

Nucoda

Colour and Finish

Specifications
2018.3

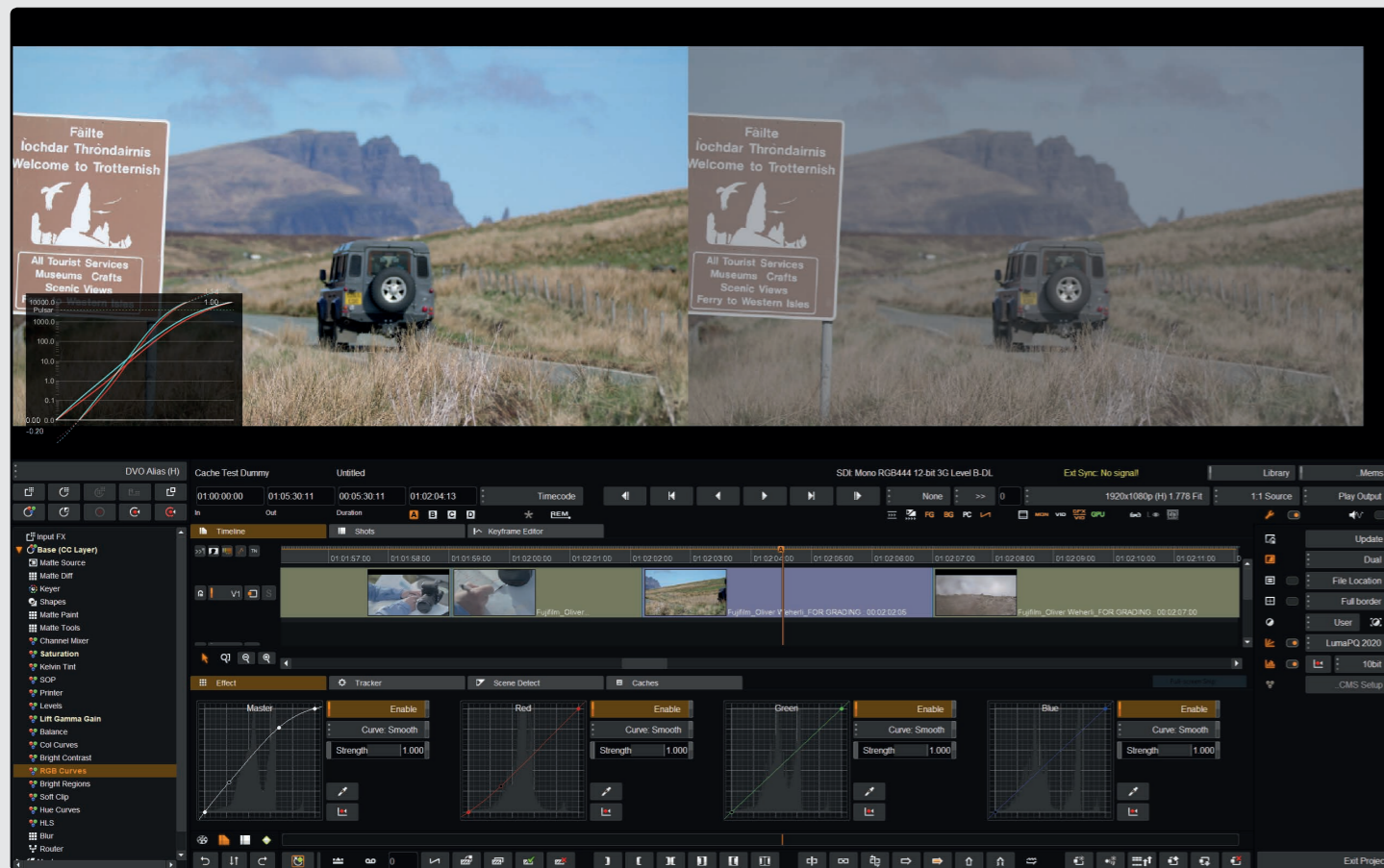
Nucoda Versions

Nucoda

Nucoda is a premium colour grading and finishing solution for feature films, commercials and broadcast applications. It combines a creative tool set, and integration with the Avid workflow including full support for Avid Interplay and Nexus storage devices

Setting new standards in the highest quality, Nucoda supports ACES colour managed workflows, HDR and Dolby Vision. With an industry leading colour toolset, used by clients such as The Farm, Picture Shop and Pixar Animation Studios, Nucoda is used to create complex looks and visual styles for film, television and animation.

With over 30 years of image science culminating in the Digital Vision Optics (DVO) suite of enhancement tools, Nucoda ensures the highest quality imagery available.



We understand that our customers need more than just leading toolsets to create sophisticated look enhancements, but more importantly our solutions need to work with multiple camera and file formats, allow collaborative workflows, and deliver finished content for different viewing platforms including highframe rates and High Dynamic Range.

Nucoda Academy* (Coming Soon)

Nucoda Academy is a free, licensed version of for anyone who is interested in learning or refreshing their Nucoda knowledge allowing you to learn Nucoda at your own pace.

Features:

- All grading tools are available on unlimited layers
- Create and save LUT's (CMS and .cube format)
- Import RAW media and a host of other supported media types
- Support for all panels, Precision, also Tangent Element and Arc (including user mapping)
- No project restrictions - can be loaded into a full Nucoda
- ACES 1.1
- Compressed cache formats like Apple ProRes makes it easier to use on less powerful machines
- Support for monitoring on Decklink and AJA Kona 4

Restrictions:

- Exports are only HD or smaller - only in Apple ProRes Proxy
- No support for DNxHD or DNxHR files
- All caches are encrypted
- No access to DVO tools - no rendering of DVO effects.
- Export only in Record Mode with Rec Timecode



Nucoda - Core Features

Easy Project creation - Create multiple output formats for a single project. Easily create multiple deliverable versions in different resolutions.

ACES 1.1 Managed Colour

Import and Conform* - Easy conform using AAF, EDL and XML (Premiere) Support for animated resizes, opacity, dissolves, retimes from AAF and XML. Support for high performance Apple ProRes, Avid DNX, MXF, Camera RAW files.

Flexible multi-layer timeline - Work with material in a familiar and flexible way, using multiple video and audio tracks. Easily move and trim shots, lock and solo tracks, track based compositing. Timeline and shot bookmarks allow for better organisation and retrieval of information. Automatic track naming for VFX intensive workflows

Source Editing - Three point editor

Dolby Vision Mastering - Mastering and trimming of Dolby Vision content with Integrated Software Content Mapping and support for hardware Content Mapping Unit

Library - Automatic folder creation on import. Material sorting. Find in timeline and Find in Library Standard project setup on per user basis.

Interoperability - Interoperability with third-party systems supporting industry standard formats like Avid DNxHR, MXF and Apple ProRes - including metadata. Read and write Avid DNxHR, MXF and Apple Prores. Avid Interplay

Multiple, Layer based colour tools* - Each colour layer contains multiple tools to manipulate the colour of your image. LGG, Balance, Brightness Regions, RGB Curves, Printer Lights, Hue Curves, Luma-Sat, Sat-Sat, Blur, Brightness Contrast, Colour Curves, Printer Lights, Channel Mixer

Layer Router - Advanced layer routing functionality combined with isolation tools for every layer. RGB, alpha and luma mattes, shapes, keys, difference mattes. Transfer functions and transparency between every layer. Route any layer.

Paint & Difference Matte on every layer - Easily restore the source material or retouch, generate difference mattes for advanced regrain.

Advanced report generation - Generate customised HTML restoration reports to help with billing and planning.

Restoration Report- Generate custom restoration reports as HTML. Includes Source Information, Tools used, amount of manual fixes.

Comprehensive comparison tools - Compare images and grades by Track, Playhead, Source or Event.

Modes include: Dual, Split, Checkerboard, Red Diff, Butterfly, Cut Mono, Mono*10, Diff Multiply

Event view - Use the event view to navigate, compare and recall easily from any other timeline event. Open different compositions for recall or comparisons from other compositions. Recall entire grades or single tools

Configurable Master Reset - Configurable Master reset means users can choose what effect to ignore during resets.

Easy save and recall of notes and tools - Save and recall effects using notes, from single tools and layers to complicated multi-layered effects. Create a library of notes and apply to any segment on any timeline in any project.

User Default for all tools - Save personal preference for effects and use as default.

DVO Image enhancement* - Access to Digital Vision DVO tools for advanced image processing. Tools can be purchased individually or in predefined collections.

Access to OFX plugin effects - OFX support including Sapphire and Re:Vision effects.

GPU Accelerated colour tools* - All colour tools and Pan & Scan tools on are GPU accelerated for increased interactivity and performance

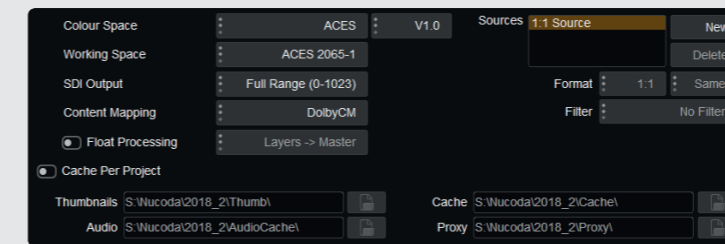
Fully automated background caching- Unobtrusive background rendering ensures you always have the best results available without interruption. User selectable GPU and layer cache to streamline operations and greatly enhance user interactivity. Compressed caches supported.

Monitoring using AJA Kona 4 or Decklink Resolutions up to 4K/UHD and high frame rates

Integrated Scopes and Measurement - User configurable scopes and measurement tools. ROI Display. Waveform and PQ Nit displays. Custom labels

Multiple monitor support - Multi monitor support with different resolution configurations makes working on complex timelines a breeze.

Nucoda - Workflow



Project Creation and Preferences

Projects can be set up with multiple output delivery formats with automatic scaling and image conversion.

Automatic project backup and retrieval using time stamped backups
Preferences for conform, colour tools, control panels and video I/O

Colour Management

ACES 1.1 Managed colour

Colour Conversion Tool - Colour spaces, Illuminants and Curves

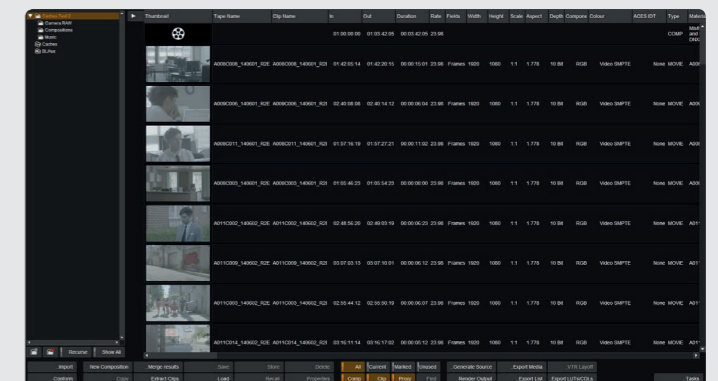
CMS and Cube LUT support - grade before or after LUTS

Generate inverse LUT for restoration workflows

HDR Workflows

PQ2084 and HLG

Dolby Vision v2.9 and v4.0 - Hardware and Integrated Content Mapping with Dual Dolby monitoring mode (Dolby license required to activate trimming controls)



Accurate conform from AAF, EDL and XML

Support for import of bookmarks from AAF, XML and extended EDL Format

AAF and XML support for animated position and scaling, dissolves, transparency and retimes

Retain original Source information from EDL even when applied to mixdown material

Apply cuts to material on timeline or make use of the fast, accurate background scene detector

EDL extensions and CLi access for developers to script complex pipelines

Timeline

Multi layer track based timeline with lock, activeness and solo viewing for each track

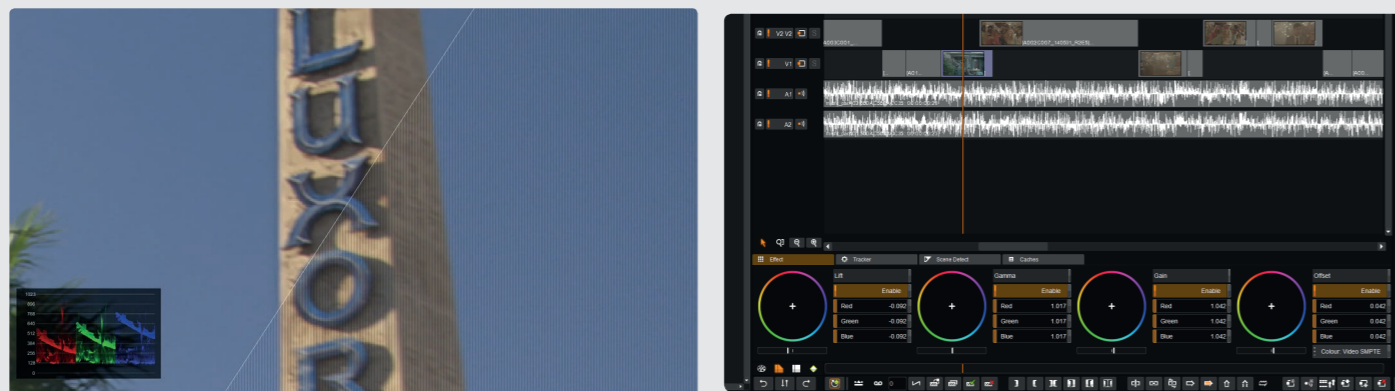
Automatic track naming Track locking. Editing and trimming, insert and overwrite, Rec insert mode

Timeline and Clip locator support with interactive list and panel control

Locking of tracks or clips to prevent editing

DVO image processing tools (option)

Award winning tools for cleaning and enhancing digital and film material. DVO Clarity noise and grain reduction, Deflicker, Dead Pixel Detection and Intelligent Sharpen are just some of the tools that have become an indispensable part of the colourists arsenal.



Expansive, High-end Colour Tools

The unique colour layer contains isolation tools such as Mattes, Keyer and Shapes. Each layer also has it's own difference matte generator and Matte Paint tools. There are fifteen unique colour tools in every layer.

Working in HDR is made easier and more intuitive using Brightness Regions and Soft Clip

View all the events in a composition as thumbnails, as a contact sheet list view in either source or record order, giving direct access to any track, playhead, or event. From here any part of a grade or its dynamics can be copied to the current shot.

Easily-accessible Memories speed the workflow, offering different ways to store and recall, all or part of your grades and dynamics from shot to shot. Notes enable you to save unlimited numbers of these snapshots in folders so that you can assemble libraries of looks and access them in any project.



Quicknotes give you direct access for up to eight Notes from the control panel with a single key press. With the unlimited multi-layer timeline you can combine capabilities, using different isolation layer tools including the 'I-Keyer' to produce complex looks quickly.

Achieve dynamic grades and Keyer animation of effects parameters, and manipulate and track individual shapes on a

individual transform or per-point basis, to refine that look over the whole shot.

Interactive Grade Merge

Colour coded merge list for grade merges.

Merge from EDL, AAF or XML

Supports merging using Mixdown sources with original AAF or EDL to supply source TC and Source.

File export

Extensive file export options. Support for Apple ProRes with 2020 and PQ encoding options. AAF export for reimport into Avid or MXF export for Avid relink workflow. Record and Source order export of material. Image scaling and clipping option on export. LUT Export.

Nucoda product options

Software	Nucoda	Nucoda Academy* (Coming Soon)
Multi Track Timeline	●	●
Conform AAF and XML	●	●
Background Scene Detection	●	●
EDL import and export	●	●
Video I/O - Kona 4	●	Monitoring Only
Video Monitoring only - BMD Becklink	●	
SD/HD 444 2K / 4K / UHD TV / HFR	●	Output only HD - ProRes Proxy
SD / HD / HFR	●	●
RAW Camera Support	●	●
Advanced Codec Support	●	●
DNxHD and DNxHR	●	-
DVO Classic	○	-
DVO Camera	○	-
DVO Video	○	-
DVO Convert	○	-
DVO Enhance	○	-
DVO Restore	○	-
Input FX Layer	●	●
Single CC & FX Tools	●	●
Base Layer	●	●
Multi Tool Layers	●	●
Master Layer	●	●
Dolby Vision and HDR	●	●
LUT Support .cube and cms	●	●
Pan & Scan	●	●
Notes & Composition Notes	●	●
Event View	●	●
Precision Panel support	●	●
Tangent Element support	●	●
Tangent Arc support	●	●
Stereoscopic with DVO Stereo Fix	●	●
PQ2084 and HLG HDR	●	●
ACES 1.0.3	●	●
Avid Interplay Support	●	●

● Included as standard in product ○ Optional ■ Not available



Control Options - Precision



CONTROL | EFFICIENCY | CREATIVITY

The Precision panel maximizes creativity through efficient and innovative navigation, while retaining the stylish look and feel required in modern grading suites. Combining touch-screen operation alongside traditional control elements, Precision offers features and functionality unavailable from any other generic or integrated grading panel.

Precision is comprised of three separate panel units - Colour, Touch and Transport – allowing operators to create an optimised setup to suit their own environment and preferred ways of working.

Precision offers a sleek low-profile combined with a hard wearing, non-glare surface that ensures a superior look and feel. All rotary controls, buttons and joysticks are of the highest manufacturing quality and were selected to provide a long life and precise control.

The brightness and colour of all illuminated controls can be adjusted to better suit the ambient conditions of a DI suite, as well as providing colour-coded State and Mode indications that are fully configurable by the operator.

Precision also provides dimmable script lights along each side of the panels, as well as built-in audio feedback that offers an additional level of configurable response and user control.



Control options - Tangent

The Elements and Arc control surfaces from Tangent Devices are also supported on Nucoda. All controls can be mapped using the Tangent Mapping software. www.tangentwave.co.uk



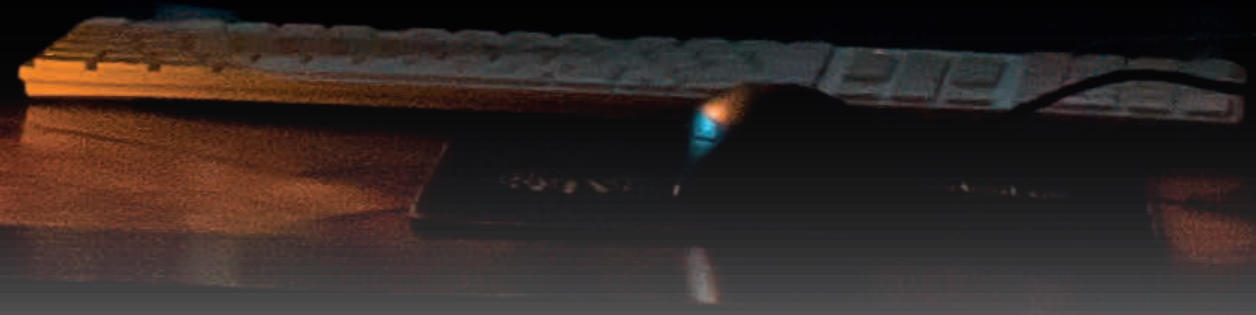
Tangent Arc

- Three sections: Grading, Navigation, Function
- Each section precision machined from a solid aluminium block
- Left and right sections can be swapped to suit handedness
- Controls are labelled with high contrast, dimmable, OLED displays
- Individual control displays also provide value / feedback where appropriate
- Each panel has a large dimmable, OLED display to provide mode / bank information



Tangent Elements

- Ultra-slim all metal construction
- Every programmable control is labelled on a high contrast, high resolution, OLED display
- The display also provides value / feedback where appropriate
- A set containing one of each panel model has an overall footprint of 77cm x 20cm (30.3" x 7.9")
- Modular design
- Configurable to suit handedness, desk space and to place around other equipment
- Multiple panels of each model may be added to your layout; especially useful for some applications



DVO image processing tools

Known for presenting the best image manipulation tools for restoration, enhancement and format conversion. DVO Tools can be purchased in collections or as separate effects.

DVO Tools	Effect	Conv	Enh	Restore	Cam	Video	Classic
DVO Alias	Removes line-flicker and unwanted patterning		●		●	●	
DVO Aperture	High quality spatial sharpener		●		●	●	●
DVO Brickwall	Sharp frequency cut-off to eliminate artefacts		●		●	●	●
DVO Chroma	Fixes chromatic aberration or chroma artefacts			●	●	●	●
DVO Clarity	The best grain & noise reducer available today		●		●		
DVO Cross-colour	Removes chroma or dot crawl from video					●	
DVO De-Interlace	Accurate creation of progressive frames	●					
DVO Dry Clean	Superb automated large artefact removal			●			
DVO Dirt Map	Use scanner dirt maps for automated repairs			●			
DVO Dropout +Fix	Highly accurate removal of video dropout					●	
DVO Dust and Fix	Automated Dust removal with manual Fix			●			
DVO Dust	Automated motion compensated dust removal			●			
DVO Flicker	Automatic flicker removal			●	●		
DVO Frame	Automatic frame replacement for large repairs			●			
DVO Grain	Motion estimated grain & noise management		●		●		●
DVO Line-Sync	Removes line jitter from edges of video material					●	
DVO Noise	Removes unwanted noise on video materials					●	
DVO Pixel	Automated dead pixel detection and repair			●	●	●	●
DVO Print Align	Automatically aligns RGB separation prints			●			
DVO Align Seq	Automatically aligns RGB sequential sep prints			●			
DVO RegrainRGB	Add realistic, highly customised grain to images		●		●		
DVO Regrain	Adds grain to video to match with film		●		●		●
DVO Scratch Target	Vertical scratches removal - new manual mode			●			
DVO Sharpen	Sharpens picture detail and not the noise or grain		●		●		
DVO Steady	Removes camera shake or other unsteadiness			●	●		●
DVO Steady II	Removes Film weave and Splice jumps			●	●		
DVO Stereo Fix	Corrects colour variations and image alignment						
DVO Twister	High quality standards conversion	●					
DVO Zoom	Optimized up and down scaling of film or video	●					
DVO Warp	Removes warping associated with line scanners			●			
DVO Upscale	Upscale SD to HD - Sharpen and I to P convert	●					

Technical specifications and Features

Projects

- Auto Backup project with full history restore
- Cache and Proxy drives assignable per project
- Multiple output formats per project

Timeline

- Fast and accurate background scene detection
- Trim, add and remove edit, ripple.
- Multiple tracks for easy versioning and comparisons
- Apply and work with dissolves during grading process
- Conforming, editing & finishing, with unlimited video and audio tracks
- High speed foreground and background rendering
- Automated cache generation and ability to specify multiple cache nodes on a per layer basis.
- Audio support. Import of WAV and MXF audio with automatic audio caching.
- Easy to do conform check against original material in virtually any format.
- Timeline thumbnails
- Specialist clip scrubbing functionality
- Specialist restoration clip and frame review options
- Adjustment segments allow for any tools to be applied locally or globally
- Apply effects and tools to entire image, or use mattes, shapes, keys to apply processing to isolated areas of the material.
- Manual & automatic tracking (Shape and deformation)
- Manual and automatic keyframing
- Track naming - Including Auto Track naming
- Sophisticated conform ability with EDL processing
- Import AVID. Locators from EDL and AAF
- Coloured, annotated markers on clip and timeline - can be exported to spreadsheet or EDL.
- Save complex Notes for re-use in other compositions and projects
- Recall or Append notes on a per layer basis including keyframes]
- Conform XML and AAF

External Colour Control Panels

- Precision Panel - Designed for Nucoda
- Tangent Element Panel - Full user mapping
- Tangent Arc panel - Full user mapping

Video Monitoring

- Support for Kona 3G, Kona 4 and BMD Decklink
- VTR capture/ layback (Kona 3G and Kona 4)
- RS-422 Control
- Support for embedded audio ingest and layoff
- Source order layoff

- SMPTE and Full Range
- Preview BVB, BBB.
- 4:4:4: Ingest & Layback
- Remote control of Nucoda timeline

Format support

- PAL and NTSC
- 1080p, 720p - Interlaced and PSf
- UHDTV 3840x2160p
- 4K 4096x2160p 23.98, 24
- DCI 2K and 4K
- 23.98 ,24, 25, 29.97, 30, 50p, 59.94p and 60p
- 10 Bit RGB444 and 10 bit YUV422
- 12 Bit 444 Support for HDR and Dolby Vision
- HDMI

File I/O

- 8 / 10 /12 /16 bit DPX file
- B & W Single channel DPX support
- OpenEXR
- OpenEXR Compressed formats (OpenEXR 2.2)
- ACES EXR
- Audio Retime on export
- BWA File export 16/24 Bit / Poly, Stereo and Mono
- YUV colour space export
- CIN
- TIF
- SGI
- TGA
- JPG
- PIC
- EXR
- J2K
- H.264
- PNG (import only)
- Canon EOS MXF
- Canon 5D/ 7D /C300
- AVC Intra 100
- DVCPro
- Panasonic P2
- Sony SR Master (SSTP MPEG-4) F65 MXF
- OP-Atom - DNxHD, DNxHR
- OP1A - AVCi-100 and XDCam 50
- Import AAF - Including audio tracks.
- EDL and XML
- Avid Interplay Support
- Uncompressed MXF
- RGB 4:4:4:Uncompressed MXF
- DNxHR all formats
- XDCAM HD
- DVCAM
- Arri RAW - Alexa Mini, Large Format
- RED RAW - Monstro and IPP2 support
- Panasonic RAW (DNG) VLog
- Sony RAW F55 and F65
- Phantom Camera

- Sony F5, F55, F65 RAW
- Sony Venice RAW

Colour Tools - Base Layer and Master

- Channel Mixer
- Saturation
- SOP (Slope Offset Power - CDL Data Export)
- Printer Lights
- RGBM Levels (including Auto level)
- Lift Gamma Gain
- Balance
- Colour Curves
- Brightness Contrast
- RGBM Curves
- Brightness Regions
- Soft Clip
- Kelvin Tint
- HueCurves
- HLS Correction - Hue - Sat and SatSat
- Blur

Master Layer

- Pan & Scan

Image effects - Including Isolation Tools

- 3:2 Pulldown
- Auto 3:2 with broken cadence detect/remove
- Blur
- Channel Extract (RGB)
- Channel Align
- Convert
- Fade Colour
- Field Dominance Correction
- Field remove and Field swap
- Invert
- Keyer (HLS / Luma / RGB / IKeyer)
- Paint
- Re-Flicker
- Re-interlace
- Retime
- Composite tools
 - Blend - Incl. Blending Modes
 - Channel Combiner
 - Over
- Transition
 - Dissolve and OFX
- Generators
 - Source generator
 - Test Pattern

Colour and effects Layers - Isolation tools

- External Matte Support
- Matte Paint
- Matte Difference
- Shapes (Circle, Square, Bezier, Auto Bezier)
- Softness in/out and variable shape softness)

- Auto tracking with shape deformation
- Point tracking
- HLS / HSV / RGB and IKeyer

Transform Tools

- Pan & Scan
- Blanking
- Rotation
- Warp 9 - Nine point warper
- Warp 4 - Four point warper
- User Definable Mesh Warper
- Lens Distort / undistort

Stereo Tools - DVO Stereo Fix

- Anaglyph & Checkerboard comparison modes
- Dedicated L&R tracks
- Mono tracks
- Advance grade merging functionality
- Track grouped grading
- Floating window support
- P & S - Interocular adjustment incl Rotation
- DVO Stereo Fix Auto Colour & align Tool with localised colour matching and auto deformation

Specialist Comparison Modes

- Diff Red
- Diff
- Diff multiply
- Mono Checkerboard
- Split screen
- Dual screen
- Blend
- Anaglyph
- Checkerboard
- Butterfly

Comparison Sources

- Playheads (ABC or D)
- Notes
- Tracks
- Events View
- Source
- Revert, InputFX, Base

Edit List support

- AAF and XML
- Flame EDL and AAF support
- CMX 3600 EDL import
- Enhanced EDL (CDL, File path support)
- AVID ALE Export - incl Audio
- Support for standard CMX and enhanced characters for tape name export
- Export Locators as comments

Viewer Tools

- Live Waveform and Vectorscopes with ROI
- RGB, Luma. RGB Parade and CIE
- Used definable labels and custom setup
- Histogram with ROI and pixel measurement
- User definable Grids
- User definable Frames
- User definable Metadata overlay
- User definable Masks
- R /G /B Channel isolation and view
- Matte and Alpha view
- Source/Output/Selected
- User definable HUD for frame burn-in.

Plug-ins

- OFX Compatible
- Sapphire OFX
- Beauty Box OFX
- ReVision FX

Colour Management

- ACES (SMPTE 2065) - V1.1
- ACES Standard Input and Output Transforms
- ACES LMT
- Colour Convert Tool - Colour Space, Illuminant, Curve Includes Chromatic Adaptation setting
- CMS Layer FX
- LUT I/O Support for .cube and .cms
- 1D & 3D LUT Support
- Creation of Inverted LUT's

DVO Collections - Option

- DVO Classic
- DVO Restore
- DVO Enhance
- DVO Convert
- DVO Video
- DVO Camera

- All DVO Tools can also be bought as standalone options

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Installation & Training

At Digital Vision we aim to provide the best in training materials from dedicated product training classes to the latest 'tips and tricks' videos. If you have any specific training requirements please contact us directly at training@digitalvision.se

Support

Digital Vision understands the need for comprehensive product support and the importance of adding value to its products by offering first-class technical support services service team from Image Systems or our certified resellers provide the necessary worldwide support services to minimize downtime and increase productivity.

We are committed to resolve any product problem as quickly, efficiently and effectively as possible. Through these services, we share our expertise to help you better manage your enterprise.

If you require technical support or have licensing questions please contact us:

For customers in EMEA and APAC customers with active support contracts (Technical or Premium) can contact DigitalVisionWorld support on support@digitalvision.se or call Tel +44 3330 148 148

US customers with active support contracts (Technical or Premium) can contact ALT Systems by phone on +1 818 504 6800, they can also use the support@digitalvision.world email address.

If you are a Nucoda user we recommend that you sign up to the Digital Vision Google Group

<https://groups.google.com/forum/#!forum/digitalvisionforum>