coloristfoundry

Filmverse project*

*Flexible Scene-Referred Film Emulation Plugin (DaVinci Resolve Studio)

Designed by Jaideep Panjwani

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About

Filmverse Full (2.1)

Made for serious filmmakers. Film is organic, so are stories - I often wonder if modern storytelling has lost its depth since we plugged out a truly organic process from the craft. Filmverse has been a labour of love and a means to feed my curiosity - It's an absolute pleasure trying to pursue what makes film feel alive. As we move deeper into the digital age, it's essential that we refine our tools, ensuring they support the craft rather than dilute it. This is my contribution to help storytellers revive the powerful, authentic storytelling that has touched my life in countless ways. I'm excited to see how this project takes shape and the things that come out of it.

- Jai

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Objective

Philosophy: So far, the best use case scenario for film emulations (in my view) has been building an organic non-linear look for digital cinema. When I say that, I don't mean your usual Netflix sci-fi with over the top blue and orange color palette. Rather, what I mean is how film plays a role in handling extreme highlights, how a film maps an edge case scenario, how color is compressed and shaped near skin, how foliage is rendered in darker vs brighter areas, how reflectance is factored in, how shadows appear to have a certain tint to them yet they end in a neutral black/dark-grey when picked with a color picker, how grain is rendered per channel, and I can go on and on with the perspective film lends with that immensely help us shape our digital image in a better way. Studying film, the way it renders colors, its split tone, its contrast curve lends us a far greater insight to where digital stands right now and also gives us some perspective on what factors will shape the tools of the future. And this is exactly what filmverse is made for, to open a discussion on the future of our tools and how we can learn from film - how to handle our digital signals better.

Approach: Filmverse is currently designed to intricately and sophisticatedly mimic the response of the Vision series film stocks. More film stocks will be added over time. The core idea behind Filmverse was to develop a pipeline that addresses the nonlinear aspects of film, making it inherently complex in its approach to replicating variations in hue, lightness, and other characteristics across different axes in a wide colour space.

By non-linear, we refer to the way film responds to interactions and the organic manner in which different colour regions react to one another when captured on film. For instance, consider how a specific hue behaves in areas of lower lightness compared to its behaviour in areas of higher lightness. Similarly, the way saturation affects different hues in lower lightness regions differs from how it influences those hues in higher lightness regions.

This is what makes Filmverse unique: it achieves all this complexity with simple and elegant mathematics, allowing everything to fit into a DCTL format.

On the textural side, the aim wasn't to achieve absolute accuracy. Instead, textures have been created to artistically capture the essence of film, rather than replicating its characteristics one-to-one. This approach will continue as we have successfully established a framework that simulates film-like colour responses. We will keep adding more film stocks to the project as it evolves.

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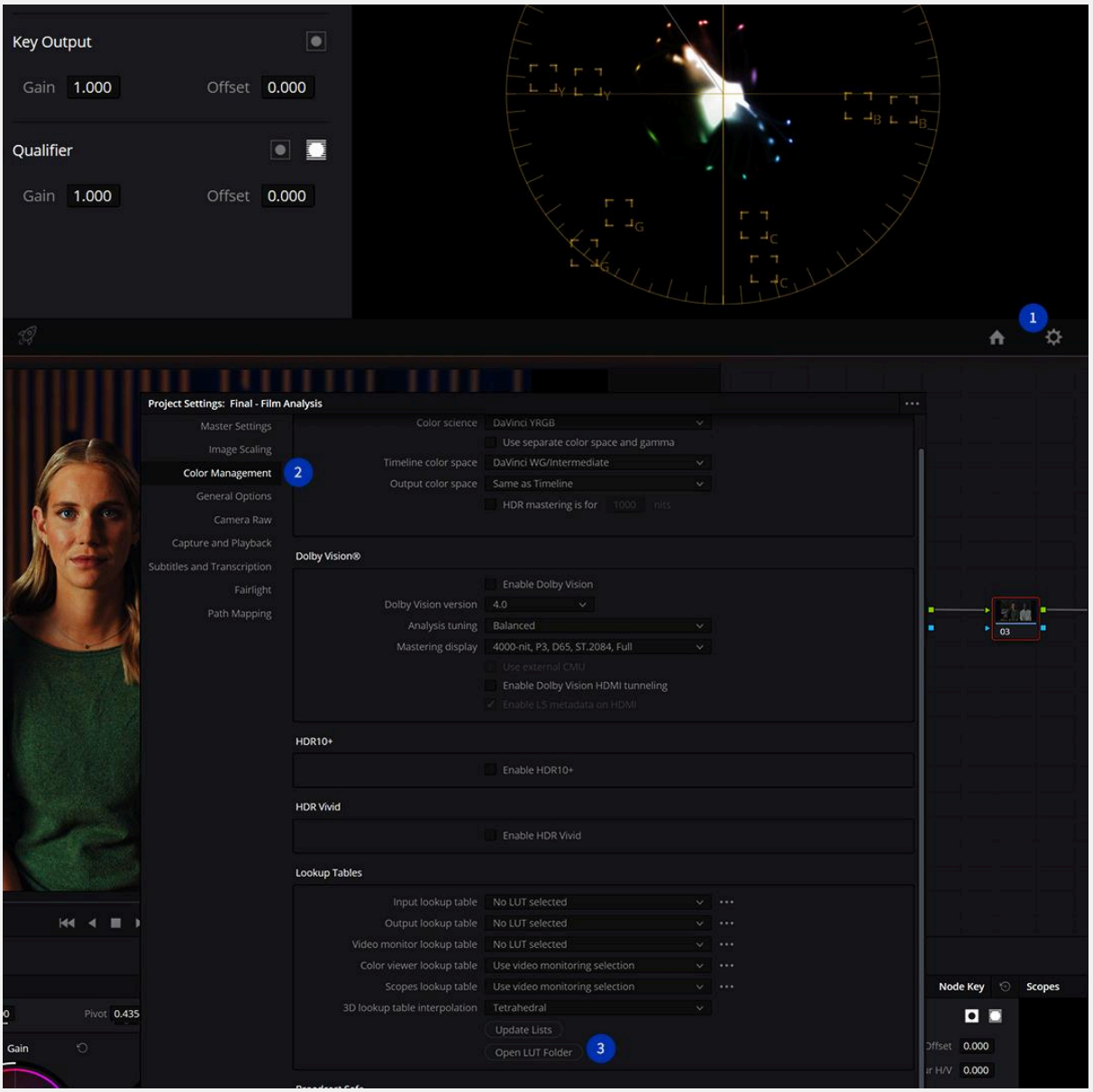
Installing

1. Go to the colour page. Open settings from the bottom left gear icon in resolve (1).

2. Go to “Color Management” (2). Click on the “Open LUT Folder” (3) Button.



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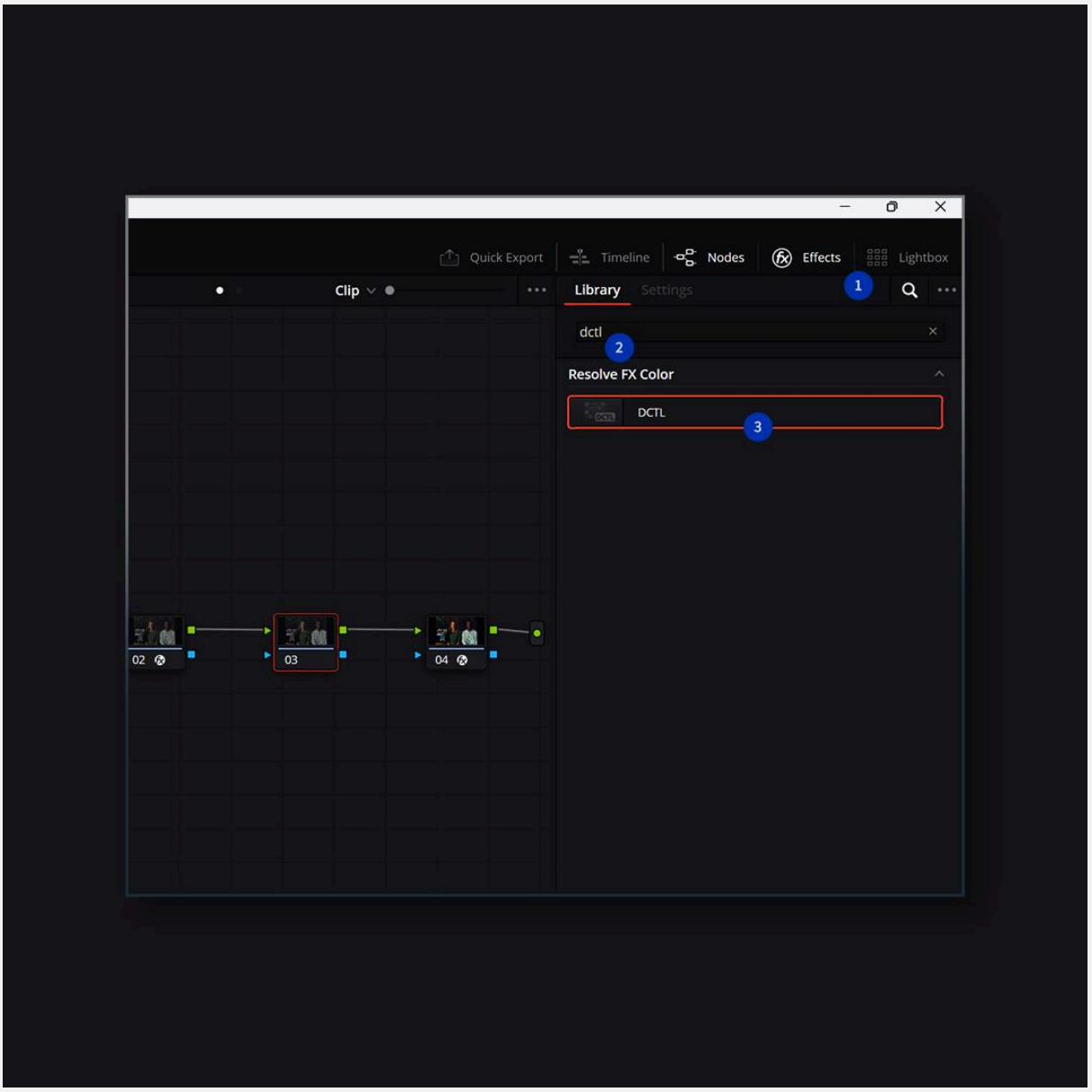
3. (*Important*) Place the following files
(a) FilmVerse V(*) - Colorist Foundry.dctle
(b) FilmVerse V(*) (Texture) - Colorist Foundry.dctle
~ Windows ~ *"C:\ProgramData\Blackmagic Design\DaVinci Resolve\Support\LUT"*
~ MacOS ~ *"Library/Application Support/Blackmagic Design/DaVinci Resolve/LUT/"*

4. (*Important*) Restart Resolve.

5. Go to the colour page, post restart. In the "Effects" (1)library search for DCTL (2). Drag and Drop the DCTL PLUGIN(3) effect onto your node. In the DCTL dropdown search for "Filmverse". Access the plugin with the "Effects" Library Panel.



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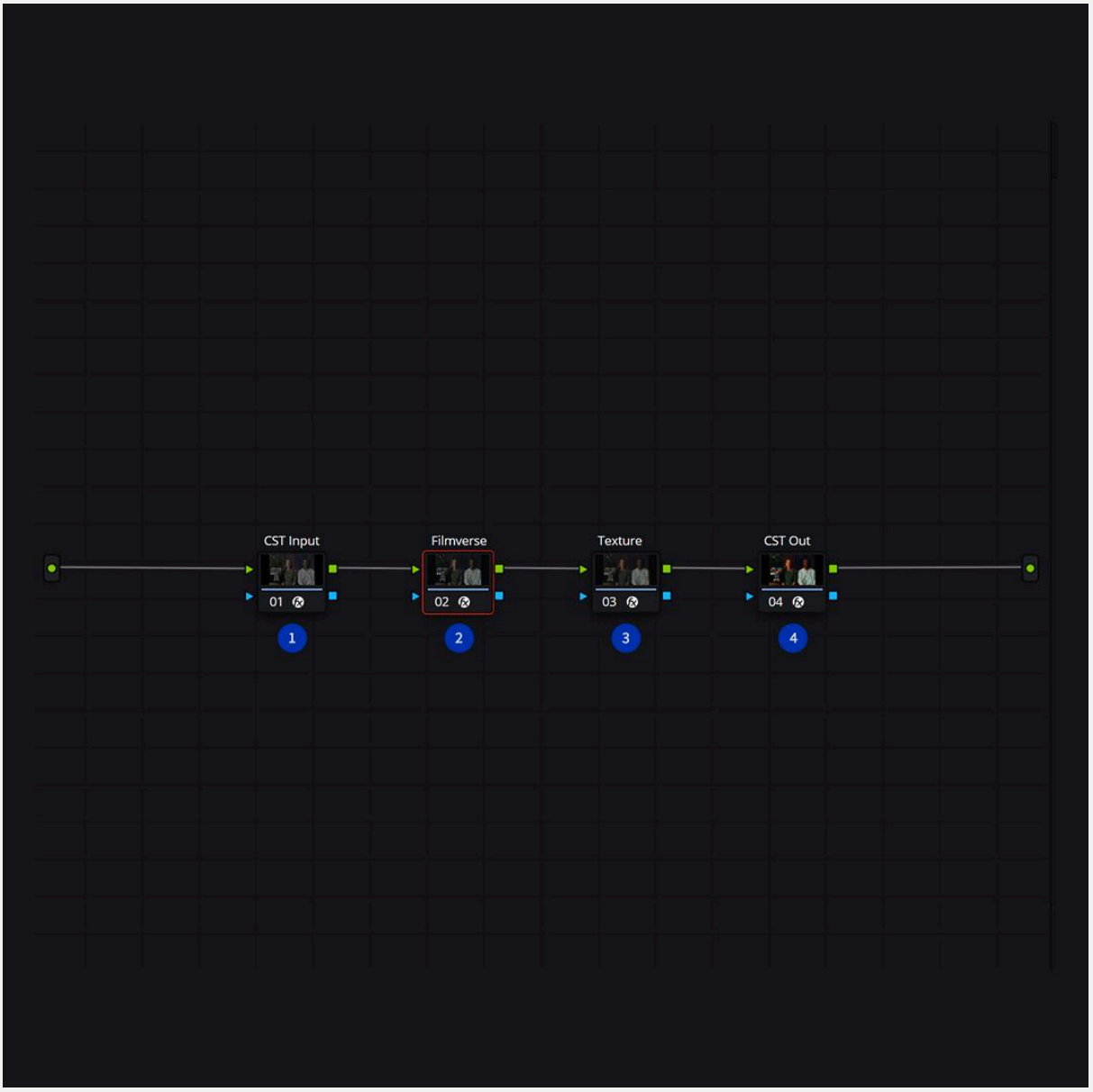
Setting up (1)

Method 1. There are two plugin files you get with your download. This will be the default node tree you shall follow for properly setting up FilmVerse Plugin.



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Node 1: Color Space Transform - INPUT
Input Colour Space: Your Camera Colour Space
Input Gamma: Your Camera Input Gamma
Output Colour Space: DaVinci Wide Gamut
Output Gamma: DaVinci Intermediate

Tone Mapping Method: None
Gamut Mapping Method: None
Apply Forward OOTF: No
Apply Inverse OOTF: No
Use White Point Adaptation: Yes

Node 2: Drag and Drop DCTL plugin FilmVerse - Colorist Foundry

Node 3: Drag and Drop DCTL plugin FilmVerse (Texture) - Colorist Foundry

Node 4: Colour Space Transform - OUTPUT
Input Colour Space: DaVinci Wide Gamut
Input Gamma: DaVinci Wide Gamut
Output Colour Space: Rec.709
Output Gamma: Gamma 2.4

Use White Point Adaptation: Yes
Apply Forward OOTF: Yes
Apply Inverse OOTF: No

(IMPORTANT) Tone Mapping Method: Select Luminance Mapping
Custom Max Input: Yes
Max Input Set to 10000
Custom Max Output: Yes
Max Output: Set to 100
Adaptation: Set to 9.00

Gamut Mapping Method: Saturation Compression

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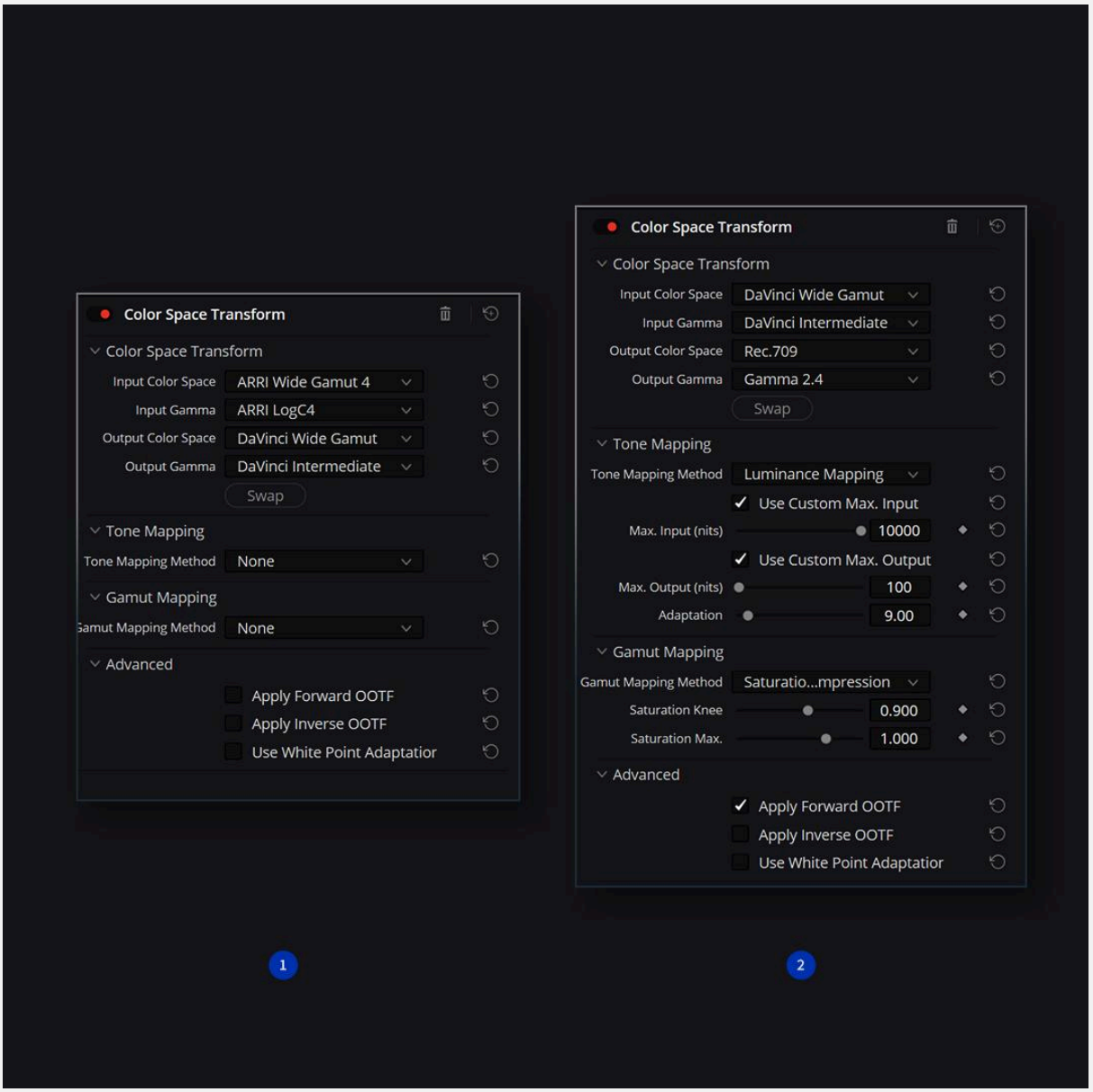
Colour Space Transform: Reference image, CST input Node (1) & CST output Node (2)



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Setting up (2)

Method 2: If you prefer working with film-log-like colour space, then go ahead and select output in the FilmVerse plugin as “Cineon”. Our focus was accurate negative emulation. Naturally, this allows this output option to closely replicate the colour nuances characteristic of traditional film systems.

Suggested node tree:

Node 1: Colour Space Transform Input (Same as method 1)
Node 2: Filmverse Full Plugin
Node 3: Filmverse Texture Plugin
Node 4: Davinci’s Film LUT

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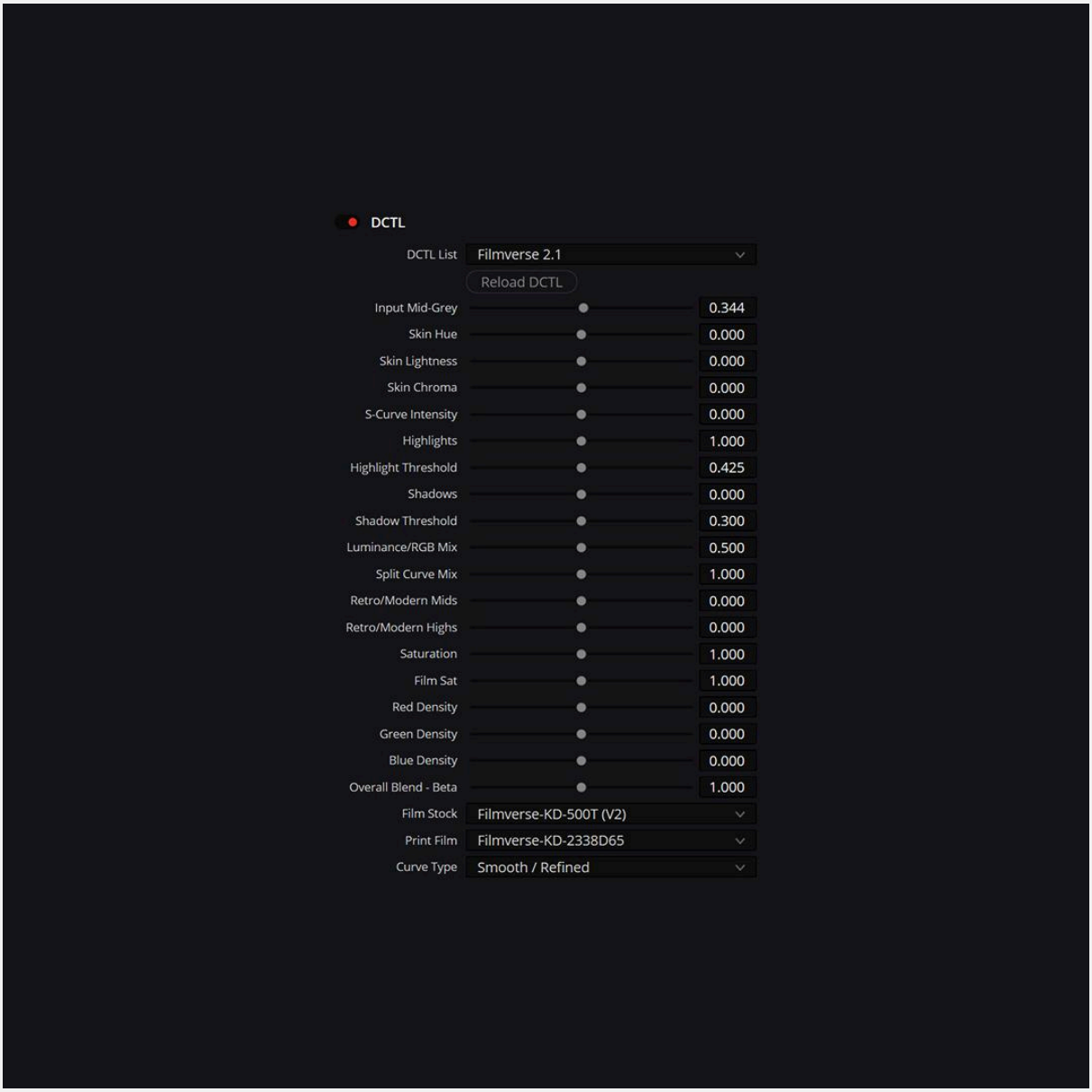
Controls - Filmverse



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Here’s an in-depth exploration of each feature in Filmverse 2.1:

1. Skin Control: Skin hue, lightness & saturation

In film emulation, achieving realistic and flattering skin tones can be challenging due to the inherent characteristics of film stock and the differences between film and digital sensors. Filmverse 2.1 offers specific controls to adjust the hue, chroma, and lightness of skin tones, which are vital for achieving a much more pleasing skin render.

Approach: The system uses a specialised skin vector that targets typical skin tone regions across all skin types. This vector is refined to give more precise control over skin tones, enabling users to make adjustments without impacting other parts of the image. The ability to tweak hue, chroma, and lightness individually means that users can correct colour casts, enhance skin vibrancy, or adjust brightness to level things in the look itself.

2. Total Response Control:

Overview: This category focuses on manipulating the overall tonal response of the film emulation. It includes S-curve intensity adjustments, highlights, shadows, split tone mixing and custom split-styles. These tools are essential for replicating the dynamic range and tonal characteristics that are unique to the specifically chosen film stocks.

S-Curve Intensity: The s-curve is a fundamental part of film emulation, defining how contrast is applied across the tonal range. The intensity slider in Filmverse 2.1 allows users to adjust the strength of this curve. Increasing the intensity shifts the curve's pivot towards mid-grey, enhancing contrast while keeping skin tones and mid-grey areas minimally affected. This control helps maintain the natural look of skin tones while still allowing for dynamic contrast adjustments.

Highlight and Shadow Controls: The highlight control enables fine-tuning of extreme whites, while the highlight threshold determines the starting point for these adjustments. These controls are unique because they allow precise manipulation of high luminance areas, which traditional tools like Resolve's Lift, Gamma, and Gain might not handle as effectively. Similarly, the shadow and shadow threshold controls let users define the black point and shadow regions, offering control over how deep or lifted the black-point appears.

Split Curve Mix: This feature is crucial for adjusting the split-tone response, blending colour-only emulation with traditional filmic tone responses. It gives users the flexibility to control the degree of film-like character in their image. By adjusting this slider, users can choose between a purely colour-based response (slider to left) or a more tonal response that boosts the unique split-tone characteristics of film (slider to right).

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Retro/Modern Mids & Highs: Overview: These controls are part of Filmverse 2.1’s suite of tools designed to give users advanced control over the colour toning and mood of the image. The Retro/Modern Mids and Retro/Modern Mids highs controls allow users to separately adjust the behaviour of midtones and highlights, while the Retro/Modern slider provides an intuitive way to create different stylistic looks by adjusting the overall tonal palette. These tools are critical for crafting specific looks that align with both vintage and contemporary aesthetics.

A. Functionality: These sliders provide users the ability to independently adjust the colour characteristics of the shadow and highlight areas. By using these controls, users can fine-tune the balance between the warm and cool tones in different regions of the image, achieving precise artistic effects.
B. Shifting Right: For instance, shifting the Retro/Modern Mids towards the right will introduce a cooler tone into the shadows, while shifting the Retro/Modern Highs towards the right will add a warmer tone to the highlights. This approach helps in achieving a more contemporary warm vs cold look, this allows you to form a hybrid look building approach - This results in a more polished, high-contrast look that is common in modern filmmaking and is often used in high-end colour grading to enhance the dynamic and dramatic feel of the footage - observed in works of high end colour agencies.
C. Shifting Left: Conversely, shifting both sliders towards the left can provide a much more traditional look. This configuration typically results in cooler highlights and warmer shadows, reminiscent of old film styles where the shadows would have a sepia or brownish tint while the highlights take on a bluish or cyan cast. This is ideal for projects that aim to capture a nostalgic, timeless look.
D. Practical Application: The ability to control these aspects separately allows colorists and creatives to experiment and dial in the exact look they want, whether that's emulating the nostalgic feel of film noir or creating a vibrant, modern cinematic style. These tools, by allowing selective control over how different areas of the image behave, open up a vast range of possibilities for mood creation, storytelling, and stylistic exploration.

3. Saturation and Density:

Overview: Saturation and density adjustments are key to emulating the colour richness and depth characteristic of film. Traditional film emulation often lacks flexibility in these areas, leading to either under-saturation or over-saturation. Filmverse 2.1 introduces refined controls to handle these aspects more naturally and effectively.

Saturation Slider: The saturation slider in Filmverse 2.1 increases colour saturation in a way that aligns with the film's original saturation curve. Instead of simply boosting all colours uniformly, this slider pushes saturation along the film’s inherent path, which involves

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complex saturation adjustments. This results in a more natural, film-like enhancement of colours that avoids digital-looking oversaturation.

Film Sat: Proprietary Saturation Techniques: Beyond the traditional slider, Filmverse 2.1 uses proprietary techniques to emulate the nuanced saturation behaviours seen in film. These techniques help achieve a more objective film-like saturation response, contributing to the overall authenticity of the emulation.

Red, Green, and Blue Density Sliders: Filmverse 2.1 has separate density sliders for each colour channel (red, green, and blue), as opposed to the single density slider in earlier versions. This granularity allows users to manipulate the perceived density of colours more accurately, making specific colours appear richer or deeper without affecting others. Density controls have been worked rigorously over the past year, making sure that adding density doesn't break the image - as seen in most custom tools floating on the internet. This level of control helps avoid common issues in digital grading, such as colour banding or artefacts, ensuring a smoother, more organic look.

4. Film Stock and Print Film Selection:

Overview: Filmverse 2.1 provides options for selecting different film stocks and print films, which affect the overall look and feel of the emulation. This feature allows users to choose between various negative film stocks and print film processes, mimicking the workflow of traditional film development and printing.

Filmverse KD 500T V1 and V2: The software includes two versions of emulation inspired by Kodak Vision3 series. No official association with Kodak. Version 1 is a manually created emulation that captures the essence of the stock, while Version 2 offers a more refined, nuanced emulation that closely mimics the actual characteristics of Kodak Vision3 series. This provides users with options depending on whether they prioritise ease of use or film accuracy.

Print Film Options: In addition to negative stocks, users can choose different print film options like Filmverse KD 2383, 3514 Inspired by Kodak Print Film 2383 and Fujifilm Print Film 3514 with no official associations with Kodak or Fujifilm. These selections simulate the final step in film processing, where the negative is printed to a print film stock. This stage significantly influences the final image characteristics, such as contrast, colour tone, and overall feel. Users can even select 'none' to output directly in DaVinci Wide Gamut, maintaining the negative's characteristics without the influence of print film. This opens a whole new world for exploring look building using just the negative emulation of film.

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5. Curve Type Selection:

Overview: Curve type selection offers users the ability to choose between different tonal mapping algorithms to best suit their needs. The two available options—'Smooth and Refined' and 'Accurate'—cater to different aesthetic preferences and requirements.

Smooth and Refined: This curve type is designed to produce a softer, more pleasing look, particularly on digital footage. It smooths out harsh transitions and reduces potential digital artefacts, making it ideal for projects where a natural, cinematic appearance is desired without the harshness that can sometimes come from accurate emulations.

Accurate: The accurate curve setting is designed to replicate the exact tonal response of film, adhering closely to how film stock behaves. This setting is more suitable for projects requiring fidelity to the traditional film look, where authenticity is prioritised over the softness of the image. This option might introduce more pronounced film characteristics.

Conclusion

Each of these features in Filmverse 2.1 offers specific tools to emulate and manipulate film characteristics with precision. From skin tone control to tonal adjustments and saturation management, these features provide a comprehensive set of controls for creating both traditional and modern film looks. Whether users aim to replicate the feel of classic film stocks or explore new aesthetic possibilities, Filmverse 2.1 equips them with the tools to achieve high-quality, nuanced results.

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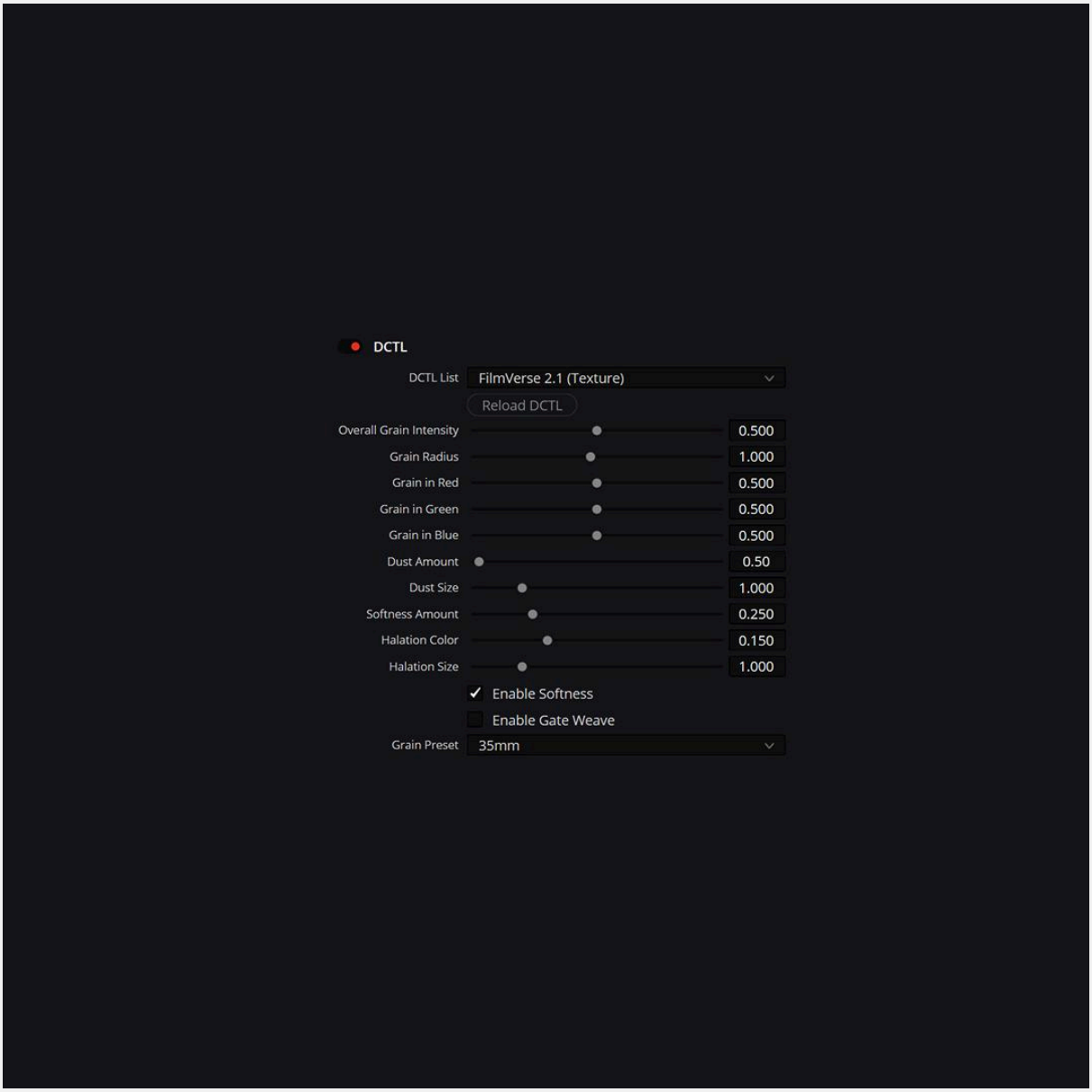
Controls - Filmverse Texture



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Here’s an in-depth exploration of each feature in Filmverse texture DCTL:

1. Overall Grain Intensity: Adjust the overall strength of the film grain effect. A higher value results in more pronounced grain, giving the footage a more textured look.

2. Grain Radius: Control the size of the grain particles. Lower values create more contrast in grain as opposed to higher radius.

3. Grain in Red, Green, Blue: Fine-tune the grain intensity for each colour channel independently. This allows for custom grain effects that can enhance grain’s visual distribution or match the characteristics of different film stocks.

4. Grain Saturation: Controls RGB Saturation in grain.

5. Dust Amount & Size: Introduce simulated dust particles into the footage, simulating the look of old film reels that have accumulated dust over time. Dust size controls the size of the dust particles. Larger values result in more noticeable dust specs

6. Softness Amount: Add a subtle softness to the image, mimicking the natural softness seen in traditional film. This feature helps reduce digital sharpness and create a more organic look.

7. Halation Colour: Adjust the colour intensity of the halation effect, which simulates the light bloom or halo effect that appears around bright areas on film.

8. Halation Size: Control the spread or size of the halation effect. Larger values create a more pronounced halo, which can add a dreamlike quality to bright light sources.

9. Enable Softness: Toggle the softness effect on or off, allowing for quick comparison and adjustment based on user preference.

10. Enable Gate Weave: This feature replicates the natural movement of a film strip as it passes through the frame window in a film camera, projector, or video playback device. By simulating these small, mechanical shifts, it adds a layer of authenticity to the footage, echoing the subtle imperfections typical of traditional film projection and capture.

11. Grain Preset: Choose from predefined grain settings that mimic the look of various film formats, such as 35mm or 16mm, to quickly apply film-specific grain characteristics.

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