Filmworkz®

Create Incredible

OFX DVO
USER GUIDE

OFX

WHAT DO THEY DO?

A specially selected range of OFX plugins, enabling you to access the power of our Emmy award-winning DVOs on your OFX host platform. **OFX DVO Plugins** comprises 9 of the best image processing algorithms out there:

HOW DO YOU USE THEM?

The Filmworkz **OFX Performance Pack** runs on **Resolve**, **Mistika** and **Scratch** for Windows, Mac and CentOS.

Take a look at page 36 for helpful installation tips.

These DVOs – and many more, perfectly matched to any grading, correction, restoration or conversion challenge – are also available in the following **Filmworkz platforms**:

GETTING STARTED

Just locate & enable the DVO OFX tools in your chosen platform; for ease, we're showing the screenshots from Resolve in this User Guide so consult your manuals for any alternative system you're using.

1. Launch Resolve on your workstation.

2. Open your project; to select the DVO effect, click on the Effects tab on the upper left side of the interface. On the Open FX section, open the Filters section and click on DVO.

3. To apply the effect, you can either double click or drag and drop on the selected clip(s) when using the Timeline tab. If you're in the Color page, select the effect using the Effects tab on the top left side of the interface and drag and drop on an existing node.

4. Click on the Effects section (or click on the grading node) and the control panel overleaf appears.

Please refer to the **Installation Guide** at the end of the document if you need more help.

DVO BRICKWALL

WHAT DOES IT DO?

DVO Brickwall assists in reducing the complexity of a signal, which in turn makes compression processes more efficient.

It achieves this by creating a very precise frequency cutoff allowing for a clear and accurate definition of the spectral content, reducing compression artifacts and improving the overall quality of the compressed images.

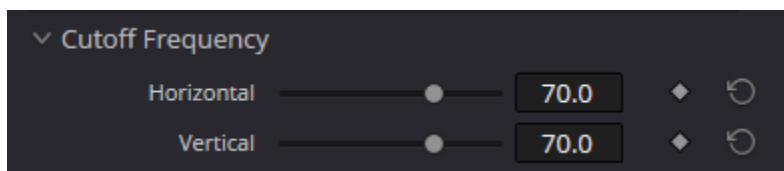## CONTROL PANEL EXPLAINED
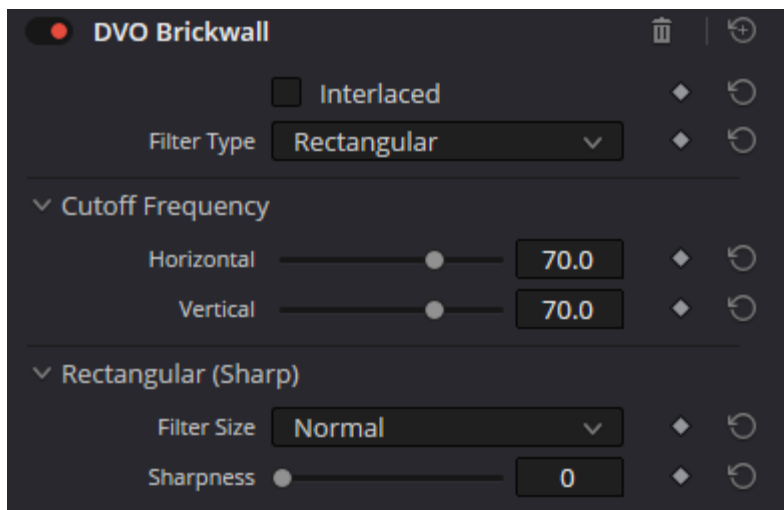
INTERLACED

If the media is interlaced, turn on this option on.

CUTOFF

Cutoff allows you to adjust the horizontal and vertical filtering of the luminance, expressed as a percentage of the maximum bandwidth.
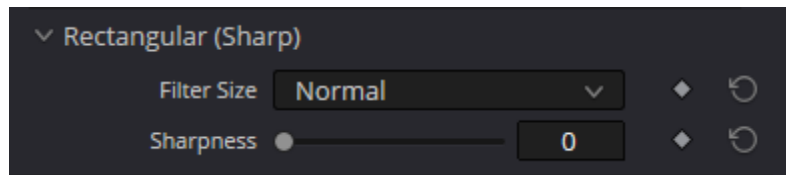
A setting of 100 equals a full bypass.

It's possible to control *horizontal* and *vertical* filtering independently.

Values: 0 – 100

Default: 70.0

FILTER

TYPE

DVO Brickwall has four different filter cores, each with a different characteristic.

Values: Rectangular (Sharp), Rectangular (default), Circular, Diagonal

Rectangular (Sharp):	Has a very sharp cut off. This can be fine-tuned using the *Sharpness* cutoff and a different *Size* of the core filter.
Rectangular:	Horizontal and vertical filtering normal cut off.
Circular:	Very good general option, works good with pixel mosquito issues.
Diagonal:	Tilted 45 degrees very efficient when mastering **DCT compression** algorithms like MPEG.

FILTER SIZE

Values: Small, Normal (default), Large

SHARPNESS

Values: 0 – 15

Default: 0

DVO CHROMA

WHAT DOES IT DO?

DVO Chroma is designed to enhance and resolve various chroma (color) anomalies found in source material. Some of the issues it addresses include:

o Chroma bleeding in video material: This refers to the unwanted spreading or bleeding of colors in video content, resulting in distorted or smudged color boundaries.

o Chromatic aberration and similar camera lens issues: These are optical defects that occur when different colors do not focus at the same point, causing color fringing or blurring along edges in the image.

o Color artifacts due to bayering defects: Bayering is a process used in digital image sensors, and defects in this process can lead to color artifacts or inaccuracies in the captured image.

DVO Chroma provides solutions to these anomalies, aiming to improve the overall quality and accuracy of color representation in the source material.

CONTROL PANEL EXPLAINED
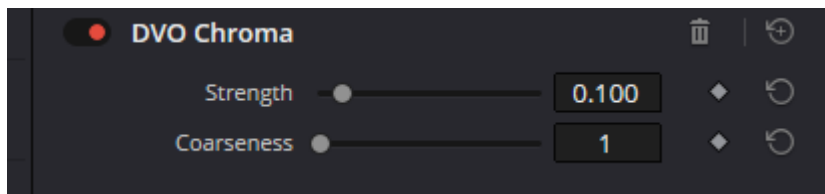
PARAMETERS

STRENGTH

To control the level of processing performed by DVO Chroma, you can adjust the strength setting. Even with a strength setting of 0, the tool will still apply some processing, albeit at a minimal level.

When dealing with debayering artifacts, it's recommended to try a very low setting, such as 0.0 or 0.01. This allows for subtle processing to address the artifacts without introducing excessive alterations to the image.

Experimenting with different strength settings can help find the optimal balance between artifact removal and preserving the natural appearance of the footage.

Values: 0 – 1

Default: 0.1 00

COARSENESS

This determines the size of the filter used for processing. It's important to exercise caution when adjusting this parameter and use it primarily for addressing significant chroma defects that are relatively large.

Applying a larger filter size here can be effective in tackling prominent chroma anomalies. However, we recommend avoiding excessive adjustments that might overreach and impact smaller details or introduce unintended artifacts.

Values: 1 − 3
Default: 1

DVO CLARITY

WHAT DOES IT DO?

DVO Clarity is the fifth generation of our advanced noise and grain reduction tool. It aims to automate the configuration process as much as possible while delivering the highest quality output. The new algorithms employed by DVO Clarity prioritize the preservation of fine details and the retention of the original image sharpness, all while ensuring a lack of artifacts in the processed video.

DVO Clarity incorporates several notable features, including automated analysis of grain characteristics, an improved motion estimation engine, detail enhancement capabilities, and an enhanced spatial-temporal filter. These advancements contribute to its ability to effectively reduce grain and noise while maintaining image quality and – of course – **Clarity**!

## CONTROL PANEL EXPLAINED
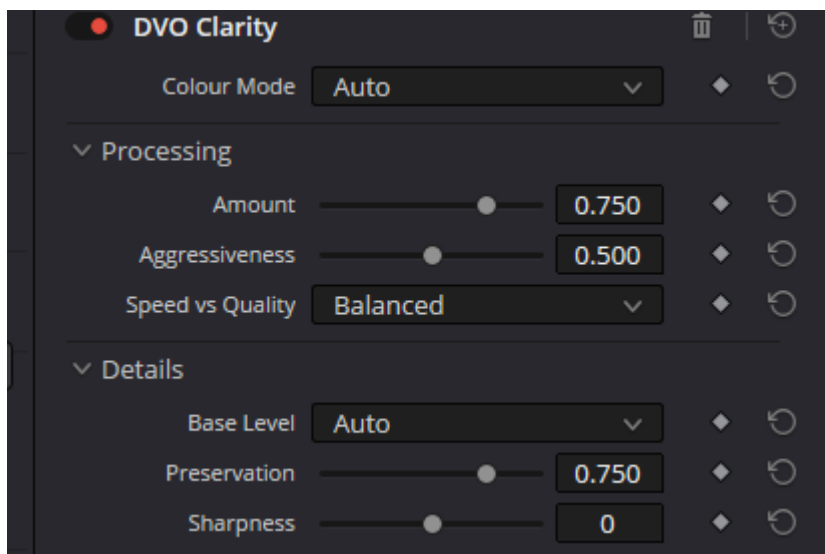
BASIC PARAMETERS

COLOR MODE
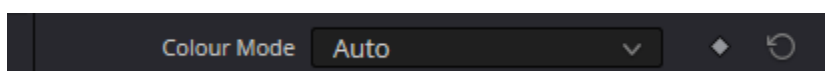
The drop-down list allows the user to set RGB processing or single channel BW (black and white) processing.

The options available are:

Auto   Analyze the clip to assign BW or RGB processing.

RGB   Separate analysis and processing of the RGB channels

BW   Only the Green channel is analyzed and used for all channels.

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RGB > BW   Converts RGB to a single channel, process and output the result as BW.

Default: Auto

PROCESSING
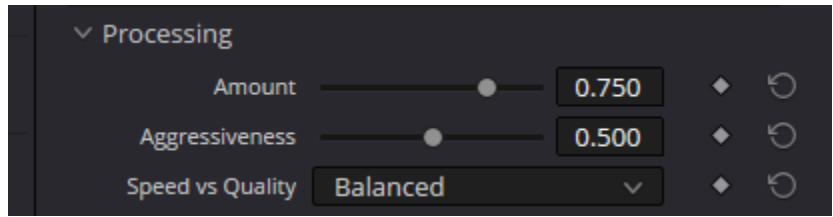
The *Process* parameters set the basic processing for the **DVO Clarity** algorithms.

AMOUNT

The Amount parameter sets the overall level of noise/grain reduction.

Range: 0.00 - 1.00

Default: 0.75

AGGRESSIVENESS

The parameter "Aggressiveness" determines the extent and strength of noise/grain reduction, taking motion into consideration. A higher value indicates a greater level of motion being disregarded during the noise reduction process. In other words, increasing the Aggressiveness value results in more emphasis on noise reduction, potentially overlooking subtle motion details in the image.

Range: 0.00 - 1.00

Default: 0.50

SPEED VS QUALITY

By default, our approach aims to strike a balance between the quality of the output and the processing time required to generate it. The "Speed vs Quality" setting allows you to customize this trade-off according to your specific requirements.

Adjusting this setting allows you to prioritize either faster processing times or higher output quality based on your preferences.

Values: Speed, Balanced (default), Quality

DETAILS
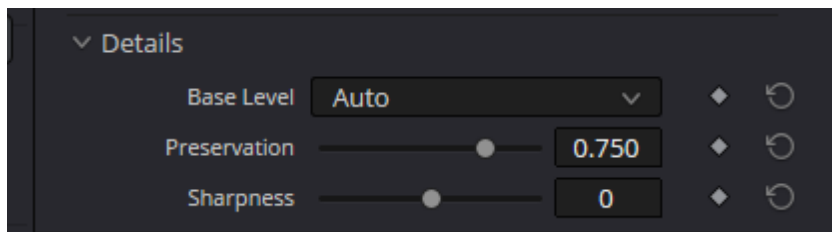
The Details group controls the level of *detail preservation* versus noise/grain reduction performed.

BASE LEVEL

The "Base Level" parameter establishes the general bias for preserving detail in the DVO Clarity algorithm. By default, when set to "Auto," the algorithm automatically adapts to the input. However, adjusting it to "Less" or "More" will modify the overall bias toward preserving detail in the following ways:

Less - try and preserve *less* detail; **More** - try and preserve *more* detail.

By selecting either "Less" or "More," you can fine-tune the algorithm's behavior to suit your preference for detail preservation.

Values: More, Auto (default), Less

PRESERVATION

Using Base Level, the Preservation parameter will fine-tune detail preservation. Higher settings preserve more detail.

Range: 0.00 - 1.00

Default: 0.75

SHARPNESS

The latest Clarity includes an updated algorithm, resulting in an improved look that relates to a better-balanced sharpness:

+1 should correspond to previous versions of Clarity.

0 is the new default, and

-1 could be recommended for material with heavy grain or just for a softer look.

The different profiles may also influence grain/noise reduction. Impact/difference obviously depends on other parameters but should be clear if heavy grain reduction is applied.

Range: -1, 0, +1

Default: 0

DETAILS PRESERVATION WORKFLOW

When analyzing the shot and determining the appropriate settings for the "Details" parameters, it's necessary to observe and record the quantity and size of any noise artifacts present, such as grain size. Additionally, consider the level of detail captured in the shot.

These observations will help in selecting optimal values for the "Details" parameters that effectively address the noise artifacts while preserving the desired level of detail in the image.

If the detail level is low and not apparent against the average noise/grain size use these settings:

Base Level: Less

Preservation: 0

If the detail level is high and apparent against the average noise/grain size use these settings:

Base Level: More

Preservation: 100

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DVO DECOMPRESS

WHAT DOES IT DO?

DVO Decompress is a video processing tool designed to mitigate the negative effects of compression on video clips. It specifically targets issues commonly encountered when working with highly compressed clips, such as banding, macro blocking, bit-starvation, loss of resolution, and color loss associated with YUV codecs.

DVO Decompress aims to address these issues by applying advanced algorithms to restore video quality and minimize visible artifacts. It analyzes compressed video data and employs various methods to reduce banding, remove macro blocking, enhance resolution, and restore color accuracy. By processing the video with **DVO Decompress**, you can improve the visual quality of heavily compressed clips and make them more suitable for further editing or distribution.

CONTROL PANEL EXPLAINED

OFX
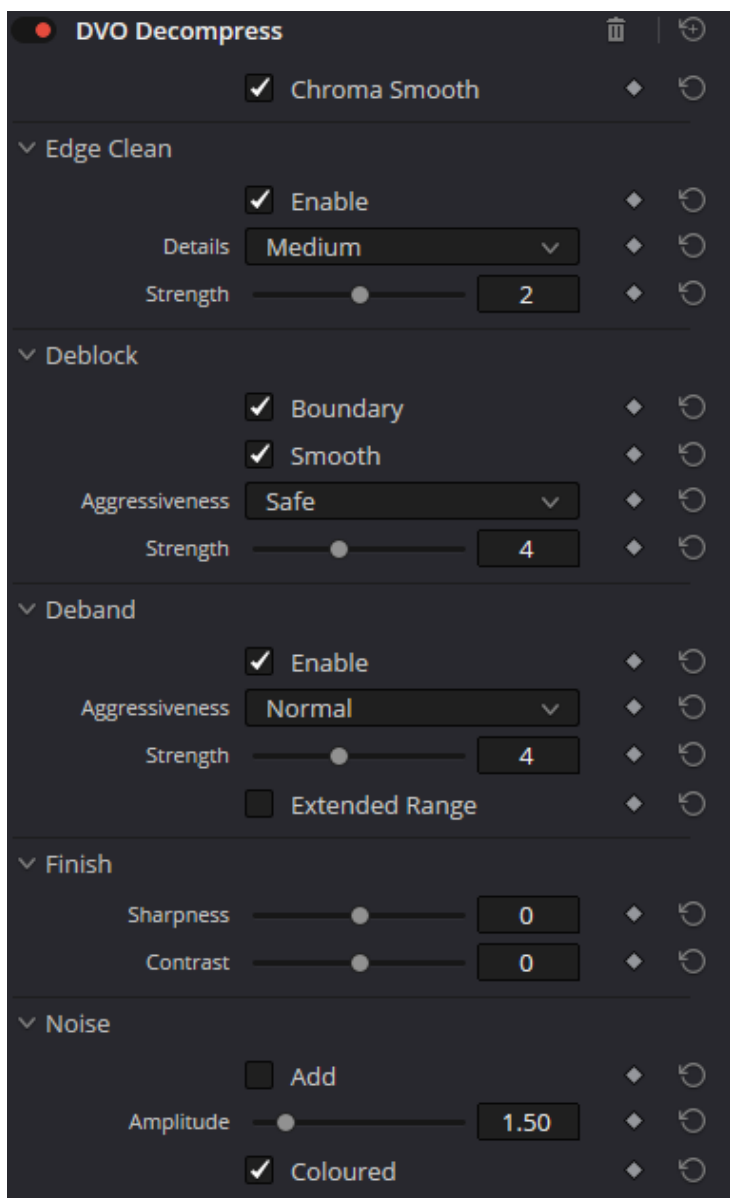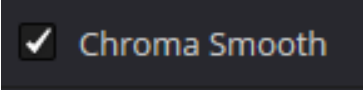
CHROMA SMOOTH

Chroma Smooth is designed to address chroma coding issues related to various codec conversions, such as YUV 422, YUV 420, YUV 411, YUV 410, and ultimately smooth the chroma information back to RGB 444.

It aims to address the issues introduced by these chroma subsampling techniques and restore the chroma information to its original quality by converting it back to RGB 444. By performing this smooth conversion from various chroma subsampling formats to RGB 444, Chroma Smooth helps mitigate any artifacts or quality degradation introduced during codec conversions, resulting in improved color accuracy and visual fidelity in the final output.

EDGE CLEAN
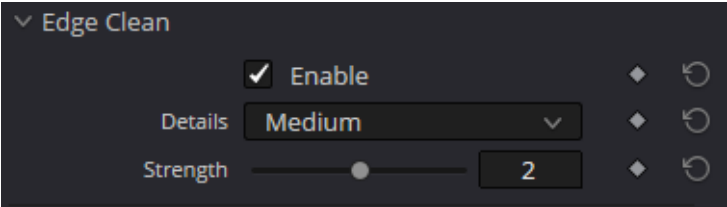
This parameter is used to repair artifacts that can occur due to the lossy nature of the compression process. These artifacts can affect the edges and details in the compressed image or video.

Use a larger Details and Strength setting if the image is very compressed.

Details options: Safe, Medium (default), Large, X-Large

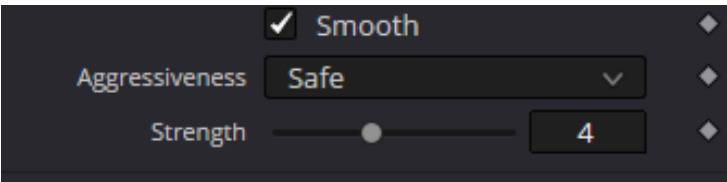**Strength Range:** 0 − 4 (default: 2)

DEBLOCK

Deblock fixes macro blocking issues in the image. We divide this process into 2 parts, one fixing the edges of the blocks (Boundary) and the other fixes inside the block (Block Smooth) Description

BOUNDARY
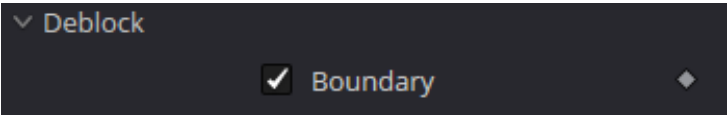
Finds the hard edges between the macroblocking (boundary artifacts) and corrects them.
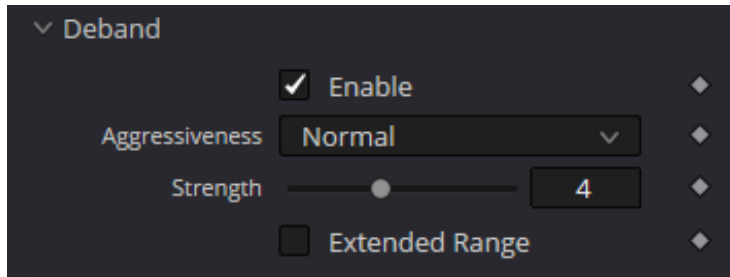
BLOCK SMOOTH

Block Smooth addresses pixel noise and bit starvation within blocks by applying a filtering process. The Aggressiveness parameter determines the strength or intensity of the filtering effect.

Aggressiveness options: Safe (default), Normal, Max, Brutal

Strength Range: 0 – 10 (default: 4)

DEBAND

Deband is used to reduce or eliminate the visible banding artifacts that can occur in images or videos with smooth gradients, particularly in areas such as skies, underwater scenes, or dark regions. Banding is often caused by limitations in the bit depth of the image or video, where there are not enough levels of intensity available to accurately represent subtle changes in color or brightness.
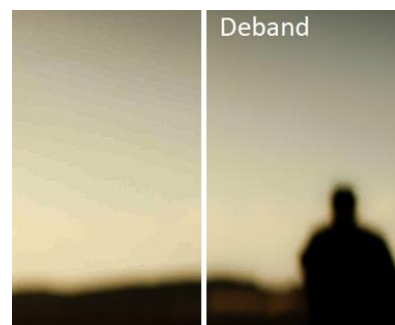
AGGRESSIVENESS

Aggressiveness refers to the intensity or severity of the filtering process. Higher aggressiveness levels typically result in stronger and more pronounced filtering effects, while lower levels produce milder or subtle changes. Use Extended range for larger sized images.

The combination Block Smooth and Deband works very efficiently on dark scenes and MPEG2 compression.

Aggressiveness options: Safe, Normal (default), Max, Brutal

Strength Range: 0 – 10 (default: 4)

FINISH
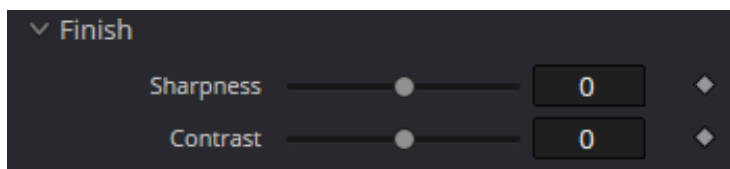
Finish helps to maintain important details of the image like sharpness and local contrast, while Add Noise adds texture to the image.

Sharpness: adjusts sharpness

Range: -2 – 2 (default: 0)

Contrast: adjusts local contrast.

Range: -2 – 2 (default: 0)

NOISE
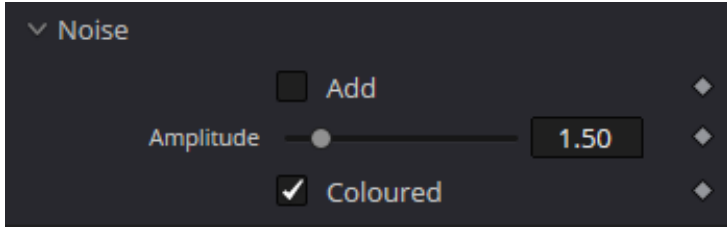
Use the "Add Noise" feature If you want to add a nice texture to the image to make it more visually appealing. By adjusting the amplitude, you can control the height or intensity of the noise. Increasing the amplitude will result in a more pronounced and visible noise effect, while decreasing it will make the noise less prominent.

Range: 0.0 – 10.0 (default: 1.5)

The Colored setting will add a colored noise and it's on by default.

DVO GRAIN GT

WHAT DOES IT DO?

DVO Grain GT is a fast grain management tool that makes full use of modern advanced CPU instruction sets.

The **Filmworkz DVO Grain GT** algorithm is specifically designed to manage the look of film grain and to reduce unwanted electronic noise in film or video originated material. It can be used for:

- Restoration
- Compression pre-processing
- Image processing of new feature films, television and commercial material.

The **DVO Grain GT** algorithm incorporates the Emmy award-winning **PHAME** advanced motion estimation technology along with edge-preserving 3D spatial-temporal filters and temporal (recursive) filters to allow artists to produce clean, sharp pictures and to match the look of film grain from shot-to-shot (including grain matching for underexposed film).

The process of adaptively selecting the best mix of spatial and recursive filtering for each pixel is unique to the **DVO Grain GT** algorithm.

CONTROL PANEL EXPLAINED
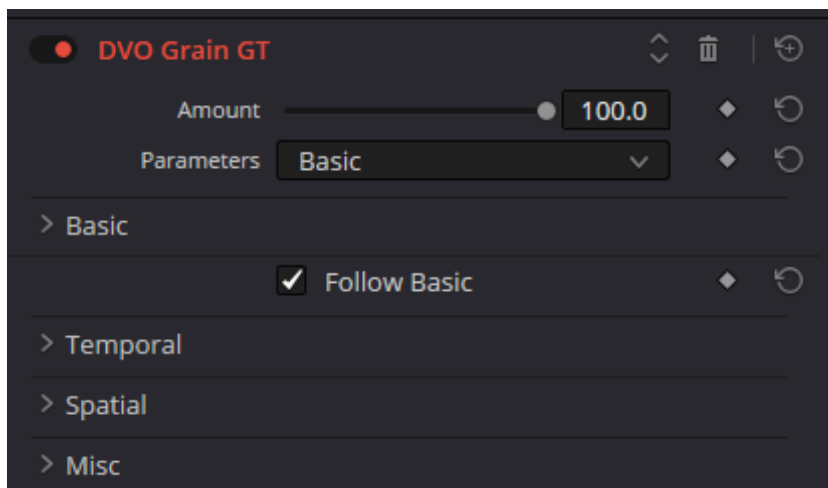
BASIC MODE
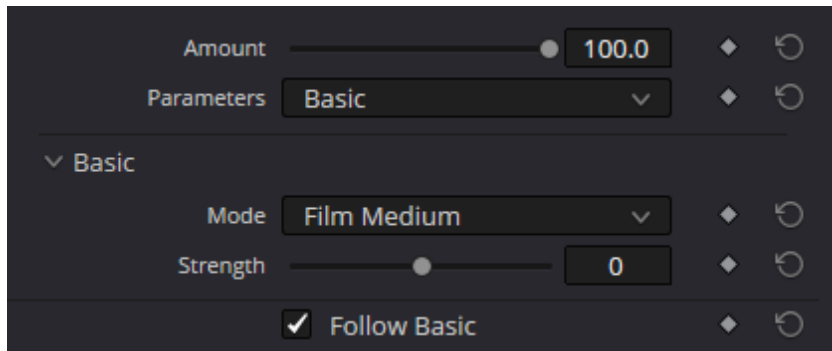
DVO Grain GT's **Basic Mode** provides a simple way to control grain/noise reduction without sacrificing performance. This is a good starting point and may be all that's required in most cases.

Basic Mode will use only the settings included in the Basic section of the menu:

Amount - Defines the amount mixed with the input file.

Mode - Pre-defined presets

Strength - Strength of the effect

Notes:

- To adjust any of the other DVO Grain GT parameters (e.g., Temporal or Spatial Strength, Spike Filter, Motion Estimation etc.) you need to change the Parameters option from Basic to Advanced

- To select a particular *Mode* (e.g., Film Coarse) you need to keep the Parameters option in Basic Mode.

- To reset options after using Advanced mode, change back to Basic and check the Follow Basic option.

MODE (PRESETS)

The *Mode* sets the basic preset used for grain reduction. Each selected mode will set up the more advanced parameters automatically.

Values: Film Fine, Film Medium, Film Coarse, Video (Interlaced), Video (Progressive)

Default: Film Medium

STRENGTH

The amount of grain/noise reduction is set automatically in Basic Mode. The *Strength* control lets you fine-tune this and increase or decrease the amount of grain reduction.

Values: -2 - +2

Default: 0

AMOUNT

Controls the mix between the processed image (with grain removed) and the input image to give the final output image.

This makes it possible to mix in some of the original grain into the processed picture for a better film look.

Values: 0 - 100%

Default: 100%

ADVANCED METHODS

Selecting Advanced Mode, we have an array of advanced modes and settings available to tune all aspects of the effect.

The best course of action is often to choose a *Basic Mode* preset that most closely matches your desired result and then adjust one or more advanced settings.
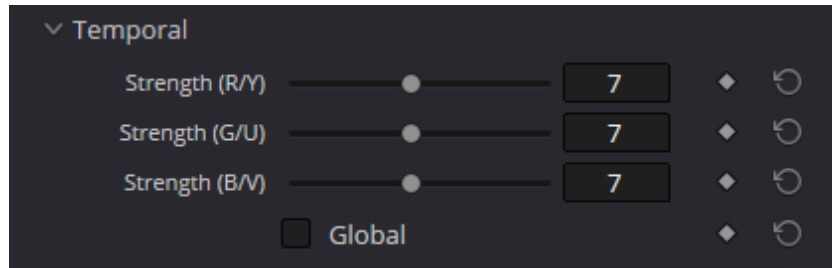
TEMPORAL STRENGTH

The temporal or recursive filtering is the most effective filter in terms of reducing grain/noise. Use the numeric sliders to set the amount/level of temporal recursive filtering in each channel.

Range: 0 - 15

Default: Varies according to selected Basic Mode

GLOBAL

As an adaptive grain and noise reducer, we disable the temporal/recursive processing of all moving edges within the image to assist in the reduction of motion artifacts.

Turning on Global enables filtering of the **whole picture** regardless of motion for maximum temporal filtering.

Global should normally be left **Off** and only used in extreme situations but can be used to create a motion smearing effect.

SPATIAL

Edge-preserving spatial filtering complements the adaptive temporal filters by processing grain and noise in portions of the image that are detected as being in motion, while leaving non-moving areas unaffected.

Spatial filtering is done before the application of the temporal filters and works in unison with motion processing.

SPATIAL STRENGTH

Spatial Strength is the overall level of spatial filtering applied in each channel. The values here should normally match the temporal strength.

Range: 0 - 15

Default: Varies according to selected Basic Mode

GLOBAL BALANCE

Allows a combination of the basic level of spatial filtering and motion adaptive spatial filtering. Maximum filtering is achieved in areas with motion according to spatial strength.

The Global Balance slider allows you to set a minimum level of spatial filtering, rather than having the level set entirely based on motion detection.

- **Set to 0** (zero) - parts of the image with no motion will receive no spatial filtering
- **Increasing the slider** - increases the spatial filtering of areas with little or no motion

Global spatial filtering can be achieved by setting Global Balance to 100.

Important notes:
- Temporal filtering works in areas with no or little motion.
- Spatial filtering works in areas of motion.
- Global enables the filters to work on the entire picture.

SPATIAL SIZE

The Spatial Size drop-down list adjusts the spatial size of the grain/noise in pixels for each channel. Setting R, G and B equally will give the best performance.

Values: 1, 3, 5, 7, 9

Default: Varies according to selected Basic Mode

SPATIAL THRESHOLD

Determines when to filter, depending on the intensity of the surrounding pixels.

If there's a high enough intensity/contrast (e.g. an edge) between the grain/noise and surrounding pixels, filtering will **not** occur.

A low setting will only affect low intensity pixels (flat areas). A high setting will start to affect high intensity pixels (edges).

Range: 0 - 100

Default: Varies according to selected Basic Mode

MISC
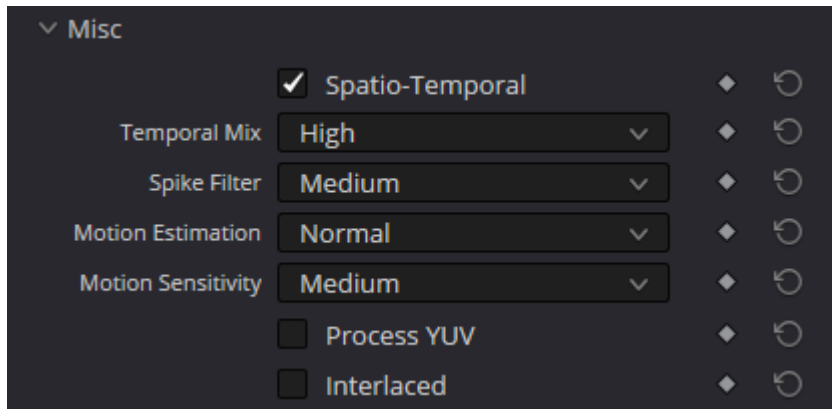
SPATIO-TEMPORAL

If this is enabled, the filter becomes a **3D Spatio-Temporal Filter** (adding the use of temporal taps). This can enhance the noise reduction achieved. The default is On.

TEMPORAL MIX

The temporal mix controls the balance between the spatial and temporal taps of the spatio-temporal filter.

This setting affects the noise reduction achieved by the spatio-temporal filter, with more noise reduction for the higher settings.

For fast motion material and a higher than default spatial filter threshold setting, a high temporal mix setting may increase artifacts. In such cases, this setting may be lowered. For a lower than default spatial filter threshold setting, the *Full* setting may be used.

The default setting *High* should be safe in most circumstances.

Values: Low, Medium, High, Full   **Default:** High

SPIKE FILTER

This setting enhances the spatial filter performance by incorporating a *spike* adaptation.

The spike adaptation is a mechanism that allows the spatial filter to effectively handle abrupt changes or spikes in pixel values. These spikes can occur due to various factors like noise, sudden transitions, or outliers in the image data.

By incorporating a spike adaptation, the spatial filter becomes more adaptive and responsive to these abrupt changes. It can identify and adapt its filtering behavior to effectively suppress or mitigate the impact of the spikes while preserving the desired image details and structures.

The *Spike Filter* setting relates to the grain/noise characteristics:

- A low setting (e.g. Narrow) is suitable for smaller grain and noise sizes and/or less pronounced variations in amplitudes.
- A high setting (e.g. Wide) is suitable for larger grain/noise and/or more pronounced variations in amplitudes.

Setting this to **Narrow** in conjunction with Motion Sensitivity to **High** and Motion Estimation to **Best** can help avoid motion estimation errors caused by noisy/grainy material.

Values: Disable, Narrow, Medium, Wide

Default: Medium

DVO Grain GT is a fully motion compensated noise/grain reducer. This means that much more aggressive settings can be used without introducing smearing.

MOTION ESTIMATION

The Best setting is good for **fast motion** but is slower than Normal.
In almost all cases, Normal or Best should be used.

Values: Disable, Normal (default), Best

Default: Normal

MOTION SENSITIVITY

Motion Sensitivity adapts the temporal filtering with respect to grain size and intensity.

Motion Sensitivity has a great impact on processing and the type of filter (spatial/temporal) being used. It may be better to set Motion Sensitivity to Low rather than just increasing filter strengths.

Values: Low, Medium (default), High

Default: Medium

PROCESS YUV

Enable to process in YUV color space (not RGB).

INTERLACED
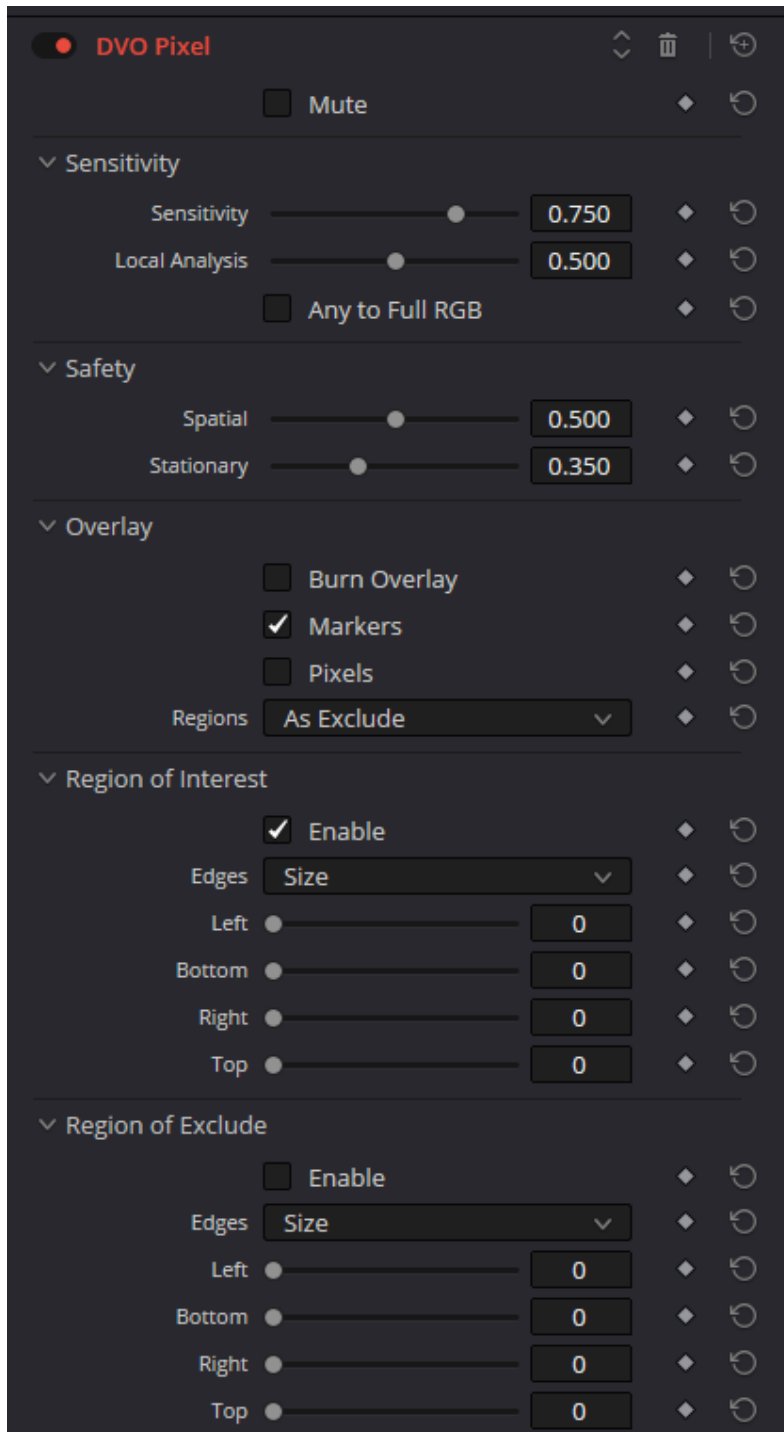
Enable to process fields (not frames).

DVO PIXEL

WHAT DOES IT DO?

DVO Pixel is used to find and conceal any stuck, dead or semi-dead pixels coming from a malfunctioning camera sensor.

If you have an "uncut" sequence consisting of several clips (with different dead pixels), you need to Scene detect your mixdown.
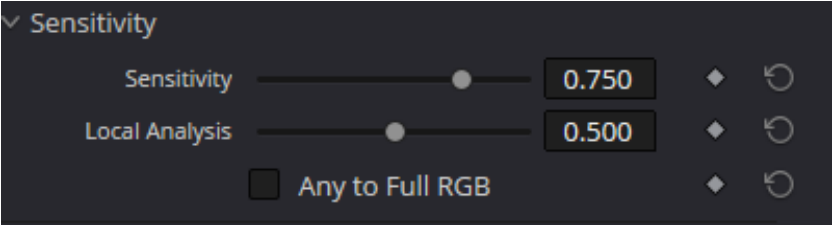
CONTROL PANEL EXPLAINED

MUTE

The tool is enabled but dead pixel processing is *muted;* detection is performed, and the overlay can be enabled. This can be used to *manually* verify detection of dead pixels.

Default: Disabled

If enabled the (muted) process will burn into final output result.

ANALYSIS

SENSITIVITY

SENSITIVITY

This parameter controls how sensitive we are when searching for problem pixels. The main threshold for finding potential dead pixels (searching the RGB channels).

Range: 0.0 - 1.0

Default: 0.75

LOCAL ANALYSIS

Secondary localized detection sensitivity - expands primary detection. As a compressed or debayered pixel tends to grow to surrounding pixels, processing nearby pixels might be necessary.
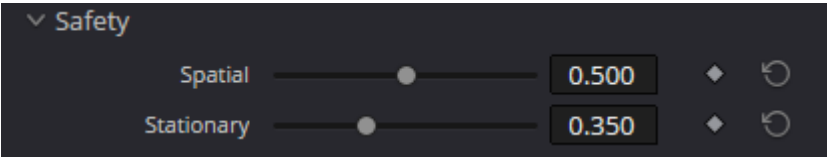
Range: 0.0 - 1.0

Default: 0.50

ANY TO FULL RGB

If enabled and a dead pixel is only detected in *one (or two) colour channels*, full RGB will be selected for detection. This will make *DVO Pixel* process **all channels**.

Default: Disabled

SAFETY

The Safety setting determines how much risk is taken with detection. The higher the value, the safer and less risk of errors but the greater the chance of less detection of actual problem pixels.

Spatial safety is for pixels that have extraordinary features but are not dead. Stationary safety is for static objects.

SPATIAL

Reduces the possibility of mistaking spatial features for dead pixels.
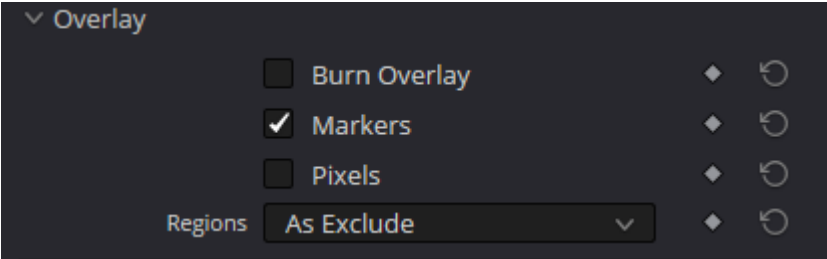
Range: 0.0 - 1.0

Default: 0.50

STATIONARY

Reduces possibility of mistaking temporally stationary features for dead pixels.

Range: 0.0 - 1.0

Default: 0.35

OVERLAY PARAMETERS

These parameters help with visualizing the effect *DVO Pixel* has and help identify the detected result (because a single pixel can be hard to find). By default, any detected pixel will be surrounded by a **green marker** which indicates that it will be processed. The pixel within will also be *color-coded* to indicate the RGB channels to be processed.

A *White* pixel overlay indicates that processing will occur on all RGB channels. A *Magenta* pixel indicates the blue and red channel will be processed.

This visualization is purely an on-screen aid and is **not burnt into the output** (exception: see *Burn in Overlay* below).

BURN IN OVERLAY

This enables burn-in visualization in the output result.

This is the most thorough analysis display method as all pixels will have their surrounding marker set in the color that processing will occur in. This option will **burn in** the overlay into the result.

Default: Disabled

PIXELS

Pixels will be colored as in the processing/detection hit. The channels affected are indicated by the color of square:

Color Selection	Processed Channels
White	R+G+B
Red	R
Green	G
Blue	B
Yellow	RG
Cyan	GB
Magenta	RB

Default: Disabled

MARKERS

Markers will be indicated with green rectangles around a pixel cluster or painted pixel regions. A painted region of pixels will have a dotted frame in the *Burn in Overlay* and every pixel will have its own box in the corresponding color.

Default: Enabled

REGIONS

The Regions' section helps you define specific areas of the image, with Interest and Exclude areas. Both regions include Position and Size options. The Position option places the area as a fixed x.y chart to create an area, while Size is offsetting the area from the left edge of the image.

REGIONS OF INTEREST

Defines the area to be processed; if no region is selected, it will process to whole image. Use the sliders to create an area to be processed.

REGIONS OF EXCLUDE

Defines the area to be excluded from processing; if no region is selected, it will process to whole image. Use the sliders to create an area to be excluded.
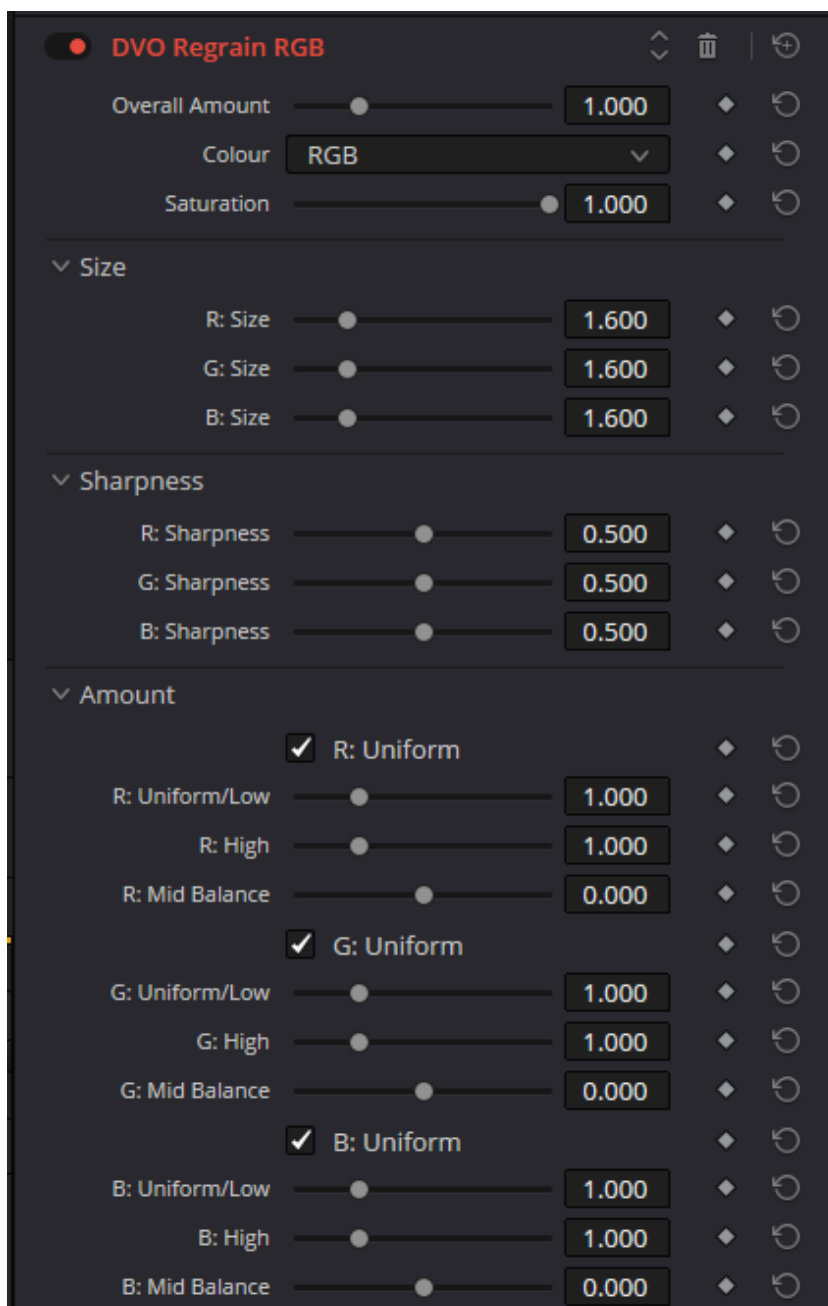
DVO REGRAIN RGB

WHAT DOES IT DO?

DVO Regrain RGB allows you to quickly set up and generate natural looking film grain.

You can match almost any type of film stock by setting the grain size and sharpness as well as matching the characteristics of highlight and lowlight intensity behavior in each individual color channel.

CONTROL PANEL EXPLAINED

GLOBAL SETTINGS

OVERALL AMOUNT

This is the total amount of grain added and calculated as a percentage versus the grain texture setup.

Range: 0 − 4.0

Default: 1.0 (100%)

COLOR

Where to add the grain: RGB or single channels.

The BW options are for selecting the parameter channel to use for adjusting the grain texture.

Values: RGB (default), BW (Red), BW (Green), BW (Blue)

SATURATION

How saturated the grain should be. This applies to RGB color mode.

Range: 0 − 1.0

Default: 1.0 (100%)

GRAIN TEXTURE SETUP

Define the grain applied for each channel in RGB.

In BW we use the setup for the channel selected in the global Color setup above.

SIZE

Define the size of the grain created (per channel).

Range: 1.0 − 4.0

Default: 1.6

SHARPNESS

Define the sharpness of the grain created (per channel).

Range: 0 − 1.0

OFX

Default: 0.5

UNIFORM (AMOUNT)

If enabled, the generated grain will be same in low (dark) and high (bright) lights. This parameter is enabled by default.

AMOUNT UNIFORM/LOW

If Uniform (Amount) is enabled, this sets the total amount of grain generated.

If Uniform (Amount) is *disabled*, this sets the total amount of grain generated in **Low** lights only.

Range: 0 – 4.0

Default: 1.0

AMOUNT HIGH

Specifies the amount of film grain to be added in high lights (per channel).

Range: 0 – 4.0

Default: 1.0

MID BALANCE (LOW <-> HIGH)

Midpoint Balance controls the amount of the frequency range considered to be highlight and lowlight, and thus affects how the highlight and lowlight amounts are applied.

Notes:

- To treat more of the spectrum as highlight, enter a negative number.
- To treat more of the spectrum as lowlight, enter a positive number.
- If "0" is used, the gradual change between lowlight and highlight is completely linear.

Range: -1 – +1.0

Default: 1.0

DVO SHARPEN

WHAT DOES IT DO?

DVO Sharpen is an advanced sharpening tool that greatly enhances out-of-focus shots.

It uses adaptive picture analysis and processing to yield excellent results without the common side effects associated with standard algorithms (such as amplified grain, noise, or halos around areas that were already sharp).

CONTROL PANEL EXPLAINED

INTERLACED

Check this box if the material selected is Interlaced.

OVERALL STRENGTH

The Overall Strength parameter controls the amount of sharpening applied to the shot.

Range: 0.000 to 2.000

Default: 1.000

SPATIAL STRENGTH & CRISPNESS

Fine tune the overall sharpness applied; both controls have the following settings:

Range: 0.000 to 2.000

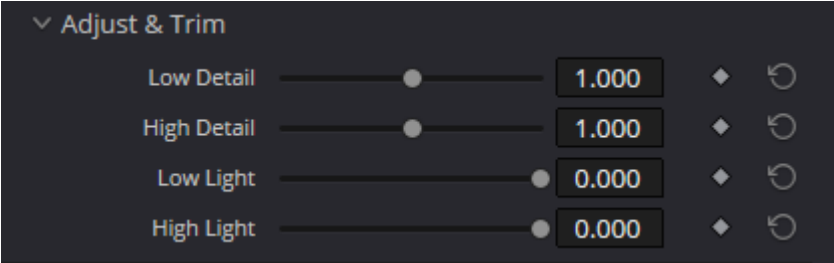**Default:** 1.000 (Spatial Strength), 1.500 (Crispness)

IMAGE NOISE LEVEL

This setting helps the algorithm to avoid sharpening noise, so you'll need to analyze the shot and choose the best value to suit the image.

Range: Low, Medium, High

Default: Medium

ADJUST & TRIM

Use these controls to help you clean up specific regions of the image, with separate parameters for low detail and high detail sharpness along with trimming options for highlights and lowlights, helping you to get the best results without breaking the image.

LOW DETAIL SHARPENING

Range: 0.000 to 2.000

Default: 1.000

HIGH DETAIL SHARPENING

Range: 0.000 to 2.000

Default: 1.000

LOW LIGHT TRIM

Range: -2.500 to 0.000

Default: 0.000

HIGH LIGHT TRIM

Range: -2.500 to 0.000

Default: 0.000

DVO VELVET

WHAT DOES IT DO?

Used in Film & Digital Video post-production workflows **DVO Velvet** easily & effectively deals with aggressive noise and grain reduction whilst ensuring the resulting video is visually pleasing to watch, producing stunning results.

Velvet is highly effective at correcting footage with high levels of grain or noise, particularly dark or low-light shots.

CONTROL PANEL EXPLAINED

COLOR MODE
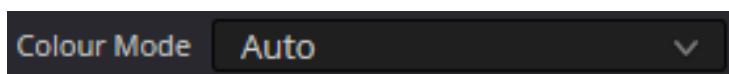
The drop-down list allows the user to set RGB processing or single channel BW (black and white) processing. The options available are:

Auto (default): Analyze the clip to assign BW or RGB processing

      RGB: Separate analysis and processing of the RGB channels

BW: Only the Green channel is analyzed and used for all channels

RGB > BW: Converts RGB to a single channel, process and output the result as BW

AMOUNT

| Amount | —————————————●— | 1.000 |

Sets the processing from no processing to full processing.

Range: 0.00 - 1.00

Default: 1.00

SOFTNESS

| Softness | ————————●————————— | 0.000 |

This softens the image to create a smooth look, with a range going from -1 to +1. The preferred default is 0.
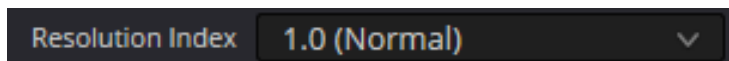
Range: -1.00 - 1.00

Default: 0.00

AGGRESSIVENESS

| Aggressiveness | ———————————●———— | 0.750 |

Defines the noise levels handled within the image

Range: 0.00 - 1.00

Default: 0.75

RESOLUTION INDEX

| Resolution Index | 1.0 (Normal) ⌄ |

The Resolution Index is a metric used to describe the true resolution of image content relative to the pixel size. It takes into account the details and level of information present in an image beyond just the number of pixels.

While pixel count indicates the total number of individual picture elements in an image, it doesn't represent the image's actual detail or sharpness. The Resolution Index attempts to quantify the effective resolution by considering factors such as image content, sharpness and the ability to resolve fine details.

In some cases, an image may have a high pixel count but lack sufficient detail, resulting in a lower Resolution Index. Conversely, an image with a lower pixel count but excellent detail and clarity may have a higher Resolution Index.

The Resolution Index provides a more comprehensive evaluation of image quality, considering both pixel count and the inherent level of detail present in the image. It helps to assess the true resolution and sharpness of an image by accounting for factors beyond pixel size alone.

This parameter allows the algorithm to make better decisions for specific types of material.

Range: 0.5 (Low) - 1.00 (Normal)

Default: 1.00 (Normal)

CONTRAST

Contrast   ⬤   `0.500`

Adjust the local contrast within the image

Range: 0.00 - 1.00

Default: 0.50

SHARPNESS

Sharpness   ⬤   `0.250`

Enhance details to make the image sharper.

Range: 0.00 - 1.00

Default: 0.25

ATOMIZER

⌄ Atomizer

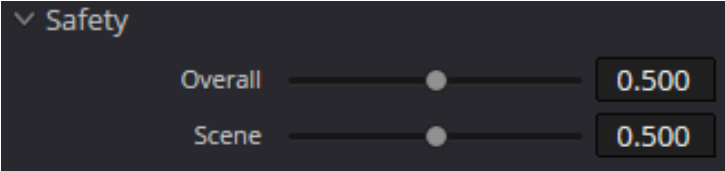☐ Enable ◆

Adjust   ⬤   `0.000` ◆
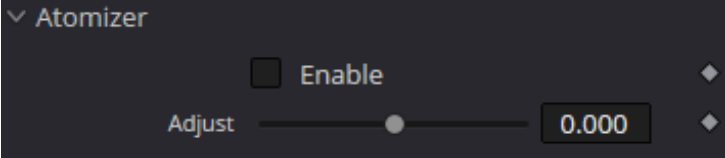
The atomizer uses the original noise/grain and divides them into smaller particles, making a smoother and more velvety texture. The Adjust parameter will adjust the amplitude of the new noise/grain.

Range: -1.00 - 1.00

Default: 0.00

SAFETY

⌄ Safety

Overall   ⬤   `0.500`

Scene   ⬤   `0.500`

Safety can help prevent the loss of important details in a picture, such as low-contrast elements like smoke. Scene safety helps to prevent unintended alteration or loss of details at the start and end of the shot; this is particularly important in situations where there are no reference frames available for comparison or where the content is more vulnerable to degradation due to the absence of adjacent frames.

**Range:** 0.00 - 1.00

Default: 0.50

INSTALLATION GUIDE

GETTING STARTED

To start, head to the [Software Downloads page](#) on the Filmworkz website. From here you can download the OFX DVO Plugins Installer package and the Filmworkz License Manager (FLM) for your chosen operating system. If you're operating on Linux, use the [contact form](#) on the Downloads page and we'll get back to you with the next steps.
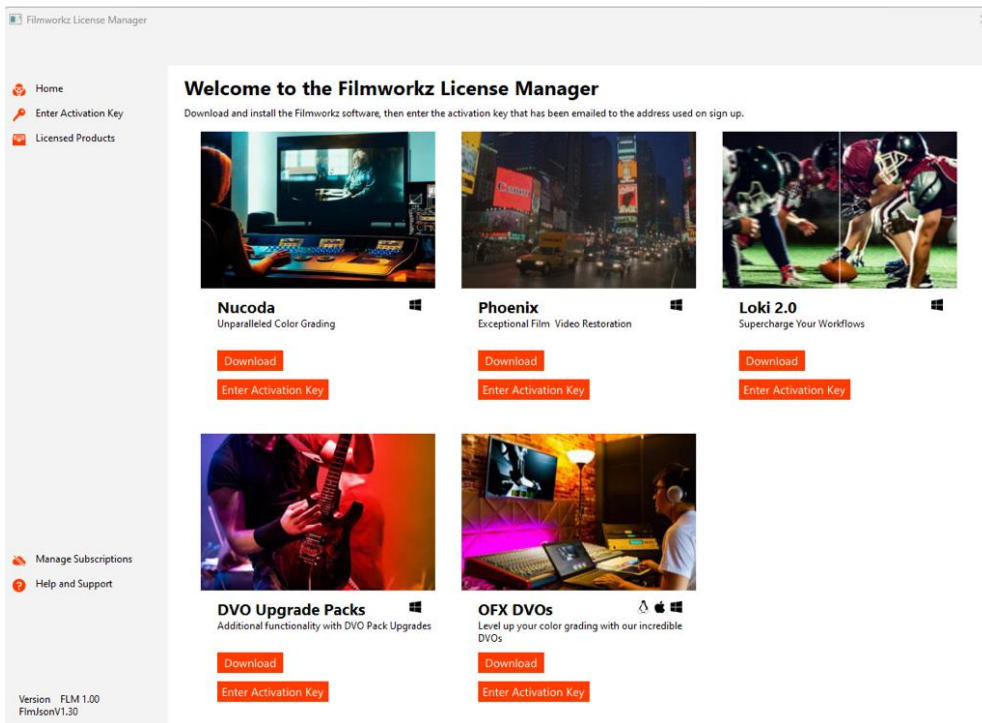
Once you've downloaded the files, run up the OFX DVO installer and you'll be presented with the below interface.
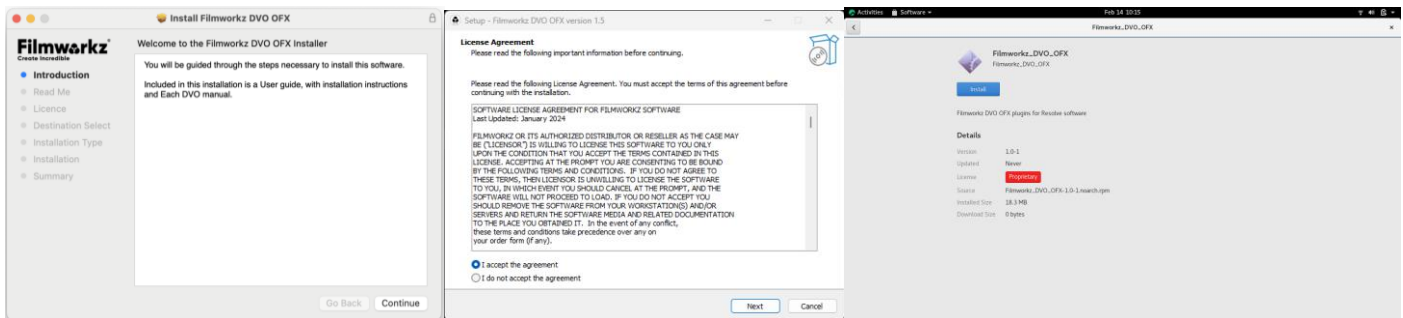
The application will confirm when the tools have been successfully installed.

LICENSE DEPLOYMENT

Next, we need to submit the Activation ID provided in your welcome email using the FLM. You'll be presented with the below when you open the FLM:
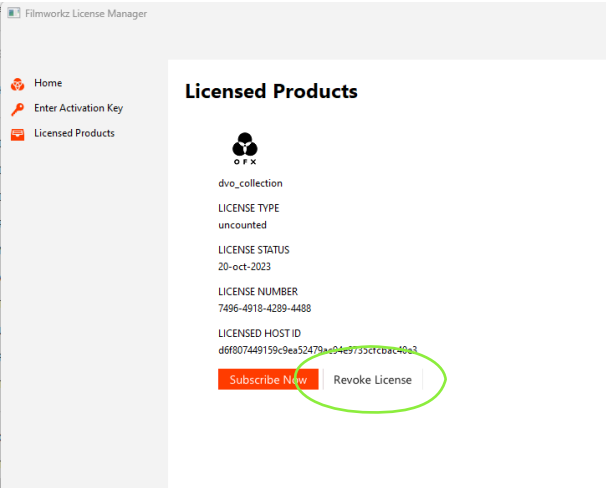
Simply click on 'Enter Activation Key' for OFX DVOs, paste the Activation ID from your email into the resultant window and click Submit. The FLM will retrieve the license file and you'll be good to go...

LICENSE MANAGEMENT

The FLM also allows transfer of a license from one machine to another should this be required. Just go to the Licensed Products page of the FLM and click the Revoke License button for the OFX pack.

The license file on the local machine will be destroyed and the Activation ID recharged so that the license can be deployed elsewhere. Simply follow the License Deployment steps above on the new machine.

TROUBLESHOOTING

ISSUE	SYMPTOMS	ACTION
Error revoking license	When attempting to deploy a new Activation ID I get a dialogue box telling me "Residual license found. Do you want to revoke this license", I click Yes and am informed the force revocation has been successful, however when I attempt to deploy the Activation ID again, I see the same message.	This happens when the FLM doesn't have permissions to delete the existing encrypted licencing information from the host machine. To work around this, please browse to: **Windows** - C:\ProgramData\Reprise\digitalvis **Mac** - /Library/Application Support/Reprise/digitalvis and rename the existing dvo_collection directory to dvo_collection_old. Once done, return to the FLM and apply the activation ID again – this time you should receive an 'Activation Successful' message. You can now delete the dvo_collection_old directory.
Lack of response in Resolve 18	When I upgraded to version 18.1.4, I noticed that there was no effect displayed after applying the DVOs, and adjusting any parameters had no effect either. Even after rendering, there was no effect. When I reverted back to version 17, the effects were able to appear.	BlackMagic made a change to Alpha Channel handling in Resolve 18 which stops the DVO effects being applied. We'll be releasing a new DVO installer soon which includes the fix for this. In the meantime, please copy the dvo.config included in the OFX DVO Installer package to the relevant path below, overwriting the existing file. **Windows** - C:\ProgramData\Digital Vision\Ofx **Mac** - /Library/Application Support/Digital Vision/Ofx **Linux** - /opt/digitalvision/ofx

ISSUE	SYMPTOMS	ACTION
FLM error – Unable to extract assets	When attempting to launch the FLM I get an error stating that it is unable to extract assets and the FLM doesn't launch	This error occurs when one of the FLM asset files present within the installation location is unable to be read for some reason, generally caused by some form of corruption. The quick fix is to browse to: **Windows** – C:\Filmworkz **MAC** - /Users/Shared/Filmworkz and rename the FLM directory to FLM_old. Once done, re-launch the FLM and the FLM directory will be recreated with a new copy of the assets. You can now delete the FLM_old directory.
FLM won't launch on Mac	When attempting to open the FLM on my Mac I get an 'Unable to open application' error.	Pressing the CTRL key while clicking on the application icon opens a context menu; while still holding the CTRL key, click Open from the context menu and the application will launch.

If you have any questions or any issues installing or using the DVOs, feel free to reach out to us by emailing getstarted@filmworkz.com.

Be sure to join the Filmworkz Forum for the latest discussions and top tips around our products.

Filmworkz Forum

OFX

WANNA KNOW
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- SALES