



Reference Manual
July 2025

Thank you for purchasing DigiDiff.

As a cinematographer first, I am uniquely positioned to not only wield incredible tools made by others but also to create new ones for fellow creatives. DigiDiff is one such tool. Hundreds of hours have been poured into its development, and I hope it becomes a valuable asset in your storytelling toolkit.

I believe powerful creative tools should be accessible to all filmmakers. This is why DigiDiff will always be available as a one-time purchase to individuals, and never locked behind a subscription model. As your colleague in this industry, I'm committed to developing tools that empower our community while keeping them financially accessible to all creators.

Jake Baine

Jake Baine

Founder of Kromatic



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1.0

Overview

DigiDiff is a tool designed to emulate the characteristics of diffusion filters. While it's impossible to replicate the complicated physics of the optics in real filters— you can get pretty damn close.

DigiDiff is color space-aware and performs all processing in scene-referred linear space to achieve more photometrically accurate results.* It is compatible with industry-standard color management pipelines such as RCM and ACES.



ACES Color Management



Resolve Color Management

DigiDiff is compatible with almost every camera log gamma on the market. Additional gammas will be added with future updates.

SONY

ARRI

Blackmagicdesign

FUJIFILM

Canon

Z CAM

Nikon

RED

GoPro
Be a HERO.

Panasonic



**Colorspace-aware when correctly set up*

2.0

Getting Started

2.1 System Requirements

Apple Silicon Macs (macOS 11.0+)

Apple Intel-based Macs (macOS 11.0+)

Windows 10/11 with NVIDIA GPU (4GB+ VRAM)

Internet connection for activation & deactivation

2.2 Installation & Activation

When unactivated, DigiDiff will be in 'Demo Mode'. Demo mode will work as normal but will overlay a watermark over your footage until activated. This will allow you to audition the effect.

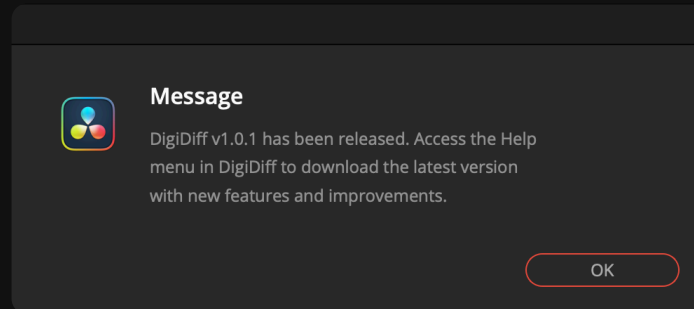
To activate the plugin, copy the license code included with your purchase into the license code field in the plugin's GUI and click "Activate." An internet connection is required for activation or deactivation of your license. Once activated, the plugin can be used offline without needing an internet connection.

Each license includes two seats, allowing DigiDiff to be activated on two systems simultaneously. The number of available seats is displayed within the plugin's GUI.

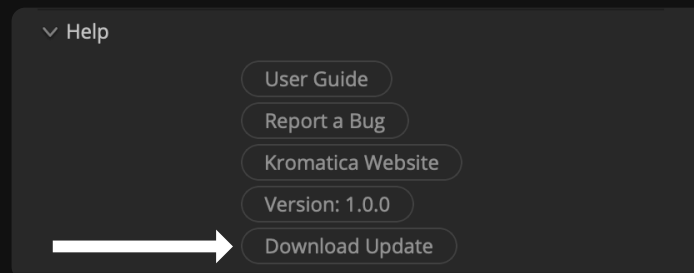
If your project contains multiple instances of DigiDiff, you only need to activate it once. Simply activate any single instance of DigiDiff, save your project, and exit DaVinci Resolve. When you relaunch Resolve, the activation will automatically apply to all DigiDiff instances in your project, eliminating the need to activate each one individually.

2.3 Updates

DigiDiff will receive updates that enhance functionality, resolve issues, and introduce new features. The application automatically checks for available updates in the background. When an update is detected, DigiDiff will display a notification prompting you to install the latest version.



When an update is available, install it directly through the Help menu by clicking the Download Update button. You can also manually check for updates using the Check for Update button.

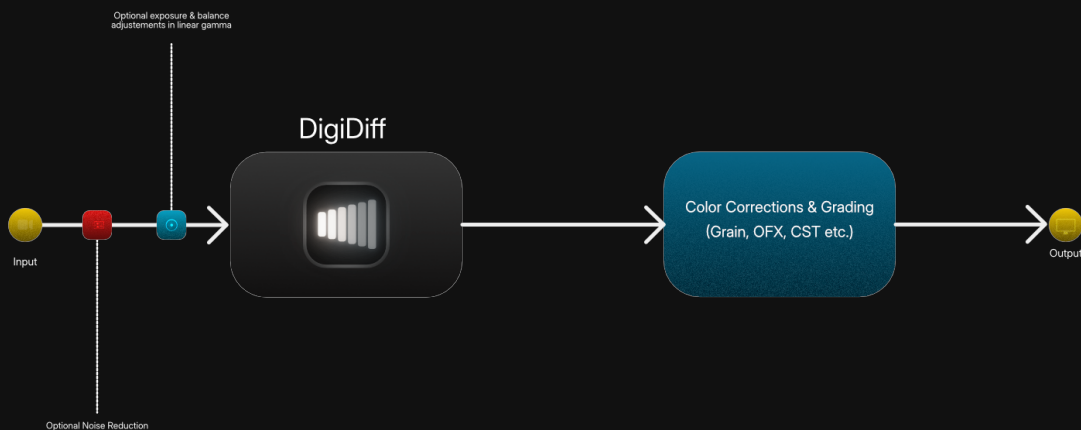


3.0

Using DigiDiff

3.1 Grading with DigiDiff

To achieve optimal results, place DigiDiff at the beginning of your node graph, with only noise reduction tools positioned before it. You can optionally place linear-based corrections prior to DigiDiff, but be aware that applying corrections prior to the DigiDiff node can alter how the diffusion is calculated and may lead to undesirable outcomes. All correction and grading adjustments should happen downstream from DigiDiff.



If you're working within a color-managed workflow, insert DigiDiff directly after converting your footage to your working space.

Selecting the correct camera gamma that matches your footage is crucial when using DigiDiff. Using an incorrect gamma can result in inaccurate effects. If your camera's gamma is not available in DigiDiff, you can use a Color Space Transform node before DigiDiff to convert your source footage gamma to one of the supported gammas.

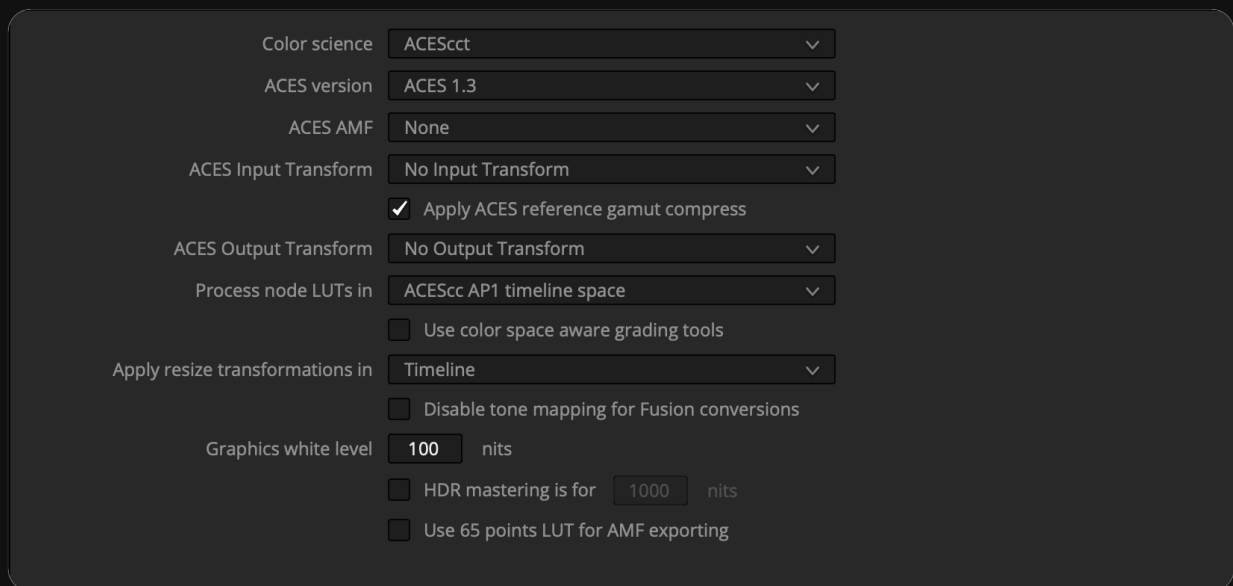
DigiDiff converts your source gamma into a scene-referred linear space for accurate manipulation and processing. After processing, it outputs the final image back in the original gamma it received.

3.2 Using DigiDiff with ACEScct

DigiDiff currently supports ACES workflows using ACEScct & ACEScc color space.

To use DigiDiff with ACES in Resolve:

1. Set your 'color science' mode to ACEScct
2. Configure your ACES Input/Output transforms as needed
3. Ensure gamma within DigiDiff is set to 'ACEScct' when applying DigiDiff to footage

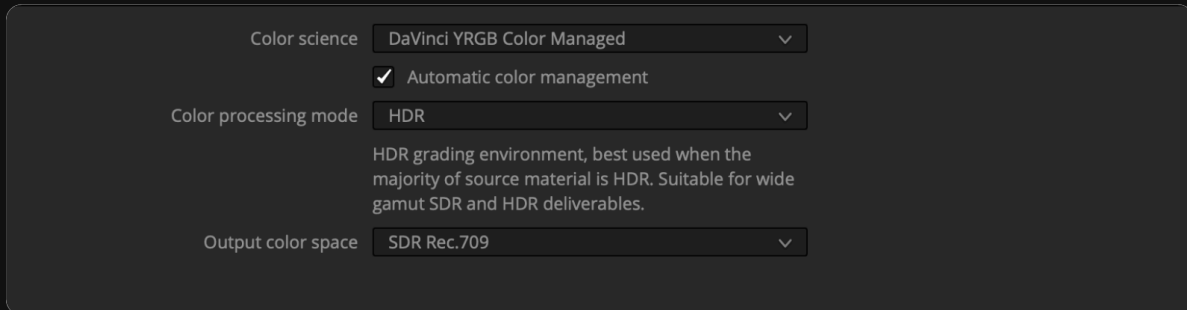


The screenshot shows the DigiDiff settings panel with the following configurations:

- Color science: ACEScct
- ACES version: ACES 1.3
- ACES AMF: None
- ACES Input Transform: No Input Transform
- ☒ Apply ACES reference gamut compress
- ACES Output Transform: No Output Transform
- Process node LUTs in: ACEScc AP1 timeline space
- ☐ Use color space aware grading tools
- Apply resize transformations in: Timeline
- ☐ Disable tone mapping for Fusion conversions
- Graphics white level: 100 nits
- ☐ HDR mastering is for 1000 nits
- ☐ Use 65 points LUT for AMF exporting

3.3 Using DigiDiff with RCM

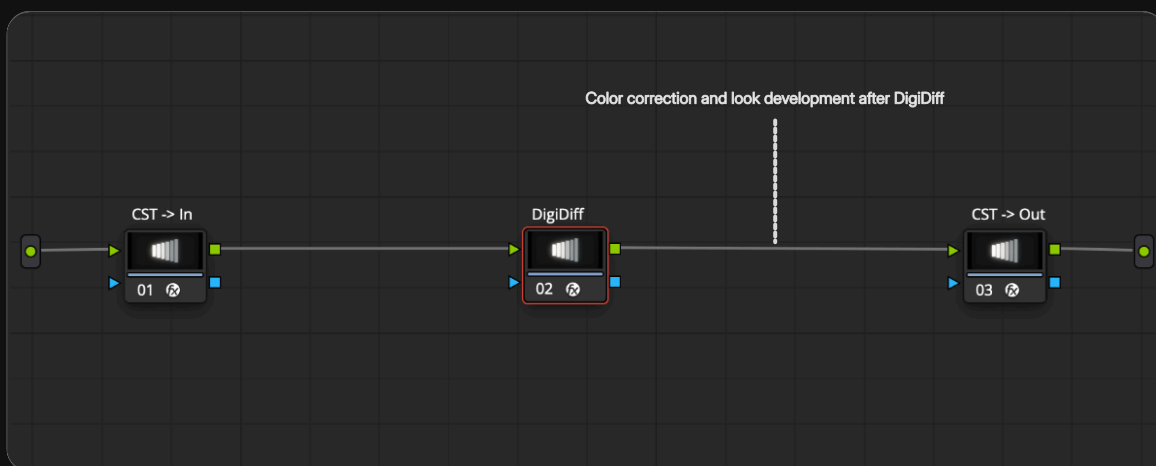
1. Set 'color science' mode to 'DaVinci YRGB Color Managed'
2. Set 'color processing mode' to HDR
3. Configure output color space as needed
4. Ensure gamma is set to 'DaVinci Intermediate' within the DigiDiff



3.4 Using DigiDiff within a manually color managed workflow

DigiDiff is compatible with custom color management workflows. For optimal results:

1. Position DigiDiff immediately after converting from camera space to working space
2. Place DigiDiff first in your node graph (though experimentation is encouraged)
3. Match DigiDiff's gamma setting to your working space

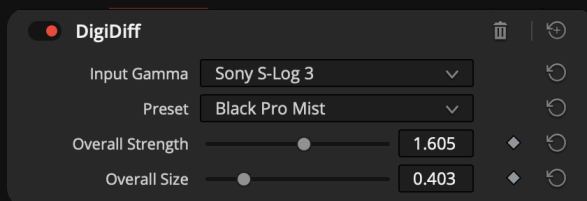


Currently supported working spaces include:

- LogC3
- DaVinci Intermediate
- ACEScct
- Slog-3
- Rec.709
- LogC4
- Canon Log 2
- Canon Log 3
- Panasonic V-Log
- FUJI F-Log
- Fuji F-Log2
- RED Log3G10
- Z-CAM Z-Log
- Apple Log
- Nikon N-Log
- DJI D-Log
- Leica L-Log
- GoPro ProTune
- BMD Film Gen 5

3.5 DigiDiff GUI

Basic Controls:



Input Gamma:

Select the gamma of your footage for proper handling.



Converting from display-referred to scene-referred color space is, technically speaking, impossible. Therefore, the sRGB gamma option provides only an approximate method for calculating the diffusion effect on display-referred footage. Using this option may result in less accurate or inconsistent effects compared to working directly with scene-referred data.

Preset:

Select either system presets or custom, user-created presets.

A statement about filter presets:



DigiDiff is not a replacement for analogue filters, but rather an extension of them. In the same way digital film emulation does not replace physical film, but instead extends its capabilities.

DigiDiff aims to replicate the look of physical filters with the added flexibility of the digital medium. It is currently computationally impossible to recreate the physics of light with 1:1 accuracy. Because of this, we do not claim that our filter presets are 100% identical to their physical counterparts. They are close, but discrepancies will exist. These presets are meant to give users a very close match to the falloff profile that these physical filters provide.

Overall Strength:

Adjust the strength of the overall diffusion profile.

Overall Size:

Adjust the overall size of the diffusion.

DiffDesigner:

▼ DiffDesigner

▼ Core

Strength

0.000

◆

↺

Size

0.0

◆

↺

▼ Body

Strength

0.000

◆

↺

Size

0.0

◆

↺

▼ Falloff

Strength

0.000

◆

↺

Size

0.0

◆

↺

Custom Preset Name

↺

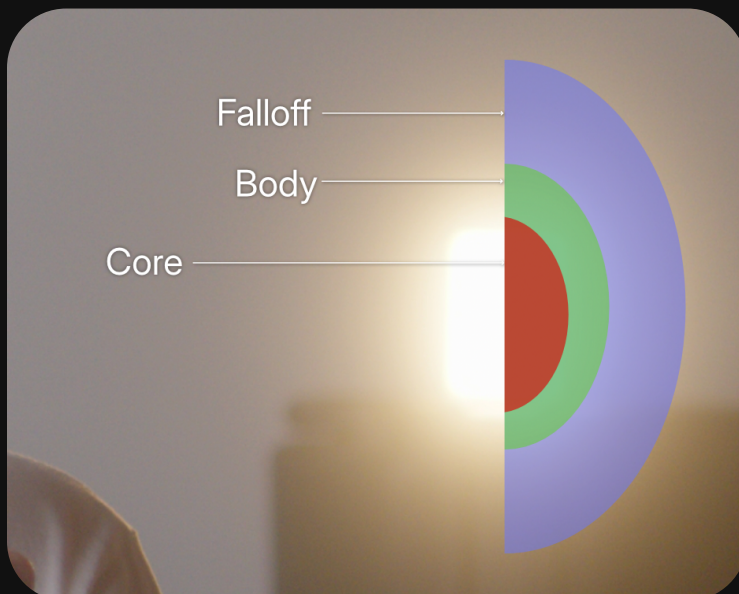
Save Preset

DiffDesigner:

This section is for users to design their own custom diffusion presets.

Core, Body & Falloff:

Each of these sections correspond to their respective areas of diffusion bloom.



Strength & size within cores:

Both the strength and size sliders within each core will adjust the core accordingly. It is important to know that each core builds upon the last, so you must have a holistic view of the entire bloom profile when designing a preset.

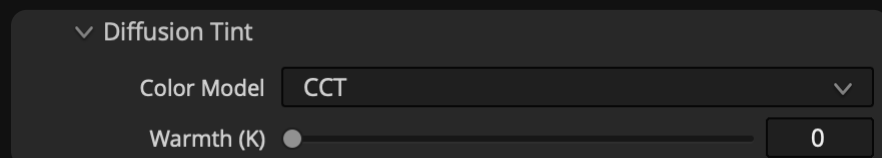
Diffusion Tint:

The Diffusion Tint tab allows users to apply color tints to their diffusion presets, providing additional creative control over the look of the diffusion. This tab is part of DiffDesigner and offers two color models for tinting:

- CCT (Correlated Color Temperature)
- Hue

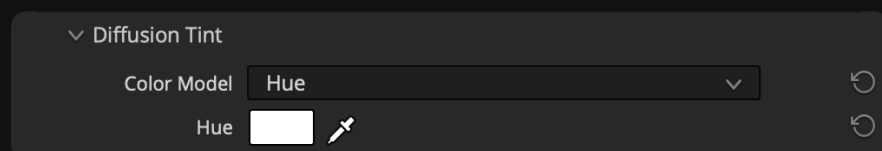
CCT Color Model:

The CCT Color Model applies a controlled warming bias to the diffusion layer using Kelvin-referenced adjustments. Rather than modifying the scene's actual color temperature, this control offsets the tint along the blackbody curve, allowing precise, photometrically-referenced warming values to be introduced into the diffusion effect.



Hue:

The Hue Color Model allows users to apply tint to the diffusion using an HSL-based adjustment. This enables users to introduce custom color tints or sample colors from elements within the scene, allowing the diffusion to visually blend with existing lighting or color tones.



Custom Preset:

Name your custom preset here. You can also update a preset after making changes or remove a preset here as well.

DiffBoost:

DiffBoost is a feature that allows users to amplify the intensity of bright, specular areas within the diffusion effect. This can be used to create unique looks where diffusion appears stronger on highlights while remaining more subtle in midtones and shadows.

Because DiffBoost is not part of DiffDesigner, its values are not stored within presets. It's important to note that DiffBoost modifies the natural tonality of the image, representing a creative enhancement rather than a physically accurate diffusion behavior. DiffBoost is most effective on scenes with strong contrast between bright, blooming highlights and darker midtones or shadows.

Boost:

The Boost slider amplifies the diffusion intensity around bright areas of the image, enhancing the diffusion effect in highlights.

Clamp:

The Clamp slider sets the luminance threshold for the Boost effect, allowing you to fine-tune which portions of the image receive boosted diffusion. This helps isolate the boost to specific highlight regions while leaving other areas unaffected.

▼ DiffBoost

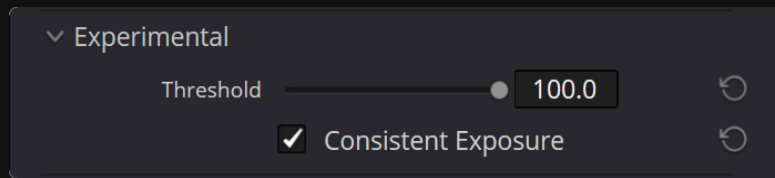
Boost

0.000

Clamp

5.000

Experimental:



Threshold:

This parameter allows you to limit the diffusion effect to pixels above a specified luminance threshold. The value represents the percentage of the image to which the effect is applied. A setting of 100 means the diffusion affects 100% of the image, applying uniformly to all pixels. A value of 50 indicates that the effect is only applied to pixels with luminance values above 50%.

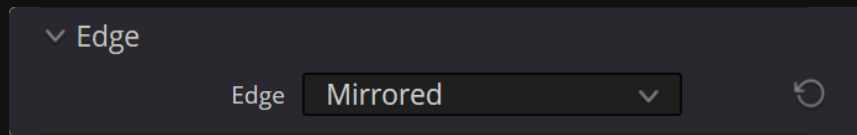
For the most realistic effect, it is recommended to leave this parameter at 100, as physical diffusion filters in the real world affect the entire image without differentiating between pixels. However, we've included the ability to adjust this threshold to encourage creative experimentation. By clamping the effect to certain luminance levels, you can achieve unique and unconventional visual effects, which can be useful for specialized look development or artistic purposes.

Consistent Exposure:

By default, the exposure is maintained at a consistent level regardless of the diffusion strength. Disabling this option allows the overall exposure of the image to increase as you enhance the diffusion strength, reflecting the physics of how light behaves when emitted through a screen.

For accurate and realistic results, it is recommended to leave exposure consistency enabled. However, the option to deactivate it has been included to encourage experimentation during look development. Allowing the image exposure to increase with the diffusion strength can produce experimental, dreamy, and ethereal looks, which may be valuable for creating unique visual looks.

Edge:

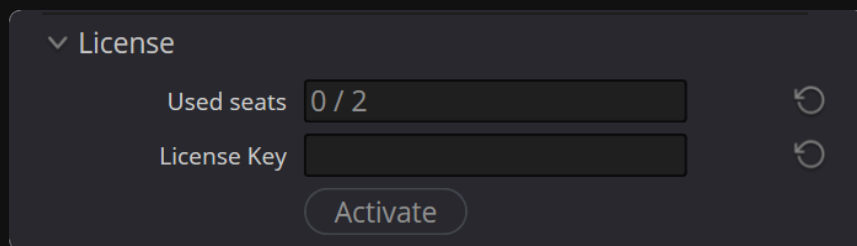
A dark-themed UI panel for the 'Edge' setting. It features a dropdown menu with a downward arrow and the text 'Edge'. The selected option is 'Mirrored', which is displayed in a separate box with a small downward arrow. To the right of this box is a circular refresh icon.

Threshold:

The diffusion effect can behave unpredictably when light sources extend beyond the frame boundaries. This option allows you to choose different extrapolation methods for calculating the effect beyond the edges of the frame.

- **None:** No extrapolation (vignetting will appear as you adjust diffusion size)
- **Mirrored:** Mirrors pixels beyond the edges of the frame.
- **Repeated:** Repeats pixels beyond the edges of the frame.

License:

A dark-themed UI panel for the 'License' section. It has a dropdown menu with a downward arrow and the text 'License'. Below this, there are two input fields: 'Used seats' with the value '0 / 2' and 'License Key' which is empty. Each input field has a circular refresh icon to its right. At the bottom of the panel is an 'Activate' button.

Used Seats:

This field displays the number of license seats currently available for activation.

License Key:

Use this field to enter your purchased license key for plugin activation.

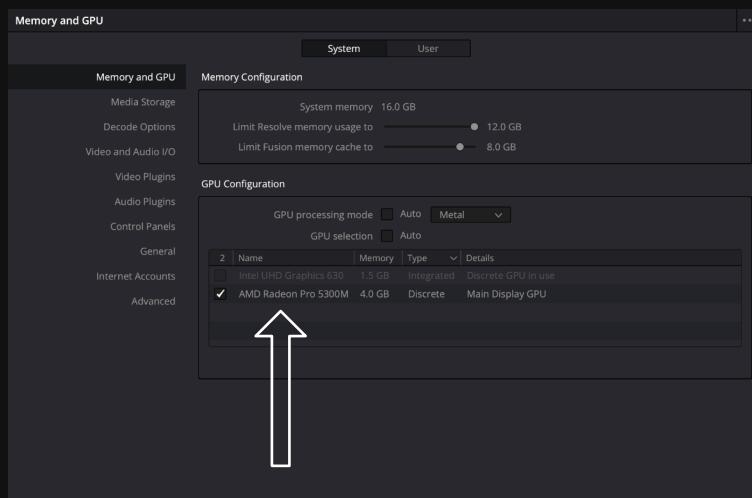
4.0

Intel-based Mac Support

DigiDiff supports Intel-based Macs; however, this is considered legacy support. As Apple transitions fully to Apple Silicon, Intel-based Macs are gradually being phased out of official support. Apple Silicon machines offer significant performance advantages, and we recommend them for the best DigiDiff experience.

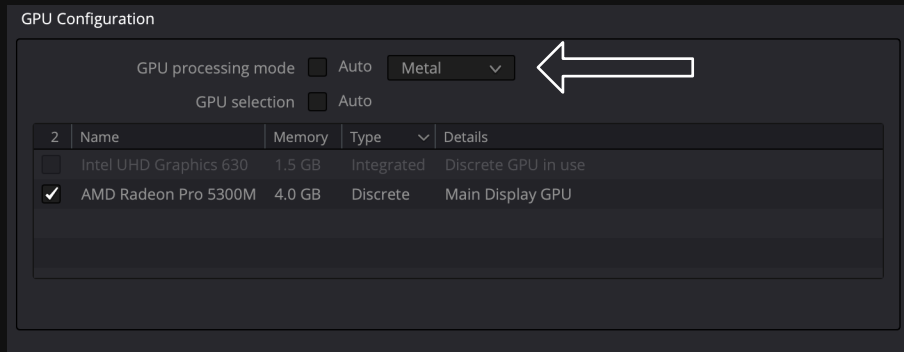
Multiple GPU Systems:

Currently, Intel-based Macs with a single active GPU are supported. Systems with both a discrete and integrated GPU are compatible; however, configurations using multiple GPUs connected via Apple's Infinity Fabric Link are not currently supported. To run DigiDiff on these machines, you'll need to manually select a single GPU within DaVinci Resolve's preferences instead of using the "Auto" GPU selection mode.



GPU Processing Mode:

DigiDiff requires Apple's Metal API. If you encounter a white screen while using DigiDiff, check that DaVinci Resolve is set to use Metal (not OpenCL) under GPU processing mode. This will require disabling the "Auto" GPU selection and manually choosing Metal in the preferences.



5.0

Performance & Optimization

DigiDiff's playback performance depends on your system specifications. Most users can achieve real-time 24fps playback with 1080p timelines under standard configurations. Our development team continuously optimizes performance through regular updates.

Real-time playback of 4K timelines demands more powerful hardware due to the increased processing requirements.

Resolution Scaling:

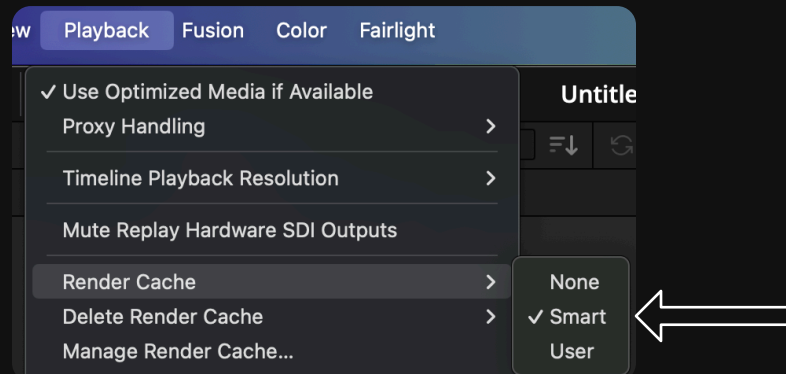
As of 2.0, DigiDiff is resolution independent, meaning the diffusion will look the same at 1080p as it will at 4K UHD. If you are unable to get realtime playback at 4K on your system, we recommend dropping your timeline resolution to 1080p while working and then returning to your delivery resolution before exporting.

Performance Improvement Methods:

If working at 4K resolutions and maintaining realtime playback are important to your workflow, we recommend some of the following methods.

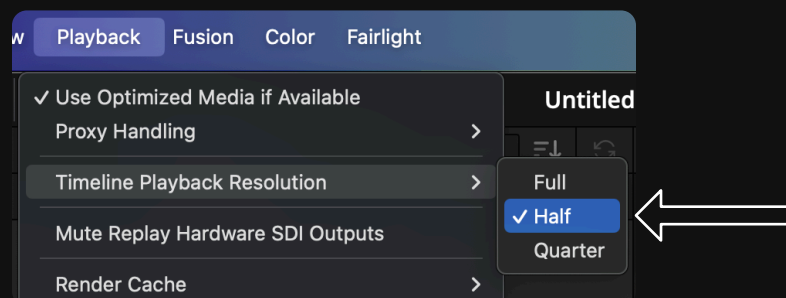
Resolve Render Cache (Recommended):

Enable 'Render Cache' with the 'smart' setting for optimal performance. This allows Resolve to cache your timeline to disk in the background while you work, requiring only a few seconds per clip to achieve real-time playback.



Timeline Playback Resolution:

For real-time 4K playback, set your timeline playback resolution to 'half'.



6.0

Future Roadmap, Feedback & Requests

We are a small team committed to delivering stable, reliable software. Rather than rushing features, we take a focused approach to ensure each update meets our quality standards. While we have many ideas for DigiDiff's future, we carefully prioritize development to maintain this standard.

For real-time updates on upcoming features and development progress, we recommend joining our [Discord community](#) and monitoring our [Github page](#). We have exciting developments in the pipeline and look forward to sharing them with you.

Your input shapes our development. We encourage you to share feedback or feature requests through these channels as well.



For support, email:
support@kromatica.co

