FrameCycler DDS 2011

User Guide

Rev. 2011-C

IRIDAS.

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Credits

This documentation includes images from Angle Mort, Courtesy of Caramel Films, Saigon Eclipse (thanks to Jo Nguyen); The Eagle Hunter's Son, courtesy of Stromberg Productions. Additional images from Erwin Van Der Stappen and Kadenza Media

Installation

Supported nVidia Graphics Cards

FrameCycler DDS relies extensively on the OpenGL and shader technologies of modern graphics cards.

The following nVidia® cards are certified for use with FrameCycler DDS. Please be sure to install the certified driver if you're running Windows or Linux. Any changes to the driver are not required, please keep all performance settings at default values.

	Win 7	Linux	OS X
Qaudro 6000 SDI	275.89	280.13	-
Qaudro 5000 SDI	275.89	280.13	-
Quadro 4000	-	-	10.6.x OS*

* OS X doesn't require an additional driver installation

Related Links:

Any changes to recommended nVidia drivers are posted at
http://doc.iridas.com/index.php/Graphics_Card_Compatibility_%282011%29

Installing FrameCycler DDS

Extract License File

Licenses are packaged as zip files and sent to you by email. Before launching the installer, you need to place the license file on your desktop.

1. Delete any previous license files on your desktop.

2. Drag the zipped license file from the email to your desktop.

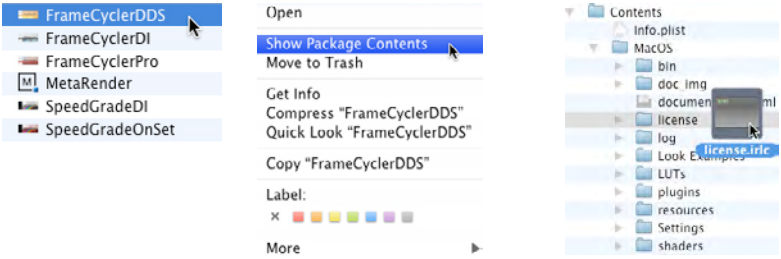
3. Double-click the zipped file to extract the license (FrameCycler DDSNX.irlc). Windows users: drag the license file from the Zip window to your desktop, then close the Zip window.

The license file (Mac OS X)

The license file (Windows)

Mac OS X Installation

Step 1: Download and Install
Download the Disk Image (.dmg) to your desktop and mount it with a double click.
Launch the setup application.
Follow the prompts in the installer.
Note: If you have more than one hard disk on your system, choose the one which contains your Applications folder.



Step 2: Activate Your License

Navigate to your Applications folder and find FrameCycler DDS.
Right-click (or Ctrl+click) on the product icon
Select "Show package contents" from popup menu and new finder window will open.
Double click on the contents folder to open it. Then open the MacOS folder.
Then copy or drag and drop your license file (FrameCycler DDS.irlc) into the license folder found there.
Close finder window

Step 3: Launch FrameCycler DDS

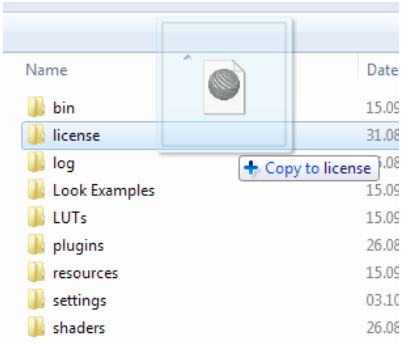
To launch FrameCycler DDS, click the icon in the Applications folder, or create an icon for the dock and launch it from there.

Windows Installation

Step 1: Download and Install
Download the setup executable to your computer.
Double click on the setup executable and follow the instructions on the screen.

Note: please be sure to install FrameCycler DDS outside the Program Files directory. Otherwise UAC settings might prevent you from changing settings and saving .looks and backup files of your current session.

Step 2: Activate Your License
Copy the license file that has been sent to you via email to an empty folder and extract it there.
Open an Explorer window, then navigate to your Program Files folder and find your FrameCycler DDS installation.
Then copy or drag and drop your license file (FrameCycler DDSNX.irlc) into the license folder found there.



Step 3: Launch FrameCycler DDS
To launch FrameCycler DDS, click on the start menu, click on All Programs, open the IRIDAS entry and find the submenu with your product.

Linux Installation

Step 1: Download and Install

- Download .tar.gz archive to your hard disk.
- Extract archive to folder (tar xvfz archive.tar.gz).
- Verify the bin subdirectory is executable (chmod 777)

Note: Because of binary compatibility problems between different LINUX distributions, please make sure you download the LINUX installer package that was created for your LINUX distribution. If your LINUX distribution is not supported, please contact us for help in selecting the right package.

Step 2: Activate Your License

Copy the license file that has been sent to you via email to an empty folder and extract it there. Then copy your license file (license.irlc) into the license subdirectory in your FrameCycler installation.

Step 3: Launch FrameCycler

To launch your product, start the shell script from the /bin subdirectory (for example ./bin/framecycler)

Setup Scenarios

Typical Setup Scenarios

Overview

FrameCycler DDS can be used on either a single screen with both image and UI on one display, or as a dual monitor setup. A basic dual monitor setup uses two monitors connected via 2 DVI outputs, the advanced dual monitor setup utilises the nVidia Quadro® SDI technology to allow for real time 10 and 12 bit output over Single Link or Dual Link SDI.
The nVidia Quadro SDI setup requires Windows or Linux.

FAQ: how many outputs on the nVidia GPU can be used in parallel?
Only 2 outputs at a time can be used in parallel. The SDI card is routed through the Quadro GPU and thus taking one DVI or DP output. The other output can be used for local UI display, the additional DisplayPort is not active in parallel.

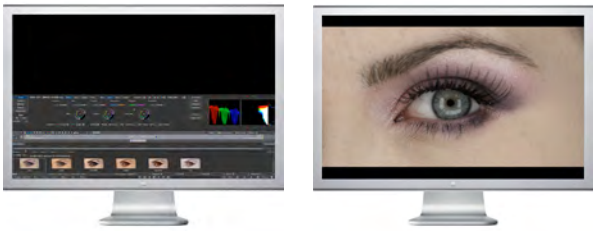
Tip: combining local footage display with a projection setup
To give the operator an accurate local display in parallel to another display or projection system, a signal split on the SDI output is recommended. This is also the recommended way for signal monitoring via external Waveform and Vectorscope.

Related Links:

Dual Monitor Setup
http://doc.iridas.com/index.php/Dual_Monitor_Support

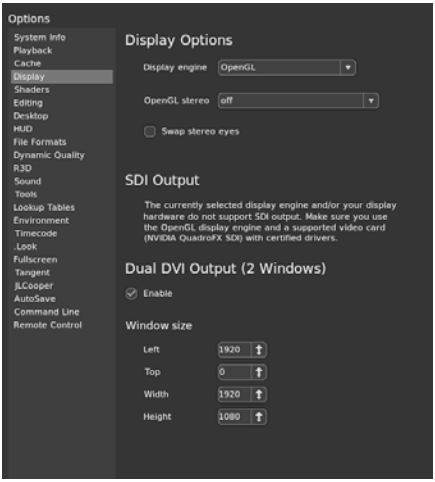
Certified NVIDIA Graphics driver:
http://doc.iridas.com/index.php/Graphics_Card_Compatibility_%282011%29

OS X: Dual DVI Setup



Connect one DVI output to your UI display, the second DVI / DP output to your calibrated monitor or projector. DVI to SDI converters can be used.

Settings for Dual DVI Output



Open the Settings (push <S> or click on "Settings").
Select "Display".
Check the settings under "Window Size", the defaults values will work for 2 displays using 1920 * 1080 resolution. Click "Enable" to activate Dual DVI Output.

Windows, Linux: DVI / SDI setup

Connect the DVI / DisplayPort output to your UI display.
Use either Single Link or Dual Link SDI output from the NVIDIA SDI card to connect an external waveform and other monitoring devices before routing the signal into a reference monitor and / or a projector.

SDI Output Settings

Open the Settings (push <S> or click on "Settings").
Select "SDI/Dual DVI".
Check the signal format settings and output format settings.
Click "Enable" to activate the SDI output.

NOTE:
Screenshots shown in this user guide will usually show a single screen setup.

Control Panel Setup: Tangent CP200 and CP300

FrameCycler DDS can be operated using keyboard and mouse or trackball or tablet.

FrameCycler can also be operated with a combination of Tangent CP200 Panels. The recommended combination of panels for digital dailies includes CP200-BK and CP200-TS

An overview of functions mapped to the CP200 Panels can be found at the end of this user guide.

An regular workstation setup is usually equipped with a Tangent CP300 “Wave”. The CP300 is USB powered and works plug and play.

Related Links:

CP200 Control Panel Setup
http://doc.iridas.com/index.php/Tangent_CP200_Setup

User Interface Overview

The Main User Interface Areas

The Desktop

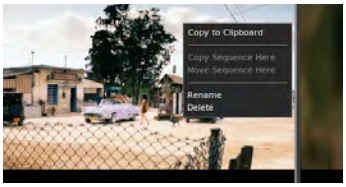
The first thing you'll see after launching FrameCycler DDS is the Desktop, which is where you load frame sequences, RAW sequences or movie files, FrameCycler DDS projects or EDLs.

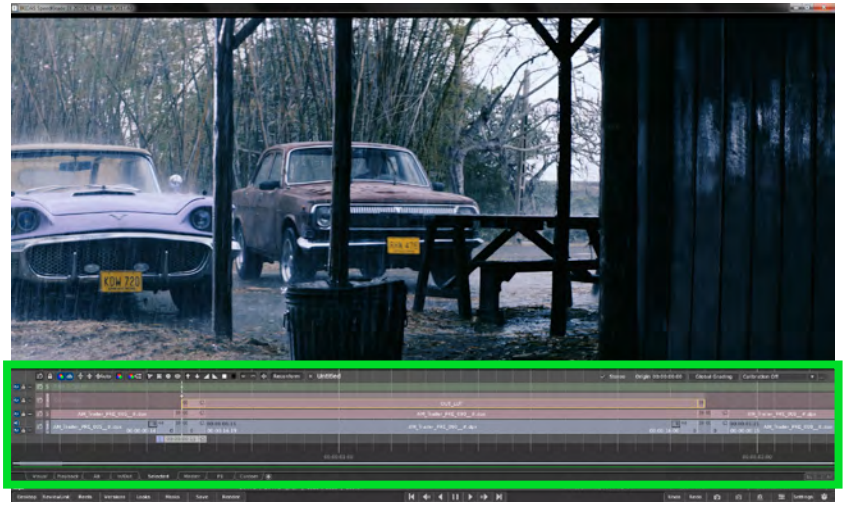
The most basic way to get started is to locate the footage directory with the bread-crumb control, then double click on a thumbnail preview in the main part of the desktop to add it to the timeline.

To open and close the desktop press <D> on your keyboard or [MORE + DESKTOP] on the CP200-TS.

Tip

Right Mouse Click allows for easy access to powerful renaming and other data management features.





The Timeline

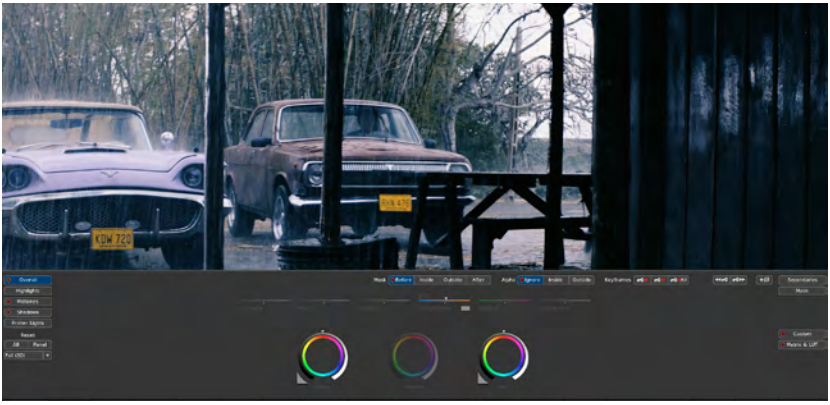
The timeline shows the assembly of clips from the Desktop or the edit if the project is based on an EDL import. It allows for applying a calibration LUT, generating grading layers based on the edit, working with different views of the edit and creating multiple playheads along the edit. The pull-downs for burn-in and overlay allow for customizing your image display.

Tip

The Visual Timeline shows each edit along the timeline as thumbnail preview.
To activate the visual timeline, click on the "Visual Tab" beneath the timeline.

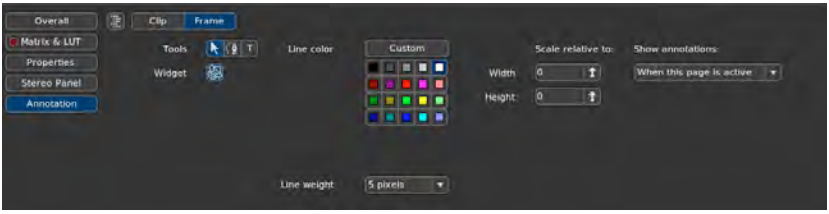
The Viewport

In a single monitor setup the viewport is hidden under the desktop. Close the desktop to view it. Use <CTRL + HOME> or [MORE + ZOOM FIT] on the TS panel to adjust the size of the image to your screen size. In a dual monitor setup the viewport is placed on the second monitor and will show images while the desktop is open.



Tip

If you're running a single screen setup, <SHIFT + H> allows to toggle between a fullscreen footage view and your current work environmet with Timeline, Browsers and Scopes open.

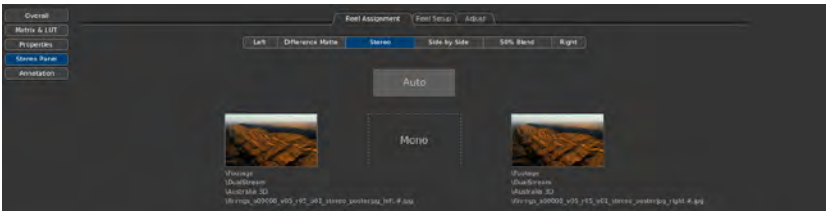


The FrameCycler DDS Panel

Directly above the timeline is the panel for grading, stereo 3D, annotations, setting clip properties. This is also where the scopes will show up when activated. You can change the size of the panel by positioning the cursor over the top of the panel, and dragging the highlighted line. Show or hide it with <K> or CP200-TS [MORE + PANEL]

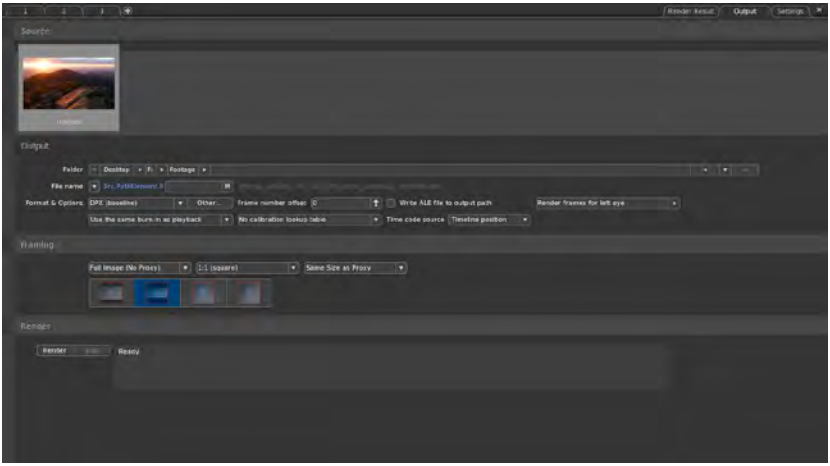
Tip

The Stereo Panel provides easy access to the full DualStream NX feature set in one workspace. Once the FrameCycler DDS Panel is active, switch to the Stereo Panel with <SHIFT + S>.



Preset and other Browser Windows

Additional Browser Windows can be activated as needed. The .Look Browser shows presets already created and allows for saving additional looks. The Reel Browser shows all reels of the current edit and can be used to manipulate offsets and for selecting the method for conforming EDLs.



The Output and MetaRender Control section

For rendering the current status of a project or a final version the render dialog allows for selecting the output format of choice as well as a number of options such as resample and crop or adding a preview LUT.

If MetaRender is installed on either the same workstation or as a network render node, you can send jobs to MetaRender via the network tab in the Output section.

Press the render button in the interface or use <CTRL + R> to open and close the dialog.

Tip

The new speed control display allows to estimate time of completion when rendering locally.

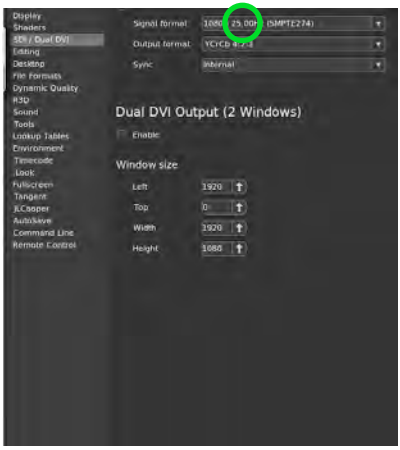
Quick Start Guide

Step 1: Set Project Defaults

Open FrameCycler DDS, then click on the Settings tab to the right of the Desktop or push <S> on your keyboard.

1. Select Editing. Choose defaults for your project, be sure to check the base frame rate before you start loading any footage.

2. Select Display. If you're using the nVidia SDI output, be sure to select a signal format that fits your base frame rate.



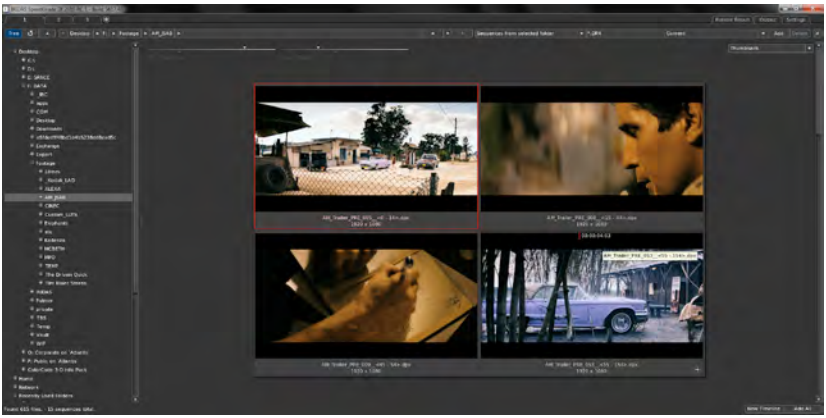
Step 2: Loading Footage

FrameCycler DDS opens automatically to the Browser Desktop where you can find and open the footage you want to work on. At any other time, you can click on the Desktop button to return to the Browser Desktop.

1. Navigate to the folder containing your footage. You can do this with the path control or by enabling the file tree browser (click "Tree" to activate).

2. Drag the Thumbnail Size and Aspect Ratio sliders to adjust the size and number of images which are viewable in the browser.

3. Click the plus icon (or just double-click on thumbnail) to add it to the timeline. Repeat this with additional sequences. If you want to load all sequences shown on the desktop at once, just click on "Add All"button.



Tip: Scrubbing Sequences
If you have a sequence of frames or RAW files, you can scrub through it by dragging left or right at the top of the thumbnail.

Step 3: Navigation and Zoom

1. Close the Desktop (<D>). Use the playback command bar in the UI or the CP200-TS playback buttons to control playback and to navigate along the timeline. Useful hotkeys are listed in the chapter on hotkeys.

2. Check zoom to fit and zoom to 100%:
- CTRL + HOME enables zoom to fit
- CTRL + SHIFT + HOME enables 100% view (pixel-to-pixel, avoiding any display scaling)

Both functions are also mapped to the CP200-K.

If you want to zoom into the image, simply use the +/- keys on the numpad.

3. Activate one of the burn-in presets such as "HD Rushes" to see metadata info displayed as an overlay on your image output. See the chapter on Customisation to learn about how to create workflow specific presets.

Step 4: Open the FrameCycler DDS Panel

1. Press <K> or use [MORE + PANEL] on the CP200-BK to open the FrameCycler DDS Panel. When you first open it, you'll see the main grading interface. You can immediately start working on the current clip (highlighted on the timeline with yellow outlines).

Step 5: Recall Looks

FrameCycler DDS has various ways of working with Looks. The most immediate way you can put to work right away: grade on the current clip. Continue to the next shot. Hit 1 on the CP200-TS or 1 on the numpad to recall the previous Look. Press ALT + 1 to recall the Look from the next shot. If you need the Look from 2 shots before, simply use 2 on the TS or on your numpad.

If you are presented with .Look files from the DOP or someone else designing .Looks, simply load them via the .Look Browser (hit MEM on the CP200-TS to open it).
For further details on .Look workflows check the chapter on working with .Looks.

Step 6: Save Your Project

FrameCycler DDS saves the current status of your work every 5 seconds. If you close the application without saving and open it again, all of your project data reflects the last changes. However, be sure to always safe your project before deleting the current timeline.

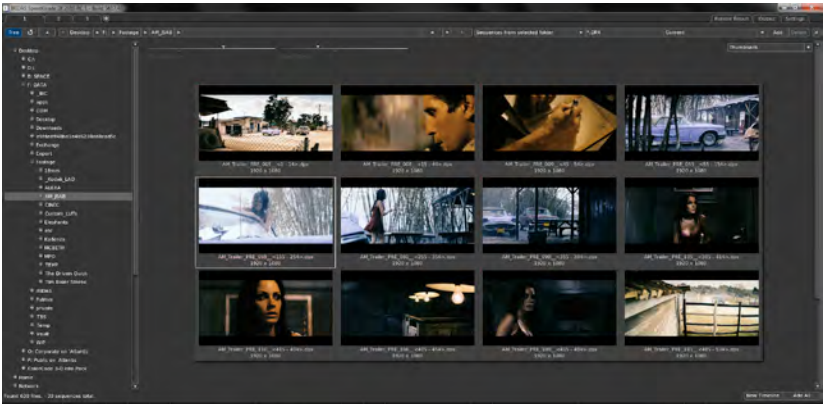
It is recommended to save the current project status frequently in case you need to go back in time and find a previous save you liked better.

FrameCycler DDS stores all grading and other info created during a FrameCycler DDS session in one XML file, the FrameCycler DDS *.ircp file.

Loading Footage

Loading Footage

The first thing you see when you open up FrameCycler DDS is the Desktop. You can show or hide it at any time by pressing **< D > or CP200 TS [MORE + DESKTOP]**.
The desktop can be used to navigate through folders with image sequences, movie files or RAW file formats. FrameCycler DDS will present thumbnails in the main area of the desktop. Alternatively you can load existing FrameCycler DDS projects (.ircp) or load an EDL to start the conform process (see the chapter on Conform for further information).



Desktop: Thumbnail View (default)

Desktop: List, Video

Navigating

Use the bread-crumb control to navigate to the correct folder on your drive or network.
If you prefer tree view navigation, turn on the tree view control (first button top left on the desktop).

Toggles the tree view

For easier viewing you can adjust the thumbnail size, drag the slider "Thumbnail Size" to the right to enlargen the thumbnails.

Thumbnail Size. Drag slider to the right to enlargen thumbnails on the desktop. Double click on the arrow to reset to default.

Search Criteria

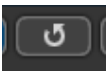
If you want to only display data with a specific file extension or files starting with specific characters enter search criteria, such as file extensions in the top right field (e.g. "*.R3D").

Search Criteria. Default is *.*

Tip: You can create custom presets for search criteria. Enter the cirteria (such as *.DPX), click "Add", choose a name for the preset. You can now use the pull-down menu next to the add button to select presets.

Refresh

Click on the refresh button if files have been updated while the desktop was open.

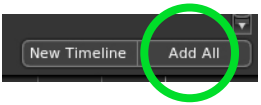


Loading Multiple Sequences

Open the desktop. Double click on a thumbnail or select and drag to the timeline to add the clip to the timeline. Repeat this with any additional thumbnail that you'd like to add to your timeline. Every item you add will get placed after the last clip on the timeline.

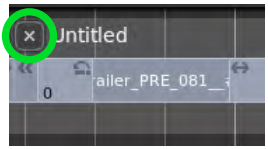
Loading Multiple Sequences at once

Open the desktop. Browse to the folder that includes sequences you want to bring to the timeline. Click "Add all" at the bottom of the desktop to add all files in order of appearance. This usually gets used when loading RAW data for creating dailies to create a virtual lab reel.



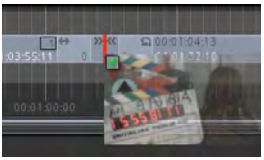
Tip: How to delete an existing timeline?

If you want to delete a timeline simply click on the "x" icon at the right end of the row of buttons above the clips on the timeline. You'll need to confirm that you want to delete the timeline.



Inserting a Sequence inbetween Clips

If you need to place a clip inbetween material that's on the timeline already, drag and drop the thumbnail from the desktop onto the position on the timeline where you'd like to place it. A highlighted red line will appear once you're at the right position. Release the mouse.

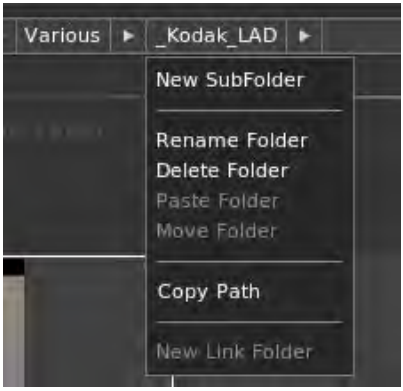


Loading a FrameCycler DDS Project

Open the desktop. Navigate to the folder that contains the .ircp file that you want to load. Double click on the thumbnail.

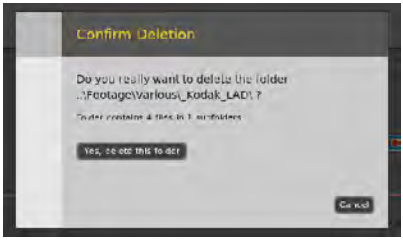
Right Click Features to Manage Content

There are a number of new right mouse click functions in the 2011 Desktop.



Right Click a Folder
If you right click a folder a context menu will appear which gives you several options:

- New SubFolder: Creates a new folder at that position
- Rename Folder: Renames the folder that was clicked on
- Delete Folder: Deletes the folder
- Copy Path: Copies the path into the clipboard



The options Paste Folder, Move Folder and New Link Folder are available when a path was copied to the clipboard:

- Move Folder: Move the folder in the clipboard to a new location
- Copy Folder: Copy the folder in the clipboard to a new location

New Link Folder
Create a virtual folder that links to the folder in the clipboard. This option allows you to build virtual directory trees, similar to shortcuts or symbolic links in the operating system.

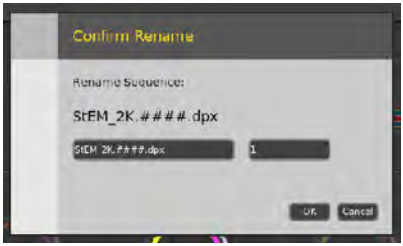
Right click on a file or frame sequence functionality

If you right click on a file or frame sequence you get a new context menu to manipulate the entry:

- Copy to Clipboard: Copy the path of the sequence or file to the clipboard
- Copy Sequence Here: If a sequence path is in the clipboard, allows you to copy the file or sequence to this location

- Move Sequence Here: If a sequence path is in the clipboard, allows you to move the file or sequence to this location

- Rename: Gives you the option to rename the file, if it is a sequence, you can also renumber it.



For renumbering, you can control the padding using the # characters. One # omits padding, multiple ### pads to the number of # characters. The second edit box to the right indicates the start frame number.

Tip: Autocomplete for Typed Directories

The 2011 Desktop supports autocomplete in the path control for typed directories.

If you click into the directory bar at the top of the sequence browser and start typing, you will get a list of matching directories. Simply select one using the cursor up and down keys and hit enter to move to that subfolder. Autocomplete will automatically list the 10 subdirectories of the newly entered folder, making it very easy to browse complex folder structures with minimal effort, using only the keyboard.

Working with EDLs

Conforming EDLs

FrameCycler DDS offers conforming capabilities to create a FrameCycler DDS timeline from an offline Edit Decision List (EDL), that adheres to the Sony CMX 3600 standard. Additionally it supports the extended new 16 digit EDL that is required to work with ARRIRAW and RED material.

Note: before you start working with EDLs make sure that FrameCycler DDS is using the right fps preset. If your project is based on 24 fps, both your preset for new timelines and your base fps should be set to 24 (open the Settings page and select Editing to make changes).

The 2 most typical scenarios are:
1) You have an EDL and one long image sequence or movie file that already has all edits "baked in". You now want to use the EDL to create keyframes to cut the long clip into the individual edits.
2) You have an EDL and online material in folders or individual movie files. You now want to associate the correct online clips according to the reel ID/filename information available in the EDL.

Both scenarios require a slightly different workflow described below.

Pre-Conformed Timeline

In this scenario, you have one long clip of online material and an EDL that contains the corresponding edits. To create keyframes at the correct positions for each edit, follow these steps.

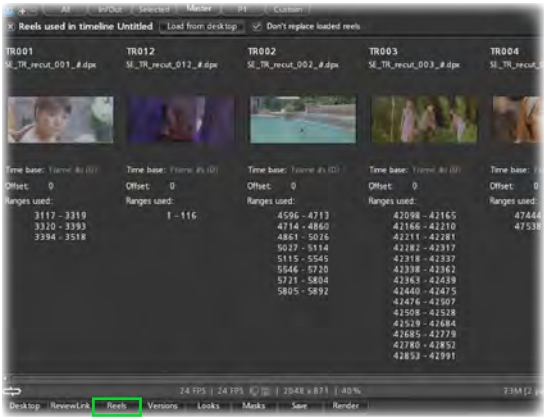
1. In the Desktop, navigate to the directory containing your pre-conformed clip
2. Drag and drop the clip with the material to the timeline. This clip should now be the only clip in the timeline. You can review the material using the usual playback controls.
3. In the Desktop, navigate to the directory containing your EDL
4. Drag and drop the EDL on top of the clip in the timeline. The long clip will now be cut into edits.

Conforming Using Reel IDs / Filenames

In this scenario you have an EDL and your online material is distributed in folders or individual movie files. In the EDL, the footage is referenced through a time code range and Reel ID. Many editing system forego the Reel ID and output a filename in the comments instead. FrameCycler DDS supports both notations. If both are present FrameCycler DDS references the Reel ID first.

Follow these first steps to start the Conform process:

1. In the Desktop navigate to the directory containing your EDL
2. Drag and drop the EDL into the timeline area, creating a new timeline. You now have a timeline with placeholder clips representing all your edits.
3. Now press on the Reels button in the Command Console to open the Reels browser. You see an overview of all the reels used in the EDL.



To open and close the Reels Browser push the Reels button or press < CTRL + ALT + R >.

Use Tangent CP200 TS [MORE] + [REELS]

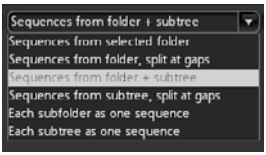
The edit is represented as clips on the timeline, organised as A/B tracks with a dissolve track inbetween if present in the EDL. As long as the Reels are not loaded yet, the clips on the timeline show up red:

4. Now find the footage that represents these reels using the Desktop. Use the filter options in the Desktop to search subdirectories or treat directories as reels as necessary.
5. Press the "Load From Desktop" button in the Reels Browser to associate the reels displayed in the Desktop with the placeholders in the Reels browser

6. If your material is distributed over several locations, repeat this process with different directories

Sometimes both reel ID and file names don't match and the footage cannot be automatically associated. In this case you can manually drag and drop material from the Desktop onto the placeholder reels in the Reels Browser.

Tip: To make the Reels browser appear larger or smaller, click on the Label "Reels used in Timeline" and move the mouse up or down. Move it up to make it as large as you need it to see all ranges used with each reel (see picture below)

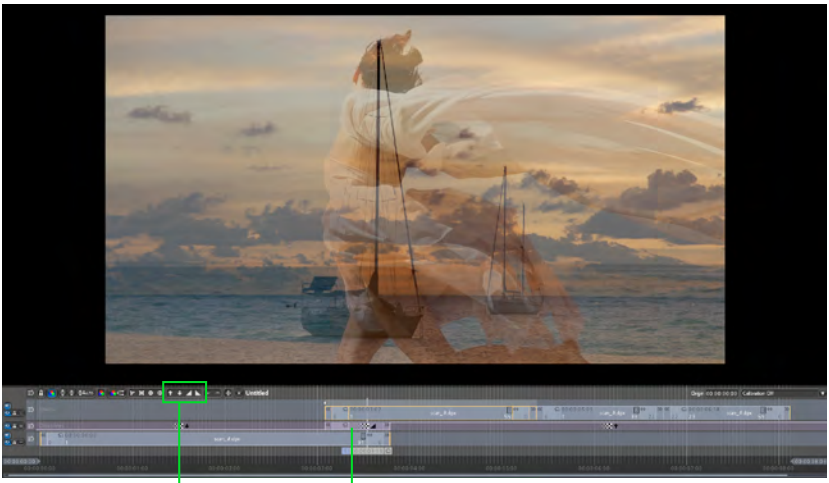


Tip: You can adapt the way the desktop is organizing files. By default the desktop shows all files from the currently selected folder. You can switch this to other modes. "Sequences from folder + subtree" for example will show all data of the currently selected folder plus all folders from its subtree. If you have all reels that belong to an EDL within one folder structure, just select the topmost folder, then use this view to show all material that belongs to your EDL at once.

Tip: The "Don't replace loaded reels" checkbox prevents reels which are already on the timeline from being replaced when adding new reels from other locations.

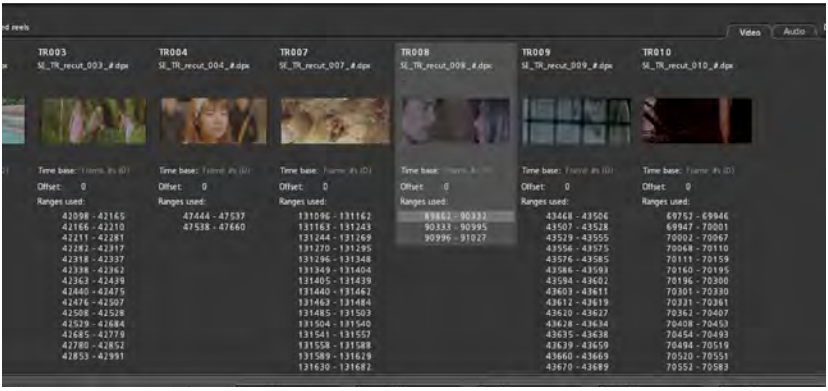
Working with Dissolves between Clips

Dissolves between clips according to an EDL are available as A and B layer with a dissolve layer inbetween. All three are generated automatically when conforming an EDL. Dissolves can be created manually as well, they can be modified directly on the timeline. Dissolves can be as long as required.



Drag dissolve icon onto timeline to create dissolve

Resize or reposition dissolve just as any other clip



The Reels Browser: current reel and frame sequence are highlighted during playback

Apply a .Look to an EDL

To apply a .Look across an entire EDL, open the Look Browser.

1. Drag the EDL from the Desktop and drop it on the .Look file in the browser.
2. The EDL will appear on the timeline with the look applied as clips on a separate grading track above.
3. You can then fine-tune the look clip for each shot as required.

EDLs based on RED One .R3D files

Working with RED files in FrameCycler DDS requires an offline process that can handle the 16 digits used in .R3D file naming. This can be accomplished with a number of different offline scenarios, all of them should follow some simple principles to allow for a smooth conform process:

1. Always transcode your offline material with source TC
2. keep the original file naming convention, the RED Magazines (RDM) serve as reels throughout the editorial and conform process
3. Don't take shortcuts on the 16 digits, keep the full name of RDM and .R3Ds

Working with RED's Quicktime reference files in Final Cut Pro® is an alternate option to an offline process that involves transcoding. The workflow is similar, but be sure to avoid asigning reel names in Final Cut Pro® manually. The EDL export will include the reference to the Quicktime files, after loading this type of EDL in FrameCycler DDS, the reel names will be derived from those references automatically.

Note: the replacement syntax for RED Reels done in FinalCut Pro is supported, if your EDL states replacement comments like

```
FINAL CUT PRO REEL: A001_C003_080731 REPLACED BY: A001C003
```

FrameCycler DDS will be able to load the RED files accordingly.

EDL Support

REEL ID

The CMX reel ID is the primary means of identification for a clip. If possible, you should place reel footage into subfolders with the Reel ID provided in the 3600 EDL to facilitate conform.

CLIP NAME

IRIDAS applications support the • FROM CLIP NAME syntax in a CMX comment. This is the secondary means of identification for a clip. If the Reel ID provided is not found or the Reel ID is "AX", the clip name is used as search criterion.

Replacements

The syntax • REEL AX IS CLIP that is used by Adobe Premiere and other applications is supported in IRIDAS product builds 3182 and higher.

Flips and Flops

Vertical and horizontal mirroring is supported starting in product builds 3152 and higher. The FLIP, FLOP and FLIP-FLOP comment keywords are evaluated for that.

M2 (Time Warp)

M2, speed change/time warp commands are supported. Reverse playback is supported in product builds 3152 and higher.

K (Key)

Key commands are not supported and will result in an error at load time.

Adjusting Playback and Viewport Features

Adjusting Playback Features

Once a sequence or FrameCycler DDS project is on the timeline, it's ready for playback. Make sure to close the Desktop before you hit play (press **<D>** or click on the Desktop button to close it).

You can use the Tangent CP200-TS playback controls, the on-screen playback buttons at the bottom of the control console, or Hotkey shortcuts to control playback (for a full set of hotkey shortcuts please refer to the last chapter).

To Play/Pause use the Space Bar. If you want to use step forward and backward use the right and left arrow keys.

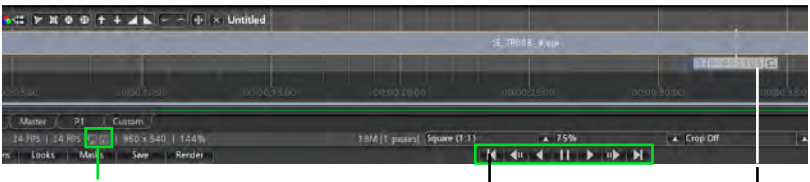
To go to a different position on the timeline drag the playhead to the desired position.

Playback Mode
Press **<F6>** to switch modes: Single Run, Ping Pong, Loop

Show/Hide Desktop

Base frame rate (fps)
To choose a different base fps open the settings and select "playback"

User-specified fps
To change the current playback speed, double click on the number and enter a new value. Press < ENTER > to apply it. Alternatively use page up and page down to change playback speed by 1 fps



Disk icon turns red when disk subsytem / CPU can not deliver real time decoding.

Display icon turns red when GPU cannot provide real-time performance or display output is not in sync

Playback Buttons
From left to right:
- Go to in point
- First position of current clip / edit
- Play backwards
- Pause
- Play forward

Playhead
indicates playback position. Double click on TimeCode and enter new TimeCode to move to a different position

The Viewport

The Viewport is either on the same display as the user interface (single monitor setup) or on a second display (Dual DVI or DVI/SDI). The Viewport shows the image according to the position on the timeline. If multiple playheads are in use, the Viewport will display images according to your screen layout defintions. This can be up to 9 images in parallel. For further info on using multiple playheads please refer to the chapter Multiple Playheads.

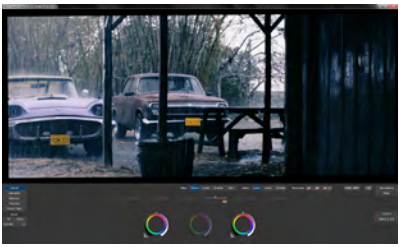
Positioning Images

You can change the magnification and the positioning of the images in the Viewport.
Use Hotkeys for zoom to fit and zoom to 100%:
Zoom to fit: <Ctrl + Home>
Zoom to 100% <Ctrl + Shift + Home>

To zoom in and out of the image use <Ctrl + Mouse Wheel> or use <+> and <-> on the number pad.

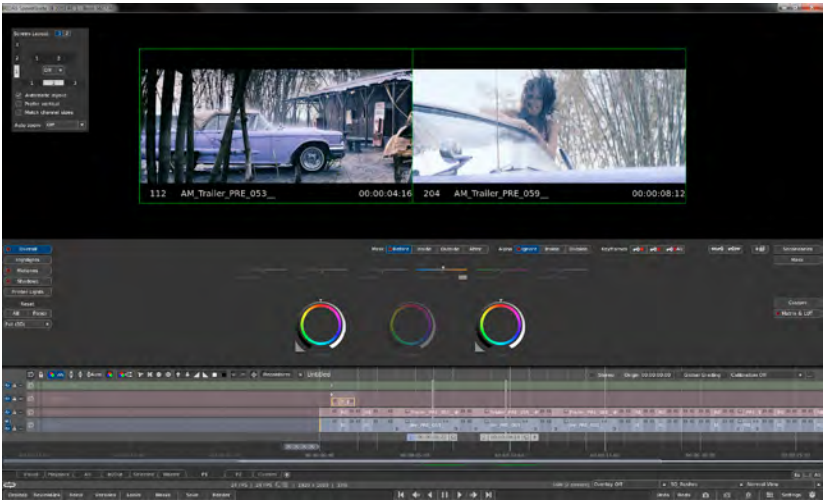
Zoom to fit: <Ctrl + Home>

Zoom to 100%: <Ctrl + Shift + Home>

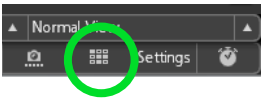


Hide Timeline and Controls: <TAB>

NEW: Hide everything,
zoom to 100% and center: <SHIFT + H>



Automatic Screen Layout



To open the Screen Layout window click on the button with the 9 squares right next to "Settings" (button section bottom right). The default settings will show "Automatic Layout" turned on.

Automatic Layout will allow you to:

- Add Playheads and automatically display them
- Remove playheads and automatically reflect the change in the screen layout

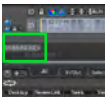
While in automatic layout you can also turn on "Auto Zoom". This will automatically upscale all images along the timeline to the highest resolution placed on the timeline in either horizontal or vertical resolution (select "keep width" or "keep height" from the pull-down).

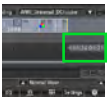
For advanced use of the Screen Layout please refer to the chapter about Screen Layouts.

Working with the FrameCycler Timeline

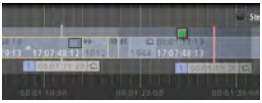
The Timeline

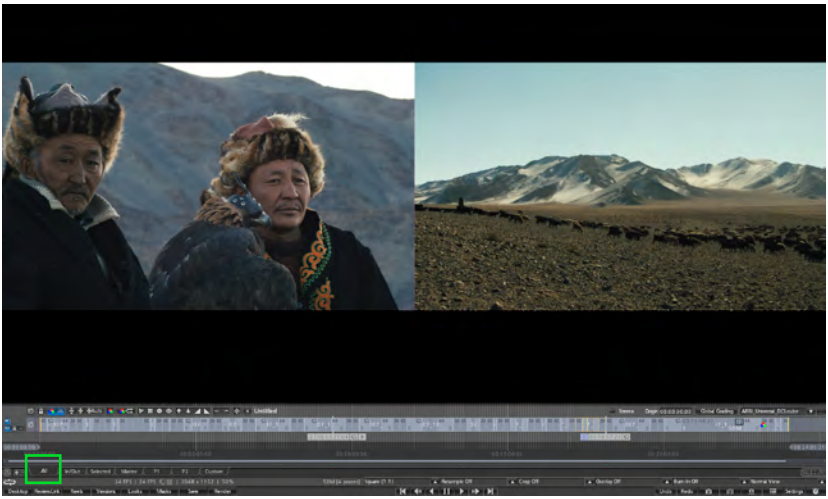
In FrameCycler DDS, all of your work is arranged on the timeline. Determine which part of the timeline you want to play by positioning the in- and out-points.





The playhead shows which frame is being viewed at any given moment. To view more than one at the same time (for example to compare the grading of different parts of the same shot or scene) create additional playheads by control clicking the right side of the playhead and dragging a second playhead to desired position: this will result in multiple pictures in the Viewport.



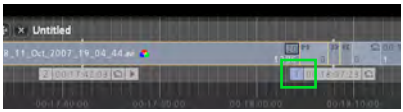


Typical setup: “All” view is selected. This shows all material placed on the timeline as well as all playheads placed on the timeline. The active playhead (in this example playhead 1) is marked blue. 2 Playheads are available, both are on display in the Viewport.

Timeline Elements

Playheads

One playhead is always present with each timeline. The Master playhead is marked blue. This is the one that defines which clip is active for grading and other adjustments.

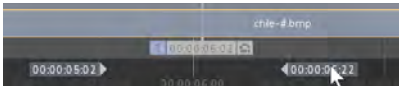


In-Points and Out-Points

The default position is at the start and end of a clip or playlist, however you can move them manually with the mouse or by double-clicking on the frame number and entering a new number

Ctrl + Click on in or out point to restore default position.

Double click on a clip to set in and out points for that clip.



Tracks

FrameCycler DDS uses tracks on the timeline for:

- Footage Clips (blue)
- Audio (solid green)

Footage and Audio Clips show the name of the source files.

Navigating along the Timeline

On a Timeline with multiple clips and multiple tracks you can navigate clip by clip and track by track. Navigating clip to clip changes your master playhead position on the timeline. Navigating up and down the tracks changes your selection that is reflected in the FrameCycler DDS Panel (so you could navigate from the footage track to a grading track, to a pan & scan track etc).

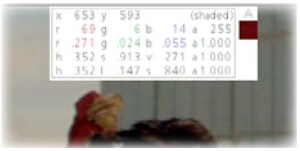
The most important Hotkleys are:		CP200 TS:
< CTRL > + < SHIFT > + Arrow Key Right	Go to next clip	[RIGHT]
< CTRL > + < SHIFT > + Right Arrow Key Left	Go to previous clip	[LEFT]
< CTRL > + < SHIFT > + Arrow Key Up	Switch to track above	[NEXT]
< CTRL > + < SHIFT > + Arrow Key Down	Switch to track below	[PREV]

For a full list of Hotkeys please refer to the Hotkey chapter at the end of this document.

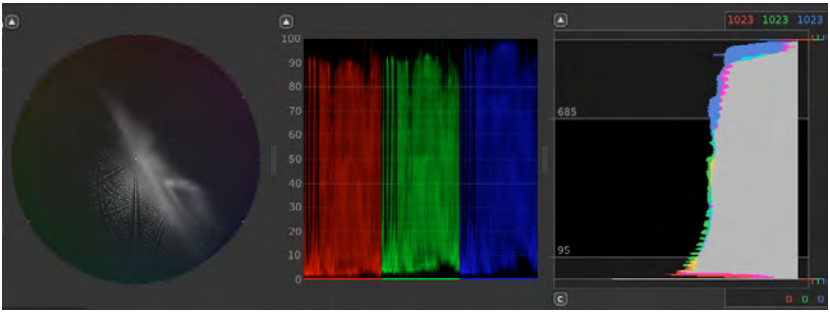
Image Analysis Tools

Image Analysis Tools

FrameCycler DDS provides a variety of tools for checking your image. **Histogram**, **Vectorscope** and **Waveform** are part of the FrameCycler DDS panel, use hotkeys to activate or deactivate. The **color picker** shows pixel color data, **channel views** allow you to check specific color channels. Use it, for example, to check for compression artifacts or noise in R,G or B channel.



Color picker
Click anywhere on image
to show pixel color data



Vectorscope
Press < V >
Resize by dragging the handle to left or right

Waveform
Press < W >
Resize by dragging the handle to left or right

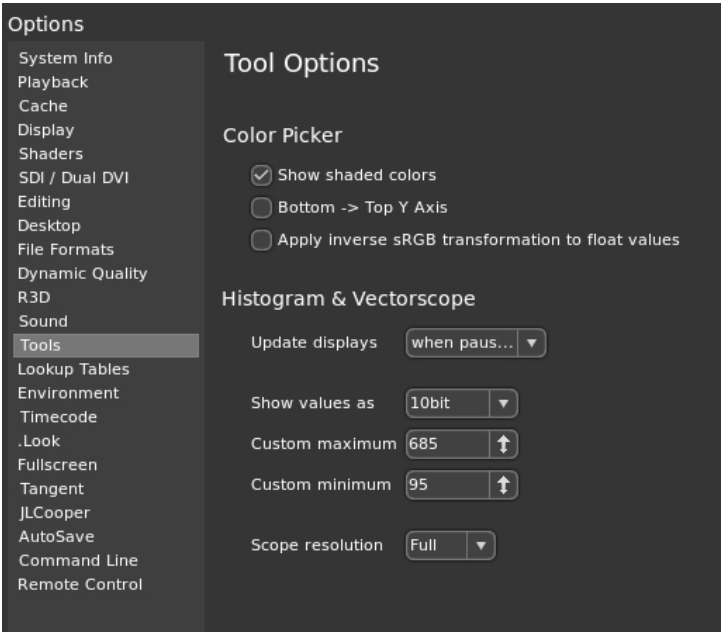
Histogram
Press < H >
Resize by dragging the handle to left or right

Tip: You can adjust the ranges for the scopes, limit warnings and the way the scopes get updated during playback in the Settings. Press < S > and select Tools to make changes.

Tip: You can detach the scopes from the FrameCycler DDS Panel by clicking on the undock button. This can be done for each scope separately. Click on the docking icon to bring it back to the FrameCycler DDS Panel.

Adjusting FrameCycler DDS's Scope Presets

You can adjust the ranges for the scopes, limit warnings and the way the scopes get updated during playback in the Settings. Press < S > and select Tools to make changes.

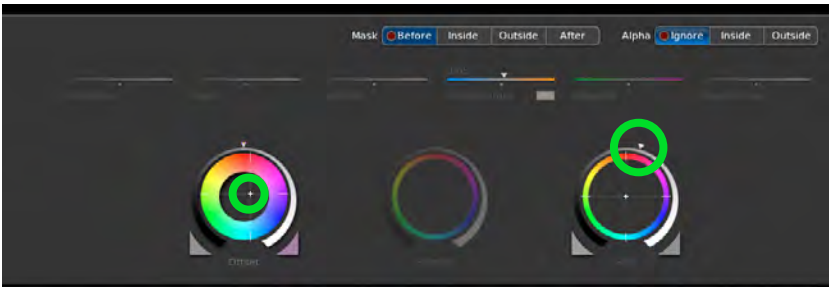


Primary Grading

The Grading Panel

The Grading Panel offers tools for primary and secondary grading. You can combine both with a mask (see next chapter on how to apply masks). Additionally you can select from custom effects which include simulations for chemical processes as well as numeruous tools to help the creative part of the grading process (see "The FrameCycler DDS Panel: Custom").

Grading Panel Basics



Axis point
Adjust values here

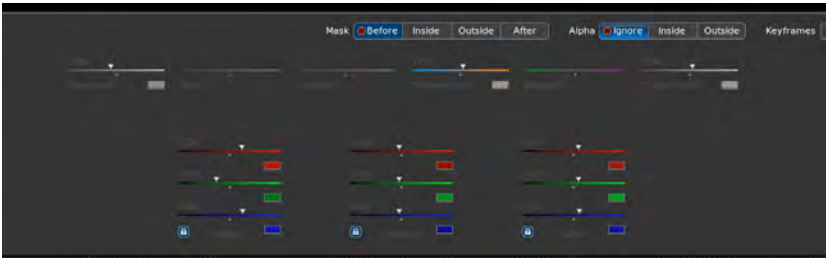
Master dial
Adjust ganged values for this color wheel

Grading icon indicates that grading has been done on this track

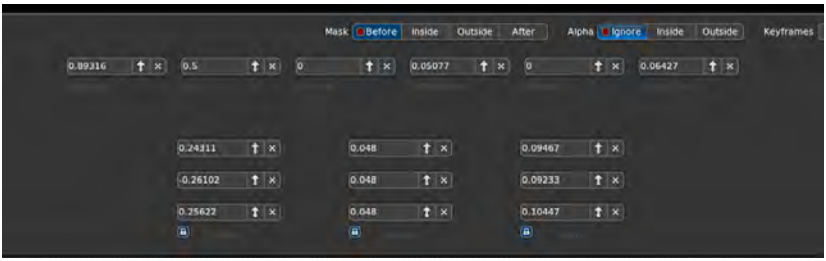
Alternating Grading Selector Modes

You can switch the main color controls between **color wheel**, **slider**, and **numerical value** controls. To switch modes push < SHIFT > + < ENTER >.

Wheels



Sliders



Numerical values

Reset Buttons

The two buttons below color wheels allow for performing a reset to default.
Reset buttons in the main grading interface will only become visible once the selector is no longer on default values.

The same rule applies to all sliders - once you perform an operation, a reset button will become visible.

The Tangent CP200 series offers a button next to each selector. Hold down a button to reset a vlaue.

Recalling Grades

FrameCycler DDS gives you quick access to the grading setups of adjacent clips. You can recally the grading settings of up to 9 clips before or after the current clip.

To recall the last 9 grading settings in order of appearance on the Timeline, use the following keys on the Tangent CP200 TS:

[1] Previous
[2] 2 Before
...
[9] 9 Before

[ALT + 1] Next
[ALT + 2] 2 Ahead
...
[ALT + 9] 9 Ahead

Note: using the recall feature doesn't link the grades. You can continue to make changes at the current position without risking to make unwanted changes to previous or next grades.

Matrix & LUT Panel

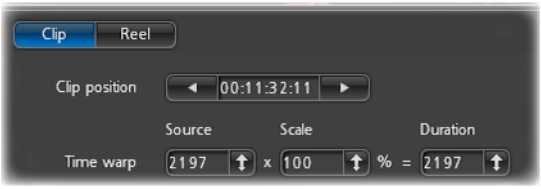
This section is used to apply data that's required to accurately reproduce color when working with RAW image data from the ARRI D21, ARRI Alexa, Phantom HD / 65, Silicon Imaging SI2K. You'll find the .Look files for cameras under settings/looks/

.Looks for ARRI D21: FrameCycler DDS can reproduce camera matrix data and exposure LUT. Choose the .Look according to your original exposure.

The Properties Panel

The Properties Panel shows clip based info such as clip position on the timeline, time warp and display options to mirror the picture or reverse the clip. If the timeline is based on an EDL the properties panel will show info based on the EDL.

Clip position
Click on left or right button to change the clip position on the timeline



Length of the source clip

Scaling factor in %

Duration of the clip after scaling

Timecode for current clip based on source reel

Reverse playback for current clip

Mirror current clip Horizontally

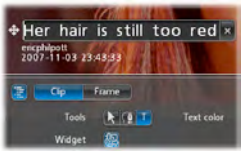
Mirror current clip Vertically

The Annotations Panel

Use **Annotations** to save and exchange notes and drawings. Annotations are saved in the XML session script (.ircp). When the next user opens the script the annotations appear for review.

Adding Notes

Select the text tool and click on the image. Type notes into the text box. Color or size of type can be changed. Click elsewhere to close text box.
Click on the text again to edit or move note to another part of the image.
If you want this to appear on a single frame only instead of the full clip select "Frame" before making an annotation.



Removing Notes

To remove notes click on the delete sign (x) at the right of the text box. To delete drawings, select the line and click on the delete sign (x) next to text tool button

Working with .Look Files

.Look Files

FrameCycler DDS saves color grading information as .Look files. These files are only a few kilobytes so they can easily be exchanged with others, such as the cinematographer, the director, VFX supervisors etc.
You can apply .Looks created by the cinematographer with FrameCycler DDS OnSet or create your own by saving a grade as a grading preset.
.Look files can be applied and viewed in all current versions of FrameCycler DDS and FrameCycler. They can also be used with MetaRender to apply preliminary looks to offline editing files.

Creating a .Look

To create a .Look file, click on the **Grading preset** at the top right corner of every grading panel. Alternatively press < CTRL + P > on your keyboard or push MARK on the CP200 TS.
The .Look will appear in the Look browser, represented by a thumbnail of the image that was used to create the .Look. If the .Look browser was not open yet FrameCycler DDS will automatically open it upon saving a look.

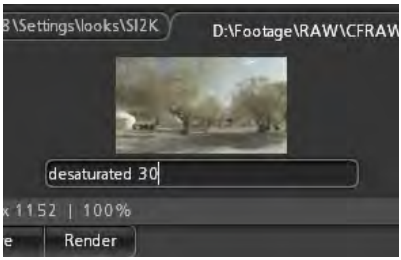
Save grading preset

Applying a .Look

1. Select a clip or grading track
2. Open the **Look browser** by clicking on the Looks button or push MEM on the CP200 TS
3. Navigate from the browser tab to the folder containing the .Look(s) you want to use. Use the arrow keys to navigate or FORWARD / BACKWARDS on the CP200 TS.
4. click on a .Look, and press < ENTER > to apply the .Look or push STOP on the CP200 TS. Alternatively drag the .Look onto the timeline. It will appear as a grading clip, so you can resize and reposition it as required.

Naming .Look Files

Click on the current name (which will be "Unnamed" if the .Look is new). Type in the name and press **< ENTER >**.



Deleting .Look Files

Mouse over the .Look. The delete icon appears on the right of the thumbnail. Click on the delete icon and then confirm the deletion (or press **< ENTER >**).

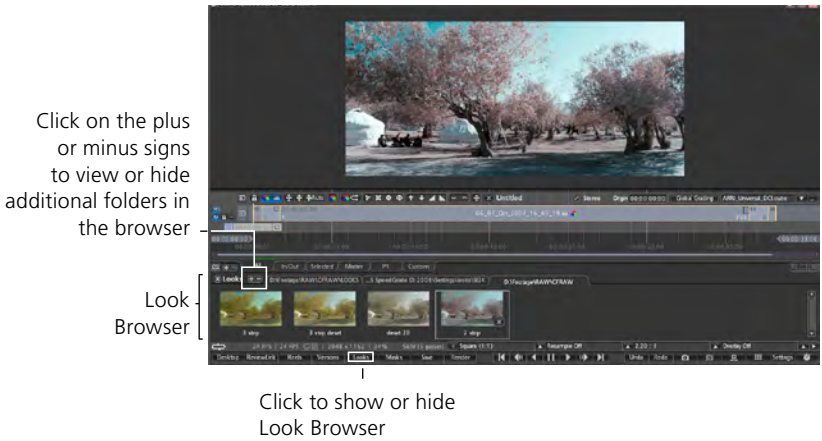
Sharing .Look Files

- Look files can be shared over a **network** with access to common storage.
- Carry .Look files on a **USB key**.
- You can **email** .Look files as attachments
- With **ReviewLink**, .Looks can be applied live on connected machines around the world.

The .Look Browser

The .Look Browser can be used to organize .Look presets for grading. The default location for the first tab in the look browser is ../FrameCycler DDS/Settings/Looks. You can copy .Looks already generated with applications such as FrameCycler DDS OnSet into this folder, they will show up next time you open the .Look Browser

To open and close the .Look Browser click on Looks button.
On the CP200 TS, use [MEM] to open the .Look Browser, [ALT] + [MEM] to close it.



The LUT saved with every .Look file

The IRIDAS .Look format includes the full set of parameters required to reproduce the grading settings at any other position along the same project or a different project (or even on a different workstation).
Therefore an additional LUT is not required to communicate .Looks as long as you're using IRIDAS products.

3rd party products such Digital Fusion by Eyon or the Cinemage by Cine-tal require a LUT to be able to interpret the values you designed with your .Look. Therefore each .Look includes an additional LUT inside the same file. This eliminates the need to export to other formats.

The LUT size
In order to keep the .Look files as small as possible the 3D LUT inside the .Look has a size of 8x8x8. This is usually precise enough for all primary color changes. If you need a more detailed LUT you can change the size of the LUT that gets stored with every new .Look. To change it to 16x16x16 or 32x32x32 or 64x64x64 open the Settings in FrameCycler DDS, select .Look to the left, select the size you want to apply from the pull-down.

Tip: If you don't intend to work with 3rd party products don't change the default LUT size. Increasing the size to 64x64x64 will result in a .Look file in the range of 6MB, whereas a typcial .Look file with 8x8x8 LUT (default) is only few hundred KB.

Related Links:

CIne-tal Cinemage Support
http://doc.iridas.com/index.php/Cine-tal_Live_Integration

Updating existing LUTs within a .Look file with new LUT size:
http://doc.iridas.com/index.php/LUTranslator

Complex Timelines and Advanced Viewing Features

Managing Complex Timelines

To keep an overview of a very long or complex timeline, FrameCycler DDS offers a variety of timeline views.
In addition, you can collapse (and expand) timeline tracks manually or automatically when you want to focus on specific clips.
Press **< Tab >** to hide and show the timeline.

Timeline View Tabs

All View
shows the entire timeline. If you have many clips they will appear compressed together.

In/Out shows the section of the timeline between the in- and outpoints.

Selected displays the currently selected clip. A selected clip is highlighted with yellow outlines. If you're in this mode the playhead will move along one clip and keep the full length of the clip visible. As soon as the playhead hits the next clip the view will change and show the new clip in its entire length.

Master places the playhead in the center of the screen. During playback, the timeline rolls past the playhead which remains fixed in position. With multiple playheads, you can click on the **P1** or **P2** for the same effect.

Custom allows you to determine which part of the timeline you display. This mode works independently from playhead positions. Click the "+" button next to "All" to generate additional custom views. You can change the area of interest with the timeline zoom features.

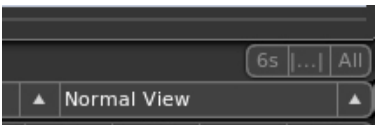
Timeline Zoom

In Master, P- and in Custom view modes you can zoom in and out by holding < CTRL > and scrolling the mouse wheel while your mouse pointer is over the timeline.

To speed up the zoom process hold down < CTRL> + < SHIFT > and scroll the mouse wheel.

In custom mode you can additionaly shift the entire timeline display to the left or the right, just hold down left mouse over any part of the timeline display underneath the clips and move to the left or to the right.

You can also use a standard zoom to 6 seconds on the timeline by clicking on the 6s icon. The icon next to 6s will zoom according to in and out points, ALL zooms to show all elements on the timeline.

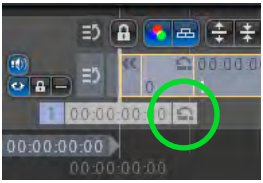


Working with Multiple Playheads

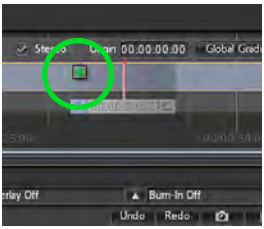
FrameCycler DDS supports up to 9 playheads. You can use multiple playheads to create A/B and splitscreen scenarios, to compare the beginning of a shot with its end, to compare multiple versions of the same shot or to compare different episodes. Please refer to the Screen Layout chapter for details about arranging playheads manually in the

Creating additional Playheads

Creating additional playheads is a simple drag and drop operation. Click on the handle area of the master playhead (the area to the right of the "1" marked in blue).



Hold down CTRL and move away from the current position. You'll see a semi-transparent copy of the playhead, above it a green "+" sign. Drop the playhead at any position along the timeline where you want it. At the release position there's now a second playhead. If the screen layout is on "Automatic Layout" a second image will show in the Viewport.



Tip: to see both pictures completely use < CTRL > + < HOME >, to see them pixel accurate use < CTRL > + < SHIFT > + < HOME >.

If you want to create additional playheads you can drag and drop again from the first playhead or from the newly created 2nd playhead.

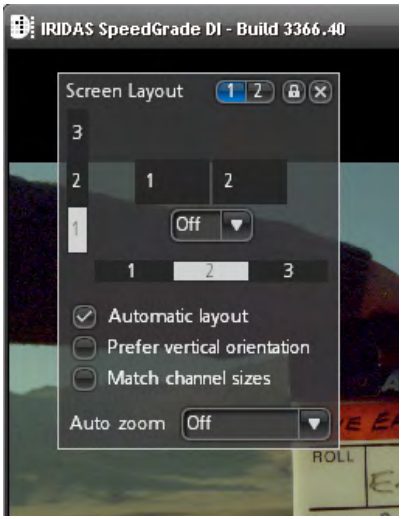
To delete additional playheads simply drag and drop them into the viewport. Click on a playhead's handle icon to start the process. Note that you can't delete the master playhead (marked blue).

The Screen Layout

To open the Screen Layout window click on the button with the 9 squares right next to "Settings" (button section bottom right). The default settings will show "Automatic Layout" turned on.

Automatic Layout will allow you to:

- Add Playheads and automatically display them
- Remove playheads and automatically reflect the change in the screen layout

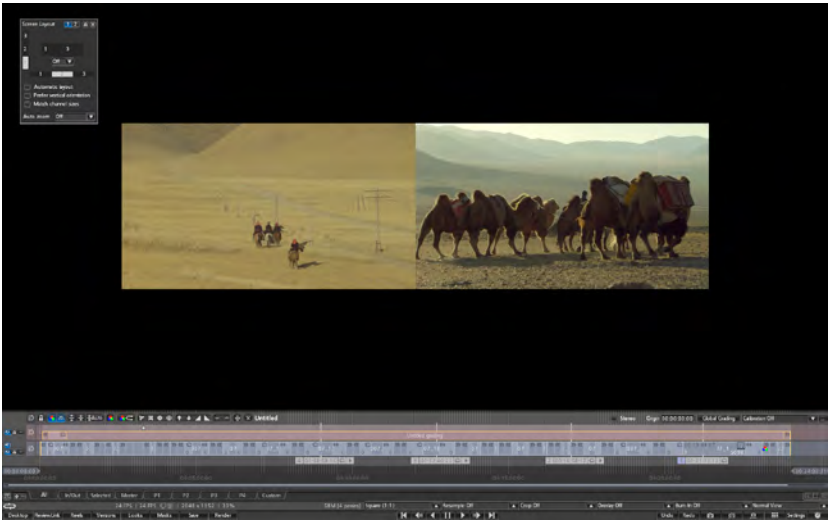


While in automatic layout you can additionally turn on "Prefer vertical orientation". This will add images for every additional playhead in vertical orientation.

You can also turn on "Auto Zoom". This will automatically upscale all images along the timeline to the highest resolution placed on the timeline in either horizontal or vertical resolution (select "keep width" or "keep height" from the pull-down).

Note: all settings you make in the Screen Layout will not effect your render output settings.

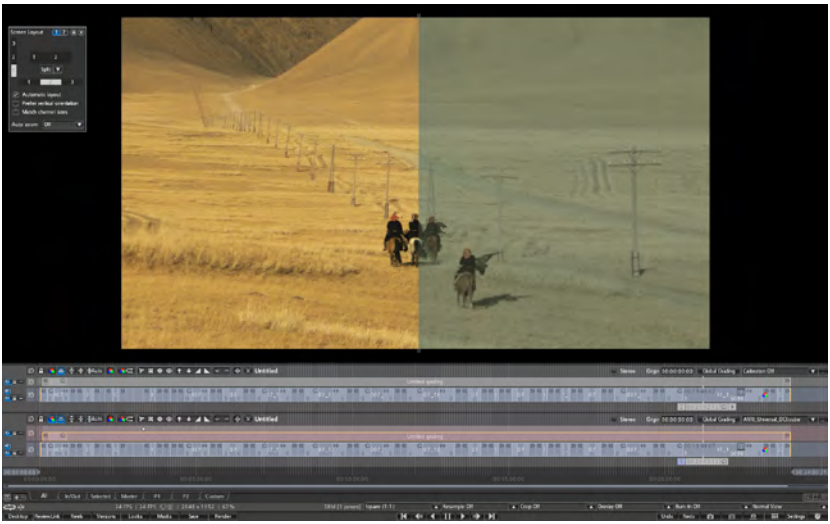
Automatic Screen Layout: the operator has placed 4 playheads along the timeline. All 4 are the same size and can get displayed at once. Use < CTRL > and scroll the mouse wheel to zoom in and out. Hold down the mouse wheel on the pictures within the Viewport to pan around.



Manual Screen Layout: the operator has placed 4 playheads along the timeline. Only 2 playheads are selected for display, this can be changed with the 1-3 buttons for vertical and horizontal arrangement, in this scenario one row with 2 pictures. If you select 2 playheads the pull-down box for enabling splitscreen view becomes available.

Working with A/B and Splitscreen Views

Whenever you select 2 playheads you can choose between 3 view modes:
A or B: Select 1 and 1 in the screen layout. Use the pull-down for playhead numbers to select the playhead you'd like to display.
A/B side by side: Select 1 and 2 in the screen layout. This will display both playheads side by side. You can place them top to bottom by selecting 2 and 1. Alternatively push < F10 > to change the orientation.
Splitscreen: to go from A/B to splitscreen select "split" from the pull-down or press < F9 >
To change the orientation of the split press < F10 >
To move the split position hold down < CTRL > over the viewport and move the mouse.



Splitscreen Layout: the operator has opened 2 timelines. Timeline 1 (with playhead 1) shows a calibrated and corrected image, timeline 2 a copy of timeline 1 without correction and calibration. Playhead 1 is the left half of the split. To show just the corrected picture instead of the splitscreen press < F9 >.

Working with alternating Screen Layouts

The Screen Layout allows for setting up two alternate layouts. You can use this to create a general purpose layout that will work for all standard viewing purposes and a second layout with either an advanced setup or a setup you alter whenever you need viewing options aside from "Automatic Layout".
By default layout 1 is active. To change to layout 2 click on "2". The button will turn blue. Changes you make in layout 2 will not affect layout 1, you can interactively switch between them.

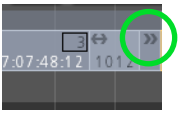
Editing Features

Editing Features

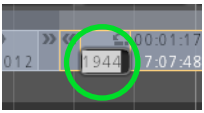
Split clips

You can split the clip currently selected at the position of the master playhead. Move the playhead to the position where you'd like to split the clip, then press <CTRL + ALT + S> to split it.
If you have a complex setup of video and grading tracks, you can split them all at the same position at once by using <SHIFT + CTRL + ALT + S>

Trim clips



If you prefer to trim using your mouse, just work with the double arrow areas at the very beginning and end of each clip. It's easiest to accomplish this when the timeline is zoomed to show the current clip in detail, use either the timeline zoom in master view or simply use the "selected" view.



If you prefer to work with numerical input, just double click on in or out point of the current clip and change the offset with your keyboard. Press enter to commit the change.

Ripple all / remove gaps

If you trim a clip and want to remove the gap it creates between the current and all following clips, just drag the next clip (hold your mouse down over the center part of the clip) and move it until the gap is closed. FrameCycler DDS indicates that it ripples clips by showing a thick red line between the clip you drag forward and the next clip on the timeline.

Stereo 3D Workflow with DualStream NX

DualStream NX

The 5th generation of IRIDAS DualStream support for working with Stereo 3D material includes support for virtually every display technology available today. A list of the most common technologies and the required changes in your FrameCycler DDS setup starts this section about using DualStream.

To take advantage of FrameCycler DDS's capability to automatically load left and right eye footage be sure to adopt one of the file naming conventions listed in the section after the display setup scenario.

Finally the fun part: learn more about the 3D adjustment features in the last section on using DualStream NX.

Stereo 3D Setup Scenarios

FrameCycler DDS can be used on either a single screen with both 3D image and UI on one display, or as a dual monitor setup. A basic dual monitor setup uses two monitors connected via 2 DVI outputs, the advanced dual monitor setup utilises the NVIDIA Quadro SDI technology to allow for real time 10 bit output over 2x Single Link SDI. The NVIDIA Quadro SDI setup requires Windows 7 or a certified Linux build.

The best setup for FrameCycler DDS depends on the display technology for the 3D display.

Basic Setup: Single Screen, UI and S3D Image on one screen

Typical Setup for Dailies and workstations for assistants:
24" or 27" display for UI, 46" S3D display for footage

Selecting the correct output signal on DVI output

The settings for S3D displays can be selected in FrameCycler DDS's Display section. Open the Settings, choose Display, use the second pull-down to turn on the stereo display mode that works with your display tpye. On systems wihtout any specific stereo display technology use red/cyan to see both pictures in standard red/cyan composition.

Line-by-Line Systems

These Stereo 3D Displays are line-by-line systems (also called interlaced scanline stereo). Select "interlaced scanlines" in the stereo display mode selector under Settings/Display to enable Stereo 3D viewing on the JVC, Hyundai and Miracube 46", LG 42" and 55"

2x DVI stereo

A number of stereo display setups require 2 DVI outputs from the workstation. Each output carries one eye only. This applies to:

- Planar stereo screen (with passive glasses, linear polarization)
- Dual Projection (with passive glasses, linear or circular polarization - this setup can also be driven via Dual SDI)
- L/R side by side setups using 2 displays

Basic 2x DVI Setup: NVIDIA OpenGL Stereo
Requirements:
- Windows 7
- NVIDIA Quadro 5000 or 6000
- certified driver for OpenGL Stereo

This setup allows you to send left and right image to 2 separate DVI / DP outputs. The user interface will appear on the stereo output on both eyes. To enable OpenGL Stereo acces the NVIDIA control panel, set both displays to NVIDIA clone mode. Then change the following settings under “3D Performance Settings”:

- OpenGL Stereo: ON
- Tripple Buffering: ON

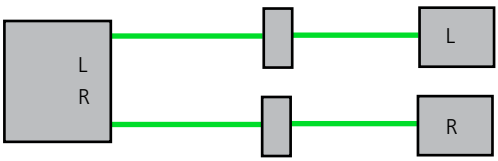
Restart the machine after making these changes. Then open the settings in FrameCycler DDS (push “S”), choose Display. Select “Shutter Glasses” from the stereo pull-down menu. Restart the application.

Advanced 2x DVI Setup: NVIDIA QuadroFX Dual SDI plus BlackMagic HDLink Pro

Requirements:
- Windows 7 or certified Linux
- NVIDIA Quadro 5000 or 6000
- 2x BlackMagic HDLink Pro

This setup allows for having discrete left and right channel output while preserving one screen for GUI only. This setup is recommended if the main purpose for the setup requires interactive work (such as adjusting the stereoscopy, stereo grading). To enable this setup follow these steps:

- Make sure the SDI output is not activated by another application and not used to mirror your desktop
- Connect the NVIDIA SDI with one BNC cable per channel to the HDLink Pros
- Connect each HDLink via DVI to your Planar display or your 2 projectors
- Open the settings in FrameCycler DDS, select SDI/Dual DVI, choose the correct resolution and refresh frequency. In the pull-down below, choose Dual 4:2.2.
- Click the "Enable" checkbox and restart the application.



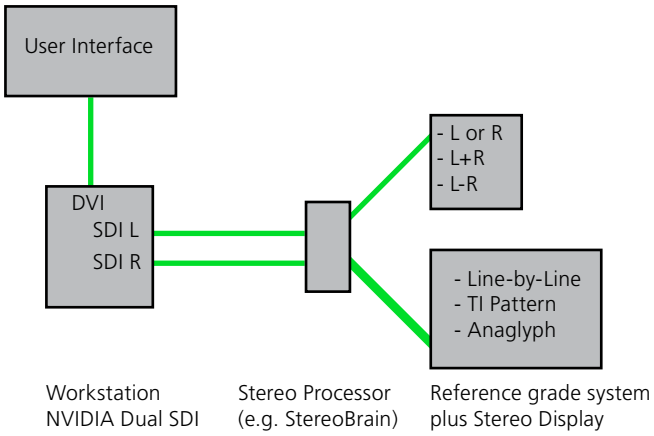
Workstation NVIDIA Dual SDI | HDLink Pro | 2 systems with DVI inputs or 1 with 2 DVI inputs

Dual SDI output (2x 422 over nVidia SDI)

This setup is designed to drive either 2 projectors with SDI inputs or to allow for a combination of a reference grade monitor with any other 3D display such as the JVC 46" or the 3D DLP systems.

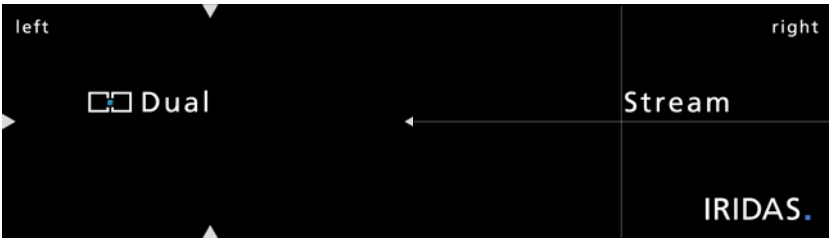
- Make sure the SDI output is not activated by another application and not used to mirror your desktop
- Connect the NVIDIA SDI with one BNC cable per channel to the projection system
- Open the settings in FrameCycler DDS, select SDI/Dual DVI, choose the correct resolution and refresh frequency. In the pull-down below, choose Dual 4:2.2.
- Click the "Enable" checkbox and restart the application.

To combine Dual SDI with systems such as the JVC 46" and the 3D DLPs you'll need a unit such as Inition's Stereobrain that can split the SDI signal as well as producing the various output modes for the other systems in parallel (over DVI / HDMI)



Testing your Stereo Setup

Before you start working on a new project it's recommended to run the test file you'll find in the stereo folder of your FrameCycler DDS installation. This file allows for avoiding inversed stereo settings on your display. To load the files, click the stereo checkbox on the timeline. Then open the desktop, find the folder stereo in your FrameCycler DDS installation. Load either left or right (FrameCycler DDS will automatically load both eyes). Hit <ALT + D> to put the images in side-by-side view. You should see both images for left and right side-by-side:



Hit <ALT + D> again to turn on the selected stereo mode and turn on your glasses. "left", "Dual" and the 4 arrows should only be visible to your left eye. "right", "Stream", the 4 lines and the IRIDAS logo should only appear on right eye. If this is inversed check the following:

- Active shutter glasses: some emitters have a switch to inverse stereo. Reverse the settings of the emitter.
- Active shutter glasses on Samsung and Mitsubishi displays with TI checkerboard: both the emitter as well as the display itself have switches to inverse stereo. Refer to the user manual, be sure both don't use inversed settings
- Passive systems (such as the JVC, Miracube and Hyundai 46"): These systems don't have a switch to inverse stereo. If the image seems to be inverted, it's easiest to swap eyes in the settings of FrameCycler DDS. Open the settings, choose Display, use the checkbox for "swap eyes".
- Dual SDI stereo: if the eyes are swapped you most likely need to swap the BNC cables. If you're using a device like the Stereobrain, check the settings for the processing unit.

Organizing Stereo 3D Footage

DualStream applications automatically find the corresponding footage for the other eye (stereo) or other channel (ARRI Mscope) when you drop a sequence into the timeline. In order for this to work, the sequences need to use either one of the following naming conventions in the same position in their fully qualified path:

- "left" and "right"
- "Left" and "Right"
- "LEFT" and "RIGHT"
- "_L" and "_R"
- "lf" and "rt"
- "LF" and "RT"
- "CamA" and "CamB"
- "LinkA" and "LinkB"
- "Link_A" and "Link_B"

The folder naming that includes the Link definition is usually used for Mscope only.

File Path Examples:

Scenario A: both left and right eye are on the same Volume:

- X:\Footage\left\Shot\Version\Test\frame#.dpx
  X:\Footage\right\Shot\Version\Test\frame#.dpx
- X:\Footage\left_eye\Shot\Version\Test\frame#.dpx
  X:\Footage\right_eye\Shot\Version\Test\frame#.dpx
- X:\Footage\left\Shot\Version\Test_L\frame#.dpx
  X:\Footage\right\Shot\Version\Test_R\frame#.dpx
- X:\Footage\left\Shot\Version\Test\left#.dpx
  X:\Footage\right\Shot\Version\right#.dpx

Scenario B: left and right eye are stored on 2 discrete Volumes:

Running OS X please ensure to use Volume Names LEFT and RIGHT. Running Windows please use R:\ and L:\ drive letters.

- L:\Footage\Shot\Version\Test\frame#.dpx
- R:\Footage\Shot\Version\Test\frame#.dpx

Note: Make sure you don't have any of the replacement wildcards as part of your regular filename, otherwise they will be replaced. These examples would not work:

- X:\Footage\left\Shot\Version\Test\Compositing_Shot_left_Lowres.#.dpx
- X:\Footage\right\Shot\Version\Test\Compositing_Shot_right_Lowres.#.dpx

(The _L in the left eye filename's _Lowres would be substituted with _R, and result in right right_Rowres.#.dpx which cannot be found)

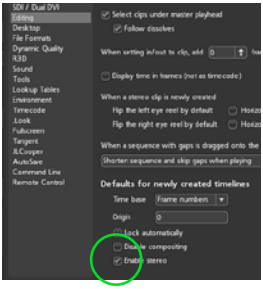
Tip: Customizing the Stereo Naming Convention

DualStream NX allows for changing the preset structure, excluding existing presets or adding new presets according to your pipeline standards.
The preset file is located in the settings folder of your FrameCycler DDS installation. It's called "StereoNaming.fcps", open it with a text editor like wordpad or textedit. Each line in the xml file represents one set of stereo pair naming conventions. Simply add a new line and add a tab between left and right to create an additional preset.

Working with Stereo 3D Footage

To work with a stereo timeline, enable the Stereo checkbox in the timeline.

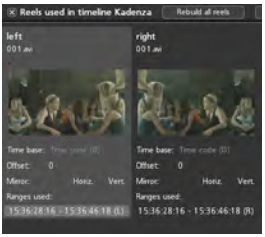
Now use the desktop to add a shot or multiple shots from either left or right eye branch to a new timeline. The corresponding other eye will automatically be loaded.



Note: If you mainly work in stereo, you can change the default for new timelines by checking the "Enable Stereo" checkbox in the Editing settings, then restart the application. Newly created timelines are now stereoscopic by default.

Verifying Stereo Pairs

To verify that both eyes are loaded, open the Reel Browser (CTRL + ALT + R or CP200 TS [More]+[Reels]) . Each shot that you add to the timeline should appear as left and right eye pair.



Opening the Stereo Panel

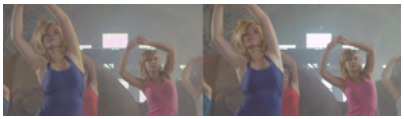
The Stereo Panel is a unique environment within FrameCycler DDS to modify reel parameters such as mirroring as well as clip based geometry adjustments, 0 parallax control and floating window. To get started be sure a footage clip is marked active on the timeline, then press <K> to open the FrameCycler DDS Panel. Switch to the Stereo Panel by either clicking on the button for Stereo Panel or push < SHIFT + S >.

Stereo Viewing Options

FrameCycler DDS offers a variation of stereo viewing options that can be used to analyze the stereo pairs. All options are visible at the top of the Stereo Panel. The active viewing option is highlighted in blue. You can switch to other options by clicking on its respective button or by using hotkeys.

Stereo View
By default FrameCycler DDS will show the Stereo View. This will use the stereo display method selected in the settings.
<ALT + S>

Left / Right View
If you want to show either left or right eye, click its respective button. You can use this feature to create a wiggle between left and right eye at any given speed by using the hotkeys:
<ALT + L> for left, <ALT + R> for right.



Side by side
If you want to show both pictures next to each other, use side by side. FrameCycler DDS will automatically scale to fit.
<ALT + D>

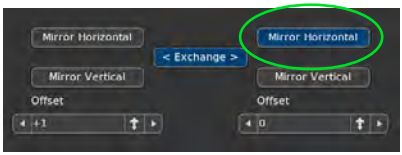
Tip: if you prefer **splitscreen** view between left and right, press <F9> to enter splitscreen mode. Press <F9> again to return to side by side.

Difference Matte
This view is helpful whenever you want to show / adjust differences in geometry or to identify and adjust 0 parallax.
<SHIFT + ALT>

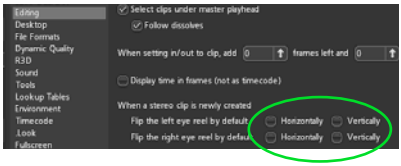
Reel Setup: Mirroring, Swapping, Temporal Adjustments

Mirroring

If the footage is recorded with a mirror rig, invert the horizontal or vertical mirroring with the checkboxes in the Stereo Panel under Reel Setup. All settings are non-destructive and can be altered at any time. There's no background rendering involved.



Tip: If the majority of your clips is flipped/flopped, you can change the defaults before adding them to the timeline. Open the Settings (press <S>), select Editing. Use the checkboxes for vertical or horizontal mirroring. All clips you add to a timeline after changing these presets will be loaded flipped/flopped according to your new settings. You can still make changes in the Stereo Panel after creating a timeline.



Swapping stereo pairs

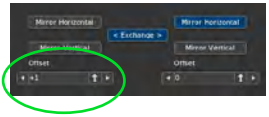
If one of your reels has swapped left and right eye, you can correct for this with the Exchange button.

Note: Make sure your display is set up correctly before swapping stereo pairs. The easiest way to verify this is to load the left/right clip available in stereo subdirectory of your program installation. If left/right are reversed, flip the eyes in the display setup as discussed in the previous chapter.

Adjusting Temporal Offsets

A temporal offset occurs when the recording of the two cameras results in a difference in time code / frame numbering.

It is easiest to make adjustments for temporal offsets while the stereo image is displayed side-by-side. Press <ALT+D> to toggle side-by-side and regular stereo view.



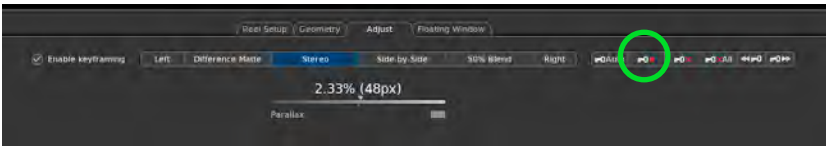
Play the shot you want to adjust. If there's a clapperboard at the beginning or end of the shot, play until you see the clapperboard closed in either left or right eye. If the clapperboard has a digital TC display, simply use a frame while the TC is visible and counting. Use frame step forward and backward (left and right arrow keys) to get this narrowed down. Identify how many frames offset exist between left and right eye. You can interactively change the offset on both eyes by clicking the frame step buttons in the Stereo Panel.

Tip: if there's no clapperboard present, find a frame with action that clearly lasts for one frame only.

Adjusting the Zero Parallax

The Adjust Tab in the Stereo Panel shows one slider only to effectively control the 0 parallax. Values are shown in percentage of resolution as well as pixels.

If you need to keyframe 0 parallax adjustments, simply activate keyframing with the checkbox next to the stereo view selection. Press the add keyframe button once to create a keyframe, press a second time on the same position to enable a dissolve between the current and the previous keyframe. The keyframes in the Adjust section work independently from the keyframes on the Geometry Tab.



Rendering

FrameCycler DDS Rendering

FrameCycler DDS includes an internal render engine which supports various frame sequence formats as well as movie file formats. Additionally every FrameCycler DDS package comes with one seat of IRIDAS MetaRender for background batch processing of your FrameCycler DDS projects.

Render Performance

Render performance depends on a number of factors, here are the most important things to consider when setting up the render pipeline:

Storage bandwidth

If you render from files with little demand for throughput (such as Silicon Imaging .SIV or RED .R3D), bandwidth for reading is usually not an issue. As a rule of thumb, if you can play the files in FrameCycler DDS real time it won't become a bottleneck for rendering.

If the file output is a compressed format (such as H.264 or Avid DNxHD or Apple® ProRes), bandwidth usually is not an issue. For rendering uncompressed data such as 2K or 4K DPX frame sequences, you should use a similar system for rendering as for reading (essentially a RAID system with enough throughput to handle the format, playback should at least deliver 24 fps to avoid a bottleneck on the storage solution).

CPU vs. GPU rendering

As opposed to live grading, rendering is not a real time process. A modern CPU delivers about the same speed as the GPU. The internal render engine is using the CPU for rendering exclusively. This allows for doing further work in FrameCycler DDS while you render.

Note that rendering on the same machine you use for grading reduces the overall performance of FrameCycler DDS. Working with file formats that need a lot of CPU processing (such as .R3D) require to do rendering either after grading or on another workstation using MetaRender. To scale render performance simply use a small render farm using several MetaRender Nodes.

Simple Rendering

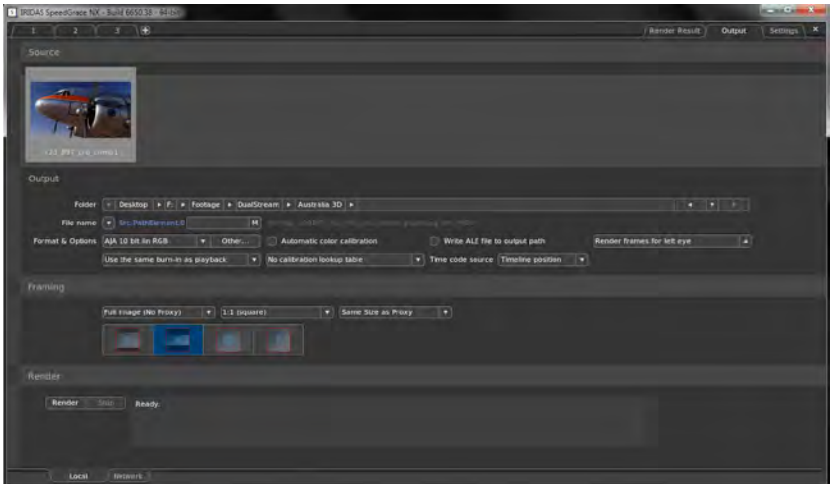
This section describes how to render an entire timeline or part of a timeline with the internal render engine.

1. Select the area of the timeline you want to render

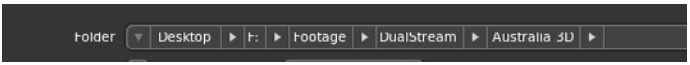
Set an in and out point along the timeline to define the area for rendering.

2. Open the render dialog

(click on the Render button in the user interface or press CTRL + R).



3. Select the output path



4. Select the file output name

If you want to create frame sequence output, padding will be added automatically. It is recommended to use an underscore after the actual frame sequence name. A preview of the resulting output name is displayed in 50% grey next to the field for entering the output name.

5. Select the file output format

FrameCycler DDS comes with output presets for the most popular frame sequence formats and some Quicktime formats FrameCycler DDS interprets internally (see also the chapter on supported file formats for playback and rendering). Select a format from the list or click on "Other" to see a list of available formats and output options.

6. Choose options for burn-in and calibration LUT

By default burn-in will show "use the same as playback", thus making this process wysiwyg. The calibration LUT is set to use no LUT since usually the calibration LUT shouldn't be part of the rendering process. If you require a LUT to be part of the output (e.g. for sending it to devices that can't handle LUTs), select the LUT that should be used for rendering.

7. Select frame number offset and TimeCode option (selected formats only)

If the output format is a frame sequence type format, you can select an offset for the padding for the sequence. Type the offset in frame numbers.

If the output format supports TimeCode as header information (this will always work for DPX, CIN, also for Quicktime if it is selected as an option for the respective Quicktime codec).

Rendering Files for Offline Editing

This section describes how to render for offline editing while preserving both original file naming as well as source time code.

Tip: the 2 most typical formats used in offline editing are DNxHD for Avid and ProRes for Final Cut Pro. Both are available as Quicktime codecs, you can get them free of charge from their respective manufacturer. See the chapter on file formats for further info.

Note: To access the Apple Quicktime system it is required to run FrameCycler DDS as a 32 bit application. If you're running a 64 bit OS, you can safely use a 32 bit version of FrameCycler DDS in parallel to a native 64 bit version.

1. Open the render dialog (click on the Render button in the user interface or press CTRL + R).

2. Select the output format, resample, crop and LUT settings as with any regular render job (see the section on Simple Rendering).

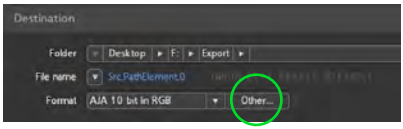
3. Select the Burn-in preset you'd like to use for metadata display on the render output.

4. Use the Metadata selector for file naming instead of typing a file name manually. Choose "Src.PathElement.0". This option splits the timeline into individual quicktime files for rendering, the output file name matches the source file name.

5. To preserve source time code, set "Time Code Source" to "source".

Example:
Rendering R3D files at 25 fps to DNxHD

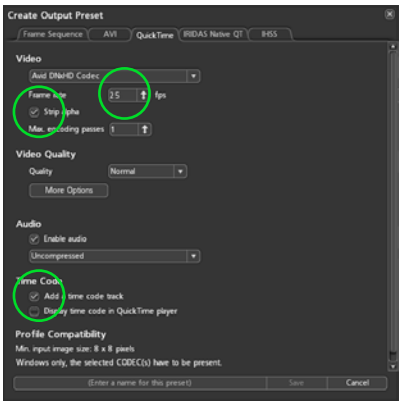
Open the render dialog, click on "Other" next to format.



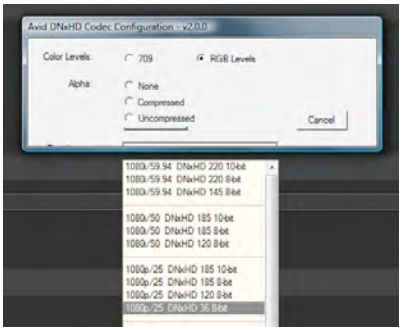
Click on "Quicktime". Select Avid DNxHD from the list. If this is not shown as output option, please make sure the Avid codecs are properly installed and that you're running a 32 bit version of FrameCycler DDS.

A window with details for the encoding profile comes up:
- Select 25 fps for Frame rate
- Check "strip Alpha"
- Check "Add a time code track"

Click "More Options"



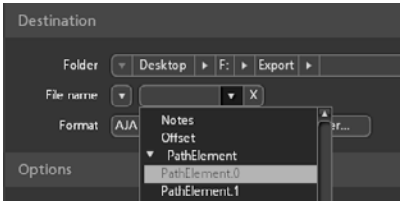
The Avid Codec Configuration comes up:
- Select RGB Levels to ensure fast import compatibility
- Click on the pull-down menu at the bottom (not entirely visible running codec versions v.1.9 and 2.0, click on the thin white space)
- Select 1080p/25 DNxHD 36 8-bit
- Press ENTER on the keyboard



Choose a name for the new output profile, in the example to the right DNxHD_36_25, then press Save to add this new profile to list of available profiles for rendering.

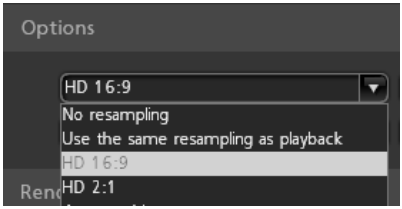
Tip: the new profile is now stored as preset file in the settings folder of FrameCycler DDS (check the subfolder called "output"). If you want to create a backup of this new preset or use it on another workstation or with another IRIDAS application, just copy it to the same folder on the other workstation / application.

Next Steps:
Make sure the file name entry is blank. Click on M at the end of the file name line. A menu comes up, it shows all MetaData criteria available for naming output files. Scroll down the list until you see PathElement. Click on the arrow in front of it, select PathElement.0 from the submenu.

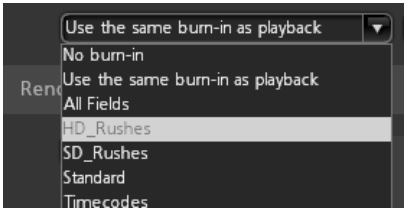


FrameCycler DDS will now show the selected MetaData criteria in blue. Next to it you'll see a preview of the output name for the file currently selected on the timeline. You can scrub along the timeline to see it change for different sections of your timeline.

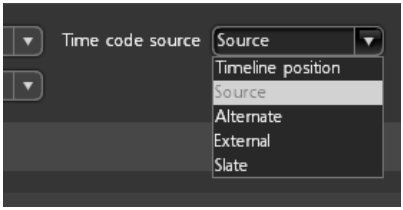
Select HD 16:9 or HD 2:1 depending on the aspect ratio of your source material. This will take care of downsampling all material to HD (based on the 2K layer in the .R3D files).



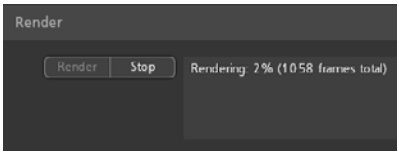
Select the Burn-in preset, in this example HD-Rushes (display of frame number, source file name, source time code). If you already had your favourite preset turned on while doing first light corrections, leave this option at "Use the same burn-in as playback".



Select "Source" as Time code source.



Press "Render" to start the render process.



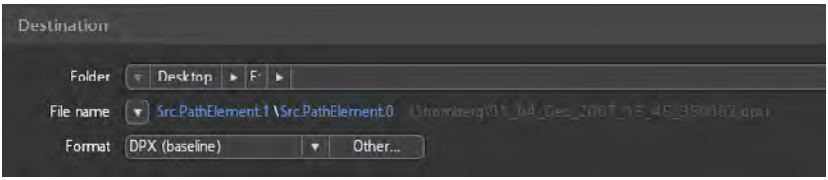
Creating folder structures based on meta data criteria

If you convert RAW files such as .R3D or .siv or .cine files to frame sequence formats such as DPX or CIN, it's usually desireable to create one folder per source file. This will help to avoid keeping a large number of files in just one folder. It is also required by a number of products to allow for auto-conform.

To create a folder per source file or source sequence on your timeline you only need to use the following structure in the naming of your render output:

Folder\Sequence

Example 1: Replicating the original folder structure
If your source files already exist in a defined folder structure you'd like to replicate when rendering with FrameCycler DDS, you can use the "Src.PathElement" placeholders. To replicate both the name of the source and the folder it's in, use these 2 placeholders with a backslash inbetween:



Step 1: Click on the "M" that appears when hovering over the Destination file name section
Choose SRC, then scroll down the list until you see PathElement. Open the sub-menu, choose Src.PathElement.1, then hit enter
Step 2: Add another section, just enter a backslash, hit enter
Step 3: Add a third section, choose from the "M" menu again, this time choose Src.PathElement.0, hit enter

The preview to the right will help you to control whether the chosen placeholders achieve the desired output structure. Placholder elements are always shown in blue, whereas the divider and manual output naming show up in white.

Tip: the navigation buttons on the Tangent panel are still active while you are setting up your render output structure. If you want to check your settings with other shots than the one currently selected on your timeline, simply check some sequences along the timeline by using the navigation buttons. The preview will update immediately.

Example 2: Replicating the original file name and add a folder per sequence
If your source files should be rendered with replicated file names but along with creating one folder per sequence that uses the same name as the sequence, you can use the "Src.PathElement.0" placeholders twice. The first entry creates a folder, the second creates the sequence name. Both refer to the last element in your file path which reflects the name of the source file.

Step 1: Click on the "M" that appears when hovering over the Destination file name section
Choose SRC, then scroll down the list until you see PathElement. Open the submenu, choose Src.PathElement.0, then hit enter
Step 2: Add another section, just enter a backslash, hit enter
Step 3: Add a third section, choose from the "M" menu again, this time choose Src.PathElement.0, hit enter

Bakcground Rendering with MetaRender Node

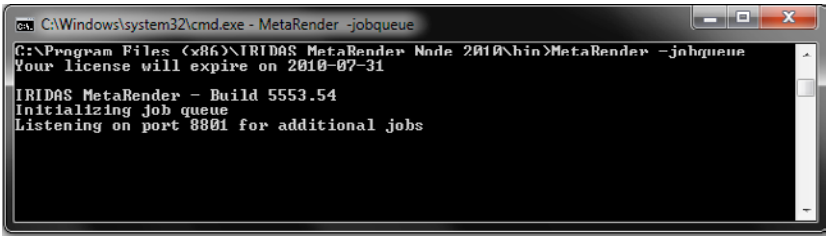
If you have a MetaRender Node installed on the same machine as FrameCycler DDS, you can immediately put it to work as background rendering engine. This enables batch rendering capabilities and gives you extended control over CPU use. It also adds a list control for queued jobs and failed jobs for managing your render pipeline.

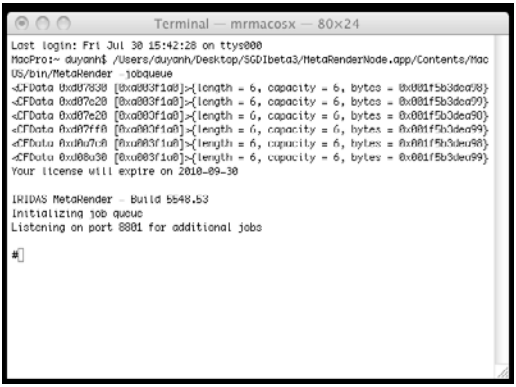
Enabling MetaRender Node as background rendering engine

Be sure to use a version of MetaRender that matches the build number of FrameCycler DDS. Install MetaRender and apply the license file. Then launch the application in job-queue mode:

Open a command prompt. Then navigate to MetaRender's bin subdirectory and type:

```
MetaRender -jobqueue
```

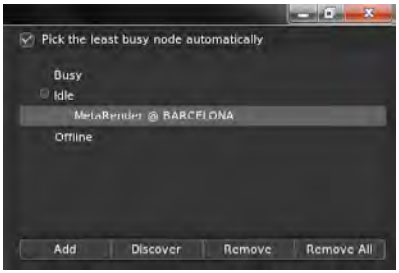




Selecting MetaRender Node in FrameCycler DDS for batch rendering

Once a MetaRender Node is running on your machine, you can simply switch to the network tab in the render menu:

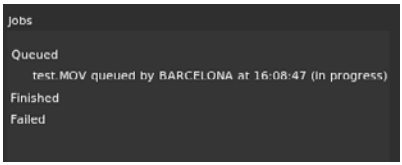
An additional menu for controling Meta-Render is now available to the right of the render menu. Simply click "Discover" to add MetaRender Node to the list of available render nodes. The new MetaRender Node will show up as "Idle"



As soon as you commit a render job to an idle node, it will change its state and show up under "Busy" until the job is finished.

Using the job control section

Once a job is sent to the render node, it will show up in the jobs section under "Queued". As soon as it's finished, it will be moved to "Finished". If for any reason the job can't be finished (e.g. storage for selected output destination went offline while attempting to write files), it will show up under "Failed". You can restart the job without loading the project files again. Simply choose to restart the job.



File Format Support

Universal RAW 5.0 Support

FrameCycler DDS supports the following digital film camera formats:

ARRIRAW Alexa v3 (*.ari*)	Fully certified ARRIRAW color science. Output LUTS for Rec709 EE and P3 incl.
ARRI D21 S.Two RAW (*.dpx*)	The ARRI D21 RAW files recorded on an S.Two Digital Film Recorder (.dpx file extension) are supported. To enable the ARRI .dpx RAW files open the settings dialog, select File Formats and toggle the checkbox for SMPTE DPX / ARRI D21 RAW.
Cineform (*.avi/.mov*)	
DALSA Origin 4K RAW (*.dpx*)	
Ikonoskop A-Cam	Supported via CinemaDNG
Phantom HD/4K (*.cine*)	For older Phantom RAW files with the .cin extension, enable the corresponding flag in the File Formats tab of your user settings.
REDCode RAW (*.R3D*)	FrameCycler DDS supports R3D via the RED SDK. Dynamic Qualities allow for adjusting playback paramaters such as resolution to achieve real time playback.
Silicon Imaging SI 2K/SI Mini (*Cineform RAW .avi/.mov*)	Includes matrix and .Look metadata support.
Silicon Imaging SI 2K/SI Mini (*Uncompressed .siv)*	Includes matrix and .Look metadata support.
Weisscam HS-1 RAW (*.wcr*)	Support for .wcr
Weisscam HS-2 RAW	Support for .wcr and a subset of the DM2 Digimag

Universal RAW 5.0 Setup

FrameCycler DDS uses the NVIDIA GPU for debayering on all formats but R3D (RED ONE).
R3D support is based on the RED SDK and requires a fast Dual Nehalem CPU setup or a RED rocket for one stream and two red rockets for DualStream playback. R3D support features Dynamic Qualities for adjusting playback performance according to your hardware setup and requirements for quality/speed (see the chapter on Dynamic Qualities and the chapter on Working with RED).

The recommended standard FrameCycler DDS setup based on the Quadro 5000 SDI establishes real time capabilities on all formats listed on the previous page. Please be sure that your disk system is capable of delivering the bandwidth required for the format you intend to use. This varies widely depending on the resolution and the compression of each RAW format. Here are 2 Examples for minimum and maximum bandwith:

Minimum bandwidth requirements: Cineform RAW 2K, 1:3.5 compression
The bayer pattern itself would require roughly 4 MB at 2K, with 1:3.5 compression each frame is less than 1.2 MB. At 24 fps, your disk system has to deliver roughly 28 MB/s. This is still within the specs of USB 2.0 and can be achieved with just one disk. Therefore a FrameCycler DDS workstation with local storage will always perform nicely on Cineform RAW at 2K.

Maximum bandwidth requirements: Phantom 65, 4K RAW
Phantom 4K RAW is uncompressed. Each frame is roughly 10 MB. The need for disk performance is very similar to 2K DPX frame sequences, you'll need to achieve at least 240 MB/s for real time playback of Phantom 4K files.

ARRI Alexa Support

FrameCycler DDS supports all formats recorded by the ARRI Alexa, including ARRIRAW and ProRes 4444. in 12 bit.

ARRIRAW format acquired with disk recorders writing .ari
ARRIRAW is debayered natively using ARRI's color science. All in-camera settings are applied automatically.

ProRes 4444 recorded with SxS cards
FrameCycler DDS reads ProRes files on both OS X and Windows 7. The files are decoded at original bit depth, maximum quality for all additional processing is ensured. Please be sure to use the latest certified Quicktime for OS X or Windows:
http://doc.iridas.com/index.php/Quicktime_Codecs

Output Transform LUTs
ARRI provides LUTs for the Alexa in various formats. IRIDAS has tested and certified the set of LUTs designed for use with Shake. You can download the LUTs from ARRI directly.

ARRI D21 Support

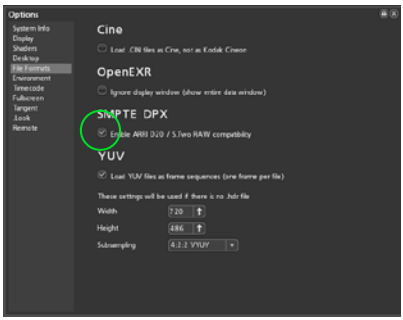
FrameCycler DDS supports all formats recorded by the ARRI D21, including ARRIRAW and M-Scope with LinkA and LinkB channel recombination.

RAW format acquired with disk recorders writing .ari

This format can be loaded onto a FrameCycler DDS timeline directly. It is 3K RAW, each frame is 9.1 MB (requires disk system with at least 220 MB/s for 24 fps playback)

RAW format acquired as .dpx RAW using S.TWO disk recorders

The RAW files recorded with S.TWO systems are using the DPX container to place RAW data into it. This format is a special use of the .dpx format and requires a change in the FrameCycler DDS settings. Open the Settings Panel, select File Formats, enable the checkbox for D21 DPX support. Note: you can't mix regular RGB DPX files with files recorded as ARRI RAW .dpx



Exposure and Matrix presets for .ari and .dpx RAW

FrameCycler DDS provides presets with Matrix and exposure settings designed by ARRI. These presets are in the default folder for Looks in the subfolder called D21. They are in .look format, you can apply them via the .look browser (see the chapter on working with .looks)

ARRI M Scope

This format utilises the 2 SDI outputs of the D21 to record anamorphic HD images. The data captured with tape or disk recorders is not RAW but 2 channels of RGB data, each containing half of the image resolution. FrameCycler DDS can recombine these 2 channels as part of its Dualstream capabilities. Note that bandwidth and other requirements are similar to stereo playback and grading, please read the chapter on working with stereo data for further information on hardware requirements.

To activate M Scope support in FrameCycler DDS open the settings, apply the following changes:

- Display: use the second pull-down to select M Scope as stereo mode.
- Editing: check the last checkbox on this page to activate stereo timelines as default for newly created timelines.

Delete the current timeline and make sure the stereo checkbox on the timeline is active before adding M Scope data to the timeline.

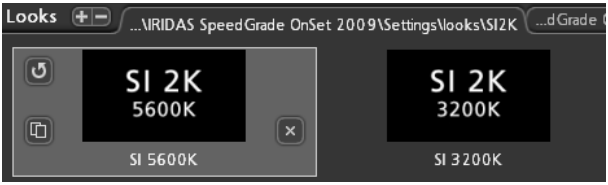
Silicon Imaging SI2K Support

FrameCycler DDS supports several formats recorded by the SI2K.

Cineform RAW HD/2K
This format can be used directly without loading additional software or adjusting settings parameters. The Cineform NeoPlayer is not required for working with these files in FrameCycler DDS OnSet.

SI2K .siv RAW
This new format available with the SI2K records uncompressed RAW files. FrameCycler DDS can directly open .siv files.

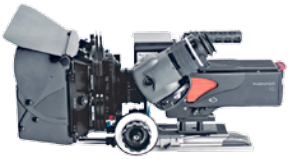
White Balance and Matrix presets for SI2K Cineform RAW
FrameCycler DDS OnSet provides presets with Matrix and White Balance settings for the Cineform RAW files designed by Silicon Imaging. These presets are in the default folder for Looks in a subfolder called SI2K. They are in .look format, you can apply them via the .Look browser (see the chapter on working with .Looks)



SI2K .siv RAW
This new format records uncompressed RAW files. FrameCycler DDS OnSet can directly open .siv files. White balance info is applied automatically.
.look files recorded with the camera are interpreted automatically if they are in the same directory as the shot itself. If you want to keep the white balance but set all grading settings to neutral, click “reset all” in the grading panel.

Phantom HD and Phantom 65 Support

FrameCycler DDS supports all formats by Phantom recorded as .cine. This includes the Phantom HD as well as the Phantom 65.



Phantom .cine RAW

This format can be used directly without loading additional software or adjusting settings parameter. Since it is uncompressed HD or 4K RAW, Phantom RAW real time playback requires a fast disk system.

White balance presets

FrameCycler DDS reads white balance info recorded with all current Phantom cameras (starting with firmware Ph 670).

Working with TimeCode derived from the Phantom time stamp feature

Both Phantom cameras are designed for high speed recording. Therefore there is no support for TimeCode. However, since recording 24 and 25 fps with the Phantom became popular, FrameCycler DDS supports TimeCode display for Phantom files that is based on TimeCode derived from the time stamp of the Phantom. This can be used when generating Dailies / doing EDL conform based on these dailies to generate online data.

Alternatively, FrameCycler DDS supports remastering of Phantom files with TimeCode defined by the timeline position (virtual lab reel).

RED Support (RED ONE / EPIC)

FrameCycler DDS supports files recorded with the RED ONE and RED Epic via the RED SDK. This is available for files recorded with camera software starting with build 16 and will continue to be updated as newer camera software becomes available.

RED ONE RedCode (.R3D)

All formats recorded as RedCode can be used.
This includes RedCode 28 and RedCode 36 in windowed (2K, 3K) as well as full sensor recording mode (4K / 4.5K with RED MX).

Real Time Capabilities

With Dynamic Quality, you can achieve real time playback at 1/8 or 1/4 resolution out of the full 4K with all certified workstations. In order to achieve 1/2 resolution real time playback of 4K files, a current CPU setup with Dual Nehalem processors is required, Windows 7 recommended. Certified Dual Nehalem systems are available from:

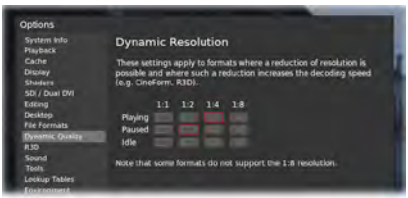
- HP Z800
- 1Beyond
- DVE

RED Rocket Support

FrameCycler DDS supports the use of multiple Red Rockets. IRIDAS recommends to use two Red Rockets for working with R3D Stereo 3D projects. This enables real time acces to stereo R3D data at 1/2 resolution. Please ensure that the latest rocket drivers and latest firmware is installed. FrameCycler DDS automatically detects Red Rockets. Open the R3D Tab under Settings to check that FrameCycler DDS is able to use the cards.

Dynamic Quality Settings

With Dynamic Quality, you can reduce the resolution during playback and load the full frame at pause. This enables a workflow using 4K R3D files where you can access half or quarter resolution proxies for real time playback, but see the full 4K frame



during paused image manipulation. Most of the work in color grading and quality control is done while playback is paused, so this is an essential workflow enhancement. As soon as you hit play, the image switches back to the lower proxy resolution, giving you instant moving feedback on your correction.

To access the controls for Dynamic Quality, open the settings panel (click on "settings" or press "S" on your keyboard). Click on "Dynamic Quality" on the settings panel. Then choose the resolution you'd like to use for display when playing in the first row, the resolution on paused playback in the second row. Additionally you can select a third resolution for the idle status of the machine. This will only update the picture to the selected resolution if you are not working with the application and no other processing is done on the workstation.

Working with R3D Settings

You can work with original settings based on each clip's metadata or replace all image adjustments with a global default. Both can be accessed via the settings panel. Open it by clicking on "Settings" or just press "S" on your keyboard. Then select "R3D".

For fast turnaround on dailies or to reproduce the settings seen while monitoring on set when using in-camera settings, it is recommended to set the application to work with settings stored in each clip. This is the default value.

When switching to manual settings, all files on your current timeline and all files you add to it will use the values you set on this page. This is recommended to achieve best quality and to ease shot matching when in-camera settings differ widely throughout production.

Note: You don't need to reload your timeline after adopting your settings, all the settings can be changed on the fly. You can also safely switch between the manual and the default setup, this won't change your files but only the way the get processed for display. The settings that are active when you commit a render job will define how the images are treated for rendering.

WEISSCAM Support

FrameCycler DDS supports files recorded with both HS1 and HS2 as .wcr RAW. FrameCycler DDS also supports a subset of the WEISSCAM DM2 Digimag formats in HD resolution.

WEISSCAM Raw(.wcr)
You can work with .wcr files directly, just select them from the desktop and place them on the timeline

WEISSCAM HS2 Digimag HD formats(.fhg*)
The following formats are supported with FrameCycler DDS:
- .fhgWR
- .fhgWD
- .fhgDI
- .fhgWC
- .fhgWE

Recommended Quicktime Formats

FrameCycler DDS can utilise the Quicktime System for Windows 7 and OS X.
Please note that there is no Quicktime 64 as of Q2 2011. If you're running Windows x64, you'll need to run a 32 bit version of FrameCycler DDS to be able to utilise the Quicktime System.

Codecs available to the system can usually be put to work with FrameCycler DDS. However, not all codecs are suitable for working real time and may introduce issues such as gamma shifts, therefore FrameCycler DDS supports the following Codecs internally. These are recommended for both playback and rendering.

- AJA Kona 10-bit Log RGB
- AJA Kona 10-bit RGB
- AJA Kona 10-bit YUV
- AJA Kona 8-bit YUV
- Apple Uncompressed 8-bit RGB
- BlackMagic 10-bit RGB
- BlackMagic 10-bit YUV
- BlackMagic 8-bit YUV

DNxHD and ProRes

To put DNxHD and ProRes to work, you'll need to install the Quicktime codecs provided by Avid and Apple. Please check our online documentation area to get latest recommendations on Quicktime versions and Codec updates:
http://doc.iridas.com/index.php/Quicktime_Codecs

FrameCycler DDS File Format Support

FrameCycler DDS supports the following industry standard file formats.

Format	Read	Write	Real Time Possible
Cineon (.cin)	Yes	Yes	Yes
DPX, DPX 2.0	Yes	Yes	Yes
Targa (.tga)	Yes	Yes	Uncompressed only
TIFF	Yes	Yes	8 and 10 bit uncompressed only
Pixarlog TIFF	Yes	No	precached
Floating Point TIFF	Yes	No	precached
Maya IFF	Yes	Yes	precached
Lightwave IFF	Yes	Yes	precached
Softimage PIC	Yes	Yes	precached
Wavefront RLA	Yes	Yes	precached
Windows Bitmap	Yes	Yes	Yes
Gif	Yes	No	precached
Jpeg	Yes	Yes	Yes
YUV	Yes	No	precached
OpenEXR	Yes	Yes	on OpenEXR cert. hardware

Calibration LUT Support

FrameCycler DDS supports the following industry standard file formats for calibrating your display:

Manufacturer	Product	Format	LUT Node Depth
ARRI	ARRI CMS	.cube	various
Filmlight	Truelight	.lut	16x16x16
Kodak	KDM	.3dl	various, only without encryption
Rising Sun Research	Cinespace	.cube	various

To add a calibration LUT to your FrameCycler DDS installation simply copy the LUT to the LUTs folder in your FrameCycler DDS folder on your local hard disk. It will show in the Calibration menu on the timeline after relaunching the application.

If you use a LUT applied in your display hardware, it is not neccessary to apply a LUT within FrameCycler DDS. In case you use multiple displays it is recommended to leave the calibration LUT section blank and use hardware calibration for each display instead. Cascading LUTs is not recommended in order to avoid decreasing bit depth.

Tip: Use LUTs with either 8x8x8 or 16x16x16 nodes
Calibration LUTs usually shouldn't apply radical transformations of your color space, therefore a smaller number of nodes are precise enough for accurate interpolation of the target color space. 16x16x16 is a good compromise between performance and accuracy if you apply it in software. FrameCycler DDS supports up to 256x256x256 nodes, but this would decrease grading performance on the system and wouldn't improve accuracy noticeably.

Related Link with further info on LUT formats:
http://doc.iridas.com/index.php/LUT_Formats

Customizing

Customizing FrameCycler DDS

Many aspects of FrameCycler DDS can be adapted to fit best into your workflow. This goes for the presets for Aspect Ratio, Crop, Resample and the Burn-in Overlays.
The presets that come with FrameCycler DDS are designed to serve a wide range of workflows, so there are usually 2 scenarios where it's useful to apply changes:
1) The presets include more options than you need to be covered, so you drill them down to a much shorter choice of options.
2) Your current project requires a specific option that is not covered by industry standards, so you add a new choice to the template.

All presets are done as simple, human readable text files. It is easy to make changes. Presets are stored in the settings folder of FrameCycler DDS.

Note: you need to restart FrameCycler DDS before any changes will get applied.
It is recommended to create backup files of preset files you intend to change.

You can open all preset files with simple text editing applications such as Wordpad (Windows) or Textedit (OS X).

Aspect Ratio: AspectRatio.fcps

What it does: if you are using a special pixel aspect ratio, for example for anamorphic frames, you can choose between two kind of presets in the pixel aspect ratio menu or add additional presets to the menu.

Changing the pixel aspect ratio is done in the display in real-time. Unlike resampling, this command does not require reloading the frames into RAM.

How to change it: to add custom aspect ratios to the menu open AspectRatio.fcps. This is how it looks in Wordpad or Textedit:

```
Anamorphic (stretch 2:1)      2:1
Anamorphic (squash 1:0.5)     1:0.5
```

To add a custom preset simply copy an existing entry and replace the part before the TAB with the display name for the menu you'd like to use, then replace the actual aspect ratio after the TAB with the aspect ratio you'd like to add. If you'd like to add 1.33:1, this would look like this example:

```
AVID 1.33 (1.33:1)  1.33:1
```

After adding a custom preset save and close the file. The new preset will be available next time you launch FrameCycler DDS.

Crop: Crop.fcps

What it does: The Crop Menu allows you to resize your frames by cropping away part of the image. This can be useful for removing black borders or to check how the sequence will appear on different display devices.

After cropping, the image width or height will always be less than (or max. equal to) the actual frame size. FrameCycler DDS will not accept larger values - this would be a job for a Pan & Scan track that also allows for scaling and repositioning.

How to change it: To customize the Crop Menu open Crop.fcps with a Text Editor. Crop.fcps is located in the Settings directory of FrameCycler DDS.

You can simplify the menu by taking out entries that are not relevant to your workflow or current project. A crop preset always includes the actual crop value and any number of Display Names. If one Display Name is sufficient you can make the Display for 2.35:1 much shorter. The Original preset is:

```
2.35 : 1
        CinemaScope 2.35 : 1
        UltraPanavision 2.35 : 1
        Panavision 2.35 : 1
        Technirama 2.35 : 1
        Todd-AO 2.35 : 1
        Super 35 2.35 : 1
```

The shortest version for this preset would be:

```
2.35 : 1
        CinemaScope 2.35 : 1
```

You can also use crop values based on pixel values, Crop.fcps already includes the following:

```
PAL Video W720 H576
NTSC Video W720 H486
720p W1280 H720
1080p W1920 H1080
```

To add an additional pixel value based crop format simply add one line to this list, put a Display Name first, press TAB, then put a value for W and for H.

A third method of defining crop values in Crop.fcps is using values in percentage or absolute pixels. This method allows to define values for left, top, right and bottom individually:

```
10% Border 10% 10% R10% B10%
20% Border 20% 20% R20% B20%
100 Pixel Border 100 100 R100 B100
```

If you'd like to crop 200 pixels from top and bottom, 140 from left and right, add this line to Crop.fcps:

```
200/140 Pixel Border 140 200 R140 B200
```

After adding a custom preset or changing the list of presets save and close the file. The updated list of presets will be available next time you launch FrameCycler DDS.

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Burn-in Menu: .burnin files

The preset files to create burn-in data are slightly more complex than any of the .fcps files. You can select the kind of data on display as well as its position and size on screen. To allow for simple management of such presets, burn-in presets are stored in a separate folder in the settings directory, each .burnin files shows up as one selection in the Burn-in Menu in FrameCycler DDS.

What it does: You can use Burn-In templates to add text and graphical elements to your frames at load time (and for rendering) . Placeholders are replaced with the current file name, time code etc.

Using the Standard Burn-In

If you choose "Standard" from the list, three elements will be superimposed on the footage displayed in the viewport:

- Current frame number
- Location on disk of current sequence
- Native Time Code of current frame (if this field doesn't exist in the header of the file format you're using there will be no display of Time Code information)

The location of all three elements is always absolute to the actual image size. If you want to be sure you see all burn-in elements, zoom to fit using < Ctrl + Home >

Using the All Fields Burn-In

The "All FIelds" Burn-In will display all data in the header of the file that is on display in the viewport. This view is usually used for quality control purposes but also gives the full represenation of Placeholders that can be used to create a custom Burn-In template.

Creating a Custom Burn-In

The easiest way to generate a customised Burn-In is to open the Standard Burn-In and change it according to your needs. The Standard Burn-In file is located in your FrameCycler DDS folder under settings/burn-in.

Open the file Standard.burnin with a Text Editor. Save the file under a different name inside the same folder and then start to make changes (please refer to the paragpraph below on how to change the file). Next time you launch your IRIDAS application the new template will show in the pull-down for Burn-Ins.

Elements of a .burnin file

If you'd like to use a different frame size as reference for placing the burn-in content you can make changes in the first section of the .burnin file:

```
<width>"2048"</width>
<height>"1556"</height>
```

For using the same file for full HD content please change this section to:

```
<width>"1920"</width>
<height>"1080"</height>
```

The next section includes the actual Parameters shown in the viewport. Every element is called a textnote. In Standard.burnin the first textnote is

```
<textnote>
        <text>"{Src.FrameNo}"</text>
        <textsize>"2"</textsize>
        <textcolor>"255,255,255,255"</textcolor>
        <backgroundcolor>"0,0,0,0"</backgroundcolor>
        <arrow>"0"</arrow>
        <position>"40,40"</position>
</textnote>
```

If you want to change the size you can select from presets 0 (small) to 2 (large) or enter pixel values. A much larger text than preset 2 can be created using the pixel value method, e.g.:

```
<textsize>"60px"</textsize>
```

To change the color from white to black change the text color to (all color values are listed in RGBA)

```
<textcolor>"0,0,0,0"</textcolor>
```

The background color is defined in RGBA as well, this example would give a solid black bar:

```
<backgroundcolor>”0,0,0,255”</backgroundcolor>
```

To change the position of a text note just use x,y values, this example would place the text note above the image:

```
<position>”40,-40”</position>
```

Adding a new Text Note

To add a new text note simply copy an existing text note in the standard.burnin and paste it after the last text note. Change the position next to make sure the new text note is not overlapping with any existing text note. Then replace the Placeholder with the new Placeholder you want to add. The full list of Placeholders for the file format you’d like to use is available in the All Fields view inside FrameCycler DDS, the item in front of the colon can be used as a Placeholder in a text note.

Here’s a list of typical Placeholders that would apply to formats such as DPX, CIN, TGA:

Src.FileFormat
Src.SequenceName
Src.SequencePath
Src.FrameNumber
Timeline.Position
Timeline.FrameRate

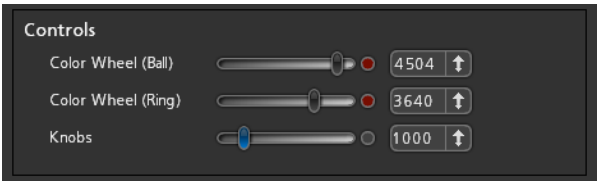
If you'd like to add a text note for Playhead Position this could look like this:

```
<textnote>
        <text>"{Timeline.Position}"</text>
        <textsize>"2"</textsize>
        <textcolor>"255,255,255,255"</textcolor>
        <backgroundcolor>"0,0,0,0"</backgroundcolor>
        <arrow>"0"</arrow>
        <position>"40,100"</position>
</textnote>
```

After adding or changing text note elements, save the .burnin file. The new template is ready to use and will show up in the pull-down for Burn-Ins next time you launch FrameCycler DDS.

Adapting the Sensitivity of the Tangent Controls

You can adjust the sensitivity of all color wheels for both Trackerball and Ring and also for all Knobs by changing the Tangent Settings (press < S>, select Tangent). Use the sliders to increase or decrease the sensitivity.

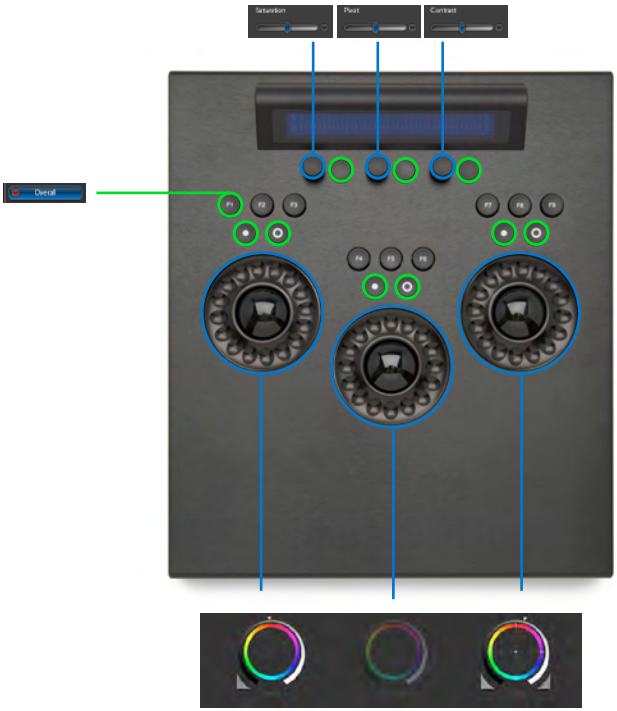


CP200 Features

Tangent CP200 Features

The CP200-BK and the TS offer control over a wide range of FrameCycler DDS features. Please refer to the following pages to learn about the workflow.

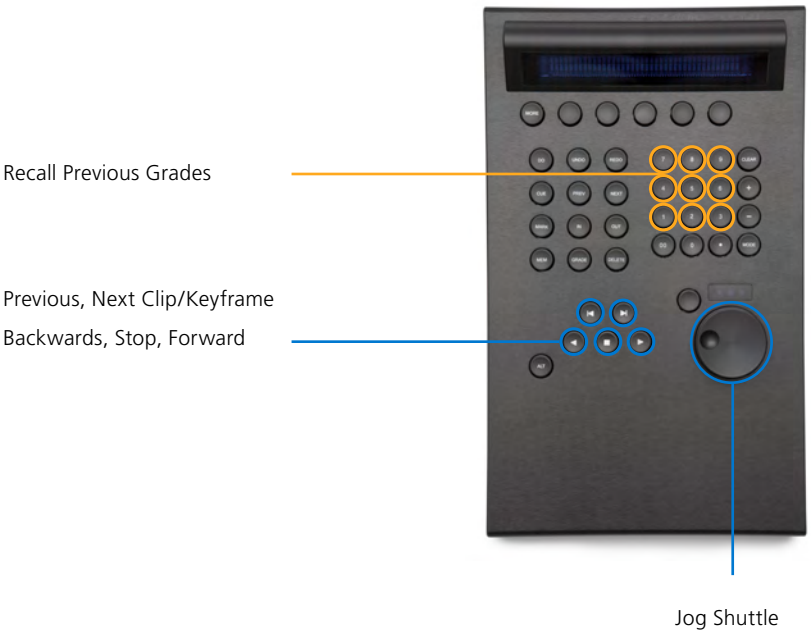
CP200-BK in Grading Mode



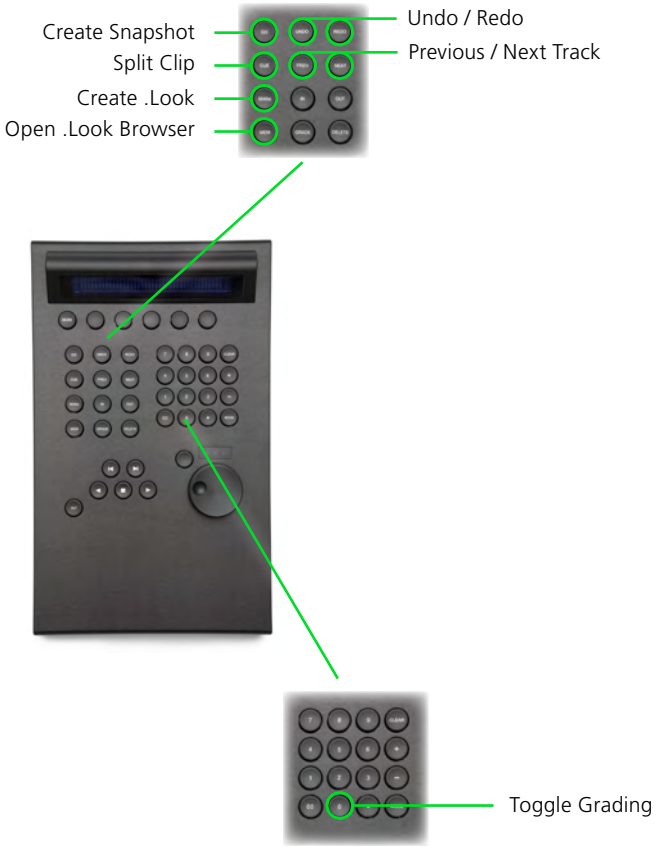
= Reset

Tip: If you use a CP200-TS as well, use [ALT] on the TS to switch the 3 knobs and reset buttons at the top of BK from Saturation, Pivot Contrast to Temperature, Magenta, Gain Hold down [ALT] to speed up 4x all operations performed on the BK on items marked blue.

CP200-TS in Standard Mode

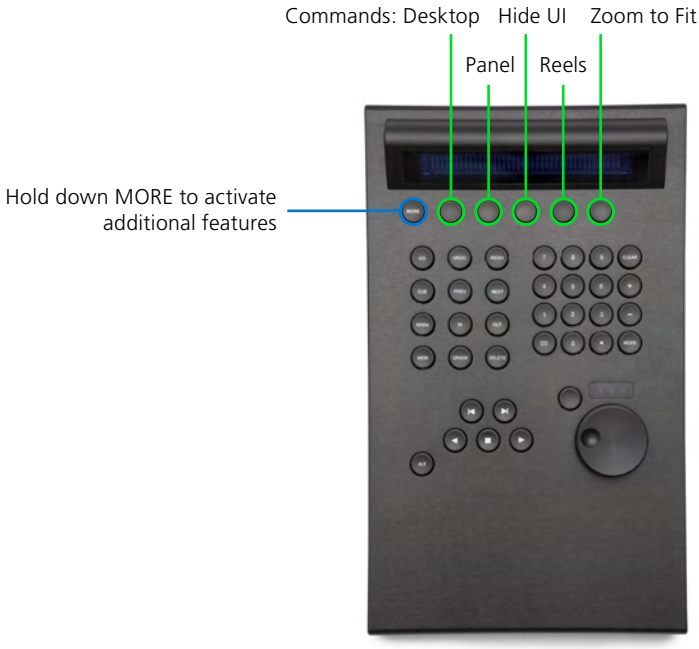


CP200-TS in Standard Mode (cont.)



CP200-TS in "ALT" Mode

If you hold down "MORE" the following buttons will activate these additional features:

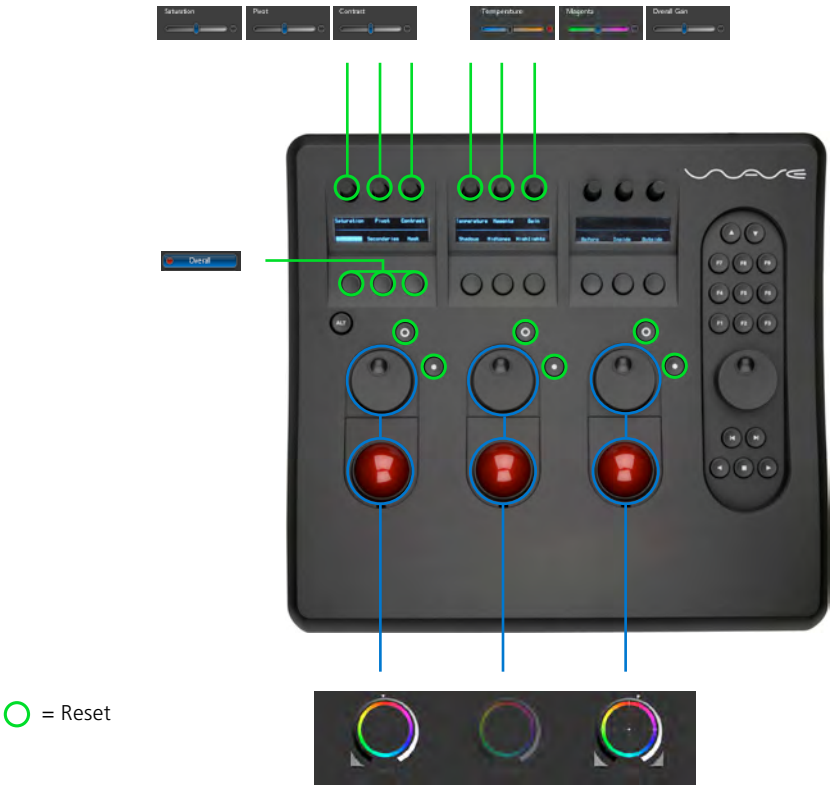


Tangent Wave Features

Tangent Wave Features

The Tangent Wave offers control over a wide range of FrameCycler DDS features. Please refer to the following pages to learn about the workflow.

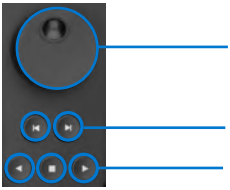
The Wave in Grading Mode



○ = Reset

Tip: If you'd like to speed up operations on the rotary encoders or the trackballs just hold down ALT. Once you release the ALT button speed is back to normal. To adjust the overall sensitivity of trackballs, rings and knobs, open the settings, select Tangent, scroll down to the Controls section. Increase or decrease the sensitivity as needed.

Playback Controls



Hotkey Overview

FrameCycler DDS Hotkeys

Application Hotkeys

Help	< F1 >	Displays hotkey shortcuts and functions
Settings	< S >	Shows or hides the settings window
Desktop	< D >	Shows and Hides the Desktop
Save Timeline	< CTRL+S >	Saves the current timeline and all its components.
Render	< CTRL+R >	Shows or hides the render window
Close	< ALT+F4 >	Closes application
Fullscreen	< ALT+Enter > or < F >	Switches fullscreen mode on or off.
Exit Fullscreen	< ESC >	Exits the fullscreen mode.
Metadata Display	< ALT+M >	Toggles the MetaData display
Toggle SDI Mouse Focus	< CTRL+Tab >	Toggles the mouse between main display and SDI display.
Toggle Lock Windows	< Scroll Lock >	Locks or unlocks the all windows in the application.
Reconnect Tangent Devices CP200	< ALT+F12 >	Reconnects all CP200 panels
Dual DVI Window	< SHIFT+CTRL+ALT+D >	Toggles the Dual DVI mode

.Look Browser	< P >	Activates the Browser for .Look presets
Reel Browser	< CTRL + ALT + R >	Shows or hides the Reel Browser
Timeline	< Tab >	Shows or hides all timelines.
Hide UI	< SHIFT + H >	SHows or hides all UI elements, centers footage on local viewport

Playback Hotkeys

Play/Pause	<Space>	Starts and stops playback
Reverse Playback	<SHIFT+Space>	Reverses playback direction
Step Back	<Cursor Left>	Steps back a single frame
Step Forward	<Cursor Right>	Advances a single frame

Decrease Playback FPS	<PgDn>	Decreases the frames per second value by 1fps
Increase Playback FPS	<PgUp>	Increases the frames per second value by 1fps
Next Playback FPS Step	<Numpad •>	Doubles frames per second
Prev Playback FPS Step	<Numpad />	Halves frames per second

Playback Mode	<F6>	Switches between single play, loop, and ping-pong playback modes
Toggle AutoMirror	<CTRL+M>	Sequence flipped when the end point reached
Mirror Horizontal	<M>	Mirror image horizontally
Mirror Vertical	<SHIFT+M>	Mirror image vertically.
Toggle Backward	< , > (Comma)	Toggles backward playback
Toggle Forward	< . > (Period)	Toggles forward playback

Clear memory	< SHIFT+CTRL+F5 >	Unloads all frames
Reload Changed Frames	< F5 >	Reloads all changed frames from disk.
Unload Frames Outside of In/Outs	< SHIFT+F5 >	Unloads all frames that are not in the current in/out area.

Pan and Zoom View Hotkeys

Pan Down	< SHIFT+Cursor Down >	Moves image down in viewing area.
Pan Up	< SHIFT+Cursor Up >	Moves image up in viewing area.
Pan Left	< SHIFT+Cursor Left >	Moves image left in viewing area.
Pan Right	< SHIFT+Cursor Right >	Moves image right in viewing area.
Reset Pan	< SHIFT+Home >	Centers image in the viewing area.
Toggle Match Channel Sizes	< ALT+Home >	Makes all channels the same size while preserving their aspect ratio.
Zoom In	< Numpad + >	Increases the zoom level.
Zoom Out	< Numpad - >	Decreases the zoom level.
Zoom to 100%	< SHIFT CTRL Home >	Adjusts the zoom level to 100%
Zoom to Fit	< CTRL+Home >	Adjusts the zoom level so the entire image fits on screen.
Show all Viewports	< SHIFT+CTRL+ALT+Home >	Ensures that all viewports fit within the current viewing area

Splitscreen View Hotkeys

Change Split	< F9 >	Changes the current split screen mode.
Change Split Orientation	< F10 >	Changes the orientation (vertical/ horizontal) of current split screen mode.
Flip Split Channels	< F11 >	Switches the channel positions in the current split.

Timeline and Navigation Hotkeys

Next Clip	< CTRL+ALT+Cursor Right >	Sets the master playhead to the beginning of the next clip.
Prev Clip	< CTRL+ALT+Cursor Left >	Sets the master playhead to the end of the previous clip.
Select Previous Clip	< SHIFT+CTRL+Cursor Left >	Selects the closest clip to the left of the selected clip.
Select Next Clip	< SHIFT+CTRL+Cursor Right >	Selects the closest clip to the right of the selected clip.

Isolate Current Clip	< CTRL + Spacebar >	Sets in/out points to current clip. Press again to restore previous in/out positions
Isolate Previous Clip	< CTRL + Left >	Sets in/out points to the previous clip
Isolate Next Clip	< CTRL + Right >	Sets in/out points to the next clip

Select Clip Below	< SHIFT+CTRL+Cursor Down >	Selects the closest clip below the selected clip.
Select Clip Above	< SHIFT+CTRL+Cursor Up >	Selects the closest clip above the selected clip.
Center Master Playhead	< CTRL+Numpad 0 >	Moves the master playhead to the center of the timeline.
Move Master Playhead to Selected Clip	< ALT+Numpad 0>	Sets the master playhead position to the start of the selected clip.
Lock Timelines	< SHIFT L >	Locks all timelines.
Unlock Timelines	< SHIFT+U >	Unlocks all timelines.

DualStrem NX Hotkeys

Right Eye	< *left* ALT+R >	Shows right eye only
Left Eye	< *left* ALT+L >	Shows left eye only
Show Stereo	< *left* ALT + S >	Shows stereo pair in selected stereo mode
Side by Side	< *left* ALT+D>	Shows left and right eye side by side on the viewport
Show Difference Matte	< CTRL+ALT+D >	Shows the difference matte of the stereo pair
Switch to Stereo Panel	< SHIFT+S >	Switches from any Grading Panel to the Stereo Panel

In/Out Point Hotkeys

Toggle In-Point	<SHIFT+I>	Sets or resets the inpoint at the current master playhead position.
Toggle Out-Point	<SHIFT+O>	Sets or resets the outpoint at the current master playhead position.
Go to In-Point	<I> or <Home>	Moves the master playhead to the current in-point.
Go to Out-Point	<O> or <End>	Moves the master playhead to the current out-point.
Reset In/Out Points	<SHIFT+CTRL+ALT+O>	Resets the in and out points to default positions.
Unload Frames Outside of In/Outs	< SHIFT+F5 >	Unloads all frames that are not in the current in/out area.

Editorial Hotkeys

Toggle Dissolve Direction	< SHIFT+D >	Toggles selected dissolve clip's direction (bottom to top / top to bottom).
Split Clips	< SHIFT+ALT+S >	Splits the currently active clip and all clips directly above it at the master playhead position.
Split Clip	< ALT+S >	Splits the currently active clip at the master playhead position.

Grading Hotkeys

Save Grading Preset	< CTRL+P >	Saves the selected grading and mask as a preset.
Commit Previewed Preset	< Enter >	Applies previewed preset to the timeline.
Reject Previewed Preset	< Backspace >	Rejects previewed preset and returns to the original state.
Change Color Selector Mode	< SHIFT+Enter >	Changes current color selector display mode
Reset Grading on Current Clip	< SHIFT+ALT+Delete >	Resets the grading on the current clip. Also removes masks and all custom layers.
Reset Grading on Current Panel	< ALT+Delete >	Resets the grading on the current panel only. Other panels won't be affected
Copy Grade from previous / next edits	< ALT+[Numpad]1 to 9 >	Copies the grading setup from the previous or next 1 to 9 edits to the current setup
Activate Copy Grade After	< ALT+[Numpad] + >	Copy Grade Feature set to copy from next edits
Activate Copy Grade Before	< ALT+[Numpad] - >	Copy Grade Feature set to copy from previous edits
Copy Grade from Clip below Mouse Position	< C >	Copies the grading setup from a grading or video clip under the mouse

Disable Grading	< [Numpad] 0 >	Hold down to turn off grading
Disable Grading on Current Panel	< [Numpad] , >	Hold down to turn off grading on current panel only

Analysis Tools Hotkeys

Toggle Histogram	< H >	Shows or hides the histogram
Toggle Waveform	< W >	Shows or hides the waveform
Toggel Vectorscope	< V >	Shows or hides the vectorscope
Toggle Zoom Overlay	< Z >	Shows or hides the zoom overlay window.
Toggle Zoom Overlay Follow Mouse	< SHIFT+Z >	Switches the follow mode on or off for the zoom overlay window.

Channel View Hotkeys

Lightness Channel	< L >	Shows the HLS lightness (L) channel of the image.
Show Alpha	< A >	Shows the alpha channel of an image.
Show Quick Alpha	< SHIFT+A >	Shows the alpha channel in quick alpha mode.
Show Quick Alpha (inverted)	< CTRL+A >	Shows the alpha channel in inverted quick alpha mode.
Red Channel	< R >	Shows the red channel of the image in grayscale.
Show Green Channel	< G >	Shows the green channel of the image in grayscale.
Show Blue Channel	< B >	Shows the blue channel of the image in grayscale.
Hide Red Channel	< SHIFT+R >	Hides the red channel of the image.
Hide Green Channel	< SHIFT+G >	Hides the green channel of the image.
Hide Blue Channel	< SHIFT + B >	Hides the blue channel of the image.

Alphabetical Index

Appendix A: Change Log

2011 Release (Build 2011.6656.52)

New Features

Fully compliant real time ARRI ALEXA ARRIRAW 3.0 color science support

New: Support for RED EPIC files

Automatic calibration of compressed format rendering (Quicktime etc.) to avoid gamma shifts

Universal RAW 5 algorithm siginificantly enhances RAW Bayer Interpolation

Proxy draft mode for accelerated RED and Cineform rendering

Crop/Resample/Aspect Ratio preview

Output framing controls for letterboxed etc. rendering

Increased 64 bit rendering speed by factor of 4

Improved general rendering speed

"Common" group in output filename control enables quicker access to common metadata fields

Automatic detection of RED stereo reels

Improved EDL conform capabilities to cover more scenarios

Manual assignment of stereo reels

Independent selection in the stereo match panel

Support for cross conform EDLs with footage shot at different speeds (24fps to 120fps timecode for example)

Three buttons in the grading panel give direct access to the color selector mode (SHIFT ENTER)

ReviewLink now searches for left/right naming conventions in stereo setups

Stereo mode changes are now communicated via ReviewLink

Color Selector Mode buttons in the grading interface

Framing interace for rendering completely redesigned

On/Off switches for Crop, Resample, Aspect, Burn-in and Overlay dropdowns for faster toggling.

CTRL + SHIFT + ENTER invokes the ReviewLink commit function

Changes

Disabled AutoComplete for UNC paths as they may take a long time to compute, blocking the input.

Enabled timecode reading from additional DPX subvariants

Timelines created from EDLs are now named after the EDL

When reels are replaced, they will keep their existing Reel ID

Added SDI time code offset

Updated tangent mapping with new sensitivity values

Updated CinemaDNG timecode support to the current and final spec

Default Dynamic Quality setting is now 16f/8

M hotkey will now invoke the metadata control. ALT M will mirror (mirror was too easily invoked in many scenarios).

When the timeline is empty, clicking the stereo check box will change the default mode for timelines

When detaching the scopes, the desktop will be hidden; when desktop is shown, the scopes will be hidden

Added new standard render sizes

Support for vertically flipped .cine files.

Bugfixes

In a very rare scenario, the 64 bit render output had vertical line artifacts in the highlights.

Some EDL properties got lost when connecting footage to placeholder reels

Negative scale values changed to positive value in a special scenario

You could move past max/min values for some grading parameters using the tangent panel.

Crash when hovering over reel browser in some scenarios

Extended ranges in some color controls were not accessible with the Tangent panels

Application stopped responding when path was set to "Home" in pop up browsers

Some render settings were not persistent across SpeedGrade sessions.

When the timeline name is too long, the render thumbnail clips it properly.

Under rare circumstances the frame loader loaded the wrong frame when pausing, resulting in a momentary change in image after paused.

Edit numbers did not work correctly

Stereo metadata is now read from both eyes

Base path for sequences created from sub trees were invalid

Disabled AVX CPU instruction support on operating systems that do not enable it

Crash when loading EDLs into empty timelines

fxDegrain used invalid texture coordinates in some cases

Crash when exiting with active grading preview

Default mirror settings for stereo setups are now obeyed when conforming an EDL

General.RenderStartTime metadata field did not work correctly

Crash when deleting a timeline while the mouse was still hovering over a specific part of the reels browser