



# LOKI

## USER GUIDE



Thanks for downloading **Loki** from Filmworkz.

This document will guide you through the installation process, interface functionality and basic usage examples.

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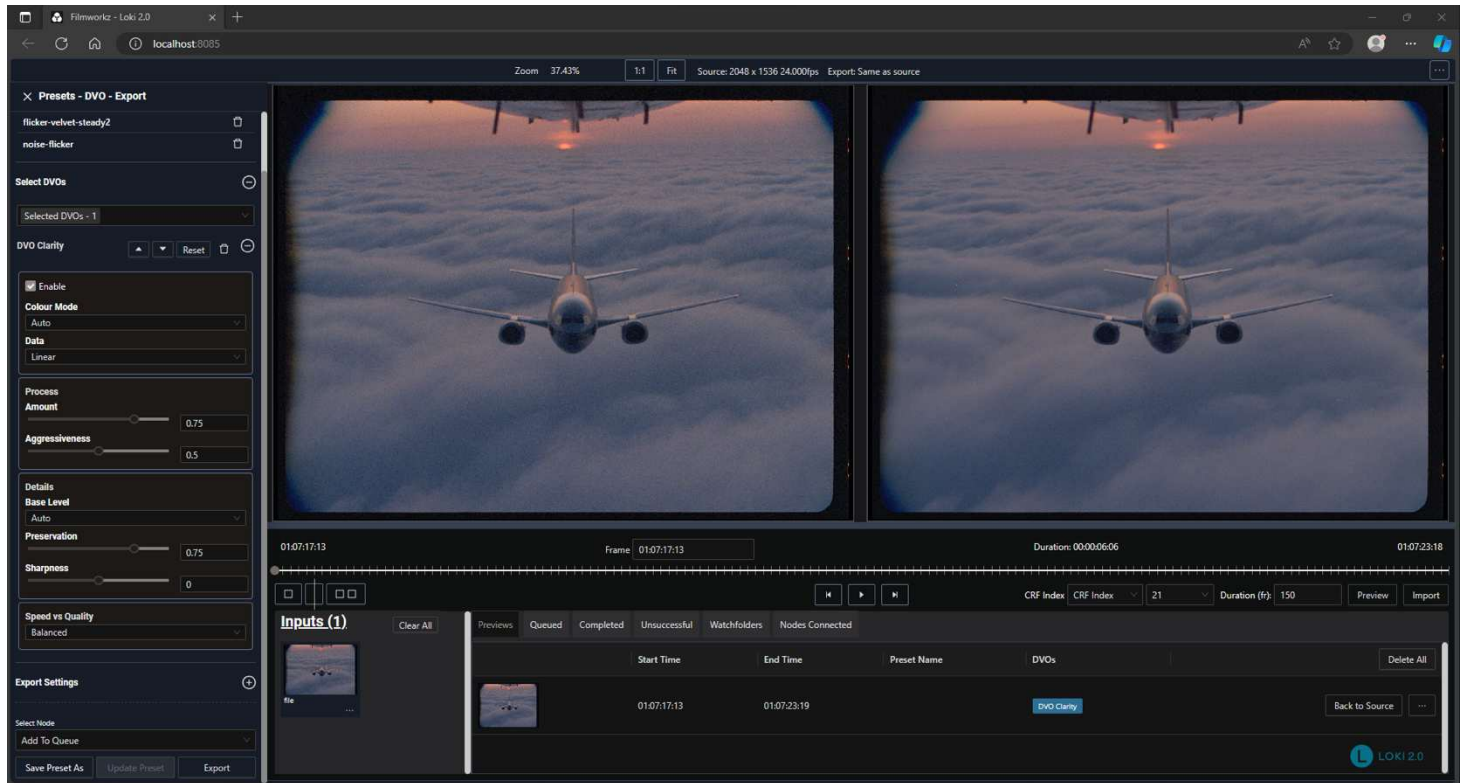


# INTRODUCTION

**Loki 2.0** is the latest generation of Loki, which we've specially designed to help users achieve the best quality image enhancement, upscaling and frame rate conversions by combining workflow automation with Filmworkz's **unique range of DVO's** – our best-in-class moving image correction & enhancement software.

These tools save you time & money by easily correcting a vast range of image problems without sacrificing quality. By using the **DVO tools in Loki**, you can easily preview files, apply different tools and get fast results with minimum interaction.

The **DVOs** have several parameters, offering a high level of manual adjustments when customized settings are necessary, with easy preset creation, burn in capabilities and a large variety of export options, including full Prores support on Windows.



*Loki main interface using a web browser*

# ARCHITECTURE & CONFIGURATION

Loki consists of 3 main components, which can be configured to suit your requirements.



## Client

Loki Client is the front-end editor and monitor of the system. It needs to be installed on the same computer as the Loki Server. Typical Loki Client functionalities are:

- Create and delete jobs
- Create and edit presets & watchfolders
- Monitor current and completed jobs
- Monitor nodes on the network (multiple nodes will be supported in a future release)



## Server

Loki Server is the coordinator of the system, containing the database and delegating the jobs to the available nodes



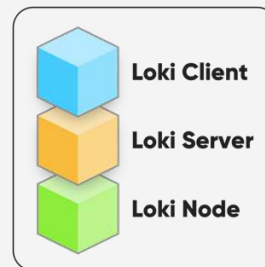
## Node

Loki Node is the processing engine, also known as a render node. Multiple nodes can be installed to process the queue of jobs faster.

Depending on your needs, different Loki components can be installed across multiple PCs. The options are:

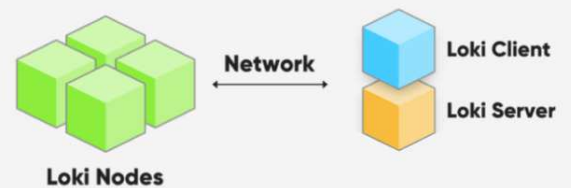
## STANDALONE

The simplest configuration is to use one workstation connected to Local storage, with all Loki components installed on that single machine.



## NETWORK

As long as the various software and hardware elements are detectable over a network (LAN), the Server and Node, plus the source & output files can all be at independent locations. The Client and Server need to be installed in the same system.



# RECOMMENDED HARDWARE

All DVO tools are currently CPU-based, optimized to use the latest technologies and fully multi-core aware. Core speed is also important, so, when choosing your CPU configuration try to balance the number of cores and base speed.

For dual CPU setups, we strongly recommend turning off NUMA (for information on NUMA, please read this article [https://en.wikipedia.org/wiki/Non-uniform\\_memory\\_access](https://en.wikipedia.org/wiki/Non-uniform_memory_access)).

We also recommend turning off HyperThreading (HT)/ Simultaneous Multithreading (SMT). Please consult your motherboard's manual for specific instructions on how to turn off these features. The **Server & Node** must be installed in a Windows-based system and on a local network (if the **Client** is set up on a different system).

## For content up to 2K:

- Windows 10/11 Pro 64-bit
- AMD Ryzen™ Threadripper™ Pro 3000 and 5000 series (16 to 32-Cores) or Intel Xeon 16 to 32-core (Icy Lake family and newer); dual processor configurations are also compatible with Loki.
- 32 GB of RAM (follow processor specifications for memory setup)
- 1 TB M.2 Gen 3 PCIe SSD (O/S)
- Storage setup based on type of media to be used.

## For 4K content and up:

- Windows 10/11 Pro 64-bit
- AMD Ryzen™ Threadripper™ Pro 3000 and 5000 series (32-Cores, 64 cores recommended) or Intel Xeon 28-core and higher (2x 28-core recommended, Icy Lake family and newer)
- 64 GB of RAM (follow processor specifications for memory setup)
- 1 TB M.2 Gen 3 PCIe SSD (O/S)
- Storage setup based on type of media to be used.

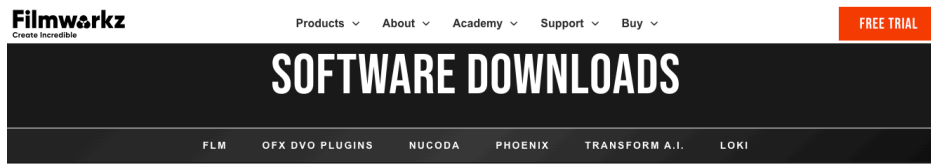
We don't recommend processors with Performance and Efficiency cores from Intel, general performance is affected due to uneven processing capabilities.

The Client works using a browser and we recommend Google Chrome and Microsoft Edge due to extensive compatibility with web standards and fast h.264 playback (the Viewer uses h.264 files when creating preview files). Make sure to have Hardware acceleration "On" to improve performance.

# INSTALLATION & GETTING STARTED

Before installing Loki, we need to install the Filmworkz License Manager software. Here we'll be able to activate a license for our range of products, including Loki and DVO packages. After subscribing to the software, an Activation Key will be sent to your email.

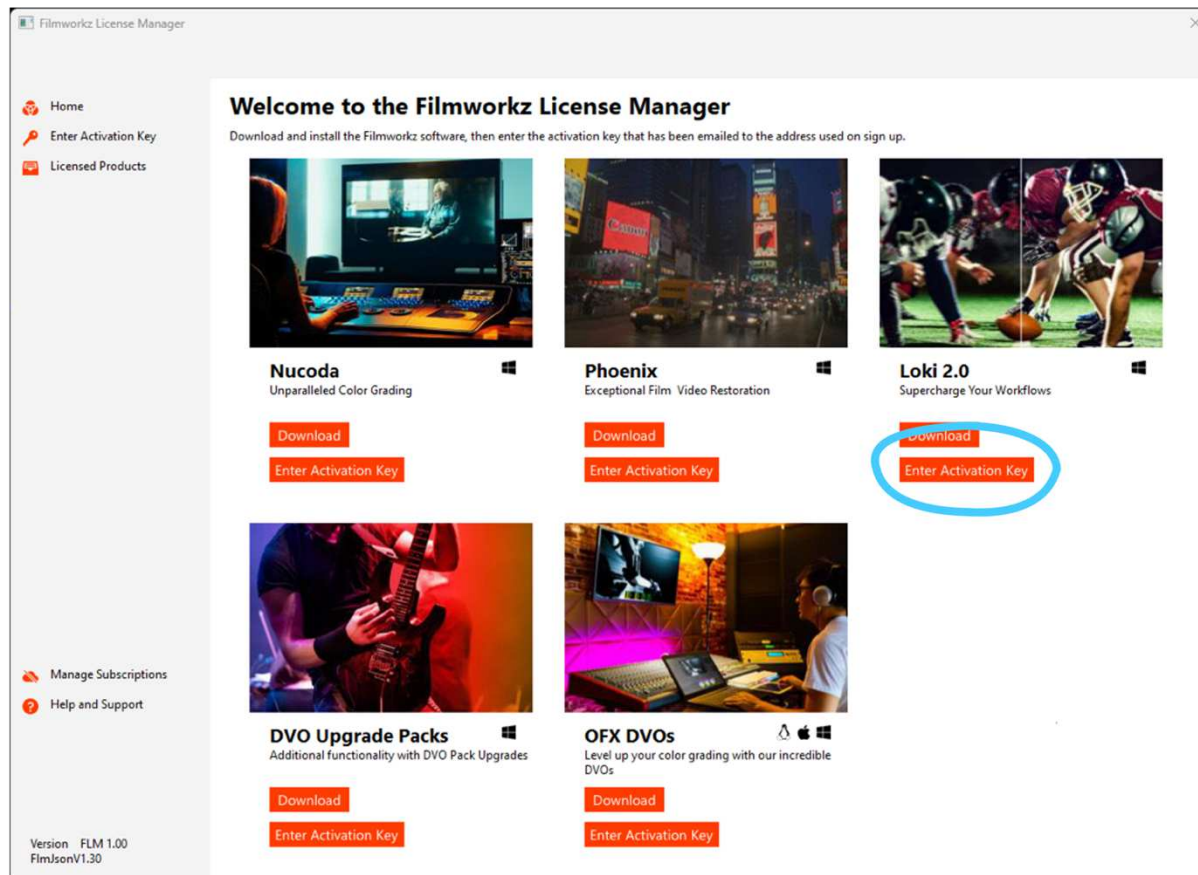
To activate, download the Filmworkz License Manager (FLM) from our website in the "[Support>Software Downloads](#)" section:



## FILMWORKZ LICENSE MANAGER (FLM)

- [Filmworkz License Manager \(FLM\) for Windows](#)
- [Filmworkz License Manager \(FLM\) for MacOS](#)
- [Contact us if you wish to install OFX DVO Plugins on Linux](#)

Run the FLM installer, open it and click on "Enter Activation Key" for Loki:



# Enter Activation Key

Product to Activate

Loki 2.0

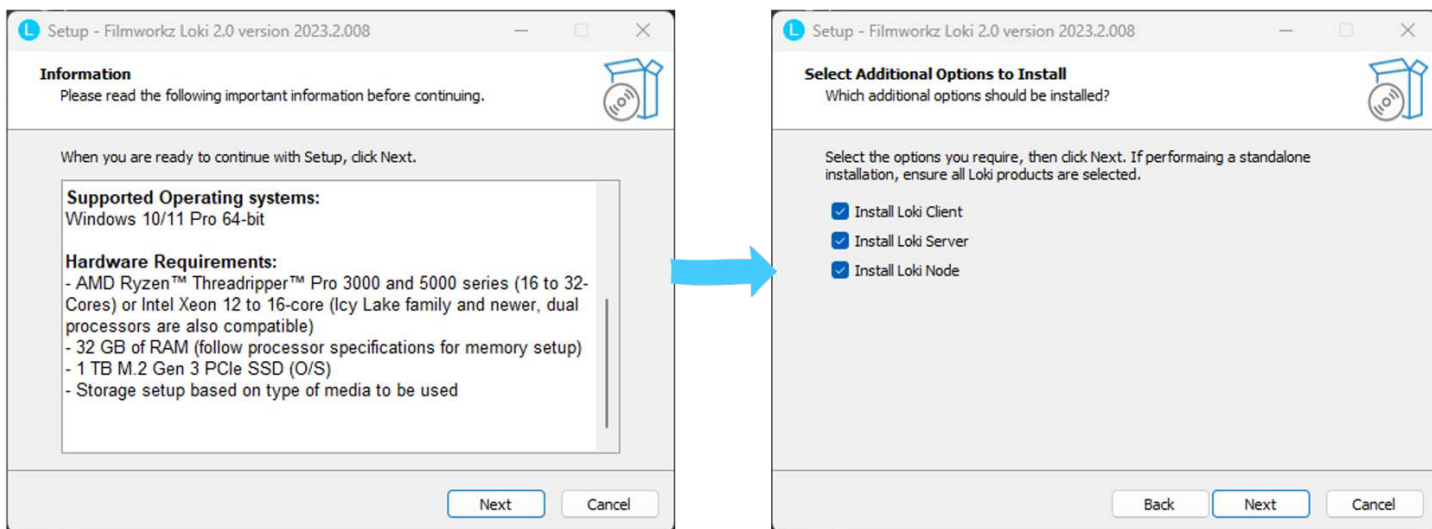
Enter Product Activation Key:

XXXX-XXXX-XXXX-XXX

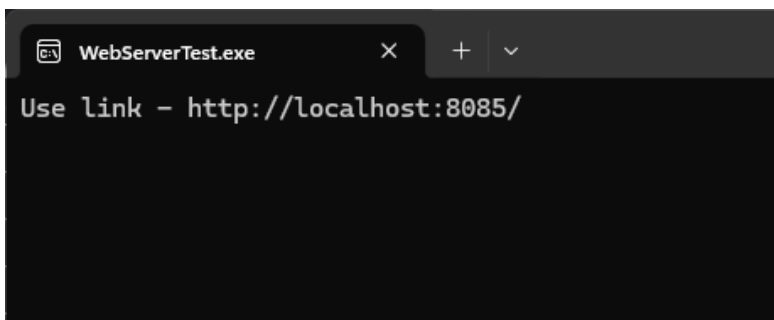
Submit

Paste the activation key and click on "Submit" to activate the software.

To install Loki, download and run the installer from the [website](#). For a Standalone Installation, all components (Server, Node, and Client) need to be installed. A restart will be required.



When the installation is complete, 2 icons will be added to your desktop, "Run Loki" and "Stop Loki". To start the processing engine, double-click on "Run Loki"; three windows will open and start running the Server, Node and Client. To open the interface, you can either open your web browser and type "http://localhost:8085/", or Control-click on the link on the WebServer window:

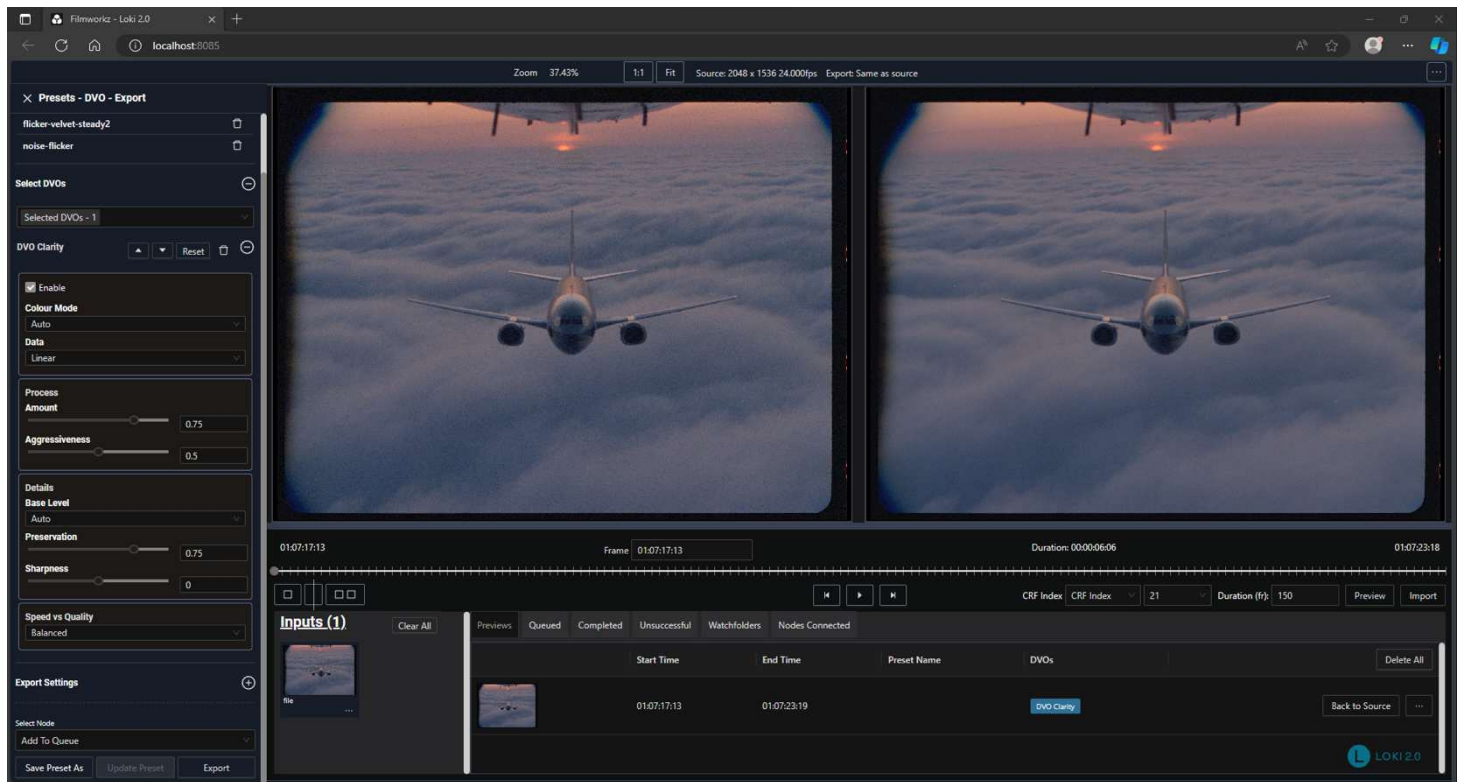


All 3 windows need to be open while using the software, so leave them minimized on your Windows Taskbar. To close the software, double-click on the "Stop Loki" icon and then close your browser window.

To uninstall, go to "C:\Program Files\Loki 2.0\version-number\uninstall" and run the uninstaller.

# INTERFACE EXPLAINED

Loki was designed to be easy to set up and use, with a clean interface, easily identifiable options and a large, customizable viewer. From the main window, you can import a variety of files, including common MPG2-based formats (XDCAM, AVC Intra, etc.), image sequences and Prores files.



*Loki main interface using a web browser*

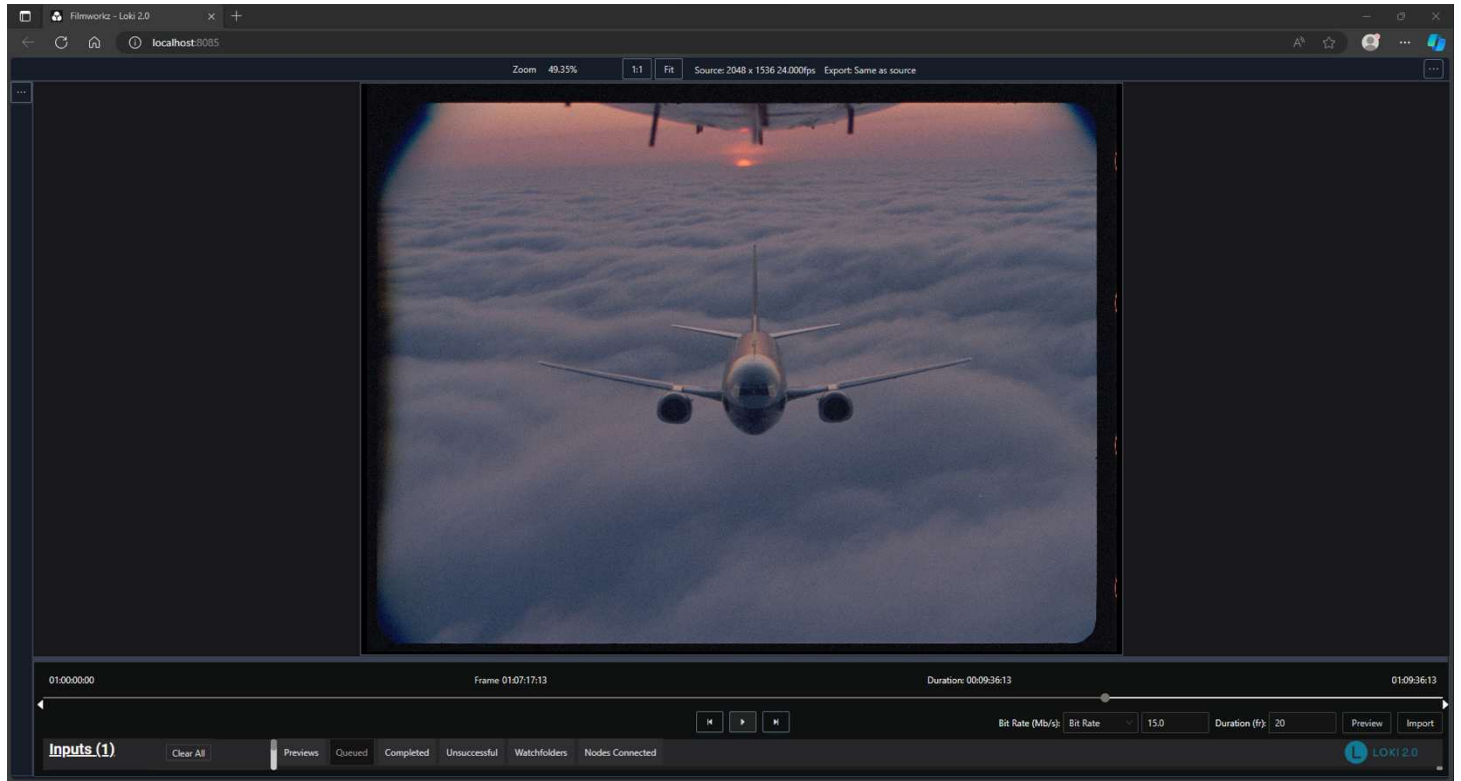
The interface consists of 3 main sections:

- Viewer, occupying the center of the screen, with playback controls, compare modes, Zoom features, timeline and easy Preview duration and bit rate choices
- Preset, DVO and Export settings
- File Input and Information Tabs, showing job information and Preview selection



# VIEWER

The new addition to Loki 2 compared to the previous version is the Viewer. After importing a file, you can click on different points of the timeline to get to that point.



*Viewer and timeline, with an In point selected*

After selecting an In point, you can create a Preview of the section; use the duration box to define a duration (number of frames) and either bit rate (in Mb/s) or CRF value and click on the Preview button.

You can choose to use either bit rate or a CRF (Constant Rate Factor) value to create your Preview; CRF offers a higher preview quality, and an 18-23 value is good enough for most cases. For more information about CRF please visit this website: <https://trac.ffmpeg.org/wiki/Encode/H.264>

If a bit rate is too low (or a CRF value that's too high), your preview will have artifacts; the default value is good enough in most cases, but for clips with a finer grain or high detail level, we recommend using higher bit rates (or lower CRF) values.



After the Preview is rendered, you can use the Playback controls and Compare modes.



*Playback controls*

You can go Back & Forward 1 frame and play the rendered number of frames.



*Compare modes*

The Compare modes include Cut, Split and Dual views:



*Cut View*



*Split View*



*Dual View*

You can expand the Viewer by closing the left tab and click-dragging the bar separating the top and bottom section of the interface:



Left tab closed and bottom section hidden showing a bigger Preview window

The image can be moved by left clicking and dragging; you can also zoom in and out using the mouse wheel up and down. You can also use the Fit and 1:1 button to automatically adjust the size of the image.



Current zoom level, 1:1 and Fit buttons

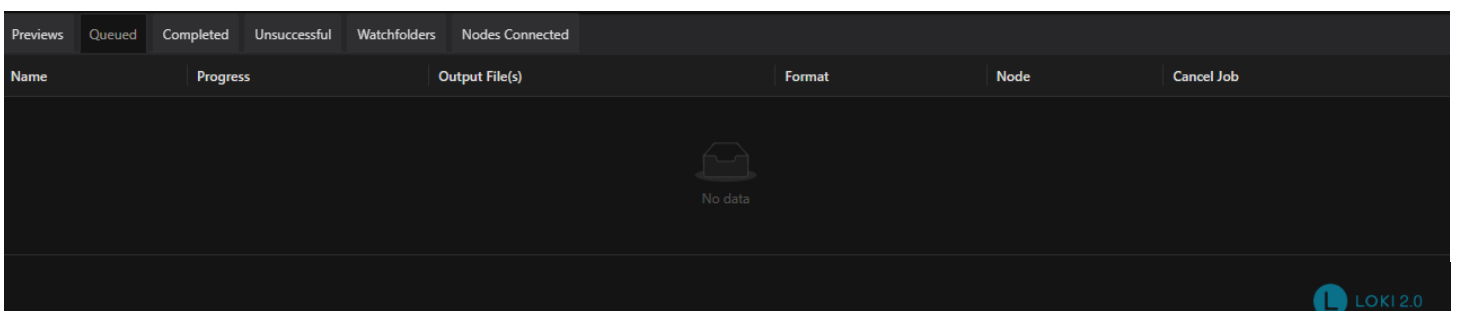
## INFORMATION TABS

Below the Timeline control section, we have tabs that show information about rendered Previews, Queued, Completed, and Unsuccessful jobs. We also have a tab for **Watchfolders** that will be explained in a later section of this manual.

**Queued** When you submit a job for export, a new job is added to the Queued tab. It shows basic info about the export and a progress bar. You can add many files to the queue, and Watchfolder renders will also be automatically added to the Queued tab.

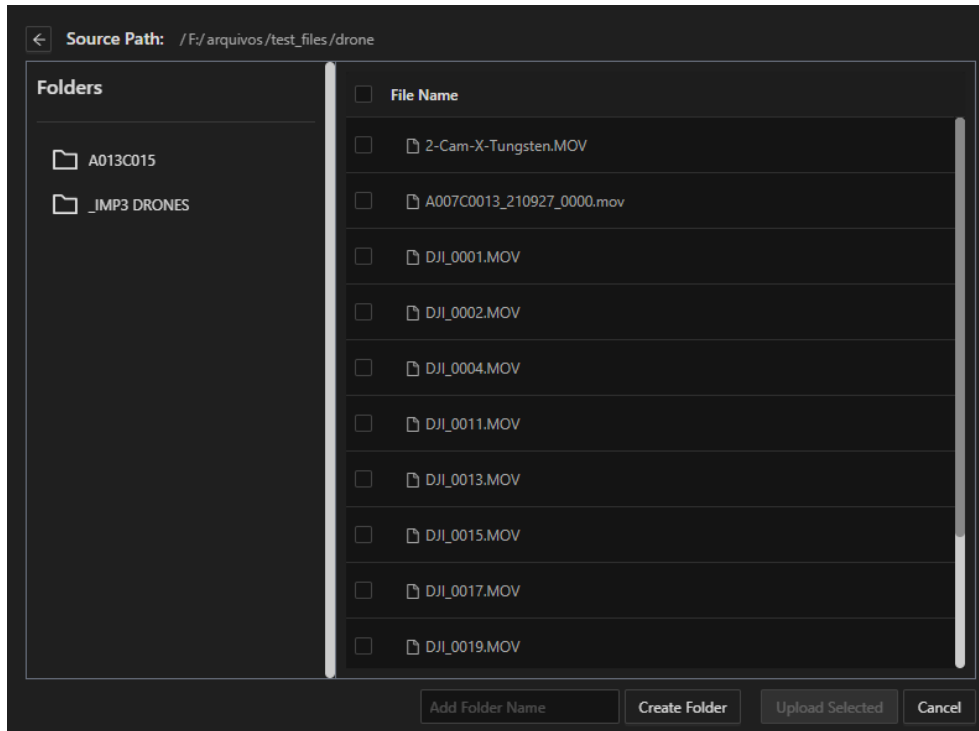
**Completed** Completed files will be added to this tab.

**Unsuccessful** Any files that can't be rendered will be shown in this tab.



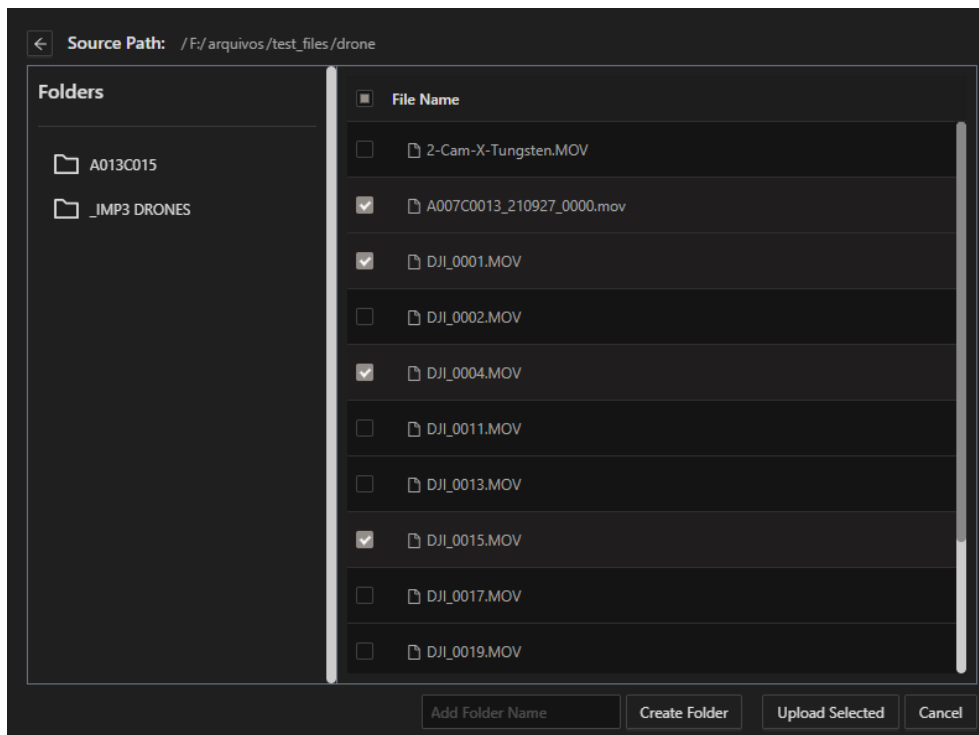
# IMPORTING AND PREVIEWING CLIPS

Importing clips is very simple, just click on the **Import** button of the right side of the interface, next to the **Bit Rate** box. A new window will appear with a folder selection on the left and clips contained in the selected folder on the right.



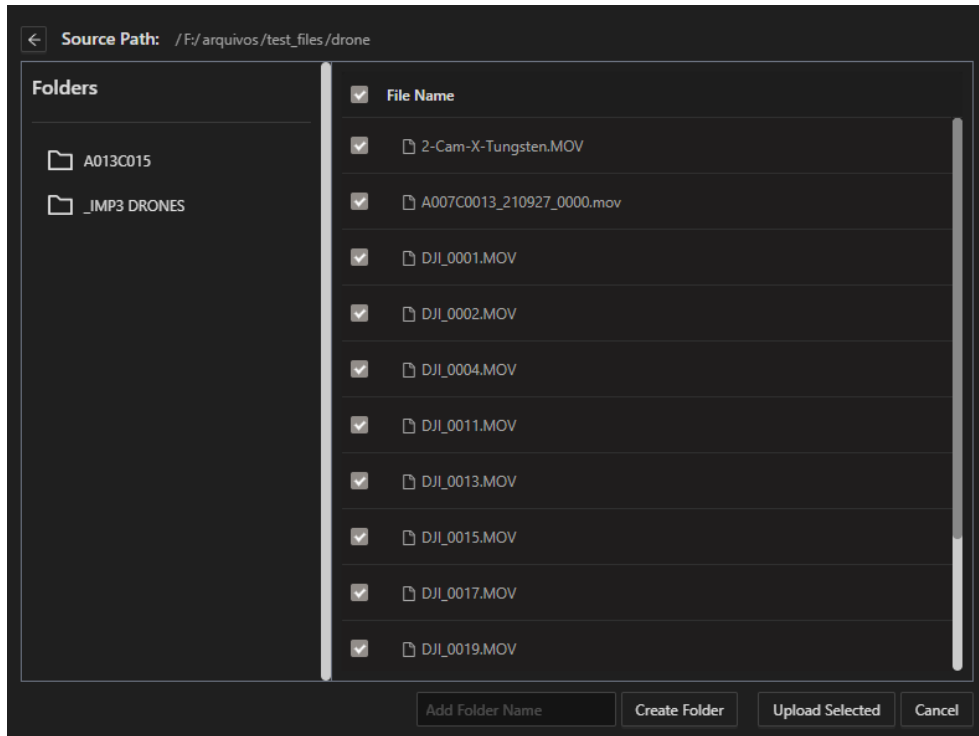
*File import window*

To select a file or folder, click on the selected item.



*Multiple files selected*

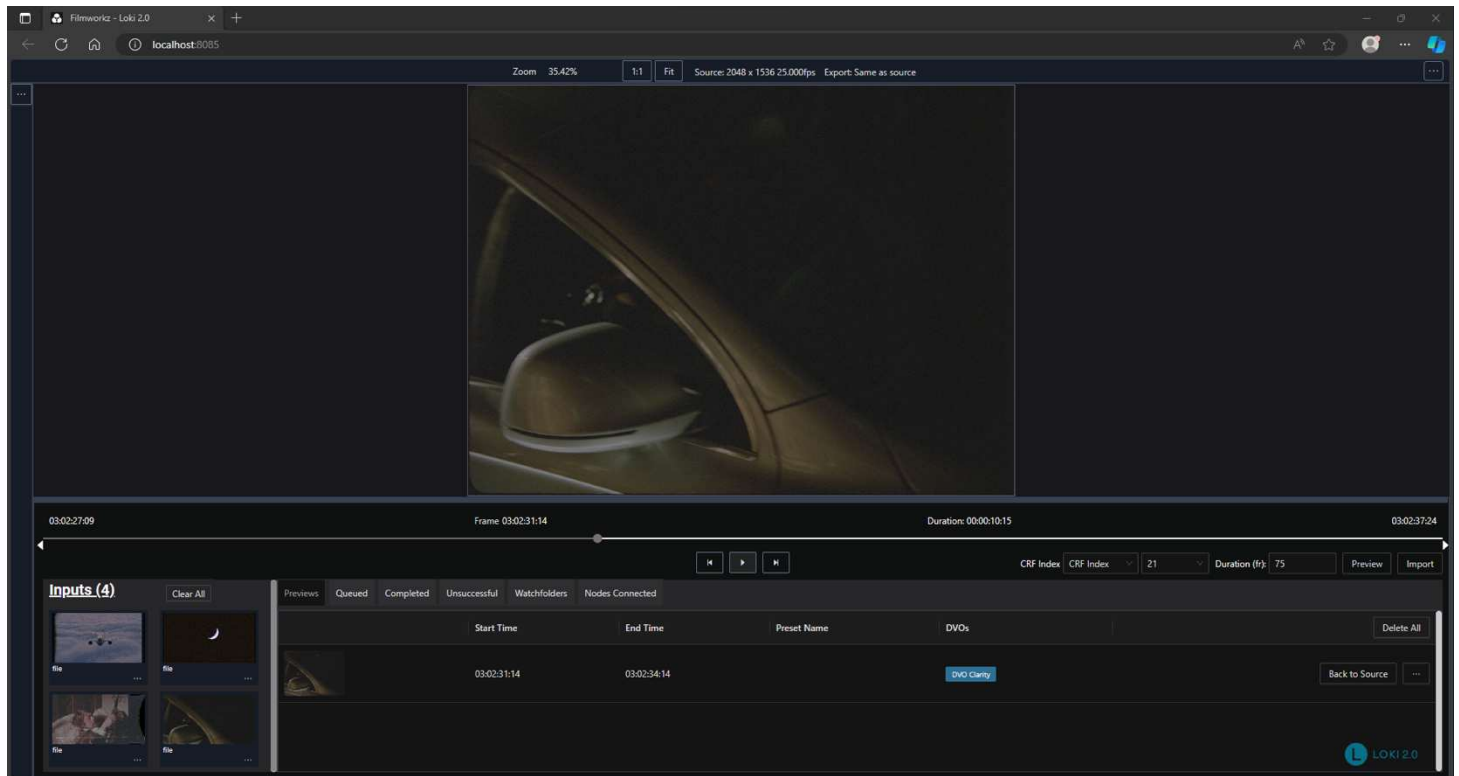
To select multiple files, click on the box to the left of the files; to select all files within a folder, click on the checkbox at the top of the window next to **File name**.



*File import window with all files selected*

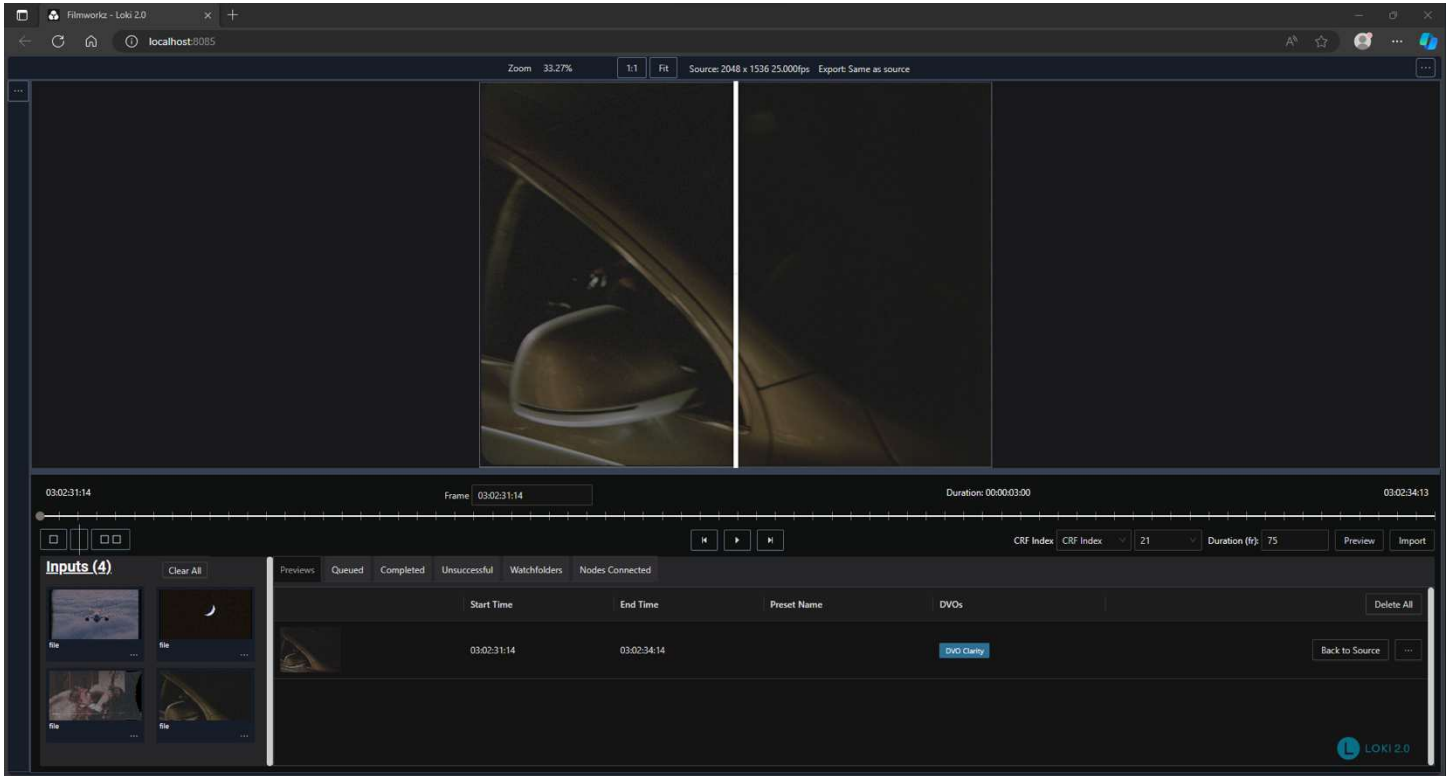
After selecting your files, click on **Upload Selected**; the files will appear on the **Input** section of the Interface. With the files loaded, you can click on the thumbnail to select the clip to open it on the **Preview Window**.

With the clip loaded to the **Preview Window**, you can click on different points of the timeline to see a frame preview of the section; it's also possible to type the frame number or timecode in the box below the **Preview Window**. After selecting the desired point, select the Bit rate and the duration of the preview, then click on the Preview button. A file is created and the "Previews" tab below the playback controls is populated.



*Clip selected and loaded; timeline point selected to create preview*

You can now use the playback controls to play back the preview in a loop or see it frame by frame. A new timeline loads that matches the selected duration.



*Previews tab populated with a new clip*

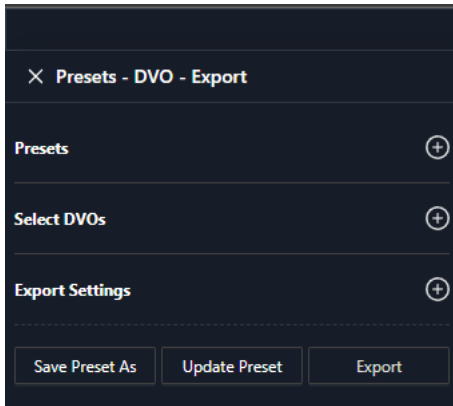
The interface also shows the timecode point selected and the duration of the shot; when a clip is loaded the full duration is shown, but if a preview is created it will show the duration of the preview.

Multiple Previews can be created using different settings and be selected easily, just click on the thumbnail and play the file. If you want to remove the file from the list, click on the three-dot button on the right side of the thumbnail and select the "Close File" option. You can also click on the "Back to Source" button on the right to go back to the In point selected for the selected preview.

Previews are created by default at "C:\Loki.0\root\.cache", but you can configure the location by clicking on the cog-wheel button on the top-right of the interface.

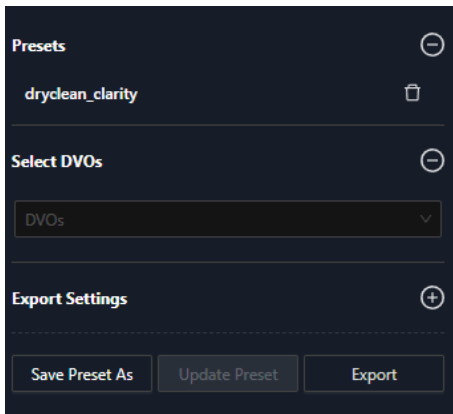
# PRESETS, DVO AND EXPORT

On the left side of the Interface, you'll find a window with options to select saved Presets, choose DVOs and change parameters and select Export settings, like frame rate, codec, resolution and many other options.



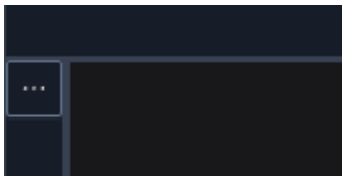
*Basic view of the Options menu*

To open each section, click on the section title:



*Presets and DVO sections open*

You can also close the left tab and expand the Viewer section by clicking on the “X” next to Presets on the left side of the Interface, as shown in the previous chapter. To open again, click on the three-dot icon on the top-left side of the Interface.



## PRESETS

Users can easily create and save presets to be used on different clips and watchfolders, helping workflows to be easily repeated with expected results. Presets include selected DVOs, Effects, and Export settings, making batch-processing large amounts of footage extremely easy.

Presets can be created as just a transcoding process as well; selecting only Export settings (resolution, frame rate, codec, container, etc.) can be saved as a Preset to create a common format before a conform/restoration/color grading.

To create a Preset, select any DVOs and Effects, then select your Export settings. After approving the settings click on the “Save Preset As” button; a new window will open to create a preset name and save it.

The saved Preset will now be available in the Presets section; to use it, just click to select it. Any new export and previews will use the Preset until you deselect it.

# DVO'S

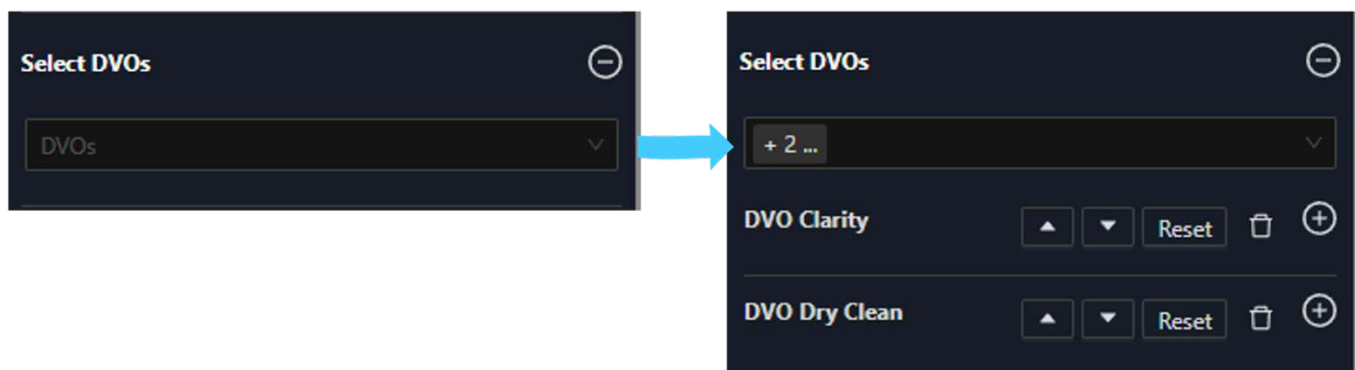
DVO's are a unique collection of best-in-class, moving image correction & enhancement software, accessed & optimized through the Filmworkz platforms Phoenix (for restoration), Nucoda (for color grading/correction) and of course Loki for automation.

Several DVO tools are available to help users get the most from their content by automating tasks such as removing scratches, dirt, flicker, dead pixels, upscaling and much more.

Each DVO has its own User Guide (see the Quick Reference section below or the [Filmworkz Forum](#) & [website](#)) which explains what they do and how they work.

Some of the DVO parameters in Loki differ or are excluded due to different interface capabilities. However, using Loki in tandem with Nucoda or Phoenix offers a powerful solution by automating common tasks in Loki while enabling manual refinement work using expanded DVO functionality in Nucoda or Phoenix.

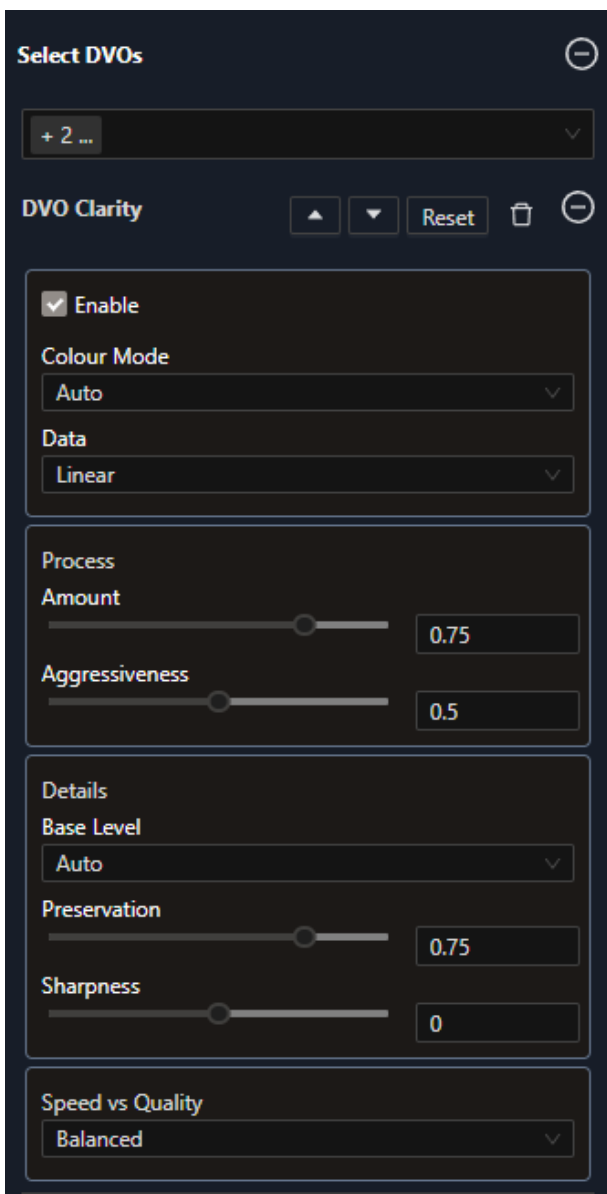
To use a DVO on a clip or to create a preset, click on the box and select one or more tools to add them to the list.



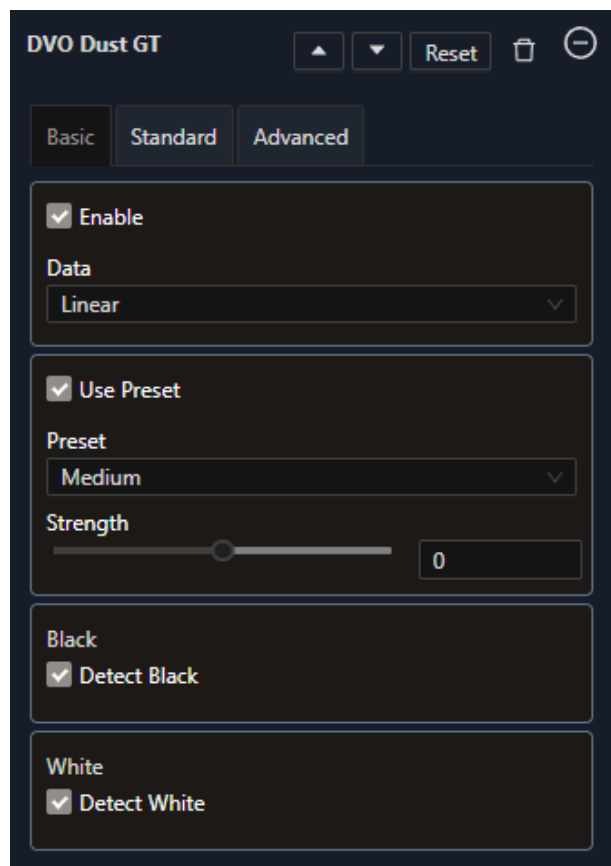
With DVOs selected, you can change the order of operations by using the arrows next to the tool name.

To change the settings of each tool, click on the DVO name to open the parameters window as shown overleaf.

Each DVO has its own set of parameters, with some having multiple tabs with additional/advanced settings.



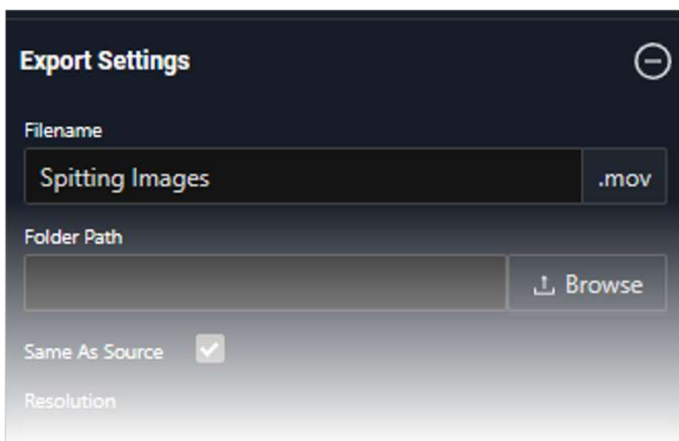
*DVO Parameters*



*Multiple tab setup example - Dust GT*

Loki also includes a set of general effects to deal with basic issues like resizing and blur, for example. They can be used the same way as DVOs and are found in the “Select DVOs” section of the interface.

## EXPORT SETTINGS



**Export** defines settings for the Preview alongside the selected effects.

It's important to choose the correct output settings to get the desired result when rendering previews, creating presets and rendering files.

It's also important to understand the connection between certain DVO and the export settings; for example, when using a DVO to upscale your file to a different resolution and aspect ratio of the original, it's essential to correctly choose the output aspect ratio and fit mode in the DVO parameters and match them in the Export settings.



The Export section includes options related to file name, resolution, frame rate, containers, etc. The available options are:

## Filename



Enter a file name for the exported file. Enter filename only, without the file extension (for example: file1, not file1.mov).

## Output Folder



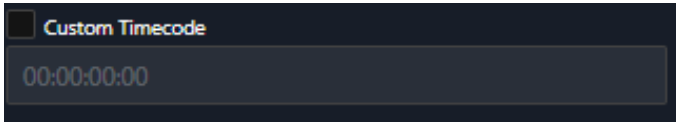
Define the folder where to export the file.

## Scene Detect



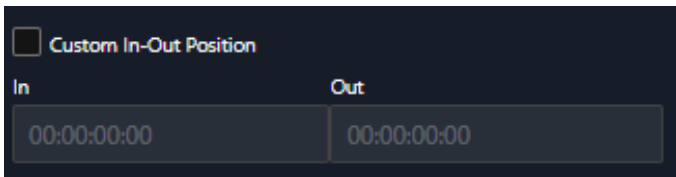
Use this option if you have a longplay/mixdown file. Loki will detect the cuts while processing to improve results on a shot basis.

## Custom Timecode

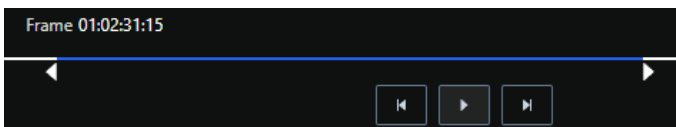


This option will overwrite the existing timecode with a new timecode. Check the option and type the new timecode in the box.

## Custom In-Out Position



Select this option if you need to export just a section of the file. When the checkbox is selected, the timeline bar will become blue, and you can use the triangles to do a rough selection of a section of the file.



*In-Out selection using the timeline icons*

## Same as source

 Same As Source

Uses the original file(s) metadata, like resolution, frame rate, scan type and timecode. If DVO Twister is used to process a frame rate conversion, it will use the output framerate setting selected in DVO Twister.

## Resolution

Resolution

720x576 - PAL

Select from a range of common resolutions or add a custom size

## Frame Rate

Frame Rate

25.000

Select a frame rate or choose same as input to use the same as the input file

## Drop Frame

Drop Frame

Non Drop Frame

Select if the Timecode will be a Drop or Non-Drop Frame format

## Scan type

Scan Type

Upper Field First

Select Progressive or Fields

## Working Bit Depth

Bit Depth

half

Choose the bit depth used for the processing of the files. The exported bit depth will depend on the file format/codecs chosen.

## Aspect Ratio

Aspect Ratio

4:3 (1.333)

This sets the output file aspect ratio. If the source file has a different aspect ratio than the output file, this may add letterboxing or pillarboxing depending on the fitting option above.

## Fitting (Aspect Ratio Preserve)



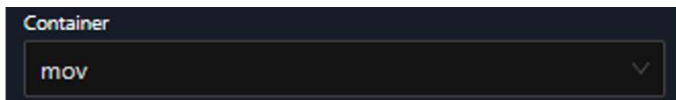
If the source images are a different resolution to your defined output, you can choose if and how they are scaled and/or cropped for output. Loki provides three options:

**Fit:** Scales the source image to the size of the output format. This is the default setting.

**Crop:** Crops the source image and scales it to the size of the output format.

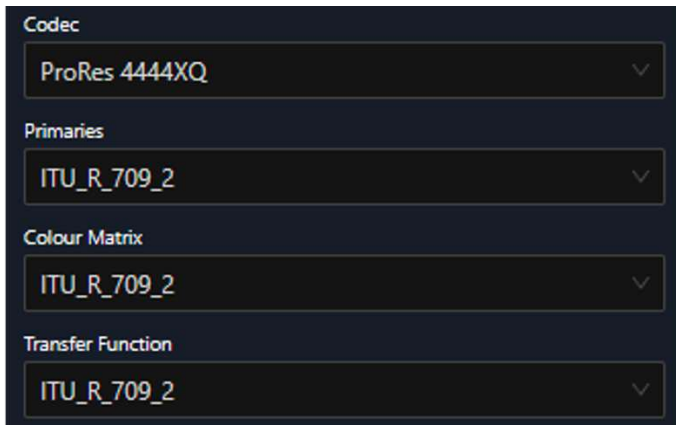
**Center:** The center of the source image is mapped to the center of the output format maintaining the source image aspect ratio. This may result in a cropped or blanked image, depending on the difference between the source and output resolution and aspect ratio.

## Container



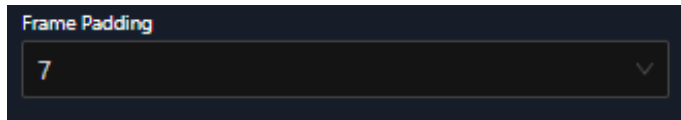
Select the file wrapper: CIN, DPX, EXR, JP2, JPEG, MKV, MOV, MPG, MP4, MXF, PIC, SGI, TGA, TIF.

## Codec



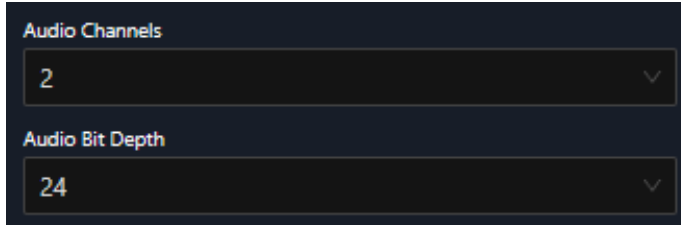
Several codecs are available depending on the selected container. For a list of compatible please refer to our list of supported formats. Certain codecs will offer several other choices, like color primaries, matrix and transfer functions.

## Frame Padding



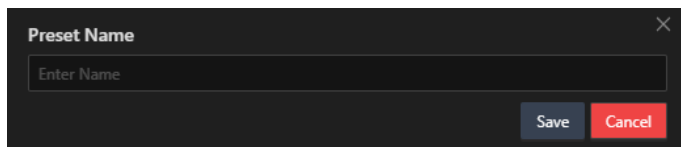
If an image sequence is selected as an output option, you can choose the frame padding added for the frame range. Values go from 1 to a maximum of 10.

## Audio



When certain containers and codecs are chosen, up to 8 audio tracks can be exported. Certain codecs have limitations related to the number of tracks, so make sure your settings are correct before exporting the file(s). Bit depth can also be selected, with 16,24 and 32-bit options.

After selecting your preferred settings, you can choose to save as a new preset, update an existing preset, or just export a file. To save as a preset, select your DVO and export settings and click on "Save Preset as" and type a name:



### *Preset name window*

It's not necessary to add any DVOs to create a preset, changing only Export settings will create a transcoding preset. When used in combination with "Same as Source" option, files can be easily exported using different codecs.

To update a preset, just select the preset, add or remove DVOs, change export settings and click on the "Update Preset" button.

Click on the Export button to open the tab on the right side of the interface; here you can check your settings. After confirming your settings, click on the "Submit" button to add the file to the queue.

Export Submit

## Summary

### Source File Information:

Metadata	Value
Source Path	E:/Media/2019_Phoeni...
Resolution	720x720
Bit Depth	half
FPS	29.970
Scan Type	Progressive
Format	mov
Movie	true
Drop Frame	false
Start Time	01:00:35:04
End Time	01:01:00:20
Duration	00:00:25:16
Aspect Ratio	4:3
Scan Type	Progressive

### Export File Information:


Metadata	Value
File Name	E:/Media/2019_Phoeni...
Format	mov
Resolution	720x486
Aspect Ratio	4:3
FPS	29.970
Scan Type	Progressive
Bit Depth	half
Primaries	
Colour Matrix	
Transfer Function	
User Gamma	
Audio Channels	
Audio Bit Depth	
Selected Preset	deinterlace_clarity_cross-color_sas

### Export Settings Summary

You'll then be able to see the status of the job in the Information Tabs:

Previews **Queued** Completed Unsuccessful Watchfolders

Name	Progress	Output File(s)	Format	Node	Cancel Job
E:/Media/r3store_med...	<div style="width: 100%;"></div>	testClip.mov...	MOV...	rehost=6f3e2	Cancel



### Queue tab

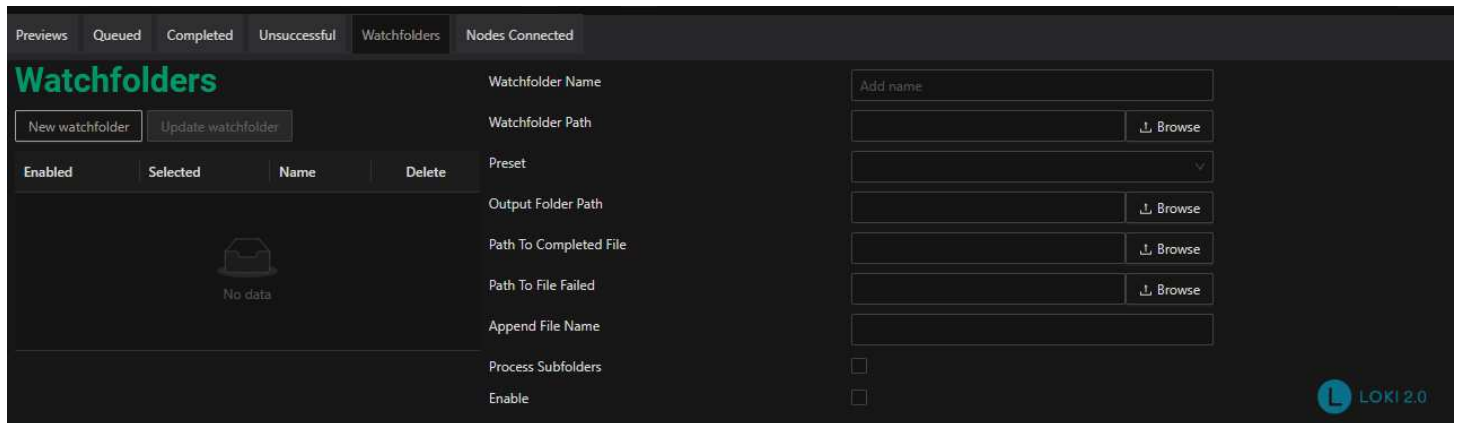
# WATCHFOLDERS

Watchfolders, also known as hot folders, or drop folders, provide a way to automatically process multiple files using user created presets.

Video files (mov, mxf, etc) and sequential files (dpx, exr, etc) are both supported.

Watchfolders use rules to determine when to start processing the file/files. Some rules are fixed, and some are user-defined. For example, if transferring a large video file into a watchfolder, the file will not be processed until it is fully copied into that folder.

## HOW TO CREATE A WATCHFOLDER



### Watchfolder Name

Enter the Name of the Watchfolder you want to create creating.

### Watchfolder Path

Enter the folder path where the watch folder will monitor for files.

### Preset

Select the Preset that will be applied to the files in the watch folder. Presets can be created in the Create Job tab and Preset Editor.

### Output Folder Path

Enter the folder where the processed watch folder files will be exported to.

### Path to Completed File

Enter the folder where the processed files will be moved to. For image sequences, the folder containing the files will be moved following the original folder structure.

### Path to Failed File

Enter the folder where the files that failed processing will be moved to.

### Append File Name

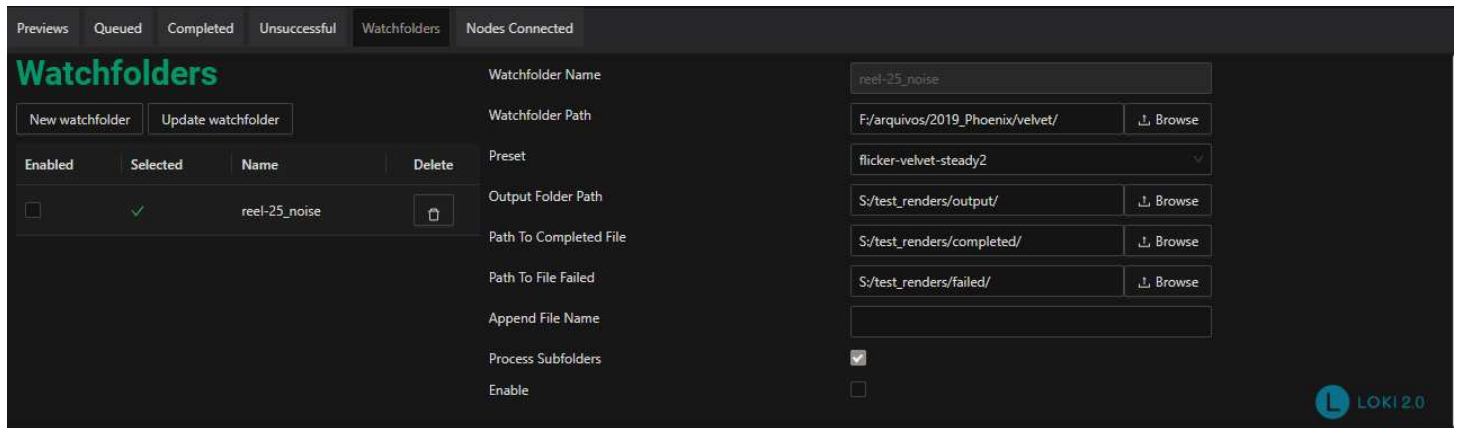
Use this function to append text to the end of the processed file name. For example, if the input file is "file1.mov", and the word "processed" is appended, the exported file will be named "file1processed.mov".

### Process Subfolders

When this option is enabled, Loki will look inside any subfolders of the main watch folder. The sub folders will be processed with the folder structure replicated on the output.

## Enable

Enables or disables the selected watchfolder. When enabled, all files in the selected watchfolder will be processed; when disabled, all files will be ignored.



After setting up the Watchfolder, click on “New Watchfolder” on the left side to save your configuration.

To select it, just click on the watchfolder and a checkmark will be shown next to the name.

To enable it just click on the checkbox and start adding files to the folder. Multiple Watchfolders can be enabled at the same time. Files will be rendered as soon as they're added to the folder and will then appear in the Queued tab.

# NODES CONNECTED

Loki 2 can use multiple computers on the same network to distribute render tasks. To use this feature, you'll need to install the render node on the computer(s) that will be available to process files and have a valid license per node (computer).

IP Address	Host Name	Loki Node Version	Rendering Node Version	Settings
[REDACTED]	FW-AMDR32	2.1.0.28137	2024.1.004	
[REDACTED]	GUS-RAZER	2.1.0.32785	2024.1.004	

## Multiple nodes available

The Nodes Connected tab offers information about the nodes available, with IP, Host Name and Node and Rendering versions to quickly identify mismatched software versions. The Settings window is now presented per node; clicking on the cogwheel on the right opens the Settings window, where you can select Output and Cache folders and change Rendering options.

Settings

Rendering | Cache

Folder Selection | Output

C:/Loki 2.0/root/.cache

C:/Loki 2.0/root/processed

Settings

Rendering | Render Tile Threads

Folder Selection | Render Frame Threads

DVO Threads

Max Memory Usage

4

28

30

32768

Rendering options are:

**Render Tile Threads:** Splits images into parts and works on them simultaneously. It's only significant when doing high-resolution projects. Set it around 4 to 6 for the best results.

**Render Frame Threads:** The number of threads we use to render frames. It should be set as close to the number of physical cores as possible. Leave around 2 cores free for Windows tasks



**DVO Threads:** Number of threads used to render DVOs. Like Render Frame Threads, it should be set as close as possible to the number of physical cores. Leave around 2 cores free for Windows tasks.

**Memory Pool:** How much memory is allocated for handling images internally, like caching. It's very dependent on source image size and project resolution; for SD projects, we recommend lower values (around 2048 to 4096) but, in general, the first run will set the proper amount. Always keep an eye on memory usage using Task viewer, if it gets close to the max amount of memory, lower the value in Loki.

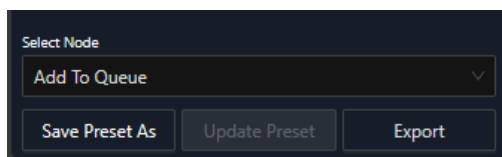
Change settings, type the values then click on the "Update" button; it will restart the Node and use the new values. While it restarts, some delay will be noticed until the Node is fully functional.

The Folder Selection window lets you choose your Cache and Output folders. Caches are created when you scrub the Timeline and create Previews; these files can be easily deleted and will not affect source files.

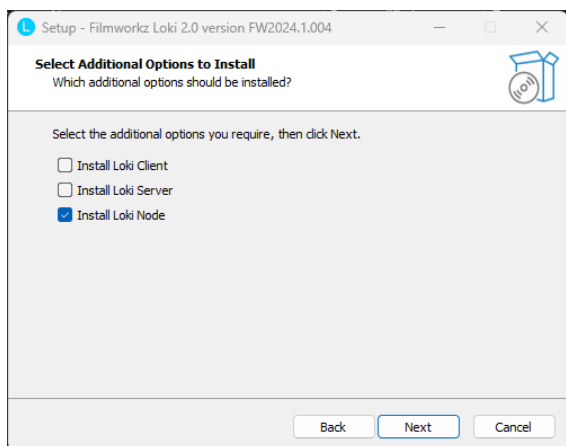
The Output folder is where renders will be created if no specific folder is selected when doing an Export. If a new folder is selected, this path will be ignored.

## HOW TO CONNECT TO MULTIPLE NODES

If you have multiple computers available on your network, you can get more Loki 2 licenses to add computers to your render queue. Renders can be either automatically assigned or a specific node can be selected.



To add render nodes to your setup, run the Loki 2 installer and, when prompted to choose options, you can either install just the Loki node and use the system as a render node, or do a full installation.



*Loki Node install selected*

After running the installer on the new computer, we need to set up the Server IP by opening a .config file located here:

"C:\Loki 2.0\root\Config\nodeConfig.json"

Open the file using a text editor and find this section:

```
"serverCredentials": {  
    "ip": "localhost",
```

Replace localhost with the server IP i.e:

```
    "ip": "192.168.87.128",
```

You can also change the folder locations for Caches and Outputs here; locate the following section:

```
"folders": {  
    "output": "C:\Loki 2.0\root\processed",  
    "cache": "C:\Loki 2.0\root\cache"
```

Make sure to use a location where all computers in your network can properly read and write.

After adding the Server IP and changing the folder locations, save the file. If you only installed the Loki Node, double click on the "Run Loki 2" shortcut that was added to your desktop during installation; a command prompt window will open. Keep the window open and minimize it. To stop Loki2 Node, you can either double-click the "Stop Loki 2" shortcut or close the command prompt window.

If you've done a full Loki 2 install, go to:

```
"C:\Program Files\Loki 2.0\version-number\LokiNode.exe"
```

Double click on LokiNode.exe and keep the command prompt window open. Don't use the Desktop shortcut "Run Loki 2" when a full installation is done and you only want to use the computer as a render node; that will open the Server, Node and Client, causing the Node to use the local computer as a server instead of connecting to the Server previously setup.

After the setup is complete, new nodes will appear on the Nodes Connected tab. Make sure to click on the cogwheel of each new node to properly setup your render settings and make sure that the computers all share the same file locations to render previews and files.

## HOW TO USE MULTIPLE NODES

After the installation and setup is complete, you can use any of the available nodes to render your shots and Watchfolders. When you're ready to export or save a new preset, you can either let Loki 2 automatically send renders to the queue by selecting the available system, or manually choose the node you want to do the job.

By using the "Select Node" dropdown, all available nodes can be selected. When a node selection is made, render operations will use that node until another one is selected. In the case of preview creation, it'll be added to the Queue.

# DVO QUICK REFERENCE

A huge selection of the best Emmy award-winning tools available (with more to come), you'll find a DVO perfectly matched to any grading, correction, restoration or conversion challenge. Here's where to access them in **DVO Performance Packs** for Loki:

DVO	DETAILS	DVO Film	DVO Video	DVO Convert	DVO Finish
Alias	Fix image aliasing caused by high frequency patterns		●		●
Aperture	Introduce incredible sharpness to your image		●		●
Brickwall	Enables you to Pre-master video for compression and fix digital camera sensor issues		●		●
Chroma	Magically fix any chromatic aberration, fringing & color bleeding	●	●		●
Clarity	It's simply the best grain and noise reducer in the world - nuff said				●
Cross-colour	Remove Chroma or dot crawl from video		●		
Decompress	High-compression, artifact infested cleaner which improves bad gradients and macroblocking issues		●		●
De-interlace	Highly accurate creation of progressive frames from any interlaced material		●	●	
Dirt Map	Our legendary Auto Repair tool	●			
Dropout	Easy auto drop-out and random artifact concealment		●		
Dry Clean	Simply the best automated dust and dirt removal tool in the world	●			
Dust	Excellent auto motion-compensation dust removal	●			
Dust GT	A super fast dust management tool	●			
Flicker	Automatic flicker removal	●			
Frame Lock	Fast, automatic frame stabilization	●			
Grain GT	Super fast grain management		●		●
Line-Sync	Correct shifted and/or stretched lines due to synchronization errors - who knew?		●		
Noise	Motion-compensated video noise reduction		●		
Pixel	Dead pixel trouble? Not any more... Auto locate & remove here		●		●
Print Align	Will auto align RGB separation prints	●			
Print Align Seq.	Auto combine and align sequential RGB separation prints	●			
Regrain RGB	Magically match any film grain look	●			●
Scala	Our intelligent image upscaler with unparalleled quality			●	
Scratch Target	Easily remove vertical scratch	●			
Sharpen	Sharpen the image without magnifying the noise - unbelievable!!!				●
Steady 2	Our fully automated image stabilizer	●			
Three Two	Our auto mixed cadence correction tool			●	
Twister	Our advanced software standards conversion tool			●	
Upscale	Need to up-convert SD to HD? Do it here			●	
Velvet	Remove extreme noise, manage low light shots & unlock unusable footage		●		●
Warp	Removes warping associated with line scanners	●			
Zoom	Our super high quality up-converter and down-converter			●	

You can also **customize your Loki setup** by selecting individual DVOs of your choice for a fully bespoke setup.

# WORKFLOW EXAMPLES

Hands-free image processing excellence is the clear purpose of Loki; however, its versatility presents an abundance of workflow possibilities and options to different users. Here are some typical ways in which Loki can enhance and simplify many image processing tasks. These are illustrative examples and of course there are many variables with any content workflow, so if you need help with some specific cases, **please check out the [Filmworkz Forum](#)**.

## COLOR GRADING ENHANCEMENT

DVO Clarity for noise reduction and DVO Sharpen offer the perfect complement to color grading by giving a sound base from which to produce the cleanest, sharpest images possible, without painstaking manual effort. Using it on a scene-by-scene basis, the colorist can easily use Loki Essentials plus DVO Film Pack to clean and repair problems restricting their creative vision.

While noise and sharpness are among the most common issues faced by colorists, Loki also offers the ability to fix other problems such as flicker, lens aberration and dead pixels to enhance, equalize and convert the footage to any standards.



## FILM RESTORATION

Many restoration workflows use a variety of tools from different software providers to allow the Restoration specialist to cherry pick the best tool(s) from each to create a streamlined processing pipeline.

Loki enhances this approach and offers the user the cost-effective option of cherry-picking from the award winning and comprehensive DVO Restore Pack to fill in the gaps in their workflows or improve on existing processes. DVO Dry Clean is the leading dust and dirt tool, and this tool alone will greatly enhance quality and project speed.



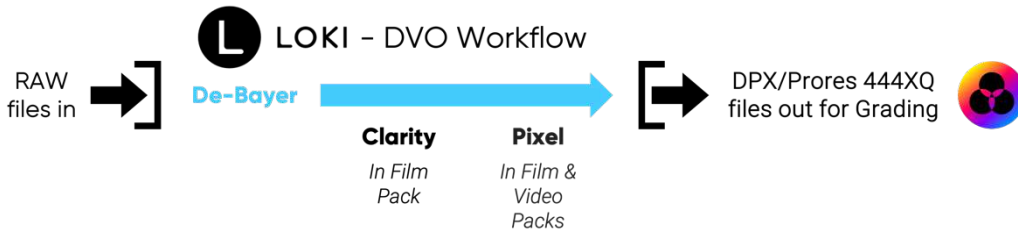
## VIDEO TAPE RESTORATION & ARCHIVING

Video tape archiving can be greatly enhanced and simplified by using Loki's watch folder feature in tandem with the DVO Video Pack. Once the watch folder, DVO tools and desired broadcast/archive format are selected the process of video tape digital restoration and archiving becomes essentially automated, meaning you can devote precious time where it's needed, for example by using the option to fine-tune the settings in Loki where the content demands more artistry.



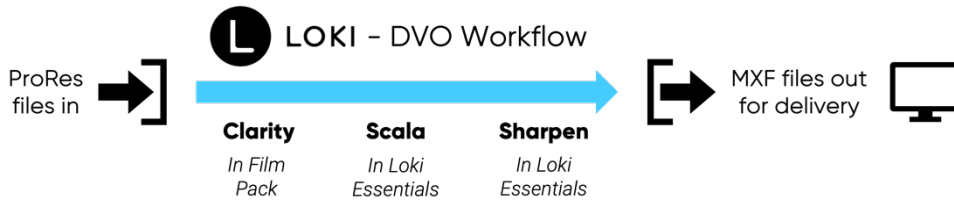
# RAW FILE DE-BAYERING WITH DIGITAL CAMERA CLEAN-UP (Future Release)

De-Bayer camera files for grading while fixing any known camera issues such as de-Bayer colour fringing, flicker, noisy lowlights, chromatic lens aberration and dead pixels, all in one pass. Offloading these tasks to Loki to render in the background, or in downtime, frees up the operator to grade as opposed to waiting for RAW data de-Bayering and image clean up.



## ULTIMATE UPSCALING

It's not uncommon to have to produce scaled deliverable versions of master files. Hand this task over to Loki and scale to any spatial resolution required with DVO Scala; include DVO Clarity and DVO Sharpen to guarantee the cleanest and sharpest results possible.



## CROSS CONVERSIONS

Let Loki with DVO Twister and DVO Scala deal with deliverables for resolutions and frame rates different to your master file. Adding further complementary DVOs such as Clarity & Sharpen will guarantee the best image possible.

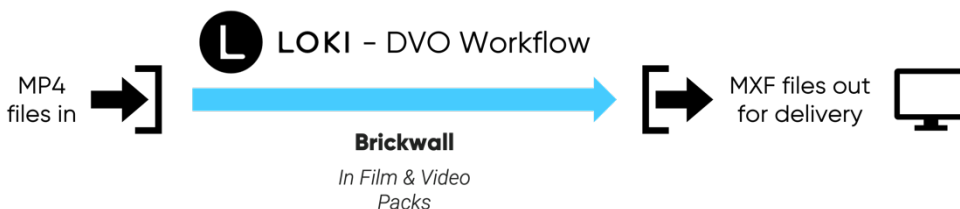
DVO Twister has been the OEM choice of standards converters for many years and has been integrated into industry leading products for broadcast services.



## TRANSCODING

At its heart Loki functions as an effective transcoding device. The inclusion of DVO Brickwall will make any compression codec more efficient by increasing quality, decreasing file size or a combination of both.

As a Windows based application, it's important to note that the Loki ProRes I/O is fully Apple certified for performance and quality.



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