

VisionColor

# ImpulZ™ Documentation

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# 1 Software Requirements

In order to apply the **ImpulZ** LUTs to your footage, at least one of the following programs has to be properly installed on your system:

- Final Cut Pro X \*
- Apple Motion 5\*
- Adobe Photoshop CS6 / CC
- Adobe After Effects CS6 / CC
- Adobe Premiere Pro CC
- Adobe Speedgrade CS6 / CC
- DaVinci Resolve FULL/lite
- Pandora Revolution/Pixi
- Nuke
- Cineform Firstlight
- Assimilate SCRATCH
- Digital Vision Film Master
- FilmLight Baselight
- Quantel Pablo
- any software that supports 3D LUTs in IRIDAS .cube format

(\* requires installation of third party plugin **LUT Utility** from [Color Grading Central](http://www.colorgradingcentral.com))

## 2 Installation Guide

To install the **ImpulZ Film Emulations** please extract and run the included installers.

Certain applications require the LUTs to be installed to specific directories so make sure that you choose the correct folder path during the installation (Resolve/FCPX installers do this automatically for you!):

MAC OS:

Final Cut Pro X: *User/Movies/Motion Templates/Effects/CGC/LUTUtility*

Resolve: *Library\Application Support\Blackmagic Design\DaVinci Resolve\LUT*

Resolve (in case above folder doesn't work): *Library/Containers/com.blackmagic-design.DaVinciResolve/Data/Library/Application Support/LUT/*

GoPro Studio: *Library/Application Support/CineForm/LUTs/*

Windows PC:

Resolve: *HD:\ProgramData\Blackmagic Design\DaVinci Resolve\Support\LUT*

GoPro Studio: *HD:\Users\Public\CineForm\LUTs*

For applications that don't require the LUTs to be located in a specific folder (After Effects, Premiere Pro, Speedgrade...) the LUTs will be installed to a generic "ImpulZ" folder in the Applications folder (MAC) or Program Files (PC).

The LUTs can then be loaded by navigating to that folder from within your applications native LUT plugin. Here are a few:

Application	LUT Effect
Adobe Premiere Pro CC	Lumetri
Adobe Speedgrade CS6/CC	+ → LUT → Load LUT (...)
Adobe Photoshop CS6/CC	Image → Adjustments → <b>Color Lookup</b>
Adobe After Effects CS6/CC	Effects → Utility → <b>Apply Color LUT</b>
Nuke	Vectorfield
SCRATCH	Color Scraffolds
Final Cut Pro X	LUT Utility*

\*LUT Utility Plugin for Final CUT Pro X is available from Color Grading Central: <http://www.colorgradingcentral.com/lututility>

For older versions of Adobe Premiere, After Effects and Final Cut you can use Red Giant's Magic Bullet LUT Buddy to apply LUTs.

You can download LUT Buddy from: <http://www.redgiant.com/products/all/color-suite/>

**Note:** Simply download the trial version of Color Suite and install it. **LUT Buddy is a free product** that does not require a serial number for a fully functional installation – Definitely consider getting the full color suite though – it's an amazing set of tools.

**Important:** The downloaded ImpulZ LUTs are not directly compatible with LUT Buddy. Please contact us for format conversion!

For instructions on how to apply and use LUTs with other supported software please consult your application reference or manual!





## 3 About ImpulZ LUTs

The premise of ImpulZ is to open up the possibility to replicate the color processing of an entire film workflow digitally with the convenience and accuracy of open format 3D LUTs.

Applying ImpulZ LUTs does not substitute digital color correction nor does it attempt to take the creative license of colors and images out of the hands of the colorist.

These LUTs are no one-click-make-awesome solutions to color grading but will take the digital edge off your footage and provide an 'analog framework' that processes colors more deeply than what is achievable with user interface controls. With the ability to emulate camera negative film separately from color positive print stocks (Ultimate only) it is now possible to replicate a workflow that had previously been reserved to high end productions.

## 4 Folder structure & naming conventions

Depending on which version of ImpulZ you have you will be presented with various Input Profile Folders and output gamma/color space options. The number of input/output variations included in the Pro & Ultimate version results in a large number of LUTs that may be a bit overwhelming at first. Here's an overview of the basic folder structure and naming conventions:

### Folders:

- 01 ImpulZ - LOG Generic
- 02 ImpulZ - Rec709 Generic
- 03 ImpulZ - BMCC 2.5k
- 04 ImpulZ - BMPCC
- 05 ImpulZ - BMPC 4k
- 06 ImpulZ - Arri Alexa LOC-C
- 07 ImpulZ - Arri Alexa Rec.709
- 08 ImpulZ - C100 C-LOG
- 09 ImpulZ - C100 Wide DR
- 10 ImpulZ - C300 C-LOG
- 11 ImpulZ - C300 Wide DR
- 12 ImpulZ - C500 C-LOG
- 13 ImpulZ - C500 Wide DR
- 14 ImpulZ - Canon Prolost Flat
- 15 ImpulZ - Canon VisionColor
- 16 ImpulZ - Canon VisionLOG RAW
- 17 ImpulZ - Canon VisionTech
- 18 ImpulZ - Nikon Flaot 10
- 19 ImpulZ - Nikon Flaot 11
- 20 ImpulZ - Nikon Neutral
- 21 ImpulZ - Nikon Standard
- 22 ImpulZ - GH4 Cinelike D
- 23 ImpulZ - GoPro Hero 3
- 24 ImpulZ - RED RedGamma 3
- 25 ImpulZ - RED RedLogFilm
- 26 ImpulZ - Sony S-LOG
- 27 ImpulZ - Sony S-LOG2
- 28 ImpulZ - Sony S-LOG3
- 29 ImpulZ - Sony FS700 Cine 4
- 30 ImpulZ - Sony FS700 S-LOG2
- 31 ImpulZ - Cineon Conversions

### Resolve:

- 31 ImpulZ - Cineon Conversions ▶
- 30 ImpulZ - Sony FS700 S-LOG2 ▶
- 29 ImpulZ - Sony FS700 Cine 4 ▶
- ✓ 28 ImpulZ - Sony S-LOG3 ▶
- 27 ImpulZ - Sony S-LOG2 ▶
- 26 ImpulZ - Sony S-LOG ▶
- 25 ImpulZ - RED RedLogFilm ▶
- 24 ImpulZ - RED RedGamma 3 ▶
- 23 ImpulZ - GoPro Hero 3 ▶
- 22 ImpulZ - GH4 Cinelike D ▶
- 21 ImpulZ - Nikon Standard ▶
- 20 ImpulZ - Nikon Neutral ▶
- 19 ImpulZ - Nikon Flaot 11 ▶
- 18 ImpulZ - Nikon Flaot 10 ▶
- 17 ImpulZ - Canon VisionTech ▶
- 16 ImpulZ - Canon VisionLOG RAW ▶
- 15 ImpulZ - Canon VisionColor ▶
- 14 ImpulZ - Canon Prolost Flat ▶
- 13 ImpulZ - C500 Wide DR ▶
- 12 ImpulZ - C500 C-LOG ▶
- 11 ImpulZ - C300 Wide DR ▶
- 10 ImpulZ - C300 C-LOG ▶
- 09 ImpulZ - C100 Wide DR ▶
- 08 ImpulZ - C100 C-LOG ▶
- 07 ImpulZ - Arri Alexa Rec.709 ▶
- 06 ImpulZ - Arri Alexa LOC-C ▶
- 05 ImpulZ - BMPC 4k ▶
- 04 ImpulZ - BMPCC ▶
- 03 ImpulZ - BMCC 2.5k ▶
- 02 ImpulZ - Rec709 Generic ▶
- 01 ImpulZ - LOG Generic ▶

### LUTs:

- Kodak Vision3 500T 5219 (C41)\_FPE
- Kodak Vision3 500T 5219 (C41)\_VS
- Kodak Vision3 500T 5219 (NEG)\_CIN
- ✓ Kodak Vision3 500T 5219 (NEG)\_FC
- Kodak Vision3 500T 5219 (NEG)\_FPE
- Kodak Vision3 500T 5219 (NEG)\_VS
- Kodak Vision3 50D 5203 (DP)\_CIN
- Kodak Vision3 50D 5203 (DP)\_FC
- Kodak Vision3 50D 5203 (DP)\_FPE
- Kodak Vision3 50D 5203 (DP)\_VS
- Kodak Vision3 50D 5203 (NEG)\_CIN
- Kodak Vision3 50D 5203 (NEG)\_FC
- Kodak Vision3 50D 5203 (NEG)\_FPE
- Kodak Vision3 50D 5203 (NEG)\_VS
- LPP Tetrachrome 400\_CIN
- LPP Tetrachrome 400\_FC
- LPP Tetrachrome 400\_FPE
- LPP Tetrachrome 400\_VS
- Lomo Color Implosion 21°\_CIN
- Lomo Color Implosion 21°\_FC
- Lomo Color Implosion 21°\_FPE
- Lomo Color Implosion 21°\_VS

#### 1. Select Input Profile.

Select a the generic Rec709 or LOG folder or one of the specific camera profile folders to reveal the film emulations calibrated for that specific input color space. If you want to grade footage that has been shot on a Red Camera in RedColor3 with RedLogFilm gamma you would select 25 ImpulZ - RED RedLogFilm

#### 1.1. Select Input in Resolve

The folders are going to appear similarly in Resolve's 3D LUT menu but in reversed order. For example if you want to grade footage that has been shot on a Sony Camera in SGamut with S-LOG3 gamma you would select 28 ImpulZ - Sony S-LOG3 to reveal the sub-tree containing all emulations ->

#### 2. Select Emulation & Gamma

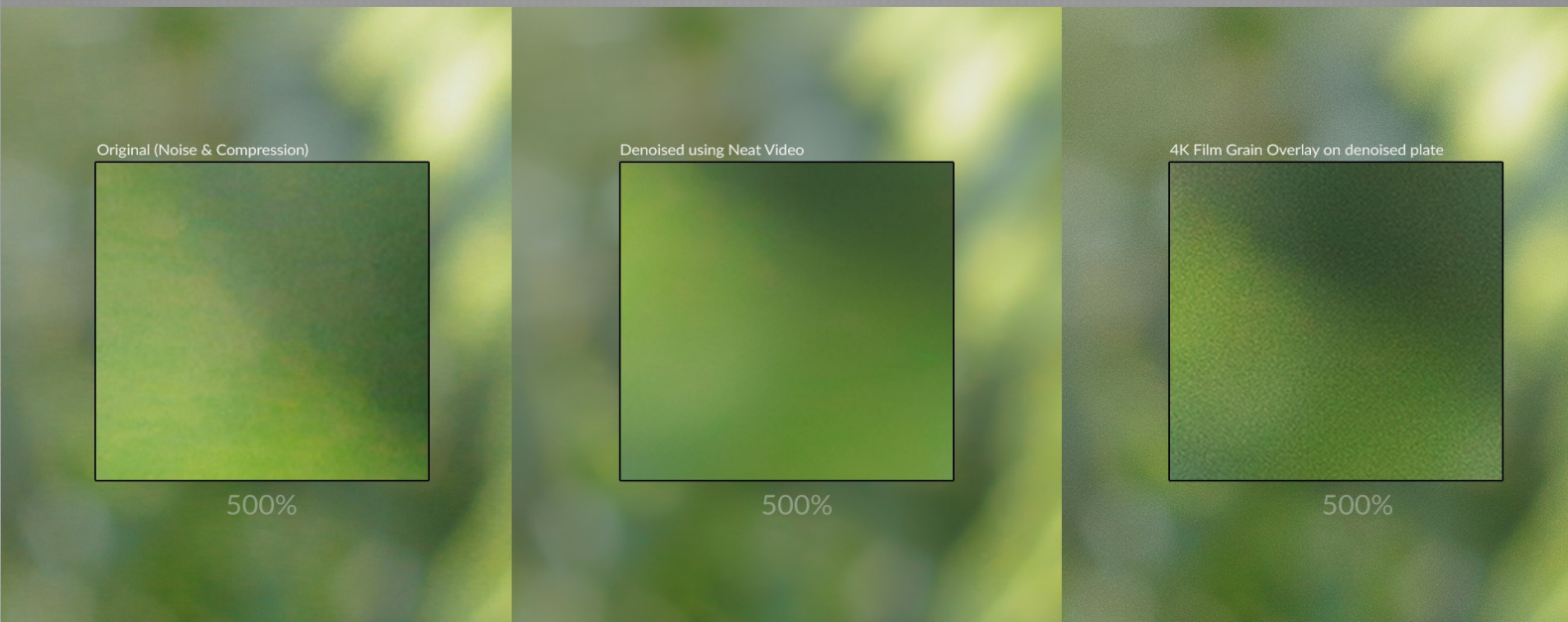
Depending on which version of ImpulZ you have there are up to 4 gamma/color space outputs per film stock which are labeled as follows:

- \_CIN - Cineon LOG compound gamma (95-685)
- \_FC - Film Contrast gamma
- \_FPE - Film Print Emulation (2383)
- \_VS - VisionSpace low contrast gamma



## 5 Preparing compressed footage

If you're working with highly compressed 8-bit footage or your images contain noise and other color artifacts it is suggested to prepare the material before applying the emulations in order to prevent the accentuation of undesired artifacts and get the highest quality results. Great care has been taken in creating stable transform LUTs but the high resolution cubes can pick up on very desaturated colors: If those colors are present in the digital sensor noise of your camera you'll have to take some extra steps to achieve maximum quality results.



Always **denoise the chroma channels** of your videos in a higher bit depth than the source material. Most NLEs work in 32bit float natively so you probably won't have to manually adjust this. This process blends pixel values together and substantially **reduces image artifacts** that would otherwise be accentuated by manual color grading and applying color remapping presets even if your footage appears to be noise-free.

Depending on the noise levels of your footage you may also want to subtly denoise the luma channel. Finding the right balance between eliminating compression artifacts and noise while retaining image texture is key.

Advanced Denoise plugins like Neat Video give you the ability to **re-sharpen** any details that may have been smoothed out during this process by calculating the edge contrast enhancements (sharpness) by analyzing the footage prior to the denoise process for very natural sharpening results. This offers a **significant quality enhancement** over re-sharpening in a separate pass.

Add a visually **unobtrusive amount of grain** back to your footage to avoid color and luma banding that often occurs with denoised footage. You can use computer simulated grain or better yet the film grain that is included with ImpulZ.

Eliminating digital artifacts before emulating the color response of film has the added benefit of allowing subtle retexturing of images with the included film grain in up to 4K resolution and increasing the perceived sharpness of your footage.

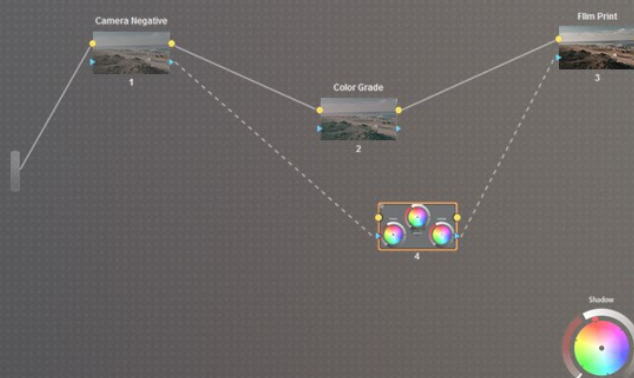
*Optional:* If you have to switch between different applications for these various stages of footage preparation and film emulation make sure that you always render to **losslessly compressed** video formats at the highest quality/disk-space-requirement ratio you can afford. As a rule of thumb you should **avoid re-rendering** when possible. If you have the option to use dynamic links between your applications go for it!



## 6 Workflow tips & tricks

Especially with the Ultimate version of ImpulZ the potential applications and color workflows are unlimited. Here are some of the most common film workflows and how they can be replicated with the help of ImpulZ LUTs:

### Feature Film: (ImpulZ Ultimate)



	#	Layer Name	Mode	T	TrkMat
<input checked="" type="checkbox"/>	1	Film Print	Normal		
<input checked="" type="checkbox"/>	2	Color Grade	Normal		None
<input checked="" type="checkbox"/>	3	Camera Negative	Normal		None

Possible with node based (left) and layer based grading (top)



#### 1. Emulate Camera Negative

The Ultimate version of ImpulZ allows you to emulate the camera negative response of 16 film stocks in the logarithmically encoded Cineon compound gamma. This simulates the color characteristics of the scanned negative film.

#### 2. Color Correction & Grading

Any kind of primary and secondary color corrections can be performed after the camera negative emulation. All corrections are now based on the negative response and will be processed through the Film Print Emulation which should be added during grading for real-time preview.

#### 3. Virtual Print-Out

You can now choose from 3 Film Print Emulations that come with ImpulZ Ultimate to get the graded Cineon LOG image to the print film response in Rec709.

Vision 2383 - industry standard, mid contrast/saturation  
Vision 2393 - rich blacks, high saturation print stock.  
FUJI FPE - custom 35mm positive with 2.2 print gamma

Note that all of the above steps apply to both live action and computer generated imagery. Our LUTs have been created specifically for the growing number of filmmakers who distribute independent content via the web and are therefore optimized for Rec709 2.2 monitor viewing. While one could scale the smaller Rec709 gamut to DCI P3 or XYZ accurately our LUTs are **no substitute for custom film profiling services**.



## Television:

Television show shot on film & distributed digitally



Digital Rec709 video



FujiColor 200 emulation in Film Contrast (FC) gamma.

### 1. Emulate Camera Negative

All versions of ImpulZ allow you to emulate the camera negative response of the included film stocks.

While feature films are usually printed (or now "virtually printed") to a release stock, material that has been shot on film but gets distributed digitally usually has the negative's color characteristics preserved since no print LUT is applied.

### Optional: Color Correction & Grading

Any kind of primary and secondary color corrections can be performed after the camera negative emulation. If you have the Ultimate version of ImpulZ you can grade in Cineon LOG before outputting to our Film Contrast 01, Film Contrast 02 or VisionSpace gammas which all preserve the negative's color response. All other versions allow you to go straight to Film Contrast 01 or VisionSpace.

### 3. Negative to Rec.709

Whether you go to Rec.709 directly via the \_FC or \_VS emulations or apply color corrections in between the conversions is entirely up to you. VisionSpace is really flexible and provides a great starting point for further tweaks!

Film Contrast 01- S-Curve film gamma with non-linear saturation

Film Contrast 02 - less saturation, different curve.

VisionSpace- low contrast gamma with medium saturation

## Chuck Norris:

grade like a BO\$\$.



BMD Film Original



Kodak Gold Gen6 in Cineon LOG



Custom Grade based on negative - No print or conversion LUT used

### 1. Emulate Camera Negative

Emulate the camera negative in either Cineon LOG or VisionSpace and use that as the base for your custom color grading.

### 2. LOG 'n' Roll.

Grade it, hate it, break it, fix it,  
Trash it, change it, mail - upgrade it,  
Check it, zoom it, snap it, cut it,  
play it, work it, quick - erase it,  
Bleach it, cut it, paste it, save it,  
Load it, check it, quick - regrade it,  
Plug it, play it, burn it, rip it,  
Drag and drop it, zip - unzip it,  
Lock it, fill it, call it, find it,  
View it, code it, jam - unlock it,  
Surf it, scroll it, pause it, click it,  
Cross it, crack it, switch - update it,  
Name it, rate it, tune it, print it

### 3. ....





# 7 Examples

Here are some shots from various cameras that have been graded using the workflows outlined above:



Canon 5D Mark III RAW debayered in ACR with our VisionLOG profile. Kodak Vision3 50D 5203\_FC with additional contrast and saturation adjustments.



GH4 Camera  
Original

5219 Negative  
Cineon LUT

Cineon to  
Fuji Print LUT



Panasonic GH4 with CineLike D profile. Kodak Vision3 500T 5219(NEG)\_CIN emulation, secondary exposure adjustments & printed to Fuji positive.

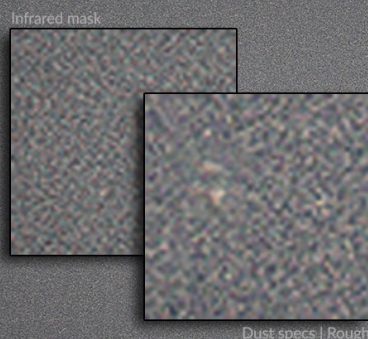


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## 8 Film Grain

The included film grain comes in both an infrared cleaned and a rough version. While both preserve the subtle coloring of individual crystals (!), the rough version has random dust elements, scratches and exposure flickering. These artifacts are very subtle (almost subliminal) and don't call attention to themselves when the grain is layered on top of moving images.

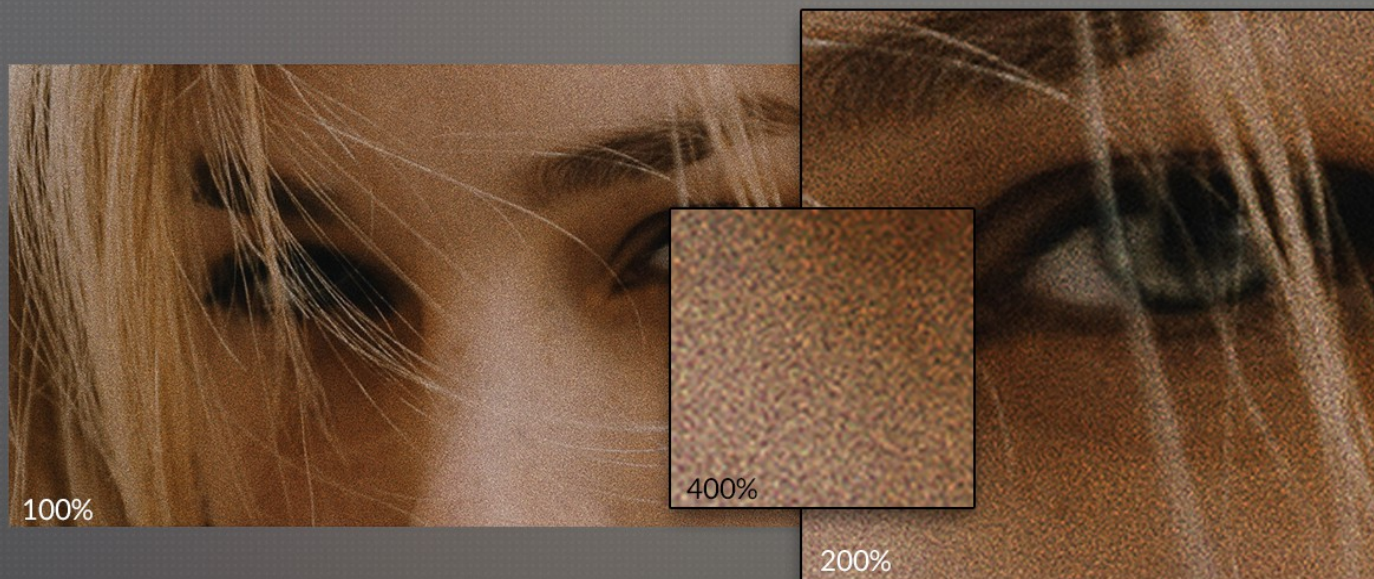


1080p | 2.5k | DCI 4K  
Basic Pro Ultimate

To apply the film grain to your footage simply change the blending mode of the grain clips in your dedicated NLE or compositing program to **Overlay** and adjust the opacity of the track or layer to taste.

40% is often a good starting point.

To extend the length of the grain clips you can either loop them or if this is not supported by your application duplicate them by hand.



## 9 This is the end.

My only friend.

Thank you for using Impulz! We truly believe that this collection will elevate your color grading. Shoot us an Email to [support@vision-color.com](mailto:support@vision-color.com) if you have any questions!



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