

## **Guide to Matte, EDL and Stereo Enhancements**

Revision 3 - April 2019

Nucoda 2016.1 - Index Matte added

Nucoda 2018.3 EXR Extended Mattes

Nucoda 2019.2 Enhanced LUT assignment (not released)

## EDL Enhancements - Layer and Matte additions

- In order to simplify workflows where multiple mattes and layers are involved in a production we have added the ability to use extensions to our EDL format to allow the creation of colour and effects layers and to assign mattes to specific layers.
- The purpose of the feature is to allow for the accurate and quick creation of named matte layers and to correctly assign matte sources inside the Nucoda layer stack. In addition to matte assignment the user will also be able to define and add User FX layers, colour layers and locators.
- The commands are added as comments after the main event and are processed automatically when importing the EDL.

## Matte Tool - Using mattes from multilayer EXR files

This update to the matte effect allows Nucoda to extract mattes from inside a multilayer EXR file. MAttes can be assigned automatically using the EDL. Please note, only the DataWindow display in the EXR is supported. Please see 2019.1 New Features for a full description of the new EXR Multi matte support

### Syntax for EXR Layer additions to the EDL

**\*NUCODA\_LAYER** [layer name] [-effect <effect-id>] [-matte.part.channel]

**[layer name]** - optional layer name - no spaces allowed

**[-effect <effect-id>]** - optionally add effect to layer on creation - see end of document for effect ID list.

**[-matte part.channel ]** - Set matte part and channel (this will depend on the EXR file)

### This example EDL will:

- Import and place the the main shot on the timeline
- Add a layer called Shirts and set the Matte input to use the Part called CharMatte10 and channel R
- There is no need to specify the filename - if there is no filename we will use the file that was imported to the timeline as the source.

TITLE: WIR Mattes

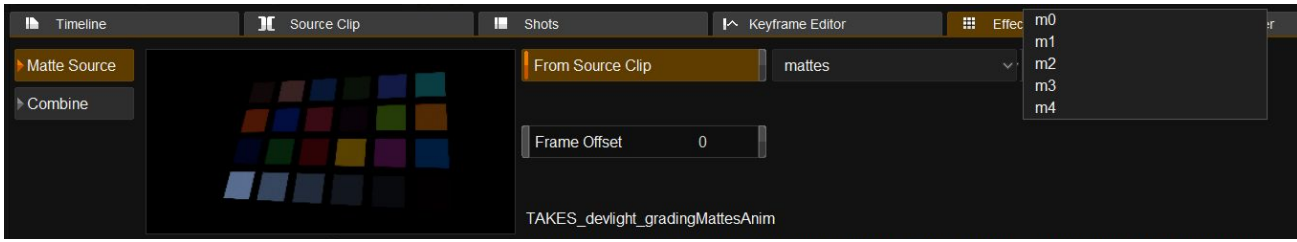
FCM: FILM

001 WIR V C 00:00:00:01 00:01:07:05 01:00:00:00 01:01:07:04

\*FROM FILE: S:\media\EXR-Mattes\wdasMultipartEXRtest\WIR\_244.0\_011.00\_364\_main.0001.exr

\*NUCODA\_LAYER Shirts -matte.part charMatte10.R

\*NUCODA\_LAYER Noses -matte.part charMatte3.B



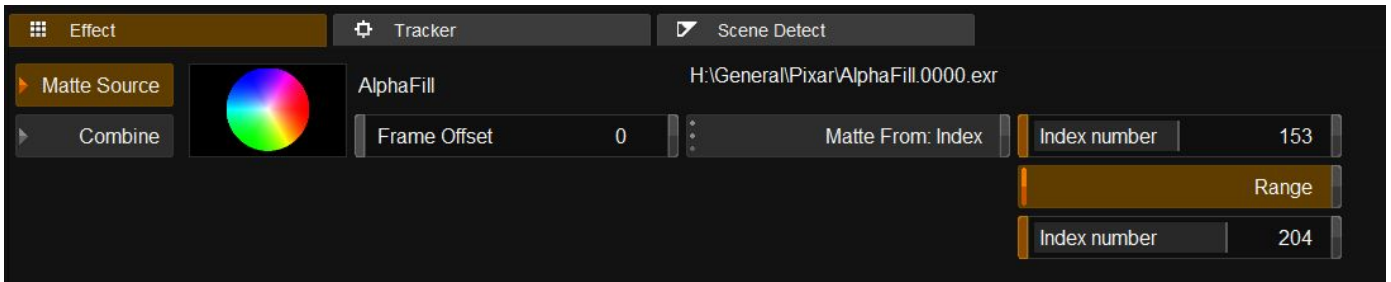
## Matte Tool - Using the Index Matte option

This update to the matte effect will let the user specify one or a range of grey scale colours in the image alpha channel to be used as a matte in a layer. Using grayscale index values from 0 to 255 allows the creation of multiple mattes in a single alpha channel.

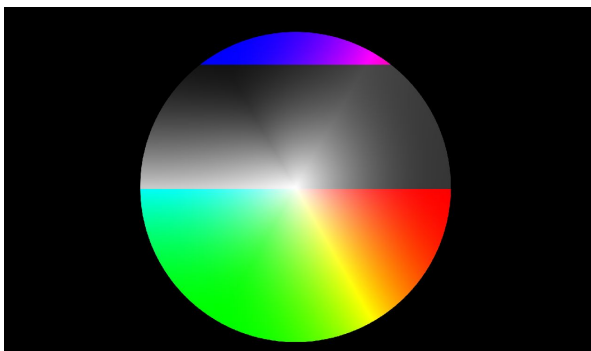
Mattes can be created using a single index value or a range of values.



This EXR image has a colour fill and alongside is the alpha channel containing 5 bars of colour, the index values are 255, 204, 153, 102, 1 from top to bottom.



In the matte effect, the image has been set as its own matte source, the Matte From selection is Index and a single index number or range is selected. Using 153 to 204 as a range results in the following image after being desaturated.



Additions were made to the Nucoda EDL format to facilitate setting the mattes.

## Syntax for matte additions to the EDL

\*NUCODA\_LAYER [layer name] [-effect <effect-id>] [-lut <path and LUT name>]  
[-matte.r|g|b|a <matte file and path>] [-offset <frame-offset>]

**[layer name]** - optional layer name - no spaces allowed

**[-effect <effect-id>]** - optionally add effect to layer on creation - see end of this doc for effect list.

**[-lut <path and LUT name>]** - Adds a LUT Effect in an effects layer and sets the LUT

### Example:

```
* NUCODA_LAYER LUT_Test -lut "D:\example.cms"  
* NUCODA_LAYER LUT_Test2 -lut D:\cool.cms -tetrahedral  
* NUCODA_LAYER LUT_Test3 -lut "Log to CGR - generic s-curve.cms"  
* NUCODA_LAYER LUT_Test3 -lut "f:\Extras\Log to CGR - generic s-curve.cms"
```

Quotes are not needed if the filename has no spaces. If the filename doesn't contain an "x:\" the path is taken relative to the ImportLutFolder preference, otherwise it's taken as an absolute path.

You can optionally add -tetrahedral or -trilinear to force the interpolation mode (by default it will be "From Project").

The behavior with quotes and absolute/relative paths has also been added for the ASC\_Inp and ASC\_Out commands.

**[-matte.r|g|b|a <matte file and path>]** - Set matte file and specify image channel to use

**[-matte.i <lowindex> <highindex> <matte file and path>]** - Use Index values - please note the both low and high index values must be present - if there is no range set them to equal

**[-offset <frame-offset>]** - optionally offset the matte (the importer will automatically offset the matte so it starts at the same frame as the clip, but you use this to add an additional offset) This will work around the issue of Mattes starting at the wrong TC when using mixed down media with mattes.

## Other available extensions in the EDL

\* **FROM FILE:** <file path and filename> to conform media

\* **LOC:** <timecode> <locator color> [Locator information] **Note: This bookmark is a segment bookmark**  
Locator colours: BLUE | CYAN | MAGENTA | ORANGE | RED | WHITE | YELLOW

\* **00:58:22:00** Timeline Bookmark **Note: This bookmark will always be red**

\* **ASC\_Inp** <LUT Name>

LUT is added to Base or Master layer before the Channel Mixer - check colour preferences to choose Base or Saster layer

\* **ASC\_Inp** <LUT Name>

LUT is added to Base or Master layer before the Channel Mixer - check colour preferences to choose Base or Saster layer

\* **ASC\_Out** <LUT Name>

LUT is added to Base or Master layer before the Router

\* **ASC\_SAT** <Saturation Value>

If the ASC\_SAT value is before the ASC\_SOP values, the SAT values are placed in Saturation in the colour layer. Else it is placed in the HLS tool.

\* **ASC\_SOP** <(Slope Values) (Offset values) (Power Values)>

Up to 6 decimal places are supported

## Matte import EDL Examples - please note that line breaks are not supported

### This example EDL will:

- Import and place the the main shot on the timeline
- Create a colour layer named Primary
- Create a User FX layer called Matrix with Gamma Matrix effect in the layer
- Create six separate colour layers each with Mattes set as specified in the EDL using the Red, Green and Blue channels respectively.

TITLE: A L-S3D-with-Mattes-DEMO001

FCM: FILM

003 Undead-S3D-LEFT V C 03:00:08:15 03:00:17:20 03:00:08:15 03:00:17:20

\*FROM FILE: S:\Undead\Media\S3D\Left\Undead-S3D-LEFT\_259407.dpx

\*NUCODA\_LAYER Primary

\*NUCODA\_LAYER Matrix -effect GammaMatrix

\*NUCODA\_LAYER 6015\_v002 -matte.r S:\Undead\Media\VFX\Mattes\mt\_003\le\mos\_reel03\_scn0043\_shot6015\_v002\_mt\_003\_le.0001.dpx

\*NUCODA\_LAYER 6015\_v002 -matte.g S:\Undead\Media\VFX\Mattes\mt\_003\le\mos\_reel03\_scn0043\_shot6015\_v002\_mt\_003\_le.0001.dpx

\*NUCODA\_LAYER 6015\_v002 -matte.b S:\Undead\Media\VFX\Mattes\mt\_003\le\mos\_reel03\_scn0043\_shot6015\_v002\_mt\_003\_le.0001.dpx

\*NUCODA\_LAYER 6015\_v002 -matte.r S:\Undead\Media\VFX\Mattes\mt\_003\le\mos\_reel03\_scn0043\_shot6015\_v002\_mt\_004\_le.0001.dpx

\*NUCODA\_LAYER 6015\_v002 -matte.g S:\Undead\Media\VFX\Mattes\mt\_003\le\mos\_reel03\_scn0043\_shot6015\_v002\_mt\_004\_le.0001.dpx

\*NUCODA\_LAYER 6015\_v002 -matte.b S:\Undead\Media\VFX\Mattes\mt\_003\le\mos\_reel03\_scn0043\_shot6015\_v002\_mt\_004\_le.0001.dpx

\*LOC: 03:00:08:15 RED RGB Left + Right Mattes

### Luma matte example - using the index

### This example EDL will:

- Import and place the the main shot on the timeline
- Create a colour layer named Primary
- Add a blue segment bookmark with a comment "Graded"
- Create six separate colour layers each with Mattes set as specified in the EDL using the index numbers and in the last case, a range of indexes to create the matte.

TITLE: Pxr

FCM: FILM

001 Alphafill V C 00:00:00:01 00:00:00:07 03:00:00:01 03:00:00:07

\*FROM FILE: H:\Pxr\AlphaFill.0000.exr

\*NUCODA\_LAYER Primary

\*LOC 03:00:00:00 Blue Graded

\*NUCODA\_LAYER Index\_0 -matte.i 0 0 H:\Pxr\AlphaFill.0000.exr

\*NUCODA\_LAYER Index\_51 -matte.i 51 51 H:\Pxr\AlphaFill.0000.exr

\*NUCODA\_LAYER Index\_153 -matte.i 153 153 H:\Pxr\AlphaFill.0000.exr

\*NUCODA\_LAYER Index\_204 -matte.i 204 204 H:\Pxr\AlphaFill.0000.exr

\*NUCODA\_LAYER Index\_255 -matte.i 255 255 H:\Pxr\AlphaFill.0000.exr

\*NUCODA\_LAYER Index\_255 -matte.i 12 255 H:\Pxr\AlphaFill.0000.exr

## Import EDL...

On importing the **EDL** into Nucoda there are options to import locators and ASC LUT layers, if you need these, make sure to select the options.

The **\*NUCODA\_LAYER** options will be imported and created automatically if they are in the EDL, if the media required for the mattes is not available, layers will be created but mattes will not be assigned.

## Enhancements to Stereo workflow - track copy and media replacement

Two new functions have been added to Nucoda to make the stereo workflow more streamlined. The functions are:

### Copy tracks



Copy tracks will make copies of all selected tracks and place the copies above the existing tracks. In a stereo project, the tracks will be copied to the same eye

### Copy S3D (Stereo 3D)



This function is only available in a stereo project and is used in conjunction with the Copy Tracks function. After selecting and copying tracks using the copy tracks command, pressing the Copy S3D button will automatically move the new tracks to the other eye (depending on whether the left or right eye was copied) at the same time it will scan the source location of the current source and matte files for the material that corresponds to the eye that is being created. If the new media is found, all the material will be automatically replaced with the same material but from the opposite eye.

This works based on the naming of the material and requires that the material for the other eye is available from the same drive letter, and that the material and directories clearly indicate whether the material is for the left or right eye. The default is to look for the following patterns (case-insensitive):

Left eye: "left" "le" "li"

Right eye: "right" "re" "ri"

It will only work if these letter combinations appear on their own, for example :

"Shot\_02\_panleft\_left" will correctly be replaced by "Shot\_02\_panleft\_right" because we ignore "panleft" as an indicator, the same is true for directories.

In this example we will find the words left and le in both the directory and filename, replace them with right and re and conform and import the new material.

```
*FROM FILE S:\Undead\Media\S3D\Left\Undead-S3D-LEFT_259407.dpx
```

```
*NUCODA_LAYER Primary
```

```
*NUCODA_LAYER Matrix -effect GammaMatrix
```

```
*NUCODA_LAYER 6015_v002 -matte.r
```

```
S:\Undead\Media\VFX\Mattes\mt_003\le\mos_reel03_scn0043_shot6015_v002_mt_003_le.0001.dpx
```

```
*NUCODA_LAYER 6015_v002 -matte.g
```

```
S:\Undead\Media\VFX\Mattes\mt_003\le\mos_reel03_scn0043_shot6015_v002_mt_003_le.0001.dpx
```

```
*NUCODA_LAYER 6015_v002 -matte.b
```

```
S:\Undead\Media\VFX\Mattes\mt_003\le\mos_reel03_scn0043_shot6015_v002_mt_003_le.0001.dpx
```



## Stereo workflow with copy track and copy S3D options

The new options are most valuable when using the workflow of finishing the main eye (left or right) and then copying the grades from one eye to the other and reconfirming the media. This is a common workflow for animation.

Using this workflow:

1. Conform the main eye and complete the grade on the main eye.
2. Once done, select the tracks you need to copy - ie all tracks in the main grade.
3. Use the Copy tracks function, it will copy all selected track from one eye to the other.
4. Once copied, pressing the Copy S3D button will use the defined values for Left / Right to link and import the corresponding media for the other eye and link it to the clips on the new copied track.
5. You will now be able to go through

## Changes to Master Reset - Retain selected effects on reset

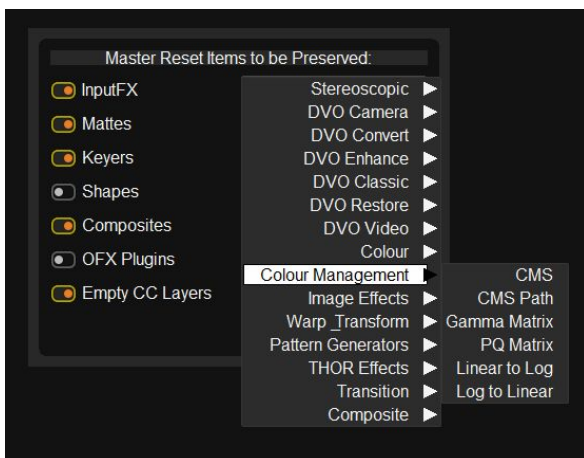
To make working with complex matte configurations in Nucoda easier the layer reset function has been redesigned to accommodate this. An additional Reset option has been added, which will allow the user to specify which effect types are reset.

This is done via a new popup menu, that can be accessed the holding Ctrl+Shift and clicking on the new reset icon:



The popup allow the user to specify which effects will be reset and which will be retained when Master Reset is pressed.

In this example: Master reset will retain Input FX (current default)



But will also not reset:

Matte layers

Key layers

Composite effects

Layers that are currently empty

We have added options to retain

CMS Path and CMS layers

Pan & Scan by default

On the Precision:

Alt+Master reset will still reset **everything**

Shift+Master Reset will reset selected layer (except selected items)

Ctrl+Master reset will reset selected tool

## Nucoda and Phoenix effect names

Use the Effect ID as the identifier for adding effects to projects using the extended EDL functions

Effect Name	Effect ID
3:2 Add/Remove.....	ThreeTwoPulldown
3:2 Auto Remove.....	ThreeTwoRemove
Balance.....	Balance
.	Blend
Blend.....	Blur
Blur.....	BrightnessContrast
Brightness Contrast (Bright Contrast)...	BrightnessRegions
Brightness Regions (Bright Regions)....	ChannelAlign
Channel Align.....	ChannelCombine
Channel Combine.....	ChannelExtract
Channel Extract.....	ChannelMixer
Channel Mixer.....	CloneColor
Clone Colour.....	NucodaCMS
CMS.....	NucodaCMSPath
CMS Path.....	Color
Colour.....	ColourSpace
Colour Convert.....	DiifferentialColorCorrect
Colour Curves (Col Curves).....	Composite
Composite.....	Convert
Convert.....	Dissolve
Dissolve.....	DvoAlias
DVO Alias.....	ApertureCorrection
DVO Aperture.....	DvoBrickwall
DVO	DvoChroma
Brickwall.....	DvoClarity
DVO Chroma.....	DvoCrossColour
DVO Clarity.....	DvoDeinterlace
DVO Cross	DvoDirtMap
Colour.....	DvoDropout
DVO Deinterlace.....	DvoDust2
DVO Dirt Map.....	DvoDustO
DVO Dropout.....	Deblotch
DVO Dry Clean.....	ASC3
DVO Dust GT.....	DvoDeflicker
DVO Fix.....	DvoFrame
DVO Dust.....	DvoGrainO
DVO	AGR4
Flicker.....	DvoLineSync
DVO Frame.....	DvoNoise
DVO Grain GT.....	DvoPixel
DVO	DvoRgbAlign_Seq
Grain.....	DvoRgbAlign
DVO Line Sync.....	DvoRegrainRGB
DVO Noise.....	DvoRegrain
DVO Pixel.....	DvoSuperZoom
DVO Print Align (Seq).....	DvoScratchTarget
DVO Print Align.....	DvoSharpen
DVO Regrain RGB.....	DvoSharpen2
DVO Regrain.....	DvoVariTimeSource
DVO Scala (Demo).....	DvoVariTime
DVO Scratch Target.....	DvoSteady
DVO Sharpen.....	DvoSteady2

DVO Sharpen.....	S3DColourAlign2
DVO Speed Source.....	DvoThreeTwo
DVO Speed.....	DvoTwister
DVO Steady.....	DvoUpscale
DVO Steady II.....	DvoDewarp
DVO Stereo Fix.....	DvoZoom
DVO Three	Fade
Two.....	FieldDomCorrect
DVO	FieldRemove
Twister.....	FieldSwap
DVO Upscale.....	GammaMatrix
DVO Warp.....	HLSColorCorrect
DVO Zoom.....	HueCurves
Fade Colour.....	Invert
Field Dom Correct.....	KelvinTint
Field Remove.....	Keyer
Field Swap.....	LensDistort
Gamma Matrix.....	RGBMLevels
HLS Colour Correct (HLS).....	LiftGammaGain
Hue Curves.....	LinearToLog
Invert.....	LogToLinear
Kelvin and Tint (Kelvin Tint).....	MeshWarper
Keyer.....	Paint
Lens Distort.....	PanAndScan
Levels.....	PQMatrix
Lift Gamma Gain.....	PrinterLights
Linear to Log.....	DvoQuadBalance
Log to Linear.....	DvoReflicker
Mesh Warper.....	Reinterlace
Paint.....	Retime
Pan and Scan (Pan Scan).....	RGBMCurves
PQ Matrix.....	RGBAover
Printer Lights (Printer).....	S3DColourAlign
Quad Balance.....	Saturation
Reflicker.....	SlopeOffsetPower
Reinterlace.....	SoftClip
Retime.....	DvoTestPattern
RGB Curves.....	Warper_4
RGBA Over (Over).....	Warper
S3D Colour + Align.....	
Saturation.....	
Slope Offset Power (SOP).....	
Soft Clip.....	
Test Pattern.....	
Warp 4.....	
Warp 9.....	