wacky bug eye distortions.

**Z Dist**

Scales the distance of the image. Values greater than 1 move it farther away and make it smaller. Values less than 1 move the image closer and enlarge it. Zooming in slightly can sometimes be used to hide edge artifacts.
**Rotate**
Rotates the result about the center location by this many counterclockwise degrees.

**Shift Orig X & Y**
Translates the source image before the fish eye warping is applied.

**Wrap X & Y**
Determines the method for accessing outside the borders of the image.

- **No**
  Renders black beyond the borders.
- **Tile**
  Repeats a copy of the image.
- **Reflect**
  Repeats a mirrored copy. Edges are often less visible with this method.

**Filter**
If enabled, the image is adaptively filtered when it is resampled. This gives a better quality result when parts of the image are warped smaller.

**Crop Input**
These 4 parameters, **Crop Top**, **Crop Bottom**, **Crop Left**, and **Crop Right**, allow selecting a rectangular subsection of the image to be processed. If the Wrap parameters are set to No, the exposed borders will be transparent. If the Wrap is Tile or Reflect, the image is wrapped on the new cropped borders to fill the frame. This can make it easier to avoid artifacts due to distorting an image with bad edges.

**Show Center**
Enables/disables the on-screen control for adjusting the Center parameter.
**S_WarpMagnify**

**Description**

Magnifies an elliptical region of the image to create a glass lens refraction effect.

Before | After
---|---

Photo by David Monjeh on Unsplash

The S_WarpMagnify filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Lens.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Magnify Amount**

Amount to scale the image within the magnified region. Use values below 1 to shrink the image instead within the lens.

**Magnify Rel X & Y**

The relative horizontal and vertical magnification.
Lens Radius
Radius of the inner part of the lens. Within this region, the image is scaled by the full magnify amount. This parameter can be adjusted using the Lens Radius Widget.

Lens Edge Width
The width of the lens edge, as a fraction of the inner radius. In the edge area of the lens, magnification tapers off from the full magnify amount to no magnification. This parameter can be adjusted using the Edge Width Widget.

Lens Rel Height
The relative vertical size of the lens. Increase for a taller ellipse or decrease for a wider one.

Lens Rel Width
The relative horizontal size of the lens. Increase for a wider ellipse or decrease for a taller one.

Lens Rotate
Rotation in degrees of the lens. Note that rotation will have no effect when Rel Width and Rel Height are equal and the shape is a perfect circle. This parameter can be adjusted using the Lens Rotate Widget.

Lens Edge Shape
Determines the curve of the magnification amount within the edge of the lens. If set to 0, magnification tapers off linearly. If set to 1, magnification tapers off in a smoother curve which can reduce the visual perception of the border of the lens. Other values interpolate between the two.

Wrap X & Y
Determines the method for accessing outside the borders of the image.

No
Renders black beyond the borders.

Tile
Repeats a copy of the image.
Reflect
Repeats a mirrored copy. Edges are often less visible with this method.

Filter
If enabled, the image is adaptively filtered when it is resampled. This gives a better quality result when parts of the image are warped smaller.

Crop Input
These 4 parameters, Crop Top, Crop Bottom, Crop Left, and Crop Right, allow selecting a rectangular subsection of the image to be processed. If the Wrap parameters are set to No, the exposed borders will be transparent. If the Wrap is Tile or Reflect, the image is wrapped on the new cropped borders to fill the frame. This can make it easier to avoid artifacts due to distorting an image with bad edges.

Show Edge Width
Enables/disables the on-screen control for adjusting the Lens Edge Width parameter.

Show Lens Radius
Enables/disables the on-screen control for adjusting the Lens Radius parameter.

Show Lens Rotate
Enables/disables the on-screen control for adjusting the Lens Rotate parameter.

Show Lens Center
Enables/disables the on-screen control for adjusting the Lens Center parameter.
**S_WarpPolar**

**Description**

Warp the image into a rounded disk shape.

**Before**

**After**

The S_WarpPolar filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Lens.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Angle**

Rotation of the result in counterclockwise degrees. This parameter can be adjusted using the Angle Widget.

**Angle Repeats**

The number of copies of the image to wrap around. This should be an integer to avoid a seam where the first copy connects to the last.

**Stretch X & Y**

Scales the horizontal or vertical size of the disk shape.
**Inner Radius**

The distance from the center where the bottom edge of the image is mapped. This parameter can be adjusted using the Inner Radius Widget.

**Outer Radius**

The distance from the center where the top edge of the image is mapped. This parameter can be adjusted using the Outer Radius Widget.

**Wrap X & Y**

Determines the method for accessing outside the borders of the image.

- **No**
  Renders black beyond the borders.

- **Tile**
  Repeats a copy of the image.

- **Reflect**
  Repeats a mirrored copy. Edges are often less visible with this method.

**Filter**

If enabled, the image is adaptively filtered when it is resampled. This gives a better quality result when parts of the image are warped smaller.

**Crop Input**

These 4 parameters, **Crop Top, Crop Bottom, Crop Left,** and **Crop Right,** allow selecting a rectangular subsection of the image to be processed. If the Wrap parameters are set to No, the exposed borders will be transparent. If the Wrap is Tile or Reflect, the image is wrapped on the new cropped borders to fill the frame. This can make it easier to avoid artifacts due to distorting an image with bad edges.

**Show Angle**

Enables/disables the on-screen control for adjusting the Angle parameter.

**Show Center**

Enables/disables the on-screen control for adjusting the Center parameter.
Show Inner Radius
   Enables/disables the on-screen control for adjusting the Inner Radius parameter.

Show Outer Radius
   Enables/disables the on-screen control for adjusting the Outer Radius parameter.
S_WARPTRANSFORM

Description

Warps the image by a combination of linear transformations including scale, shear, zoom, rotation, and translation.

![Before](before.jpg) ![After](after.jpg)

Photo by Christopher Burns on Unsplash

The S_WarpTransform filter comes from the Emmy award winning Boris FX Sapphire filter set.

Category

Image.

Controls

Presets

To select a preset, pick one from the Presets window.

Scale X & Y

Scales the relative horizontal or vertical size of the image.

Shift X & Y

Translates the image.
**Z Dist**
Scales the distance of the image. Values greater than 1 move it farther away and make it smaller. Values less than 1 move the image closer and enlarge it. Note that Scale X and Y also scale the size of the image, but in an inverse way and on each axis.

**Rotate**
Rotates the image by the specified angle in degrees.

**Swivel**
Rotates the image left or right in 3D about the vertical axis.

**Tilt**
Rotates the image up or down in 3D about the horizontal axis. You can use Swivel and Tilt together to rotate about arbitrary diagonal axes.

**Perspective Amount**
Controls the amount of lens telescoping while applying Swivel and Tilt. Increase for more 3D perspective.

**Shear X & Y**
Shears the image horizontally or vertically.

**Wrap X & Y**
Determines the method for accessing outside the borders of the image.

**No**
Creates black beyond the borders.

**Tile**
Repeats a copy of the image.

**Reflect**
Repeats a mirrored copy. Edges are often less visible with this method.

**Filter**
If enabled, the image is adaptively filtered when it is resampled. This gives a better quality result when parts of the image are warped smaller.
Crop Input Parameters

These 4 parameters: Crop Top, Crop Bottom, Crop Left, and Crop Right select a rectangular subsection of the image. If the Wrap parameters are set to No, the exposed borders will be transparent. If the Wrap is set to Tile or Reflect, the image is wrapped on the newly cropped borders to fill the frame. This can make it easier to avoid artifacts due to distorting an image with bad edges.

Show Shift

Enables/disables the on-screen control for adjusting the Shift parameter.
**X-RAY**

**Description**

Simulates the look of X-Ray images.

**Category**

Stylize.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Black and White**

**Filter**

The Filter pop-up selects the type of black and white filter to be applied to your color image. Go to the Black and White section of Common Filter Controls to see how the Black and White controls work.

**Brightness**

Adjusts the brightness of the image. Positive values brighten, negative values darken.
**Contrast**

Adjusts the contrast of the image. Positive values increase contrast, negative values decrease contrast.

**Gamma**

Adjusts the gamma of the image. The gamma adjustment leaves the white and black points the same and only modifies the values in-between. Positive values lighten the midtones, negative values darken the midtones.

**Color**

**Opacity**

Sets the opacity of the color.

**Color**

The Color parameter sets the color of the x-ray through the use of a standard color picker and defaults to blue.
**S_ZAP**

**Description**

Generates lightning bolts between two points and renders them over a background.

![Before After](Photo by Alexander Andrews on Unsplash)

The S_Zap filter comes from the Emmy award winning Boris FX Sapphire filter set.

**Category**

Render.

**Controls**

**Presets**

To select a preset, pick one from the Presets window.

**Mode**

Selects between 2D and 3D modes.

**2D**

Creates a zap along a spline.

**3D**

Creates a three-dimensional zap.
Bolts
The number of lightning bolts to draw between the Start and End location.

Vary Endpoint
Offsets the End location by a random amount within a circle of this radius. If Bolts is greater than 1, this can be useful to spread out the different End points. For example, you can create multiple radiating bolts by increasing this radius and placing the End point near the Start point. This parameter can also be adjusted using the Vary Endpoint Widget after it is made positive.

Bolt Width
The width of the lightning bolts.

Vary Width
The amount of random variation in the width of the bolts along their lengths.

End Pointiness
Determines how pointed the end of the bolts are. If 0, the entire bolt will have equal width. If 1, the bolts will thin out along their entire length for a pointed end. If it is .5, the bolts will start thinning out half way between the start and end points.

Motion/Shape
Wiggle Start
By default the bolts automatically wiggle. This parameter provides a starting offset for these bolt perturbations.

Rand Seed
Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different random lightning bolts and the same value should give a repeatable result.

Wrinkle Amp
Scales the amount of wrinkles in the bolts. Decrease for straighter, smoother bolts or increase for more kinky bolts.
Curve Amp
Similar to Wrinkle Amp but affects the general path of the bolt. If decreased, the bolt will stay closer to the line between the Start and End points. If increased, it can wander further away from this line. This differs from the Wrinkle Amp parameter in that it can be used to make straighter bolts while still keeping the wrinkles at the detailed level.

Branches
Branchiness
Scales the number of additional bolts that branch from the main bolt. Set this to 0 for basic bolts with no extra branches.

Branch Angle
The maximum angle of the random branches relative to the bolt they are branching off of. If this is 0, the branches will be more lined up with the main bolt. With larger values, the branches will be more perpendicular to the main bolt.

Branch Length
The scaled length of the branches relative to the distance between the Start and End points.

Glow Bright
Scales the brightness of the glow applied to the lightning.

Glow Color
The color of the glow applied to the lightning.

Glow Width
Glow Width
The width of the glow applied to the lightning.

Glow Width Red
The relative red width of the glow.

Glow Width Grn
The relative green width of the glow.
Glow Width Blue
The relative blue width of the glow.

Zap Bright
Scales the brightness of the lightning bolts.

Zap Color
The color of the lightning. If you want to keep the lightning bolt itself bright white, you can still affect the perceived color by adjusting the Glow Color instead.

Start Offset
The offset from the start point to begin drawing the bolts. This can be useful for animating a lightning strike.

Length
The length of the bolts beginning at Start Offset. If less than 1, the bolts will not be drawn all the way from start to end.

Bg Brightness
Scales the brightness of the image before combining with the lightning. If 0, the result will contain only the lightning over black.

Combine
Determines how the lightning and glow are combined with the image.

Screen
Performs a blend function which can help prevent overly bright results.

Add
Adds the lightning to the image. This gives brighter glows over light backgrounds.

Zap Only
Renders the lightning over black.
Atmosphere

Atmosphere Amp
Atmosphere gives the effect of the lightning shining through a dusty atmosphere and picking up light or getting shadowed. This parameter adjusts the amount, or amplitude of the atmospheric effect. 0 creates smoother lightning while higher values provide a more dirty look.

Atmosphere Freq
Controls the spatial frequency of the atmospheric noise. Turn this up higher to get finer details or turn down for broader overall variation.

Atmosphere Detail
Controls the amount of fine detail in the atmosphere simulation. Decrease to get smoother atmosphere or increase for a more crunchy, grainy look.

Atmosphere Seed
Used to initialize the random number generator for the atmospheric noise. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.

3D Parameters

Show
Selects what the effect will output.

Result
Shows the normal lightning result over the background.

ZBuffer
Shows a depth map of the lightning which can be used for compositing or to control other effects.

Swivel Zap
Rotates the lightning left or right about a vertical axis.

Tilt Zap
Rotates the lightning up or down about a horizontal axis. You can use Swivel and Tilt together to rotate about arbitrary diagonal axes.
Camera Zoom
Zooms in or out on the lightning.

Glow Fade
Fades out the glow on more distant parts of the lightning.

Show Spline
Enables/disables the on-screen control for displaying the spline.

Show Vary Endpoint
Enables/disables the on-screen control for adjusting the Vary Endpoint parameter.
S_ZAPFROM

Description
Generates multiple lightning bolts outwards from the edges of objects.

Before
After

Photo by Zoltan Tasi on Unsplash

The S_ZapFrom filter comes from the Emmy award winning Boris FX Sapphire filter set.

Category
Render.

Controls

Presets
To select a preset, pick one from the Presets window.

Surface Bolts
The number of points along the edges to generate lightning bolts from.

Threshold
The value used to determine the edge locations. Objects darker than this value are ignored. On smooth objects, larger threshold values move the edges inwards to make smaller bolts, while smaller values move the edges outwards. You can use the Show Edges option to view the edge image directly while adjusting this parameter.
Blur From Obj
Blurs the image before finding the edges. This can help remove noise and reduce the number of separate bolts. You can use the Show Edges option to view the edge image directly while adjusting this parameter.

Show
Selects the output option.

Result
Shows the normal lightning result over the image.

Edges
Shows the edge image. This can be useful to view while adjusting the Threshold and Blur From.

Max Length
Scales the length of the bolts.

Vary Length
The amount to randomly vary the length of each bolt. A value of 0 makes all bolt lengths equal to Max Length, and a value of 1 makes bolt lengths between zero and Max Length.

Vary Spacing
The amount to randomly vary the starting point of each bolt along the edges. A value of 0 makes the bolts regularly spaced while a value of 1 make the bolts randomly spaced.

Bolt Width
The width of the lightning bolts.

Vary Width
The amount of random variation in the width of the bolts along their lengths.
**End Pointiness**
Determines how pointed the end of the bolts are. If 0, the entire bolt will have equal width. If 1, the bolts will thin out along their entire length for a pointed end. If it is .5, the bolts will start thinning out half way between the start and end points.

**Wiggle Start**
By default the bolts automatically wiggle. This parameter provides a starting offset for these bolt perturbations.

**Rand Seed**
Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different random lightning bolts and the same value should give a repeatable result.

**Wrinkle Amp**
Scales the amount of wrinkles in the bolts. Decrease for straighter, smoother bolts or increase for more kinky bolts.

**Curve Amp**
Similar to Wrinkle Amp but affects the general path of the bolt. If decreased, the bolt will stay closer to the line between the Start and End points. If increased, it can wander further away from this line. This differs from the Wrinkle Amp parameter in that it can be used to make straighter bolts while still keeping the wrinkles at the detailed level.

**Branchiness**
Scales the number of additional bolts that branch from the main bolt. Set this to 0 for basic bolts with no extra branches.

**Branch Angle**
The maximum angle of the random branches relative to the bolt they are branching off of. If this is 0, the branches will be more lined up with the main bolt. With larger values, the branches will be more perpendicular to the main bolt.
Branch Length
The scaled length of the branches relative to the distance between the Start and End points.

Glow Bright
Scales the brightness of the glow applied to the lightning.

Glow Color
The color of the glow applied to the lightning.

Glow Width

  Glow Width
  The width of the glow applied to the lightning.

  Glow Width Red
  The relative red width of the glow.

  Glow Width Grn
  The relative green width of the glow.

  Glow Width Blue
  The relative blue width of the glow.

Zap Bright
Scales the brightness of the lightning bolts.

Zap Color
The color of the lightning. If you want to keep the lightning bolt itself bright white, you can still affect the perceived color by adjusting the Glow Color instead.

Start Offset
The offset from the start point to begin drawing the bolts. This can be useful for animating a lightning strike.

Length
The length of the bolts beginning at Start Offset. If less than 1, the bolts will not be drawn all the way from start to end.
**Bg Brightness**
Scales the brightness of the image before combining with the lightning. If 0, the result will contain only the lightning over black.

**Combine**
Determines how the lightning and glow are combined with the image.

**Screen**
Performs a blend function which can help prevent overly bright results.

**Add**
Adds the lightning to the image. This gives brighter glows over light backgrounds.

**Zap Only**
Renders the lightning over black.

**Atmosphere**

**Atmosphere Amp**
Atmosphere gives the effect of the lightning shining through a dusty atmosphere and picking up light or getting shadowed. This parameter adjusts the amount, or amplitude of the atmospheric effect. 0 creates smoother lightning while higher values provide a more dirty look.

**Atmosphere Freq**
Controls the spatial frequency of the atmospheric noise. Turn this up higher to get finer details or turn down for broader overall variation.

**Atmosphere Detail**
Controls the amount of fine detail in the atmosphere simulation. Decrease to get smoother atmosphere or increase for a more crunchy, grainy look.

**Atmosphere Seed**
Used to initialize the random number generator for the atmospheric noise. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.
S_ZapTo

Description

Generates a forked lightning bolt from a given point to the edges of objects.

The S_ZapTo filter comes from the Emmy award winning Boris FX Sapphire filter set.

Category

Render.

Controls

Presets

To select a preset, pick one from the Presets window.

Surface Points

The number of points along the edges to connect the lightning to.

Bolts

The number of independent forked lightning bolts to draw, each connecting the Start position with the edge points.

Photo by Milan Sonigra on Unsplash
Max Dist
The maximum distance of surface points from the Start position. Edges outside this distance are ignored.

Threshold
The value used to determine the edge locations. Objects darker than this value are ignored. On smooth objects, larger threshold values move the edges inwards to make smaller bolts, while smaller values move the edges outwards. You can use the Show Edges option to view the edge image directly while adjusting this parameter.

Blur ToObj
Blurs the image before finding the edges. This can help remove noise and reduce the number of separate bolts. You can use the Show Edges option to view the edge image directly while adjusting this parameter.

Show
Selects the output option.

Result
Shows the normal lightning result over the image.

Edges
Shows the edge image. This can be useful to view while adjusting the Threshold and Blur From.

Bolt Width
The width of the lightning bolts.

Vary Width
The amount of random variation in the width of the bolts along their lengths.

End Pointiness
Determines how pointed the end of the bolts are. If 0, the entire bolt will have equal width. If 1, the bolts will thin out along their entire length for a pointed end. If it is .5, the bolts will start thinning out half way between the start and end points.
Wiggle Start
By default the bolts automatically wiggle. This parameter provides a starting offset for these bolt perturbations.

Rand Seed
Used to initialize the random number generator. The actual seed value is not significant, but different seeds produce different random lightning bolts and the same value should give a repeatable result.

Wrinkle Amp
Scales the amount of wrinkles in the bolts. Decrease for straighter, smoother bolts or increase for more kinky bolts.

Branchiness
Scales the number of additional bolts that branch from the main bolt. Set this to 0 for basic bolts with no extra branches.

Branch Angle
The maximum angle of the random branches relative to the bolt they are branching off of. If this is 0, the branches will be more lined up with the main bolt. With larger values, the branches will be more perpendicular to the main bolt.

Branch Length
The scaled length of the branches relative to the distance between the Start and End points.

Glow Bright
Scales the brightness of the glow applied to the lightning.

Glow Color
The color of the glow applied to the lightning.

Glow Width
Glow Width
The width of the glow applied to the lightning.
**Glow Width Red**
The relative red width of the glow.

**Glow Width Grn**
The relative green width of the glow.

**Glow Width Blue**
The relative blue width of the glow.

**Zap Bright**
Scales the brightness of the lightning bolts.

**Zap Color**
The color of the lightning. If you want to keep the lightning bolt itself bright white, you can still affect the perceived color by adjusting the Glow Color instead.

**Start Offset**
The offset from the start point to begin drawing the bolts. This can be useful for animating a lightning strike.

**Length**
The length of the bolts beginning at Start Offset. If less than 1, the bolts will not be drawn all the way from start to end.

**Bg Brightness**
Scales the brightness of the image before combining with the lightning. If 0, the result will contain only the lightning over black.

**Combine**
Determines how the lightning and glow are combined with the image.

**Screen**
Performs a blend function which can help prevent overly bright results.

**Add**
Adds the lightning to the image. This gives brighter glows over light backgrounds.
Zap Only
Renders the lightning over black.

Atmosphere

Atmosphere Amp
Atmosphere gives the effect of the lightning shining through a dusty atmosphere and picking up light or getting shadowed. This parameter adjusts the amount, or amplitude of the atmospheric effect. 0 creates smoother lightning while higher values provide a more dirty look.

Atmosphere Freq
Controls the spatial frequency of the atmospheric noise. Turn this up higher to get finer details or turn down for broader overall variation.

Atmosphere Detail
Controls the amount of fine detail in the atmosphere simulation. Decrease to get smoother atmosphere or increase for a more crunchy, grainy look.

Atmosphere Seed
Used to initialize the random number generator for the atmospheric noise. The actual seed value is not significant, but different seeds produce different results and the same value should give a repeatable result.

Show Start
Enables/disables the on-screen control for adjusting the Start parameter.
BLEND MODES

Blend modes are used to combine images in a variety of different ways.

Normal
Edits each pixel to make it the result color. This is the default mode. Changing the opacity results in a mix between two layers.

Darken
Looks at the color information in each channel and selects the base or blend color—whichever is darker—as the result color. Pixels lighter than the blend color are replaced, and pixels darker than the blend color do not change.

Multiply
Looks at the color information in each channel and multiplies the base color by the blend color. The result color is always a darker color. Multiplying any color with black produces black. Multiplying any color with white leaves the color unchanged.

Color Burn
Looks at the color information in each channel and darkens the base color to reflect the blend color by increasing the contrast between the two. Blending with white produces no change.

Linear Burn
Looks at the color information in each channel and darkens the base color to reflect the blend color by decreasing the brightness. Blending with white produces no change.

Darker Color
Compares the total of all channel values for the blend and base color and displays the lower value color. Darker Color does not produce a third color, which can result from the Darken blend, because it chooses the lowest channel values from both the base and the blend color to create the result color.
Lighten
Looks at the color information in each channel and selects the base or blend color—whichever is lighter—as the result color. Pixels darker than the blend color are replaced, and pixels lighter than the blend color do not change.

Add
The pixels of one image are added to another image

Screen
Looks at each images color information and multiplies the inverse of the two images. This looks kind of like the Add blend mode, but highlights are retained.

Color Dodge
Looks at the color information in each channel and brightens the base color to reflect the blend color by decreasing contrast between the two. Blending with black produces no change.

Linear Dodge (Add)
Looks at the color information in each channel and brightens the base color to reflect the blend color by increasing the brightness. Blending with black produces no change.

Lighter Color
Compares the total of all channel values for the blend and base color and displays the higher value color. Lighter Color does not produce a third color, which can result from the Lighten blend, because it chooses the highest channel values from both the base and blend color to create the result color.

Overlay
Multiplies or screens the colors, depending on the base color. Patterns or colors overlay the existing pixels while preserving the highlights and shadows of the base color. The base color is not replaced, but mixed with the blend color to reflect the lightness or darkness of the original color.
**Soft Light**

Darkens or lightens the colors, depending on the blend color. The effect is similar to shining a diffused spotlight on the image. If the blend color (light source) is lighter than 50% gray, the image is lightened as if it were dodged. If the blend color is darker than 50% gray, the image is darkened as if it were burned in.

**Hard Light**

Multiplies or screens the colors, depending on the blend color. The effect is similar to shining a harsh spotlight on the image. If the blend color (light source) is lighter than 50% gray, the image is lightened, as if it were screened. This is useful for adding highlights to an image. If the blend color is darker than 50% gray, the image is darkened, as if it were multiplied. This is useful for adding shadows to an image.

**Vivid Light**

Burns or dodges the colors by increasing or decreasing the contrast, depending on the blend color. If the blend color (light source) is lighter than 50% gray, the image is lightened by decreasing the contrast. If the blend color is darker than 50% gray, the image is darkened by increasing the contrast.

**Linear Light**

Burns or dodges the colors by decreasing or increasing the brightness, depending on the blend color. If the blend color (light source) is lighter than 50% gray, the image is lightened by increasing the brightness. If the blend color is darker than 50% gray, the image is darkened by decreasing the brightness.

**Pin Light**

Replaces the colors, depending on the blend color. If the blend color (light source) is lighter than 50% gray, pixels darker than the blend color are replaced, and pixels lighter than the blend color do not change. If the blend color is darker than 50% gray, pixels lighter than the blend color are replaced, and pixels darker than the blend color do not change. This is useful for adding special effects to an image.
Difference
Looks at the color information in each channel and subtracts either the blend color from the base color or the base color from the blend color, depending on which has the greater brightness value. Blending with white inverts the base color values; blending with black produces no change.

Exclusion
Creates an effect similar to but lower in contrast than the Difference mode. Blending with white inverts the base color values. Blending with black produces no change.

Subtract
Looks at the color information in each channel and subtracts the blend color from the base color. In 8 and 16-bit images, any resulting negative values are clipped to zero.

Hue
Creates a result color with the luminance and saturation of the base color and the hue of the blend color.

Saturation
Creates a result color with the luminance and hue of the base color and the saturation of the blend color.

Color
Creates a result color with the luminance of the base color and the hue and saturation of the blend color. This preserves the gray levels in the image and is useful for coloring monochrome images and for tinting color images.
# Keyboard Shortcuts

## Crop Shortcuts

<table>
<thead>
<tr>
<th>Shortcut</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drag on one of the vertical boundaries</td>
<td>Crops horizontally</td>
</tr>
<tr>
<td>Drag on one of the horizontal boundaries</td>
<td>Crops vertically</td>
</tr>
<tr>
<td>Drag bounding box corner</td>
<td>Scales the Crop</td>
</tr>
<tr>
<td>Drag inside the bounding box</td>
<td>Moves the Crop</td>
</tr>
</tbody>
</table>

## EZ Mask Shortcuts

<table>
<thead>
<tr>
<th>Shortcut</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter</td>
<td>Processes the mask</td>
</tr>
</tbody>
</table>

## Help Shortcuts

<table>
<thead>
<tr>
<th>Shortcut</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>Opens the Optics User Guide</td>
</tr>
</tbody>
</table>

## Layout Shortcuts

<table>
<thead>
<tr>
<th>Shortcut</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>F2</td>
<td>Selects the Default Layout</td>
</tr>
<tr>
<td>F3</td>
<td>Selects the Edit Layout</td>
</tr>
<tr>
<td>F4</td>
<td>Selects the View Layout</td>
</tr>
<tr>
<td>F5</td>
<td>Selects the Dual Monitor Layout</td>
</tr>
</tbody>
</table>
### Paint Keyboard Shortcuts

<table>
<thead>
<tr>
<th>Shortcut</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Selects the Black/White brush</td>
</tr>
<tr>
<td>Shift+B</td>
<td>Selects the Blur brush</td>
</tr>
<tr>
<td>C</td>
<td>Selects the Clone brush</td>
</tr>
<tr>
<td>Shift+C</td>
<td>Selects the Color brush</td>
</tr>
<tr>
<td>E</td>
<td>Selects the Eraser brush</td>
</tr>
<tr>
<td>Shift+M</td>
<td>Selects the Mosaic brush</td>
</tr>
<tr>
<td>R</td>
<td>Selects the Red-Eye brush</td>
</tr>
<tr>
<td>Shift+R</td>
<td>Selects the Repair brush</td>
</tr>
<tr>
<td>S</td>
<td>Selects the Scatter brush</td>
</tr>
<tr>
<td>Ctrl/Cmd+drag</td>
<td>Sizes the brush</td>
</tr>
<tr>
<td>[]</td>
<td>Sizes the brush</td>
</tr>
<tr>
<td>Shift with clone brush</td>
<td>Sets the clone offset</td>
</tr>
<tr>
<td>Shift+click or tap</td>
<td>Resets the clone offset</td>
</tr>
<tr>
<td>Arrow keys</td>
<td>Moves the Clone source by 1 pixel</td>
</tr>
<tr>
<td>Shift+Arrow keys</td>
<td>Moves the Clone source by 10 pixels</td>
</tr>
<tr>
<td>Hold down Arrow keys</td>
<td>Moves the Clone source continuously</td>
</tr>
<tr>
<td>Right-mouse drag</td>
<td>Paints with the Eraser brush</td>
</tr>
</tbody>
</table>

### Path Mask Point Selecting Shortcuts

<table>
<thead>
<tr>
<th>Shortcut</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click a point</td>
<td>Selects one point</td>
</tr>
<tr>
<td>Click and drag over multiple points</td>
<td>Selects multiple points</td>
</tr>
<tr>
<td>Ctrl+click on a point</td>
<td>Toggles the matte on or off</td>
</tr>
<tr>
<td>Shift+click a point</td>
<td>Adds the point to the current matte</td>
</tr>
</tbody>
</table>
### Path Mask Point Editing Shortcuts

<table>
<thead>
<tr>
<th>Shortcut</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alt+click on a path</td>
<td>Inserts a new point along the path</td>
</tr>
<tr>
<td>Delete key</td>
<td>Delete all selected points</td>
</tr>
<tr>
<td>Click and drag selected points</td>
<td>All selected points move</td>
</tr>
<tr>
<td>Click and drag an unselected point</td>
<td>Moves one point</td>
</tr>
<tr>
<td><strong>Alt+click+drag on a point</strong></td>
<td>Opens a slider to adjust the point’s tension. Left of center forces the path to curve through the point (Cardinal spline). The center position creates a corner point while the right position moves the curve towards the center of the path (B-Spline). If multiple points have been selected, they will all be set to the same tension.</td>
</tr>
<tr>
<td><strong>Alt+click+drag+Shift on a point</strong></td>
<td>Snaps the point tension to Cardinal, Corner or B-Spline positions</td>
</tr>
</tbody>
</table>

### Path Mask Point Editing Pop-up Menu

<table>
<thead>
<tr>
<th>Menu Option</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardinal</td>
<td>Creates a path that passes smoothly through each point</td>
</tr>
<tr>
<td>Corner</td>
<td>Creates a corner point</td>
</tr>
<tr>
<td>B-Spline</td>
<td>Creates a path that is determined by the surrounding points</td>
</tr>
</tbody>
</table>

### Snap Mask Point Editing Shortcuts

<table>
<thead>
<tr>
<th>Shortcut</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alt+click between two points</td>
<td>Add points</td>
</tr>
<tr>
<td>Hover over point + <strong>Delete</strong> Key</td>
<td>Delete points</td>
</tr>
<tr>
<td><strong>Alt+drag a point</strong></td>
<td>Uses magnetism to snap a point to an object’s boundary</td>
</tr>
</tbody>
</table>
### Viewer Keyboard Shortcuts

<table>
<thead>
<tr>
<th>Shortcut</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle-mouse drag</td>
<td>Pans the image</td>
</tr>
<tr>
<td><strong>Space Bar</strong>+drag</td>
<td>Pans the image</td>
</tr>
<tr>
<td>I Key</td>
<td>Zooms the image in</td>
</tr>
<tr>
<td>O Key</td>
<td>Zooms the image out</td>
</tr>
<tr>
<td>Zoom icon+Drag a square</td>
<td>Zooms into the defined area</td>
</tr>
<tr>
<td>Scroll wheel over image</td>
<td>Zooms the image in and out</td>
</tr>
<tr>
<td>Middle-mouse double click</td>
<td>Fits the image to the window</td>
</tr>
<tr>
<td><strong>Ctrl/Cmd</strong>+click A/B</td>
<td>Turns off A/B Comparison mode, if enabled,</td>
</tr>
<tr>
<td>Comparison</td>
<td></td>
</tr>
<tr>
<td><strong>F</strong></td>
<td>Fits the image to the window</td>
</tr>
<tr>
<td><strong>1</strong></td>
<td>Sets the Viewer &gt; Zoom to 100%</td>
</tr>
<tr>
<td><strong>M</strong></td>
<td>Cycles the display between the full color image and the Mask channel</td>
</tr>
<tr>
<td><strong>H</strong></td>
<td>Opens the Histogram window</td>
</tr>
</tbody>
</table>