



**USER GUIDE**  
VERSION 1.9V1

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Software design and engineering: Matt Brealey, Jack Binks, Adam Cherbetji, Rick Coles, Jon Creighton, Vincent Delannoy, Paul Dunnill, Martiño Figueroa, Michael Hughes, Jerry Huxtable, David Jennings, Michael Jones, Juan Leni, Zulfiqar Malik, Matthew Mauger, Dan Milburn, John Mercer, Antón Morant Fernández, Ant Nascè, Bruno Nicoletti, Matt Plec, Przemek Stys, and Dylan Yudaken.

Product testing: Dan Allum, Nikolas Almpanis, Konrad Korzel, Natasha Sandars, Andrea Smith, and Zachary Quinn Scheuren.

Writing and proofreading: Joel Byrne, Eija Närvänen, Jack Binks, and Tim Baier.

Layout design: Annabel Landau and Ash Joseph.

The Foundry  
5 Golden Square  
London  
W1F 9HT  
UK

Rev: 30 September 2014

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# 1 Preface

Hiero, in conjunction with HieroPlayer, is designed to provide shot management, conform, and playback capabilities for people creating visual effects, especially those using The Foundry's Nuke Compositor. Hiero combines well with Nuke to deliver visual effects sequences without resorting to other third party applications.

## Key Features

The following are key features supported by Hiero and HieroPlayer:

- Conform multi-track timelines from CMX 3600 Edit Decision Lists (EDLs) and Final Cut Pro XML, including cuts, transitions and retimes.
- Soft import any image sequence type supported by Nuke, meaning the media is not copied multiple times saving disk space. In addition, Hiero and HieroPlayer can also ingest audio and multi-channel images.
- Playback clips and sequences in realtime (dependent on hardware) on 2-up source/record Viewers.
- Version and snapshot clips and sequences to record progress and manage your creative options.
- Round-trip through Nuke or export general purpose shots using soft exports in most cases - no bakes are required.
- Use Hiero<>Nuke to set up a connection between the two applications, updating clips on-the-fly.
- Accomplish most tasks through Python scripting that you can with the Hiero and HieroPlayer user interfaces.

## About this Guide

Throughout this User Guide, we assume you have a basic knowledge of video and audio theory, as well as proficiency with the operating system on which Hiero is installed.

For the most up-to-date information, please see the Hiero product page and the latest User Guide on our web site at [www.thefoundry.co.uk](http://www.thefoundry.co.uk).

## Getting Help

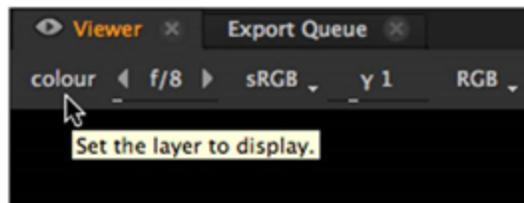
If you can't find what you need in this document, there are other sources of help available to you for all aspects of Hiero and its operation.

## Customer Support

Should questions arise that this manual or the online help system fails to address, you can contact Customer Support directly by email at [support@thefoundry.co.uk](mailto:support@thefoundry.co.uk) or telephone to our London office on +44 (0)20 7479 4350 or to our Los Angeles office on (310) 399 4555 during office hours.

## Online Help

Most controls offer concise instructions in the form of tooltips. To display the tooltips, hover your mouse pointer over an interface control or parameter.



Hiero's Help menu includes links to the latest Release Notes and [www.nukepedia.com](http://www.nukepedia.com), the online knowledge base maintained by experienced Nuke users, containing downloads, tutorials, interviews and more.

There is also a Hiero user forum at [forums.thefoundry.co.uk](http://forums.thefoundry.co.uk), set up as a hub for users to ask questions and share information about Hiero.

# 2 Installation and Licensing

Installing and licensing new applications can be a boring task that you just want to be done with as soon as possible. To help you with that, this chapter guides you to the point where you have a default workspace in front of you and are ready to start viewing and editing your media with the minimum of effort.

## System Requirements

Before you do anything else, ensure that whichever platform you intend to run Hiero or HieroPlayer on meets the following minimum requirements.

### Operating System

The following operating systems are supported:

#### Mac OS X

- Mac OS X Snow Leopard 10.6.8, or above

#### Linux

- Linux RHEL 5.4 64-bit, or above

#### Windows

- Windows 7 64-bit, or above, with the latest version of QuickTime installed

### Hardware

The following hardware is recommended:

- 4 GB of disk space available for caching and temporary files
- 8 GB of RAM (minimum requirement)
- Intel i3 CPU (or equivalent)
- Workstation-class graphics card with OpenGL 2.1 driver support, such as NVIDIA Quadro series or ATI FireGL series



NOTE: Hiero and HieroPlayer do not support the NVIDIA Quadro 4500 FX and GeForce 7300 GT graphics cards.

- RED Rocket cards with at least Rocket Driver 1.4.19.0 and Firmware 1.1.16.5 or later



NOTE: RED Rocket cards may not work as expected without the latest drivers and firmware.

- Our monitor out architecture interfaces directly with the AJA and BlackMagic device drivers, which are unified across their respective hardware lines, meaning all current supported cards for the following versions should work:
  - BlackMagic: 9.1
  - AJA: 3.2 on Mac OS X, 10.5.1 on Windows
- We test using a selection of the following hardware :
  - BlackMagic: Current BlackMagic Decklink PCI hardware, including Decklink SDK, DeckLink 4K Extreme, and Ultrastudio SDI Thunderbolt devices (Mac only).
  - AJA: Current AJA Kona PCI Family, including Kona 3G, LHi, LHe Plus, and ioXT Thunderbolt device (Mac only).



NOTE: AJA monitor out cards are not currently supported on Linux.



NOTE: On Mac, the AJA Kona 3G is only supported on OS X 10.7 (Lion).



NOTE: Monitor out on Windows machines with AMD graphics cards is not currently supported.

## Installing Hiero or HieroPlayer

Download the required application from [www.thefoundry.co.uk/products/](http://www.thefoundry.co.uk/products/) by choosing the required platform from the list. For example, if you intend to install Hiero on Mac OS X, download the Hiero **.dmg** file.

Follow the on-screen instructions to download the correct installer.

### Mac OS X

1. Double-click on the **.dmg** archive to extract the installation package.
2. Double-click on the **.pkg** file.
3. Follow the on-screen instructions to install the application. By default, Hiero is installed to **/Applications/Hiero1.9v1** and HieroPlayer to **/Applications/HieroPlayer1.9v1**

## Linux

1. Extract the application from the **.run** archive with the following terminal command:

```
sudo ./Hiero1.9v1-linux-x86-release-64.run
```

OR

```
sudo ./HieroPlayer1.9v1-linux-x86-release-64.run
```

The installer displays the End User Licensing Agreement (EULA) and prompts you to accept it.

2. If you agree with the EULA, enter **y** and press **Enter** to accept the EULA. (If you don't agree with the EULA and press **n** instead, the installation is cancelled.)

The selected application is installed in an appropriately named folder in the current working directory.

If you leave out **sudo** from the terminal command, you need to ensure that you have sufficient permissions to install the application under your current working directory.



**NOTE:** After the application files have been installed, the installer also runs a post-installation script that creates the following directory:

```
/usr/local/foundry/RLM
```

If you don't have sufficient permissions on the **/usr/local** folder for this directory to be created, the post-installation script prompts you for your **sudo** password as necessary.

## Windows



**WARNING:** Ensure that the latest version of QuickTime is installed **before** installing the application. See <http://www.apple.com/quicktime/download/> for more information.

1. Double-click on the Hiero **.exe** file.
2. Follow the on-screen instructions to install the required application. By default, Hiero is installed to **<drive letter>:/Program Files/Hiero1.9v1** and HieroPlayer to **<drive letter>:/Program Files/HieroPlayer1.9v1**

## Launching Hiero or HieroPlayer

Launch Hiero using one of the following methods, depending on which platform you're using.



**NOTE:** If you intend to use an external Nuke application, Hiero<>Nuke requires Nuke 6.3v5 or later to run correctly.

## Mac OS X

- Click the dock icon.
- Using the Finder, open the application directory (by default, **/Applications/Hiero1.9v1/** or **/Applications/HieroPlayer1.9v1/**) and double-click the **.app** icon (or list item).
- Open a terminal and enter the following command:  

```
/Applications/Hiero1.9v1/Hiero1.9v1.app/Hiero1.9v1
```

OR

```
/Applications/HieroPlayer1.9v1/HieroPlayer1.9v1.app/HieroPlayer1.9v1
```

## Linux

- Open the **~/Hiero1.9v1/bin** or **~/HieroPlayer1.9v1/bin** directory and double-click the icon (or list item).
- Open a terminal, navigate to the **~/Hiero1.9v1/bin** or **~/HieroPlayer1.9v1/bin** directory and enter:  

```
./Hiero1.9v1 or ~/HieroPlayer1.9v1/
```



**NOTE:** The **~/** in the filepath indicates the directory from which the installer was executed.

## Windows

- Double-click the icon on the Desktop.
- Navigate to **Start > All Programs > The Foundry > Hiero1.9v1** or **HieroPlayer 1.9v1**.
- Using a command prompt, navigate to the application directory (by default, **\Program Files\Hiero1.9v1** or **\Program Files (x86)\Hiero1.9v1** for Hiero and **\Program Files\HieroPlayer1.9v1** or **\Program Files (x86)\HieroPlayer1.9v1** for HieroPlayer), and enter **Hiero1.9v1** or **HieroPlayer1.9v1**.

## Startup Options

If you choose to launch the application from a command line, you can append arguments to the command as follows:

Argument	Result
--help (-h)	Displays the available arguments with examples.
--version	Displays version and copyright information.

Argument	Result
--script	<p>Opens the specified script. For example:</p> <pre>./Hiero1.9v1 --script myscript.py</pre> <p>If the script resides in a different directory to the application, specify the filepath as well.</p>
--player (Hiero only)	Launches Hiero in HieroPlayer mode.
--log-file	<p>Sets the location of any logfiles created. For example:</p> <pre>./Hiero1.9v1 --log-file /Desktop/log.txt</pre> <p>See <a href="#">Setting Environment Variables</a> to specify the logfile using an environment variable.</p>
--log-level	<p>Sets the level of logging produced during operation. For example:</p> <pre>./Hiero1.9v1 --log-level warning</pre> <p>Log messages are output to screen unless you specify a <b>--log-file</b>. There are four levels of detail, on a sliding scale from minimal to verbose:</p> <ul style="list-style-type: none"> <li>• <b>error</b></li> <li>• <b>warning</b> (default)</li> <li>• <b>message</b></li> <li>• <b>verbose</b></li> </ul> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p> <b>NOTE:</b> Setting the logging level to <b>verbose</b> can produce large log files when <b>--log-file</b> is specified.</p> </div> <p>See <a href="#">Setting Environment Variables</a> to set the log level using an environment variable.</p>
--quiet (-q)	Launch the application without displaying the splash screen or startup dialog.
--safe (-s)	Launch the application without loading any plug-ins, Export presets, and so on.
--single-threaded-playback	<p>Launch the application in single-thread mode. This option can solve playback issues on various Linux Fedora flavors.</p> <p>See <a href="#">Setting Environment Variables</a> to set the playback mode using an environment variable.</p>

On Windows, you can also use the same arguments on executables (or their shortcuts) by adding them to the program's Properties. To use a startup argument:

1. Right-click the **C:\Program Files\Hiero1.9v1** or **HieroPlayer1.9v1** icon or the equivalent icon on the Desktop.
2. Click Properties.
3. Append the required argument to the **Target** or **.exe** field.

## Licensing Hiero and HieroPlayer

The following licensing methods are available:

- **Activation Keys and Node Locked Licenses** - these are used to license applications on a single machine. They do not work on different machines and if you need them to, you'll have to transfer your license.

Node locked licenses, sometimes called uncounted licenses, do not require additional licensing software to be installed.

- **Floating Licenses** - these are used to license applications on any networked client machine. The floating license is put on the server and is locked to a unique number on that server.

Floating licenses, sometimes called counted licenses, require additional software to be installed on a server to manage the licenses and give them out to the client stations that want them. This software is called the Foundry Licensing Tools (FLT) and can be downloaded at no extra cost from our website.

These instructions run through the basic options for both licensing methods, but you can find a more detailed description in the *Foundry Licensing Tools (FLT) User Guide* available on our website

[www.thefoundry.co.uk/support/licensing/tools/](http://www.thefoundry.co.uk/support/licensing/tools/)

## Obtaining Licenses

To obtain a license, you'll need your machine's System ID (sometimes called Host ID or rlmhostid). Just so you know what a System ID number looks like, here's an example: 000ea641d7a1.



**NOTE:** Bear in mind that, for floating licenses, you'll need the System ID of the license server, not the machines on which you intend to run Hiero.

There are a number of ways you can find out your machine's System ID:

- Launch Hiero without a license, click **Status**, and then scroll down the error report until you see your System ID.
- On Mac and Windows, you can download the Foundry License Utility (FLU) from [www.thefoundry.co.uk/support/licensing/](http://www.thefoundry.co.uk/support/licensing/) and run it. Your System ID is displayed.
- Download the Foundry Licensing Tools (FLT) free of charge from [www.thefoundry.co.uk/support/licensing/](http://www.thefoundry.co.uk/support/licensing/) and then:
  - On Mac, run `/Applications/TheFoundry/LicensingTools7.0/Foundry License Utility.app`
  - On Linux, run the following command in a terminal shell:

```
/usr/local/foundry/LicensingTools7.0/bin/systemid
```

- On Windows, run C:\Program Files\TheFoundry\LicensingTools7.0\Foundry License Utility.exe

When you know your System ID, you can request a license for The Foundry products:

- from The Foundry's Sales Department at [sales@thefoundry.co.uk](mailto:sales@thefoundry.co.uk)
- from the product pages on our web site, such as [www.thefoundry.co.uk/products/hiero-product-family](http://www.thefoundry.co.uk/products/hiero-product-family)
- by launching Hiero without a license and selecting:
  - **Buy Hiero** - opens a web browser directly to The Foundry website to purchase a license.
  - **Try Hiero** - displays the 15-day trial license download screen. Enter your The Foundry account details or create a new account and follow the on-screen instructions to receive a trial license.



**NOTE:** By default, if you have installed a temporary license, Hiero displays a dialog at start-up alerting you to the number of days remaining. If you want to disable this behavior, you can set the FN\_DISABLE\_LICENSE\_DIALOG environment variable to 1 to suppress the warning message about imminent license expiration. See [Environment Variables](#) for more information.

## Installing Licenses

When you start the application before installing a license, a **Licensing** dialog displays an error, informing you that no license was available. The installation process is dependent on what type of license you requested:

- **License file** - if you requested a license file, typically **foundry.lic**, this option allows you to browse to the file location and install it automatically. See [To install a license from disk](#) for more information.
- **Activation Key or license text** - if you requested an Activation Key or license by email, this option allows you to paste the key or license text into the **Licensing** dialog, which then installs the license in the correct directory. See [To install an Activation Key or license text](#) for more information.
- **A floating license** - if you requested a floating license to supply licenses to multiple client machines, this option allows you enter the server address that supplies the client licenses.



**NOTE:** You must install a floating license and additional software on the license server to use this option.

See [To install a floating license](#) for more information.

### To install a license from disk

1. Save the license file to a known location on disk.
2. Launch Hiero.  
The Licensing dialog displays.
3. Click **Install License** to display the available license installation options.
4. Click **Install from Disk**.
5. Browse to the location of the license file.

6. Click **Open** to install the license automatically in the correct directory.

## To install an Activation Key or license text

1. Launch Hiero.

The Licensing dialog displays.

2. Click **Install License** to display the available license installation options.

3. Click **Activation Key / License Text** and then either:

- Enter the **Activation Key** string in place of **Insert Activation Key Here**. A license key typically looks something like this:

```
hiero-0101-77d3-99bd-a977-93e9-8035
```

OR

- Copy the license text and paste it over the **Copy/Paste license text here** string. License text typically looks something like this:

```
LICENSE foundry hiero_i 2014.1223 permanent 2 share=h min_timeout=30
start=23-jan-2014 issuer=sf issued=23-jan-2014 replace
_ck=6dd78e4c69 sig="60PG452MPDMMM6MJAMRGKNQAN3PEAK8JYTHN45022M0C98H
XFA9N7SAASMRABT8TUJ6FAMX8TWU0"
```

4. Click **Install**.

The license is automatically installed on your machine in the correct directory.



**NOTE:** Activation Keys require an internet connection. If you access the internet through a proxy server and cannot connect to the activation server, you may get an error dialog prompting you to either:

Click **Use Proxy** to enter the proxy server name, port number, username, and password. This enables the application to connect to the activation server and obtain a license. The license is then installed automatically, or

Click on the web link in the dialog and use the System ID (also known as *hostid*) provided to manually activate and install a license.

## To install a floating license

If you requested a floating license from The Foundry, you will receive your license key (*foundry.lic*) in an email or internet download. You should also receive the Foundry License Utility (FLU) application to help you install the license key on the license server machine. The server manages licenses for the *client* machines on your network.



**NOTE:** The FLU is also available to download from [www.thefoundry.co.uk/support/licensing/](http://www.thefoundry.co.uk/support/licensing/)

1. Make sure you have saved both the license key (*foundry.lic*) and the FLU application in the same directory.

2. Run the FLU application.

The license key automatically appears in the FLU window if the FLU and **foundry.lic** are in the same directory.



**TIP:** If they are not in the same directory, you can either copy and paste the contents of the license key or drag-and-drop the file into the FLU window.

3. Click **Install**.

This checks the license file and, provided that the license is valid, installs it into the correct directory.

4. In order for the floating license to work, you will need to install the Foundry Licensing Tools (FLT) on the license server machine.

For more information on how to install floating licenses, refer to the *FLT User Guide*, which you can download from our website [www.theadfoundry.co.uk/support/licensing/](http://www.theadfoundry.co.uk/support/licensing/)

5. Once your license server is up and running, launch Hiero on the client machine.

The **Licensing** dialog displays

6. Click **Install License** to display the available install methods.
7. Click **Use Server** and enter the server address in the field provided. The format for the server name is: <port>@<servername>, for example, 30001@red.



**NOTE:** You must perform steps 5 through 7 on each client machine that requires a Hiero license from the server.



**TIP:** If you later need to display the Licensing dialog again, you can select **Help > License**.

For more information on how to install licenses, see the *Foundry Licensing Tools (FLT) User Guide* available on our website at [www.theadfoundry.co.uk/support/licensing/](http://www.theadfoundry.co.uk/support/licensing/)

# 3 Hiero Workflow Case Studies

This chapter describes a number of possible collaborative workflows supported by Hiero, HieroPlayer, and Nuke.

## Hiero

In a typical collaborative project environment, Hiero sits in between edit and grading, and finishing and delivery, acting as a hub for visual effects. It is used to locate, preview, and then farm media out to shot-based effects applications (such as Nuke), and take their results and re-integrate them into the sequences for review and comment. See [Collaborative Project Case Study](#) for more information.

Hiero can also be used as a “Hero” seat, passing content between timeline and shot creation using Hiero<>Nuke, without leaving the local machine. See [Hero Seat Case Study](#) for more information.

## HieroPlayer

HieroPlayer sits next to your compositing and other shot creation software, allowing artists to view their work in the context of a timeline. This collaborative workflow allows multiple artists to work on the same timeline, viewing colleague’s work as well as their own. See [Collaborative Project Case Study](#) for more information.

HieroPlayer can also be used to maintain an element library. You can filter content using the bin structure, tags, and metadata and view elements on scratch sequences, passing clips between applications using Hiero<>Nuke. See [Element Library Case Study](#) for more information.

## Feature Comparison

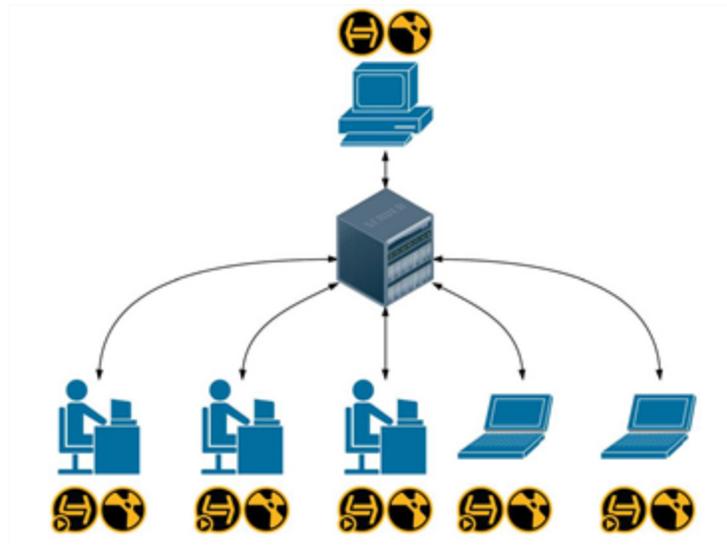
Designed to work hand-in-hand in different scenarios, Hiero and HieroPlayer share a number of features, but as the hub, Hiero has a richer feature set than HieroPlayer.

Feature	Hiero	HieroPlayer
<b>Review and Playback</b> - Robust playback & review engine for post production		
Multi-track timeline viewing and editorial workspace, including industry standard tools	●	●
Nuke equivalent format support including OpenColorIO management	●	●
Multi-channel audio import and playback	●	●
Extensive review toolset including A/B compare, masks, and color picker	●	●
Realtime image scopes including histogram, waveform, and vectorscope	●	●
Media localization and caching	●	●
Standard jog and shuttle controls	●	●
Broadcast Monitor support	●	
<b>Editing</b> - Standard tools and layouts for editorial.		
Modal editorial tools including equivalent keyboard hotkey interface	●	●
Source/record 2-up Viewer workspace and 3-point editing	●	●
<b>Conform</b> - Simple and flexible ingest of cuts from editorial.		
Conform multi-track timelines from CMX 3600 Edit Decision Lists (EDLs) and Final Cut Pro XML, including cuts, transitions and retimes	●	
Session-wide spreadsheet containing all sequence events	●	
<b>Shot Management and Export</b> - Manage, distribute and ingest media with ease		
Export sequences, timeline shot structures, clip hierarchies, and EDL/XMLs	●	

Feature	Hiero	HieroPlayer
Transcode, copy, and soft link media	●	
Create template Nuke scripts for easy distribution of work	●	
Hiero<>Nuke integration - a live link between applications updating on-the-fly as VFX work is completed	●	●
Automatically update VFX shots in context	●	●
Version shots and snapshot timelines for review and editing	●	●
Hierarchical project and element library management	●	●
Tag shots, frames, and sequences for easy filtering of content including custom metadata	●	●
<b>Open and Scriptable Playback Framework</b> - Flexible enough to fit any pipeline		
Extensive Python API to accomplish most tasks through Python scripting that you can with the Hiero and HieroPlayer user interfaces	●	●
Integrated Pyside enabling fine-grained customization of interface tasks	●	●

## Collaborative Project Case Study

As mentioned, Hiero can sit comfortably in a post pipeline as the hub for managing content. The diagram below shows a typical workgroup scenario.



Hiero, HieroPlayer, and Nuke in a collaborative project.

## Preparing a Project in Hiero

The first step in Hiero is to conform the EDL or XML from the editor. The conform process pulls together the required source clips and matches them to events in the EDL or XML. Hiero displays these events in a spreadsheet which is linked to a timeline showing the corresponding track items. See [Conforming Using Hiero](#) for more information.

Once the conform is complete, you can view your timeline to confirm that the correct clips are present, check the content using Hiero's scopes, add reference tracks, and pass on any pertinent information to the next step in production using tags and notes. See [Ingesting Media](#) for more information.

The next step is to make any minor edits to the timeline, including transitions and retimes, swap or rename track items, or examine different versions of clips on the timeline. See [Managing Timelines](#) and [Versions and Snapshots](#) for more information.

The final step before HieroPlayer steps in is to export and save your project. Exporting from Hiero and saving the project creates placemaker track items for VFX work in a read-only Hiero project (.hrox file), preserving the conform work from Hiero. Multiple artists can then work on track items, creating versions which are then automatically updated in HieroPlayer. See [Round-Tripping Using the Export Dialog](#) for more information.

## Loading a Hiero Project in HieroPlayer

HieroPlayer is most commonly used to open Hiero projects as read-only copies to preserve conform work from Hiero. This way, multiple artists can work on a project without worrying about overwriting a colleagues work.

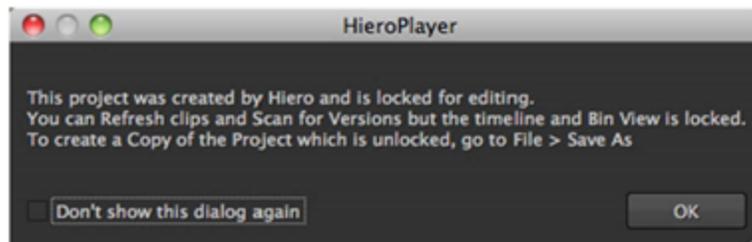
To open a Hiero project in read-only form:

1. Launch HieroPlayer and navigate to **File > Open**.

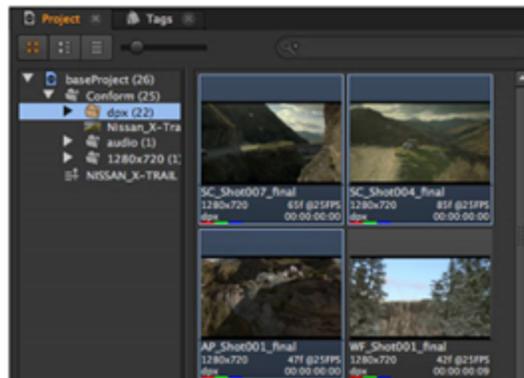
**TIP:** You may find that the project you require is displayed in the startup dialog under **Recent Projects**. Select the project and click **Open** to quickly access the project.

2. Locate the required Hiero project using the browser and click **Open**.

A warning displays informing you that the project is read-only, as it was created in Hiero.



3. Click **OK** to dismiss the prompt.
4. Opening a Hiero project in HieroPlayer changes the interface highlight color to light blue to indicate that the project is read-only.



You can't delete bins, clips, or track items, or make edits on the timeline when the highlight is light blue.

See [Using Hiero<>Nuke in HieroPlayer](#) for information on how to update work between HieroPlayer and Nuke.

## Opening a Writable Hiero Project

If you want to open a writable version of a Hiero project, you can open the project and save it as a HieroPlayer project. HieroPlayer projects are always readable in Hiero, so don't worry about backward compatibility.

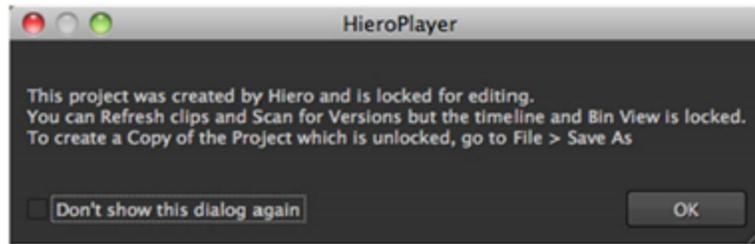
To open a Hiero project in writable form:

1. Launch HieroPlayer and navigate to **File > Open**.

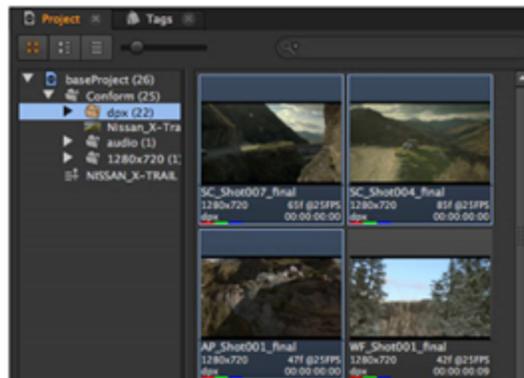
**TIP:** You may find that the project you require is displayed in the startup dialog under **Recent Projects**. Select the project and click **Open** to quickly access the project.

2. Locate the required Hiero project using the browser and click **Open**.

A warning displays informing you that the project is read-only, as it was created in Hiero.

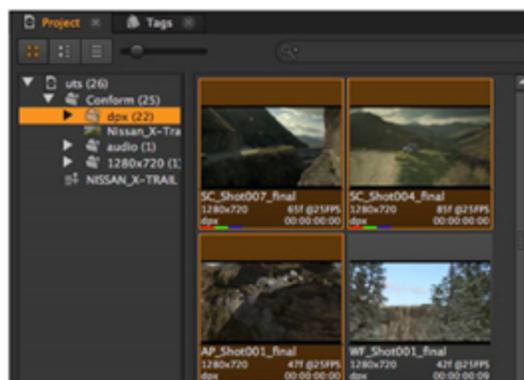


3. Click **OK** to dismiss the prompt.
4. Opening a Hiero project in HieroPlayer changes the interface highlight color to light blue to indicate that the project is read-only.



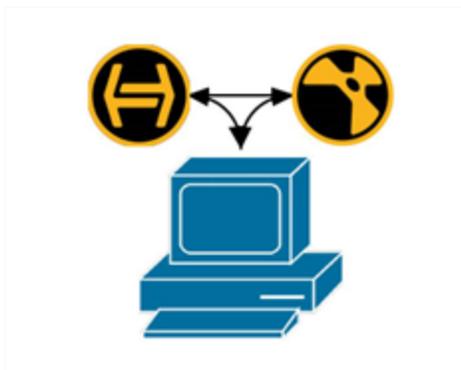
You can't delete bins, clips, or track items, or make edits on the timeline when the highlight is light blue.

5. Navigate to **File > Save as Player Project** and select a save location.
6. The highlight color changes to orange to indicate that the project is now writable.



## Hero Seat Case Study

Running Hiero and Nuke on the same machine can really take advantage of the Hiero<>Nuke connection, an open port between the two applications, that doesn't require using Hiero's **Export** dialog.



Round-tripping using Hiero<>Nuke.

After connecting Hiero<>Nuke, changes made to clips in one application are automatically updated in the other. For example, VFX work in Nuke is added automatically to the scanned versions dialog in Hiero's timeline as it is completed.

See [Round-Tripping Using Hiero<>Nuke](#) for more information.

## Element Library Case Study

As well as acting as a timeline context review tool in collaborative workflows, HieroPlayer is well suited to passing elements from a library to Nuke over the Hiero<>Nuke connection.



Pass elements easily from HieroPlayer to Nuke.

Ingest and tag your elements in HieroPlayer, then use the tag filtering and flagging field to quickly locate elements with the required tags. See [Ingesting Media](#) and [Using Tags](#) for more information.

HieroPlayer also features all Hiero's editing capabilities, allowing you to create scratch timelines to view elements in context. See [Timeline Editing Tools](#) for more information.

# 4 Customizing Your Workspace

The Hiero and HieroPlayer interfaces are customizable using floating panes and show/hide functionality, but several default workspaces are supplied for your convenience.

## Workspace Overview

Hiero and HieroPlayer ship with a number of different workspaces. These are specific layouts that can be loaded as the current tasks change.

Hiero ships with the following workspaces:

- Hiero's **Conforming** workspace is where the bulk of the work you undertake with Hiero is done. The linked spreadsheet and timeline panes are where you'll really see the power of Hiero.
- The **Editing** workspace provides the tools you'll need to fine-tune your media in Hiero, including 2-up source/record Viewers.
- The **Reviewing** workspace is shared by both applications and is used to confirm your media intent is fully realized. You can add tags and notes, mark In and Out points on clips and timelines, and organize your ingested media into bins as required.

HieroPlayer ships with the following workspaces:

- The **Flipbooking** workspace consists of a Viewer and Project tab and is used primarily as a review tool in HieroPlayer.
- The **Timeline** workspace is similar to Hiero's Editing space, but exclusive to HieroPlayer.
- The **Reviewing** workspace is shared by both applications and is used to confirm your media intent is fully realized. You can add tags and notes, mark In and Out points on clips and timelines, and organize your ingested media into bins as required.



**NOTE:** HieroPlayer doesn't include any Conform functionality and projects loaded from Hiero can't be edited unless they're resaved using **File > Save as Player Project**.

When you launch either application, you're presented with a startup dialog.

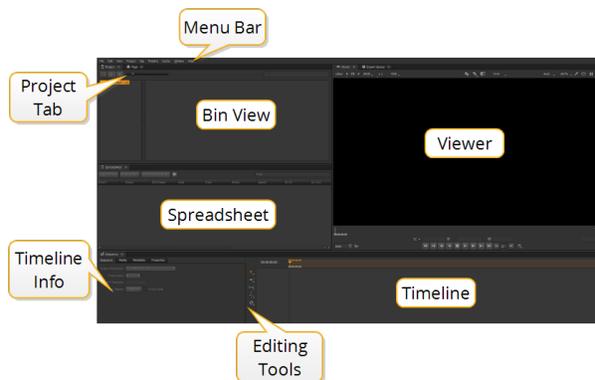


The startup dialog allows you to create a new project, open an existing project, or view the User Guide and website dedicated to Hiero.

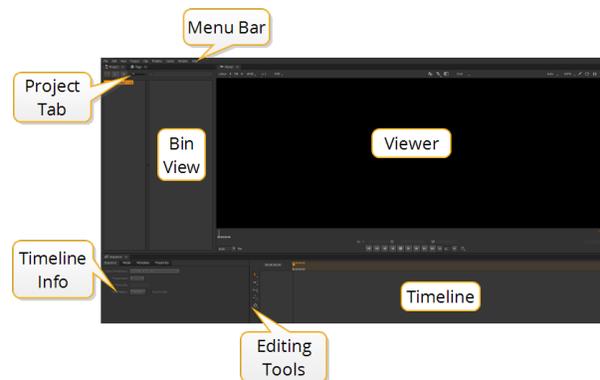
**TIP:** You can disable this dialog by checking **Don't show this dialog again** or by toggling it off in the [Workspace Preferences](#) dialog.

Select the required option or click **Close** to access the application. Take a moment to familiarize yourself with the default workspaces.

Hiero's default **Conforming** workspace:



HieroPlayer's default Timeline workspace:



Feature	Description	Hiero	HieroPlayer
Project Tab	You can manage all aspects of your projects and bins in the Project tab.	●	●

Feature	Description	Hiero	HieroPlayer
Menu Bar	Use the Menu bar to access Hiero's dropdown menus.	●	●
Bin View	The Bin displays the contents of any selected Project tab.	●	●
Viewer	You can display and review your media in the Viewer.	●	●
Timeline Info	The timeline info displays the current timeline's sequence, media, and metadata information.	●	●
Editing Tools	There is a comprehensive set of editing tools provided in Hiero and HieroPlayer. <a href="#">Timeline Editing Tools</a> for more information.	●	●
Spreadsheet Tab	Use the Spreadsheet tab to display the contents of the timeline in spreadsheet form. Note that the spreadsheet and timeline are linked, mirroring any selections made.	●	
Timeline	The timeline displays the current track including all track items and any effects that have been added.	●	●

## Menu Bar Components

The Menu Bar contains various controls, many of which are available through right-click menus, hotkeys, and toolbars.

For a full list of hotkeys, buttons, and menu functions, see [Appendix A](#).

You can switch between workspaces by navigating to **Window > Workspace** and selecting **Conforming**, **Editing**, **Reviewing**, **Flipbooking**, or **Timeline**. Alternatively, you can toggle between the default workspaces using **Shift+F1**, **Shift+F2**, **Shift+F3**, and so on.

Any custom workspaces you create are added to the end of the list. You can access the first custom workspace using **Shift+F5**, and so on.

## Creating Your Own Workspace

Hiero's interface is comprised of any number of panels. Panels act like containers with different tabs; you can configure panels to contain specific tools, such as the timeline or a Viewer, depending on the task you are presently performing. The default panel configurations are saved as Workspaces (referred to as Layouts in Nuke) and include:

Conforming, Editing, Reviewing, Flipbooking, and Timeline. You can easily create your own custom workspace that suits your needs, and then save it as a custom Workspace for easy recall.

During the customization process, you can:

- Resize your entire workspace or panes independently.
- Split panes to create new work areas, for example two Viewers side-by-side.
- Add and remove panes and tabs as required.
- Float and nest tabs to group similar functions together, for example Histogram, Vectorscope, and Waveform in the same pane.
- Maximize the pane under the mouse cursor by pressing ` (back tick). Press ` again to return to the regular interface.

You can create as many workspaces as you require, one for each project you undertake if necessary. In practice though, you may find that two or three custom workspaces are sufficient.



**TIP:** You can return to the saved version of a workspace by navigating to **Window > Workspace > Reset Workspace**.

## Resizing Your Workspace

Resizing the interface, panes, and tabs works in much the same way as other software applications:

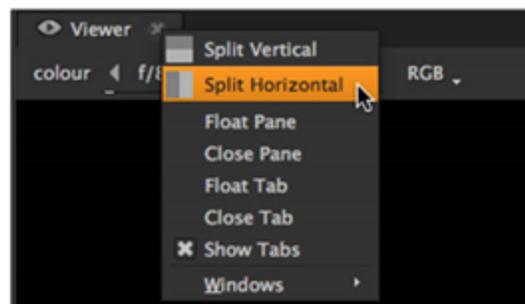
- To resize the entire interface, drag the resize handle at the bottom right of the application to the required width and height.
- To resize individual panes, hover the mouse over the edges of the required area until the cursor changes to the resize icon. Click and drag the cursor to resize the pane or tab.



## Splitting Panes

Splitting panes allows you to organize your workspace into distinct areas delineated by well-defined borders.

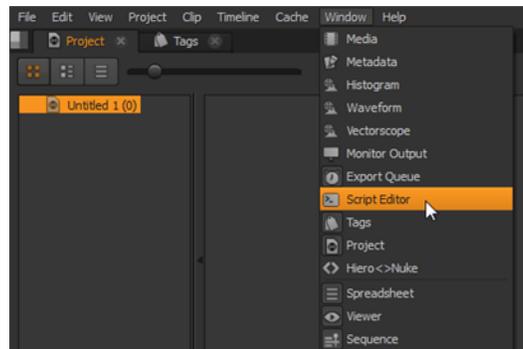
- To split panes, right-click the required pane and select **Split Vertical** or **Split Horizontal**.



## Adding and Removing Panes and Tabs

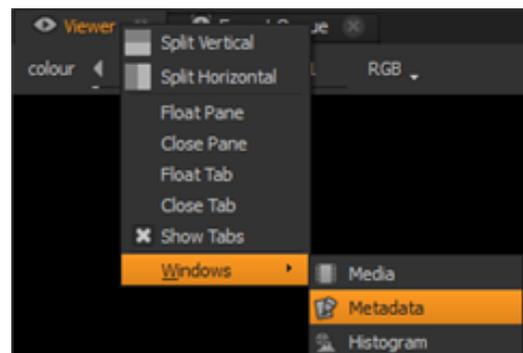
Adding and removing tabs gives you the freedom to personalize your workspace depending on your current project.

- Add new tabs by:
  - Navigating to **Window** and selecting the required tab. The tab is embedded in its default position or added to the interface as a floating window,

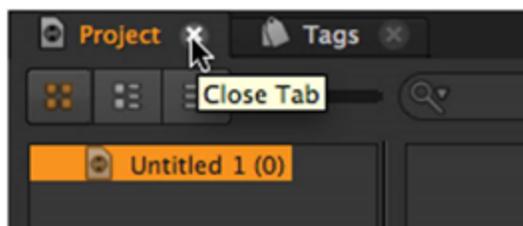


OR

- Right-clicking the pane in which you want the tab to appear and selecting it from the **Windows** dropdown.

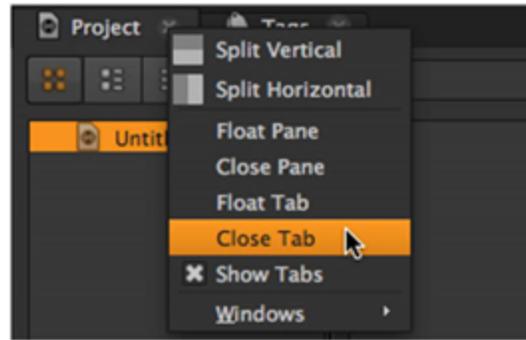


- Close any tab that is not required by:
  - Clicking the **x** on the tab's right-hand side,



OR

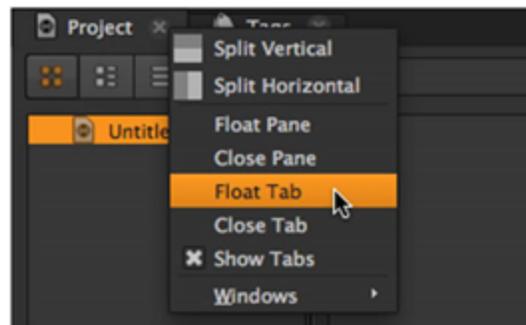
- Right-clicking the tab name and selecting **Close Pane** or **Close Tab**.



## Floating and Nesting

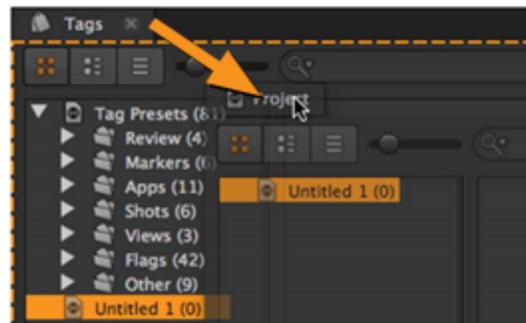
You can move existing panes and tabs to new locations in the interface (to help you organize your project).

- Float a pane or tab by:
  - Right-clicking the tab name and selecting **Float Pane** or **Float Tab**.

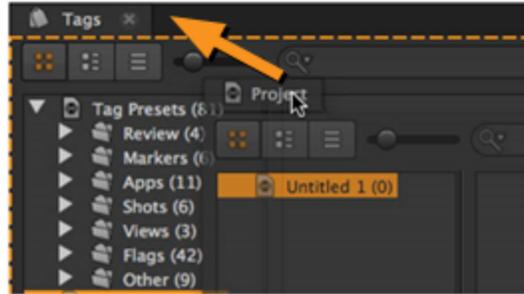


OR

- Dragging the required tab from its current location.



- Nest any floating pane or tab by dragging it to any existing pane.

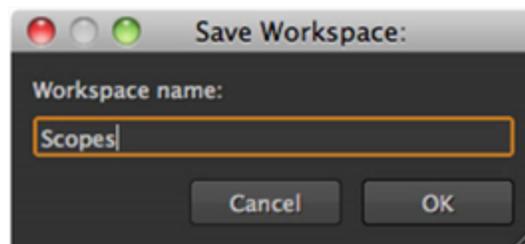


**TIP:** Use the orange highlight  around the destination pane to help you determine where the tab nests.

## Saving Workspaces

Once you're happy with the changes you've made to the workspace, navigate to **Window > Workspace > Save Workspace**.

Enter a name for the workspace, then click **OK** to preserve your workspace as a workspace file (extension **.hws**).



**TIP:** If you save a workspace called **Conforming, Editing, Reviewing, Flipbooking, or Timeline** you can override the defaults supplied with either application by clicking **Save** in the dialog box.

Delete the workspace you created to restore the default layout.

## Loading Workspaces

To use a previously saved workspace, navigate to **Window > Workspace** and select the custom workspace name you require.

**TIP:** Alternatively, you can use the workspace hotkeys **Ctrl/Cmd+n** (where **n** is equal to the number of the custom workspace).

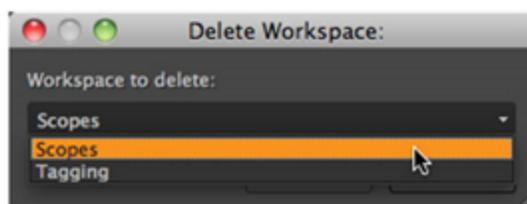
Your pre-saved workspace is loaded.

## Deleting Workspaces

You may find that after using Hiero or HieroPlayer on a number of projects, some of the workspaces you created earlier have been superseded by more useful entries. **Delete Workspace** allows you to clear up your saved files, although you can remove the files manually from the save location.

To delete custom workspaces:

1. Navigate to **Window > Workspace > Delete Workspace**.
2. Select the required workspace from the dropdown menu.



3. Click **OK** to delete the selected entry.

## Workspace Preferences

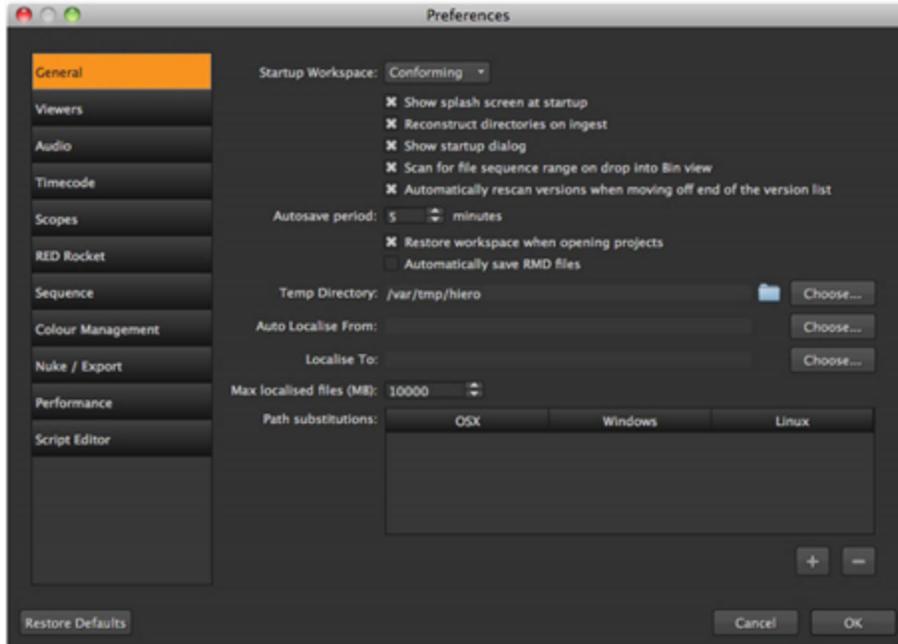
The **Preferences** dialog allows you to make global changes to the way the interface behaves every time you start Hiero or HieroPlayer. Changes you make in the **Preferences** override any local changes when you restart the application.



**NOTE:** Workspace **Preferences** are saved in the `~/.hiero/uistate.ini` file.

To access the **Preferences** dialog, either:

- Navigate to **Hiero (HieroPlayer) > Preferences** (OS X) or **Edit > Preferences** (Linux and Windows), or
- Use the Preferences hotkeys **Shift+S**.



Once you've made your selections in the **Preference** dialog, click **OK** to save your changes. Bear in mind that changing some preferences, for example **QuickTime decoders**, **Scopes**, and **Use RED Rocket card**, require you to restart Hiero before they're applied.



**NOTE:** Click **RestoreDefaults** to return to the default **Preference** settings.

## General Preferences

These preferences take care of how the applications start up, how often your work is automatically saved, localization, and cross-platform compatibility.

Preference	Default Value	Description
Startup Workspace	Conforming (Timeline for HieroPlayer)	Sets the default startup workspace.
Show splash screen at startup	enabled	Enables or disables the product page during startup.
Reconstruct directories on ingest	enabled	When enabled, preserve the original folder/file hierarchy during ingest.
Show startup dialog	enabled	Enables or disables the <b>Settings</b> dialog during startup.

Preference	Default Value	Description
Scan for file sequence range on drop into bin view	enabled	<p>When enabled, dragging a single file or file range, that is part of an image sequence, creates a clip in the bin view containing all available frames.</p> <p>When disabled, only the dragged frame or range is imported into the bin.</p> <p>See <a href="#">Using Drag-and-Drop</a> for more information.</p>
Automatically rescan versions when moving off end of the version list	enabled	<p>When enabled, incrementing a clip or track item's version past the end of the previously discovered versions list, forces a rescan to update the versions list. See <a href="#">Using Versions</a> for more information.</p>
Warn when opening a locked Hiero project  (HieroPlayer only)		<p>When enabled, opening a Hiero project in HieroPlayer displays a read only warning.</p> <p>If you disable this option, you won't be warned but the clips and sequences in the project will still be colored light blue to remind you of the read only state of the project.</p>
Autosave period	5 minutes	<p>Sets how often you want to save your work in the background. Use the up and down arrows or type a new value in the field.</p>
Restore workspace when opening projects	enabled	<p>When enabled, restore the saved workspace layout at project load.</p> <p>When disabled, use the <b>Startup Workspace</b> when you open an existing project.</p>
Automatically save RMD files	disabled	<p>When enabled, automatically save changes to a RED clip's Look effects in an RMD file.</p>
Temp Directory	Dependent on OS	<p>Defines the directory used to cache thumbnail information.</p> <p>You can disable caching using an environment variable, as described in <a href="#">Environment Variables</a>.</p>

Preference	Default Value	Description
Auto Localize From	none	<p>Sets the working directory that is automatically cached on ingest to the <b>Localize To</b> directory.</p> <p>For example, setting the filepath to <b>/project/myclips/footage</b> would locally cache media from that directory on ingest, up to the <b>Max localized files</b> limit.</p>
Localize To	none	<p>Sets the local directory where cached files are stored. See <a href="#">Caching Media Locally</a> for more information.</p> <p> <b>NOTE:</b> If this filepath is not specified, cached files are saved in a subdirectory of the folder specified in <b>Temp Directory</b>.</p>
Max localized files (MB)	10000 MB	<p>Sets the maximum space available for localized caching. Negative values in this field reserve the specified amount of space at all times. For example, -2000 stops 2 GB of memory being used for caching.</p>
Path substitution	none	<p>Sets the mapping rules for cross-platform project sharing.</p> <p>The mapping rules allow the application to read platform specific file paths by explicitly mapping them to Mac/Linux/Windows friendly names.</p> <p>Click the + icon to add an entry to the table and then enter the paths as necessary. For example:</p> 

## Viewer Preferences

These preferences determine the default settings for the Viewer at startup as well as all new Viewers that you add to the workspace - you can still adjust the settings of individual Viewers.

Preference	Default Value	Description
Playback Mode	Play All Frames	Sets the default playback mode for new Viewers. See <a href="#">Viewer Tools</a> for more information.
OpenColorIO config file	none	<p>Sets the OpenColorIO configuration to use if you don't intend to use the default settings.</p> <p>Enter the filepath of the configuration file or click <b>Choose</b> to use the browser.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;">  <b>NOTE:</b> Hiero and HieroPlayer also include an environment variable method for setting a config file. See <a href="#">Environment Variables</a> for more information. </div>
Guides	disabled	Selects the default <b>Guides</b> to apply to Viewers. Choose from <b>Title Safe</b> , <b>Action Safe</b> , and <b>Format</b> . See <a href="#">Viewer Tools</a> for more information.
Fullscreen Display	Primary Monitor (1)	Controls where the Viewer expands to when in <b>Fullscreen</b> mode.
See through missing media	enabled	When enabled, any offline media on a timeline is treated as transparent, allowing the Viewer to display the track underneath.
Crop to format	disabled	When enabled, clips or track items that extend outside the format guide are cropped.
Background	Black	<p>Sets the Viewer background color, including sliders to control brightness. Choose from <b>Black</b>, <b>Gray</b>, or <b>Checkerboard</b>.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;">  <b>NOTE:</b> Hiero and HieroPlayer currently treat all alpha channels as premultiplied, which can result in the Viewer background being “added” to the image. If you're working with un-premultiplied images, set the Viewer background to <b>Black</b>. </div>
Frame Increment	12	Sets the frame increment amount for <b>Skip</b> and <b>Nudge More</b> operations. This control only affects new Viewers.

Preference	Default Value	Description
Filtering mode	Auto	<p>This allows you to specify the Viewer behavior when filtering your sequences for display.</p> <ul style="list-style-type: none"> <li>• <b>Nearest neighbor</b> and <b>Linear</b> - standard OpenGL filtering options.</li> <li>• <b>Auto</b> - mimics the previous Viewer filtering, which was based on Nuke's behavior.</li> </ul>

## Audio Preferences

These preferences control how audio behaves in Hiero and HieroPlayer. See [Audio and the Timeline](#) for more information.

Preference	Default Value	Description
Disable audio	disabled	<p>When enabled, audio output is muted throughout the application.</p> <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;">  <p><b>NOTE:</b> You must restart Hiero or HieroPlayer for this option to take effect.</p> </div>
Audio device	Speakers	Sets the audio output device or driver.
Default latency adjustment (ms)	0 ms	<p>Sets the default audio latency for all new Viewers in milliseconds. Audio latency allows you to correct audio and video synchronization by changing the point at which audio playback starts.</p> <p>Positive values cause the audio track to start earlier in relation to the video track, and vice versa.</p>
Default volume	50%	Sets the default audio volume for all new Viewers.

## Timecode Preferences

These preferences determine where selected file types derive their timecode.

Preference	Default Value	Description
RED File Timecode	Default From File	Sets the start timecode to use for conformed or ingested R3D files. Select <b>Default From File</b> , <b>Absolute Timecode</b> , or <b>Edge Timecode</b> .
Other Media Timecode	File Header	Sets where the start timecode for all other media is derived. Select <b>File Header</b> or <b>Frame Number</b> . See <a href="#">Ingesting Media</a> for more information.
Max Valid Timebase	10000 fps	<p>Sets the maximum image header timebase above which the value is clamped.</p> <p>Image files are often created with application specific timebase values in the header description. This can lead to reading in spuriously high frame rates and the clamp aims to prevent this from happening.</p> <p>If your clips do have extremely high frame rates, increase this value as necessary to avoid clamping.</p>
EDL-Style Spreadsheet Timecodes	disabled	<p>When disabled, the <b>srcOut</b> and <b>dstOut</b> values use the film convention, representing the <b>last</b> frame of the cut.</p> <p>When enabled, the <b>srcOut</b> and <b>dstOut</b> values use the video convention, representing the frame directly <b>after</b> the cut.</p>

## Scopes Preferences

These preferences set the Black and White points for Histogram and Waveform Out of Range warnings individually, in the range 0-1.

Preference	Default Value	Description
Black point	0.00	Sets the black out of range warning level.
White point	1.00	Sets the white out of range warning level.
Luma/chroma encoding	REC 709	Sets how the scopes display luma and chroma information by selecting the <b>rec601</b> or <b>rec709</b> standard.

## RED Rocket Preferences

This preference enables and disables your RED Rocket.

Preference	Default Value	Description
Use RED Rocket card	enabled	When enabled, any RED Rocket card present can increase the rendering speed for R3D files significantly, especially at higher resolutions.

## Sequence Preferences

Sequence preferences set the defaults applied to new timelines.

Preference	Default Value	Description
Output Resolution	1920x1080 HD 1080	Sets the default resolution for new timelines. Video tracks on new timelines are cropped to the this format.
Frame Rate	25	Sets the default frame rate to use when a new timeline is created.
Start Timecode	01:00:00:00	Sets the timecode starting point for new timelines.
Time Display	Timecode	Sets whether new timelines are measured using Timecode or Frames for display purposes.
Drop Frame	disabled	<p>Sets whether drop frames are accounted for or not when new timelines are created.</p> <p><b>Drop Frame</b> is a timecode display option that leaves out two frames from the 30 fps timecode sequence every minute (except every 10th minute) so that long running NTSC sequences are accurate to a real-time clock (NTSC frame rate is 3000/1001, or approximately 0.01% slower than 30fps).</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;">  <b>NOTE:</b> Enabling <b>Drop Frame</b> is a Timecode display feature only - the source media remains a continuous stream of frames.         </div>

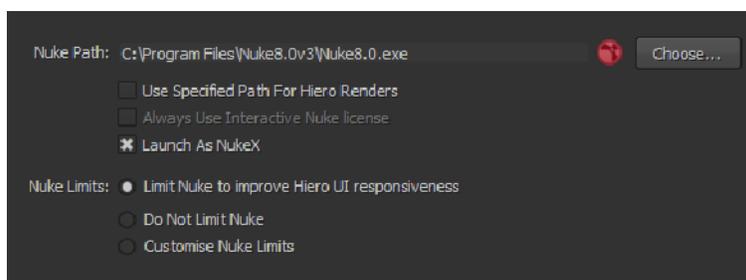
## Color Management Preferences

These preferences set the default colorspace applied to various display and file types. For example, setting **Viewer** to **None** displays all media in new Viewers with no colorspace applied to them.

Preference	Default Value	Description
Viewer	sRGB	Sets the default LUT applied to new Viewers.
Thumbnails	sRGB	Sets the default LUT applied to thumbnails when ever they are generated in Hiero and HieroPlayer.
8-bit Files	sRGB	Sets the default LUT applied to the specified ingested file type.
16-bit Files	sRGB	
Log Files	Cineon	
Floating Point Files	linear	
Use OCIO nodes when exporting in Nuke	disabled	When enabled, Nuke uses the LUTs read from the OCIO config file specified in Hiero or HieroPlayer, rather than the Nuke native LUTs, and adds the relevant OCIO nodes to the script.

## Nuke/Export Preferences

These preferences define whether Hiero transcodes internally or uses an external Nuke, and how transcoding is handled.



Preference	Default Value	Description
Nuke Path	Dependent on OS	<p>When <b>Use Specified Path For Hiero Renders</b> is enabled, sets the filepath to the external Nuke application you intend to use during round-tripping and Send to Nuke exports.</p> <p> <b>NOTE:</b> If you intend to use an external Nuke application, Hiero&lt;&gt;Nuke requires Nuke 6.3v5 or later to run correctly.</p>
Use Specified Path For Hiero Renders	disabled	<p>When enabled, the Nuke application specified in <b>Nuke Path</b> is used to render your output.</p> <p>When disabled, the internal, command line only HieroNuke is used for rendering.</p>
Always Use Interactive Nuke license	disabled	When enabled, renders on external Nukes use an interactive license (if available).
Launch as NukeX	enabled	<p>When enabled, the Nuke application specified in <b>Nuke Path</b> is launched as NukeX, if a license is available.</p> <p> <b>NOTE:</b> On Mac, this option is grayed-out. If you need to Launch NukeX, specify the NukeX bundle in the <b>Nuke Path</b> field. For example: /Applications/Nuke8.0v1/NukeX8.0v1.app</p>
Nuke Limits		
Limit Nuke to improve Hiero UI responsiveness	enabled	<p>When enabled, the user interface is still responsive during transcodes.</p> <p>This option causes Nuke to use only 2 threads and 25% of available RAM during transcodes. As a result, transcoding may slow down considerably.</p>
Do Not Limit Nuke	disabled	When enabled, transcoding uses as much processing power as possible, which may cause the user interface to become unresponsive.

Preference	Default Value	Description
Customize Nuke Limits	disabled	When enabled, use the <b>Threads</b> and <b>Cache Memory</b> fields to manually configure transcode handling: <ul style="list-style-type: none"> <li>• <b>Threads</b> - limits the number of threads available to Nuke.</li> <li>• <b>Cache Memory</b> - limits the amount of total cache memory available to Nuke.</li> </ul>



**NOTE:** Hiero supports render farm implementation using Python scripting. Scripts must be located in specific directories, dependent on platform, as listed in [Running Python During Startup](#). If no scripts exist, the **Render background tasks** dropdown in the **Export** dialog box is disabled.

Some example scripts are included in the Hiero package in the following directories:

- On Mac: /Applications/Hiero1.9v1/Hiero1.9v1.app/Contents/Plugins/site-packages/hiero/examples/
- On Linux: /usr/local/Hiero1.9v1/Plugins/site-packages/hiero/examples/
- On Windows: drive letter:\Program Files\Hiero1.9v1\plugins\site-packages\hiero\examples

## Performance Preferences

These preferences allow you to customize Hiero's performance according to your machine's capabilities. See [Optimizing Read and Decode Performance](#) for more information.

Preference	Default Value	Description
Default number of threads per reader	2	Sets the number of threads to use per reader. If your source files are located on high performance local drives, increasing the number threads can significantly improve read times.  CPU intensive operations, such as <b>.jpg</b> decoding, can also be improved by increasing the number of threads per reader.
Overridden number of decode threads per reader	none	Allows you to override the default number of decode threads used, dependent on file format.  Use the <b>plus</b> button to add an entry to the table and then select the file format using the dropdown menu. Double click the <b>Number of threads</b> column to set the required number of decode threads for that format.

Preference	Default Value	Description
OpenEXR helper threads to use	0	Sets the number of helper threads to use for OpenEXR only. The default, zero, automatically sets the number of helper threads used.
ARRI helper threads to use	0	Sets the number of helper threads to use for ARRI only. The default, zero, automatically sets the number of helper threads used.
 <b>NOTE:</b> The OpenEXR and ARRI helper thread preferences are independent of the threads per reader and override table per format settings.		
QuickTime decoders	8 Total	Sets the number of background processes available to handle QuickTime file I/O. You must restart the application for this preference change to take effect. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;">  <b>NOTE:</b> Using too many decoders can affect performance, depending on the available hardware.           </div>
Enable PBO texture uploads	Disabled	Enabling Pixel Buffer Objects (PBOs) can improve playback performance for certain combinations of hardware, software, and file formats. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;">  <b>NOTE:</b> You must restart Hiero for this option to take effect.           </div>
Expand images from 3 to 4 channels per pixels	Dependent on OS	Enabling this option can improve playback performance for certain combinations of hardware at the expense of the number of frames cached. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;">  <b>NOTE:</b> Expansion is enabled by default on Mac and Windows.           </div>
Playback cache size	33%	Sets the percentage of total memory available for use as cache. <p>You can't set this to a value higher than 80% of the memory available (rounded down to the nearest half-GB). For example, if you have 6 GB of memory available, the maximum cache size available 4.5 GB.</p>

Preference	Default Value	Description
Lock cache into memory  (Mac only)	enabled	<p>When enabled, lock the playback cache in memory so that the operating system doesn't swap out the memory allocated for the playback cache.</p> <p>This settings can improve playback performance, but reduces the amount of memory available to run other applications.</p> <p> NOTE: Cache locking is only available on Mac OS X.</p>
Unlock cache when application is in background  (Mac only)	enabled	<p>When <b>Lock cache into memory</b> is active, enabling this control can improve system performance by allowing other applications to use the reserved system RAM when the application is running in the background.</p> <p>Bear in mind that when the application becomes active again, there may be playback delays while the cache memory is swapped back in.</p> <p> NOTE: Cache release is only available on Mac OS X.</p>
Pause caching when the application goes to the background	enabled	When enabled, pause RAM caching when the application loses focus. When you click back into Hiero or HieroPlayer, caching picks up from where it stopped.
Clear cache when the application goes to the background	disabled	When enabled, the RAM cache is flushed when the application loses focus. When you click back into Hiero or HieroPlayer, caching starts again from the position of the playhead.
Downsize filtering	1x	Set the number of samples averaged to achieve proxy resolutions for the listed bit-depths. See <a href="#">Using Downsize Sampling</a> for more information.

## Script Editor Preferences

- **Script Editor** preferences control the appearance of Hiero's Script Editor.

Preference	Default Value	Description
Font	Courier New	Sets the font to use for display purposes in the Script Editor.

Preference	Default Value	Description
Font Size	12	Sets the font size to use for display purposes in the Script Editor.
Indent	4	Sets the indent amount, in spaces, to insert when <b>Tab</b> is pressed.
Save and restore script editor history	enabled	When enabled, the last entry in the Script Editor is restored at startup.

## Optimizing Read and Decode Performance

The **Performance** preferences enable you to get the best the results from the hardware you're using by specifying the number of "threads" used for reading and decoding media.

A thread is, at its most basic level, a series of operations (in this case reading and decoding frames) that operates concurrently with other sets of operations. Most media is read intensive, but highly compressed formats like **.jpg** are decode intensive. Increasing the number of threads can decrease the time it takes to perform an instruction. For example, decoding a **.dpx** file using 2 threads, instead of 1, decodes 2 frames in parallel.

Hiero and HieroPlayer default to 2 threads per reader to accommodate lower specification hardware, but the following guidelines may improve performance.

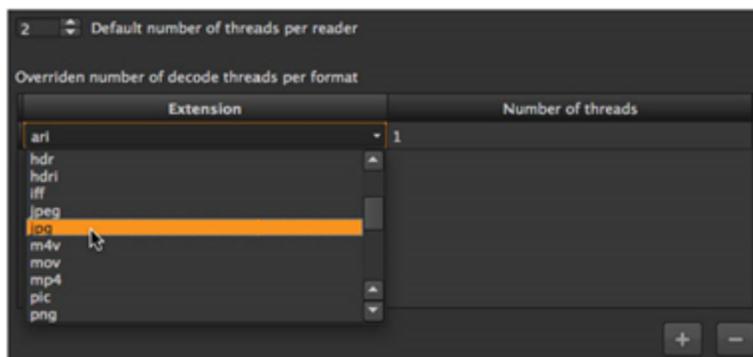
Operation	Recommended number of threads
Read or I/O	
Local HDD	2
Local SSD	3
Network HDD	2



**NOTE:** As a general rule of thumb, you shouldn't increase the number of threads above the number of cores in your machine.

You can override the **Default number of threads per reader** on a format-by-format basis using the override table in the **Preferences**.

1. Click the  icon to add an entry to the table.
2. In the **Extension** column, click the dropdown to select the file extension to override.



3. Enter the **Number of threads** to use for the selected format.  
For example, **.jpg** files rely heavily on decoding so an override setting between 6 and 8 is recommended. Setting the default threads per helper to 6 is not advisable, except on high specification hardware.
4. Click **OK** to close the **Preferences** and apply the setting immediately, there is no need to restart the application, so feel free to experiment to achieve the best combination for your setup.

## Using Helper Threads

Hiero and HieroPlayer also include two additional helper thread settings dedicated to OpenEXR and ARRI files. These helper threads assist the reader threads to improve performance for **.exr** and **.ari** files.

You can change the number of available helpers using the up and down arrows, or by simply entering the number of required helpers in the fields provided.

In general, the default setting **0** should automatically assign helper threads correctly. If, however, your project is **.exr/.ari** heavy you might consider increasing the number of helper threads.



**NOTE:** The application must be restarted to apply changes to the ARRI helper setting.

## Using Pixel Buffer Objects

Hiero also includes the option to upload textures to the GPU using Pixel Buffer Objects (PBOs), which can decrease upload times from the RAM cache to the graphics card on Windows and Linux, depending on your hardware and driver combination. This option is disabled by default, but you can enable PBOs in the **Preferences > Performance** submenu by checking **Enable PBO texture uploads**.



**NOTE:** Hiero must be restarted for this option to take effect.

The benefit of enabling PBOs may, depending on your hardware and driver combination, be increased further by enabling or disabling **Expand images from 3 to 4 channels per pixel**, also on the **Preferences > Performance** submenu.

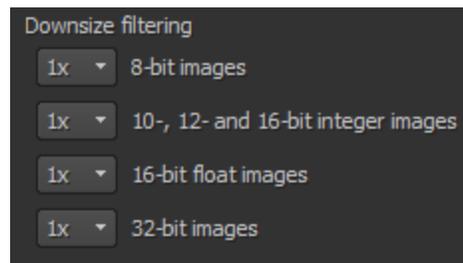


NOTE: Results may vary depending on your platform, graphics card, drivers, and source image format.

## Using Downsize Sampling

The Viewer **Image Quality** dropdown affects the decode rate and resolution of clips displayed in the Viewer. Lower resolutions decode faster and vice versa.

You can customize this behavior by bit-depth using the **Preferences > Performance > Downsize filtering** controls.



# 5 Ingesting Media

Hiero and HieroPlayer are able to handle the same file formats as Nuke (on the same operating system), including the associated embedded audio and **.wav** files.

For a full list of supported file formats and playback optimization, see [Appendix B](#).

## About Clips

The interface sorts your bin clips into three broad categories: Audio and Video, Audio Only, and Video Only. Clips are displayed differently depending on their content, location, and in the case of the Viewer, the current mode (see [Viewer Tools](#)).



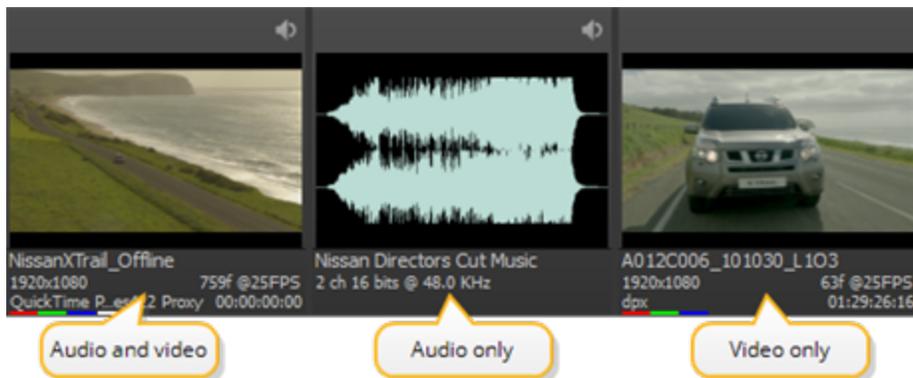
**NOTE:** Hiero and HieroPlayer currently treat all alpha channels as pre-multiplied, which can result in the Viewer background being “added” to the image. If you’re working with un-pre-multiplied images, set the Viewer background to **Black**.

See [Workspace Preferences](#) for more information.



**NOTE:** Hiero and HieroPlayer don’t currently support any QuickTime audio on Linux. Support for audio is scheduled for a later release.

## Clips in Bins



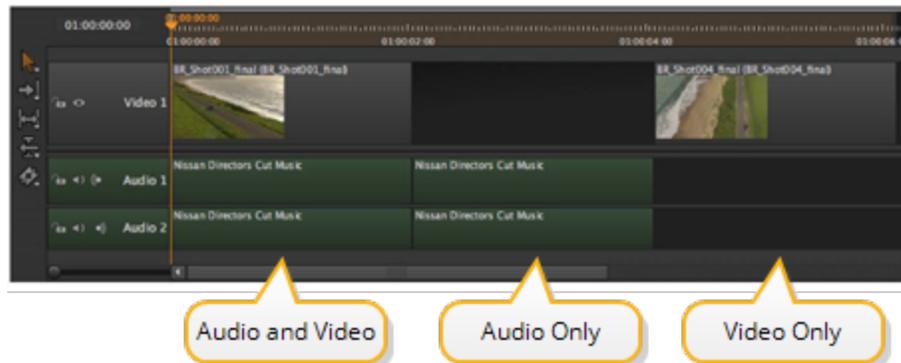


**NOTE:** The colored bars under the thumbnail represent the layers available in the clip, in this case **color**. Other layers include **alpha**, **depth**, and **motion**, similar to Nuke. See [Viewer Tools](#) for more information on displaying layers.

## Clips in the Viewer

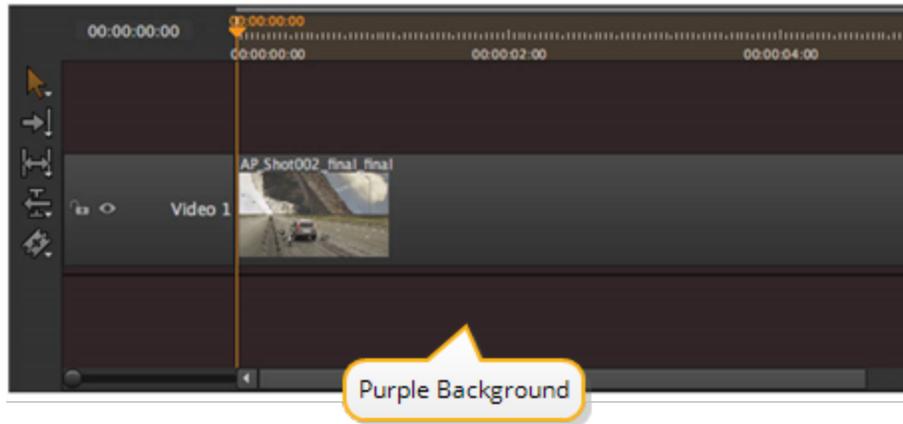


## Clips, or Track Items, on a Timeline



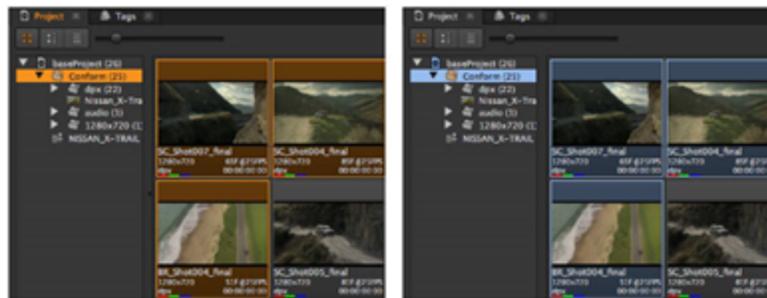
See [Managing Timelines](#) for more information.

## A Clip Opened in a Timeline



See [Using In and Out Markers](#) for more information.

Clips and track items are highlighted differently in Hiero and HieroPlayer read-only projects:



Clips selected in Hiero...

...and in HieroPlayer.

The blue highlight denotes that the project is read-only. Once you've saved the project in HieroPlayer using **File > Save as Player Project**, the highlight changes to orange.

## Ingesting Media

Adding media to Hiero, and writable HieroPlayer projects, is as simple as drag-and-drop from a file browser or selecting **File > Import Clips** or **Import Folder**. Hiero imports your media into the bin view providing you with a thumbnail of all of your clips and preserving the original folder and file hierarchy.

Both applications soft import the media used in projects, creating symbolic links to locations on disk. See [Using the Copy Exporter](#) for information on how to quickly consolidate your media and projects, or [Caching Media Locally](#) to help stabilize playback.



**NOTE:** Projects containing large amounts of movie files (for example **.r3d** and **.mov**) may exceed the number of available file handles per process, causing problems opening new files or projects and exporting.

You can increase the default limit of 1024 by entering the following command from the terminal, then running Hiero from the same session:

```
ulimit -Sn 2048
```

Clips with no inherent frame rate information are assigned a frame rate at ingest as specified in the **Preferences**.

1. Open the **Preferences** dialog by pressing **Shift+S**.
2. Select **Timecode** from the sub-menu on the left.



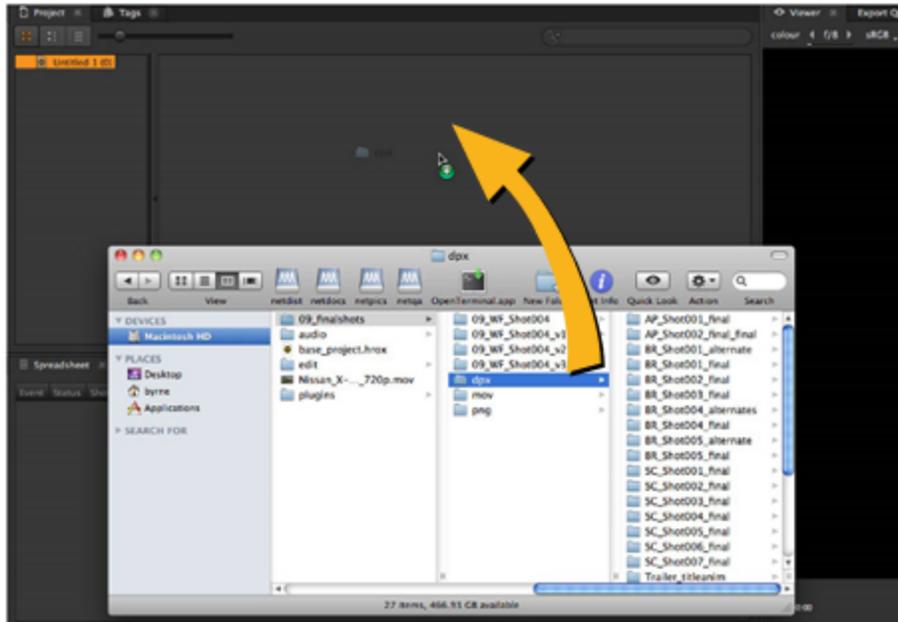
3. Use the **RED File Timecode** dropdown to determine R3D clip behavior:
  - **Default from File** - use the default set by the R3D file in question.
  - **Absolute Timecode** - force the use of the Absolute Timecode as specified in the clip metadata.
  - **Edge Timecode** - force the use of the Edge Timecode as specified in the clip metadata.
4. Use the **Other Media Timecode** dropdown to determine clip behavior for all other clips:
  - **File Header** - the file metadata header is used to derive the timecode, if it exists. This option defaults to **Frame Number** if the header is missing.
  - **Frame Number** - ignores the metadata header, even when present, and derives the timecode from the frames in the clip.
5. Set the **Max valid timebase** allowed from the image header, above which the value is clamped.
 

Image files are often created with application specific timebase values in the header description. This can lead to reading in spuriously high frame rates, and the clamp aims to prevent this from happening.

If your clips do have extremely high frame rates, increase this value as necessary to avoid clamping.
6. Enable or disable **EDL-Style Spreadsheet Timecodes**:
  - When disabled, the **srcOut** and **dstOut** values use the film convention, representing the **last** frame of the cut.
  - When enabled, the **srcOut** and **dstOut** values use the video convention, representing the frame directly **after** the cut.
7. Click **OK** to save your settings.

## Using Drag-and-Drop

Simply locate your media in a file browser and drag the frame range, clip, folder, or folders into the **Project** tab.



Ingest behavior depends on the target:

- Dragging a folder into the **Project** tab automatically ingests all the contents of the folder, including other folders and their contents.
- Dragging a movie file, such as a **.mov** or **.r3d**, automatically ingests the entire clip.
- Dragging a single file or file range, that is part of an image sequence, is controlled by the **Preferences > General > Scan for file sequence range** checkbox:
  - **Enabled** - the default setting, dragging a single file or file range, that is part of an image sequence, creates a clip in the bin view containing all available frames.  
For example, dragging frames 1-5 and 11-20 ingests the entire frame range.
  - **Disabled** - only the dragged frame or range is imported into the bin.  
For example, dragging frames 1-5 and 11-20 ingests two distinct clips, one containing 5 frames and one containing 10 frames.

## Using the File Browser

If you prefer to work with menus, you can also import clips using the file browser. You can import individual clip files, ranges, or entire folders, depending on the amount of media you intend to use.

1. Navigate to **File > Import Clips** or **Import Folders**.

**TIP:** You can also use the **Ctrl/Cmd+I** and **Ctrl/Cmd+Shift+I** hotkeys.

A browser dialog box displays.

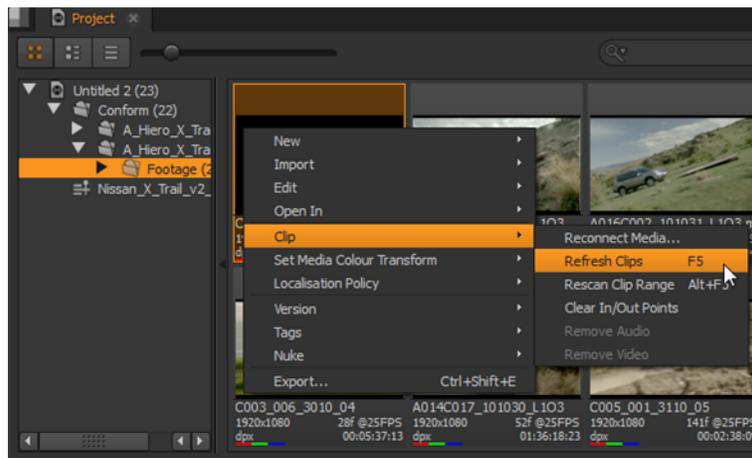
2. Select the type of sequence to display:
  - **Auto Sequences** - displays only sequences containing appropriate file types, such as **.dpx** and **.jpg**. For example, **myclip.##.dpx**.
  - **No Sequences** - displays individual file names with out collapsing them into sequences. For example, **myClip.01.dpx**, **myClip.02.dpx**, **myClip.03.dpx**, and so on.
  - **All Sequences** - displays all possible sequences regardless of file type, including **.mov** and **.r3d**.
3. Check **split seq** to split incomplete sequences into separate clips.
4. Enter text in the **Filter** field and use the dropdown to show or hide files:
  - Select **\*** to display all files except hidden files.
  - Select **.\* \*** to display all files, including hidden files.
  - Select **\*/** to display directory names, but not their contents.
5. Select the file(s) or folder(s) that you require and click **Open**.

If you import folders, use the **Import Options** dialog to filter your ingest using inclusion and exclusion parameters, separated by spaces. The dialog's **Include patterns** field defaults to **{supportedfiles}**, which resolves to a list of all known supported file extensions. To add your own custom extensions to this, you can use **{supportedfiles} \*.ext** (replacing **.ext** with your custom file extension).

Hiero automatically sorts through your selection and only imports supported file types.

## Reconnecting and Refreshing Clips

During the post process, media inevitably changes location or form. You can reload or replace your media using the reconnect, refresh, and rescan functions.



Though all three options deal with reloading bin clips, each has a particular use dependent on context:

- **Reconnect Media** - allows you to redirect the filepath when the source file location changes.
- **Refresh Clips (F5)** - allows you to reload the clip when the source file location has not changed, such as when work has been done on the clip offline. Selecting refresh only refreshes the clip's current frame range.
- **Rescan Clip Range (Alt+F5)** - similar to **Refresh Clips**, above, but rescan also checks for additional frames that may have been added to the source file and adds them to the bin clip's frame range.

## Caching Media Locally

Hiero and HieroPlayer have the facility to cache files locally, either individually or by setting an automatically localized folder, to help guarantee playback stability. Local caching is controlled initially in the **Preferences** dialog, then on a clip-by-clip basis.



**NOTE:** During export, Hiero references the original source files, not the localized playback copy. This is primarily to avoid issues with the localization state of the media when Nuke attempts to locate the files. As a workaround, you can point Nuke at the same localization directory as Hiero using Nuke's **Preferences > Localize To** field.

By default, files are cached to the same location as thumbnail data, though the path varies by platform:

- **Mac and Linux** - `/var/tmp/hiero`
- **Windows** - the system temporary directory, usually `C:\temp`

To setup your initial caching preferences:

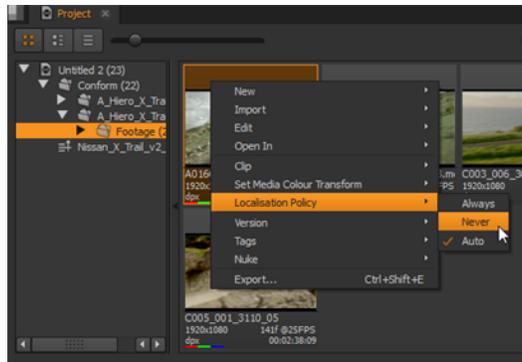
1. Open the **Preferences** dialog by pressing **Shift + ,** (comma).
2. Enter a filepath for **Auto Localize From**, if required.  
Any files that reside in this directory are automatically cached when conformed or ingested in Hiero.
3. Enter a filepath for **Localize To**, if required.  
Leaving this field blank creates a subdirectory in the **Temp Directory** as the local cache.
4. Enter a value for **Max localized files**, in mega bytes, to control how much disk space is available in the cache directory.



**NOTE:** Negative values in this field reserve the specified amount of space at all times. For example, `-2000` stops 2 GB of memory being used for caching.

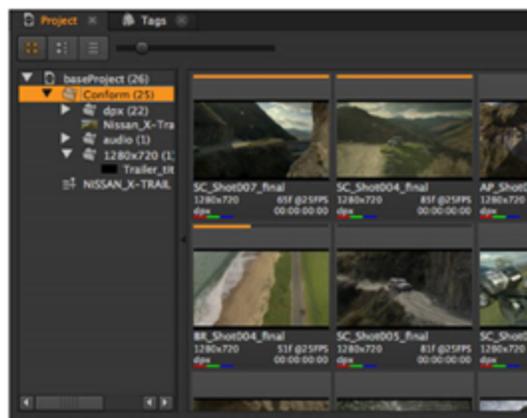
To cache individual clips and control localization:

1. Select the clip(s) in the bin view.
2. Right-click and select **Localization Policy** to display the available options:



- **Always** - the selection is cached, regardless of its location, as long as the **Max localized files** limit is not breached.
- **Never** - the selection is never cached, regardless of its location.
- **Auto** - the selection is cached if it resides in the **Auto Localize From** directory, as long as the **Max localized files** limit is not breached.

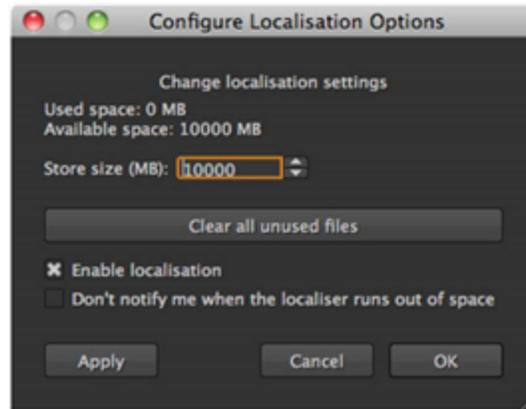
As clips cache, a progress bar displays in the thumbnail. Fully cached clips are marked with an orange bar at the top of the thumbnail.



3. Navigate to **Cache > Localization > Edit Settings** to display **Localization Options**.



**NOTE:** This dialog also displays when you reach the **Max localized files** limit.



- The localization cache defaults to 10000 MB, but you can change its size using the **Store size** field, if required.



**NOTE:** Negative values in this field reserve the specified amount of space at all times. For example, -2000 stops 2 GB of memory being used for caching.

- You can enable or disable local caching by clicking **Enable localization**. You can also toggle local caching on or off using the **Cache > Localization** menu.
- Click **Clear all unused files** to purge the localization cache of all clips not in use in the current session. You can also purge the cache using the **Cache > Localization** menu.
- Check **Don't notify me when the localiser runs out of space** to stop this dialog displaying if you run out of localization cache space.
- Click **Apply** to confirm changes without closing the dialog or click **OK** to close the dialog and accept changes.

Hiero and HieroPlayer also feature a playback cache, allowing frames to be cached in RAM memory instead of on local disk. See [Caching Frames in the Playback Cache](#) for more information.

# 6 Using the Viewer

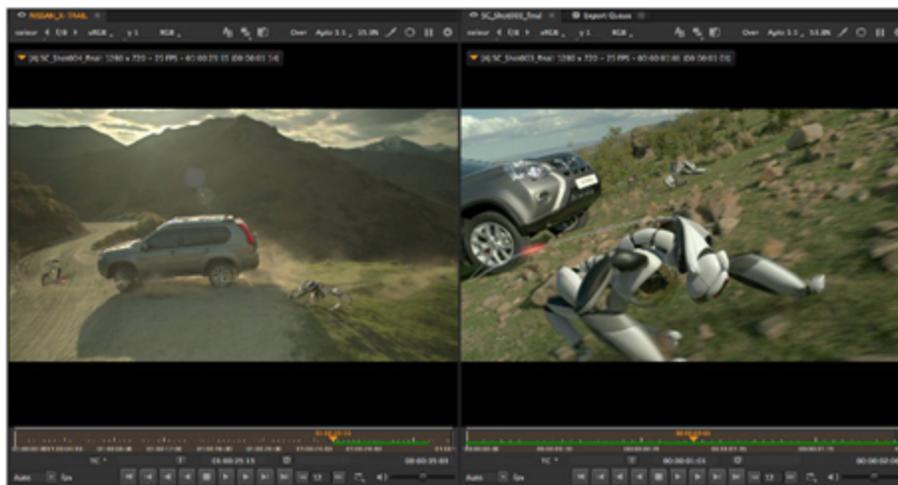
Hiero and HieroPlayer support two distinct Viewer types: clip and sequence. This chapter describes the difference between the two and how to use them.

## Introduction

Clip Viewers, sometimes referred to as source Viewers, are marked with the  icon and deal exclusively with bin clips. You can set In and Out points and apply tags to the Viewer, but the source clips are unaffected.

Sequence Viewers, also known as record Viewers, are marked with the  icon and deal with sequences and track items on the timeline. You can set In and Out points and apply tags here too, but you can also edit the track items on the timeline by trimming, retiming, and so on. See [Timeline Editing Tools](#) for more information.

The **Editing** workspace combines both clip and sequence Viewers by default, enabling you to add bin clips to the timeline using insert and overwrite functions. See [Insert, Overwrite, and 3-Point Editing](#) for more information.

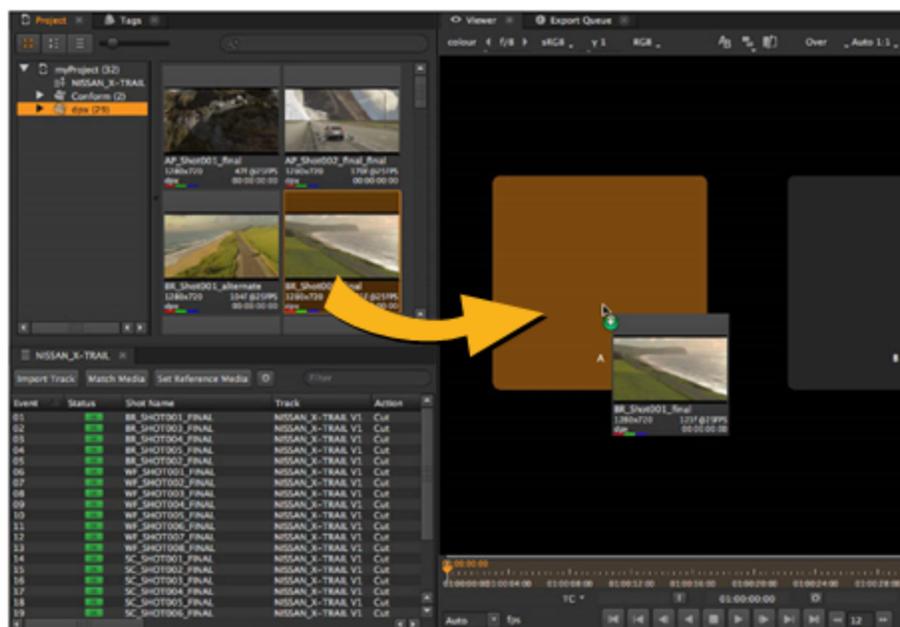


To view your media in a Viewer, simply drag-and-drop a clip or sequence from the **Project** tab on to a Viewer input, or double-click the item to send it to the appropriate Viewer.



**NOTE:** Hiero and HieroPlayer currently treat all alpha channels as premultiplied, which can result in the Viewer background being “added” to the image. If you’re working with un-premultiplied images, set the Viewer background to **Black**.

See [Workspace Preferences](#) for more information.

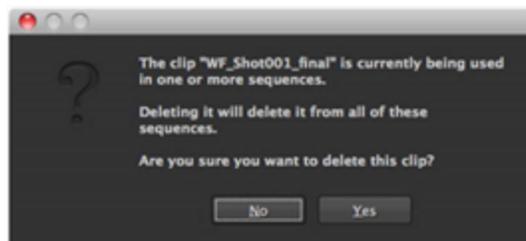


**NOTE:** On Linux builds with dual monitors, you may need to set which screen is synchronized for NVIDIA graphics cards. See [Synching to VBlank on Linux](#) for more information.

## Deleting Media

To remove media from the bin view, select the clip(s) or bin and press **Backspace** or **Delete**.

If any of the media is in use in a sequence, the following warning displays:



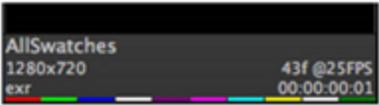
Click **Yes** to delete the media from the bin view, but bear in mind that all instances of the deleted media are removed from your current sequences.



NOTE: You cannot delete clips from HieroPlayer read-only projects.

## Viewer Tools

The Viewer has two sets of tools for manipulating your media: the Viewer tools and the playback tools. The Viewer tools, located at the top of the Viewer, are used to affect the mouse pointer as you move over the Viewer, and to select Viewer preferences:

Icon	Function	Description
	Layers	<p>Select the layer to output to the Viewer, for example <b>forward</b> motion vectors or <b>disparityL</b>. Only layers available in the clip are displayed - check the clip's thumbnail to see at a glance which layers are present:</p>  <ul style="list-style-type: none"> <li> - red color layer.</li> <li> - green color layer.</li> <li> - blue color layer.</li> <li> - alpha layer.</li> <li> - depth layer.</li> <li> - forward motion vector layers.</li> <li> - backward motion vector layers.</li> <li> - all other custom layers, such as disparity.</li> </ul> <p> NOTE: You can scroll through available layers using <b>PgUp</b> or <b>PgDn</b>.</p>
	Gain	Adjusts the gain applied to the linear input image before viewing, but doesn't affect your exported image.

Icon	Function	Description
	Viewer color transform	Set the colorspace used to display images in the Viewer, for example <b>sRGB</b> and <b>rec709</b> .   <b>NOTE:</b> If you have specified an OpenColorIO configuration file in the <b>Preferences</b> , you may have more colorspace choices available.
	Gamma	Adjusts the gamma applied to the image after the viewing transform, but doesn't affect your exported image.
	Channels	Select the channel(s) to output to the Viewer, for example <b>RGB</b> , single channel, <b>Alpha</b> , or <b>Luma</b> .
	Viewer Output	Click the <b>Viewer Output</b> button and then select what you want to view. This can be selected tracks or tracks with selected tags.
	Viewer Layout	Select the Viewer configuration, <b>Stack</b> , <b>Horizontal</b> , or <b>Vertical</b> .
	SplitWipe	When both Viewer inputs contain an image, enable SplitWipe to compare the two images.
Blend Mode		Set the type of interaction between images in the Viewer, for example <b>Onion Skin</b> or <b>Difference</b> .
Image Quality		Set the Viewer image quality, for example <b>1:1</b> , <b>1:4</b> , or <b>1:16</b> . The default setting, <b>Auto</b> , resizes the image dependent on the Viewer zoom level, which may re-cache the image at a higher resolution.   <b>NOTE:</b> Image quality, or proxy, for RED clips is dependent on the clip's <b>Decode Resolution</b> in the <b>Effect</b> tab. For example, if you're viewing a 4K file and the <b>Decode Resolution</b> is set to <b>Half Premium</b> , a 1:1 proxy value is equal to 2K, 1:2 is equal to 1K, and so on.
Scale		Set the scale applied to the clip in the Viewer, for example <b>25%</b> , <b>75%</b> , or <b>Fit</b> .

Icon	Function	Description
	Color Sample	<p>Enable or disable the RGBA color information sampler in the Viewer.</p> <div style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;">  <b>NOTE:</b> The <b>Color Sample</b> tool displays color information from the source file, not the colorspace selected in the Viewer color transform dropdown.         </div> <p>See <a href="#">Working with Colorspaces</a> for more information.</p>
	ROI	Click and drag to define a Region of Interest (ROI) in the Viewer. The scopes only display information within the ROI, when active.
	Pause playback caching	Pause or release Viewer playback caching, indicated by the green bar under the Viewer. See <a href="#">Caching Frames in the Playback Cache</a> for more information.
	Guides	<p>Enable or disable Viewer overlays:</p> <ul style="list-style-type: none"> <li>• <b>Title Safe</b> - any text intended for the audience should reside within this zone.</li> <li>• <b>Action Safe</b> - any visual elements intended for the audience should reside within this zone.</li> <li>• <b>Format</b> - adds a red, format-dependent box for the clip or sequence in the Viewer. Sequences support multi-format clips, see <a href="#">Viewing Multi-Format Timelines</a> for more information.</li> </ul>
	Mask	Enable or disable a range of Viewer masks, for example <b>16:9</b> or <b>1.85:1</b> .
	Non RT Playback	<p>Sets the Viewer playback mode:</p> <ul style="list-style-type: none"> <li>• <b>Play All Frames</b> - the default setting, plays all frames in realtime (dependent on hardware).</li> <li>• <b>Skip Frames</b> - plays frames in realtime skipping where necessary to maintain the frame rate.</li> <li>• <b>Play All Frames, Buffering</b> - plays all frames by buffering and playing frames back as they become available.</li> </ul>

Icon	Function	Description
	See through missing media	When disabled, any offline media on a timeline is treated as a blank clip so the Viewer cannot display the track underneath. This setting also applies to missing frames within a clip.   <b>NOTE:</b> This control only affects the current Viewer.
	Crop to Format	Enable or disable cropping when viewing sequences. When enabled, areas outside the <b>Format</b> guide are cropped automatically.
	Clipping	Enable or disable Hiero's clipping warning tools: <ul style="list-style-type: none"> <li>• <b>No Warnings</b> - all clipping warnings are disabled.</li> <li>• <b>Exposure</b> - alerts you when the image is under (blue) or over (red) exposed.</li> <li>• <b>Hot PAL Colors</b> - alerts you when the image chroma is too low (blue) or high (red) for PAL formats.</li> <li>• <b>Hot NTSC Colors</b> - alerts you when the image chroma is too low (blue) or high (red) for NTSC formats.</li> </ul>
	View	Select the Viewer display mode, for example <b>Audio and Video</b> or <b>Video Only</b> .
	Obey Alpha	Allows you to control the alpha channel independent of the Viewer <b>Blend Mode</b> . <ul style="list-style-type: none"> <li>• <b>Enabled</b> - any alpha channel present in the image is treated as premultiplied transparency.</li> <li>• <b>Disabled</b> - the alpha channel is ignored.</li> </ul>
	Audio latency	Sets the audio latency, in milliseconds, for the current Viewer only. Audio latency allows you to correct audio and video synchronization by changing the point at which audio playback starts.  Positive values cause the audio track to start earlier in relation to the video track, and vice versa.
n/a	Pan	On Mac and Windows, hold <b>Alt</b> and drag the image to pan. On Linux, use <b>middle-click</b> and drag to pan.

## Playback Tools

The playback tools manipulate the media itself, in much the same way as other editing or playback software.



The playback tools can be summarized as follows:

- **In and Out markers** - numerical representations of the clip In and Out markers, if they're set.
- **Playhead position** - numerical representation of the current position of the playhead.
- **Frame rate** - allows you to force the Viewer to play at a certain speed, within your hardware's limitations, by entering the required frame rate in the field provided.
- **Display Mode** - select the timing method to display during playback:
  - **Timecode (TC)** - displays the timecode read from the clip's metadata or from the timeline.
  - **Timeline Frames (TF)** - displays the frame number read from the clip's metadata or from the timeline.
  - **Drop Frame** - is a timecode display option that leaves out two frames from the 30 fps timecode sequence every minute (except every 10th minute) so that long running NTSC sequences are accurate to a real-time clock (NTSC frame rate is 3000/1001, or approximately 0.01% slower than 30 fps).

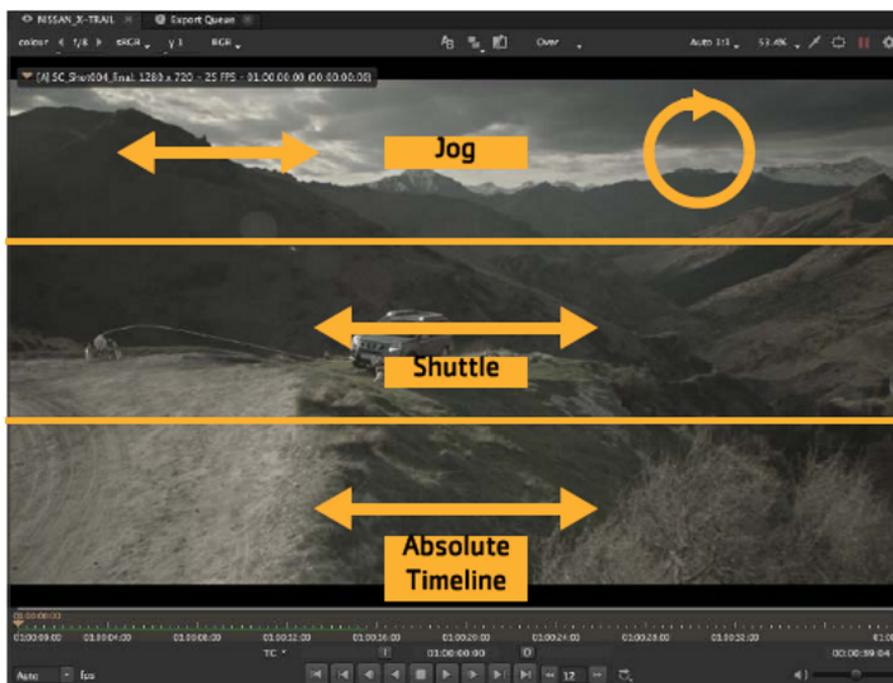


**NOTE:** Enabling **Drop Frame** is a Timecode display feature only - the source media remains a continuous stream of frames.

- **Playback Controls** - standard media playback controls including continuous or by frame forward and backward, skip to next or previous edit, skip to start/end of the timeline, and Frame Increment.

The **J**, **K**, and **L** hotkeys also control playback. The **K** hotkey is mapped to **Pause/Play** and **JL** to backward and forward. Combinations are also supported:

- **K+J** - frame backward.
- **K+L** - frame forward.
- **K+drag** in the top third of the Viewer - standard jog controls. Dragging the cursor left and right moves the playhead backward and forward, frame-by-frame.  
The jog controls also detect rotary motion to jog through frames. Clockwise motion in the top third of the Viewer, while holding **K**, advances the playhead and vice versa.
- **K+drag** in the middle third of the Viewer - standard shuttle controls. Dragging the cursor left and right plays backward and forward, with increased frame rate toward the edges of the Viewer.
- **K+drag** in the bottom third of the Viewer - skips the playhead to absolute timeline position.



The following table describes playback behavior depending on the **Playback Mode** selected.

Mode	Description	In/Out Effect
Repeat	Play through from start to finish in an infinite loop.	Repeats within the In-Out Points.
Bounce	Play through from start to finish then reverse to the start and repeat.	Bounces within the In-Out Points.
Stop	Play through from start to finish then stop.	Play through to the Out Point.
Continue	Play once through all media in the Viewer sequentially.	In-Out range has no effect.

- **Volume** - controls the playback volume for the current Viewer.



**NOTE:** If the video frame rate is unavailable, no audio is output. The speaker icon under the Viewer changes to the no audio playback icon if this is the case.



**TIP:** You can also control volume on a per track and per track item basis. See [Audio and the Timeline](#) for more information.

## Caching Frames in the Playback Cache

Hiero and HieroPlayer's playback cache places frames in RAM for rapid retrieval during playback, rather than copying the source files locally as with [Caching Media Locally](#).

The green bar under the Viewer represents the contents of the playback cache, a full bar indicating that the entire clip or timeline is currently accessible from RAM, optimizing playback. You can:

- Temporarily disable caching using the pause button above the Viewer, or use the **P** hotkey. Clicking pause again, resumes caching from the playhead position.
- Flush the cache completely by navigating to **Cache > Clear Playback Cache**. Caching is automatically paused after flushing, but clicking the pause button resumes caching from the playhead position.

There are also a number of **Preferences** that affect how much RAM is available and when caching should occur. To set the caching behavior:

1. Navigate to **Hiero** (HieroPlayer) > **Preferences** (OS X) or **Edit > Preferences** (Linux and Windows),  
OR  
Use the Preferences hotkeys **Shift+,** (comma).
2. Click the **Performance** sub-menu.
3. Set the total RAM cache available using the **Playback cache size** field.



**NOTE:** You can't set this to a value higher than 80% of the memory available (rounded down to the nearest half-GB). For example, if you have 6 GB of memory available, the maximum cache size available 4.5 GB.

4. Enable **Pause decoding when the application goes to the background** to pause playback caching when the application loses focus.  
When you click back into Hiero or HieroPlayer, caching picks up from where it stopped.
5. Enable **Clear cache when the application goes to the background** to flush the playback cache when the application loses focus.  
When you click back into Hiero or HieroPlayer, caching starts again from the position of the playhead.

## Mac OS X Specific Controls

Mac OS X handles memory differently to Linux or Windows and, as a result, these controls can improve performance:

1. Enable **Lock cache into memory** so that the operating system doesn't swap out the memory allocated for the playback cache.  
This settings can improve playback performance, but reduces the amount of memory available to run other applications.



NOTE: Cache locking is enabled by default.

2. Enabling **Unlock cache when application is in background** can improve system performance by allowing other applications to use the reserved system RAM when the application is running in the background. Bear in mind that when the application becomes active again, there may be playback delays while the cache memory is swapped back in.



NOTE: Cache release is enabled by default.

## Using In and Out Markers

In and Out markers enable you to alter the duration of a clip to just the portions of the source that you require.

When a clip containing In and Out points is added to a timeline, you can slip the clip around the markers to adjust the clip's output. See [Timeline Editing Tools](#) for more information.

You can also use In and Out points to export certain portions of a clip or sequence. See [Transcoding](#) for more information.

To set In and Out markers:

1. Right-click on the required clip or sequence and select **Open In > Timeline View**.  
Clips opened in a timeline have a purple background in the timeline.
2. Move the playhead to the location of the In point and press **I** on your keyboard.  
The In point is marked by the In tab and the time is recorded in the playback controls.
3. Move the playhead to the location of the Out point and press **O** on your keyboard.  
The Out point is marked by the Out tab and the time is recorded in the playback controls.



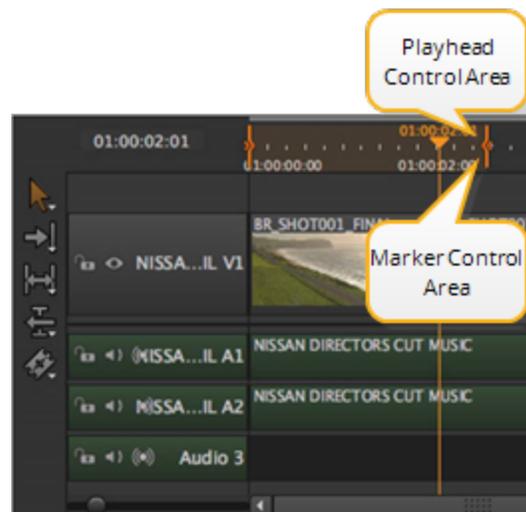
NOTE: You can also set markers by navigating to **View > Mark In** or **Mark Out**, by using the **Timeline** menu to **Mark Selection** or **Mark Clip** dependent on clip selections on the timeline, or by right-clicking a track items and selecting **Open In > Viewer**.

Click and drag the markers to adjust their position, or hold **Ctrl/Cmd** to move both markers at once, retaining their relative positions. A Viewer preview shows the current frame for the selected marker(s) and a timecode/frame popup helps to set the new position.



Clear the markers from your clip by navigating to **View > Clear In Point (Alt+I)** and **Clear Out Point (Alt+O)**. The markers are removed completely, but you can reapply them by repositioning the playhead and pressing **I** or **O**.

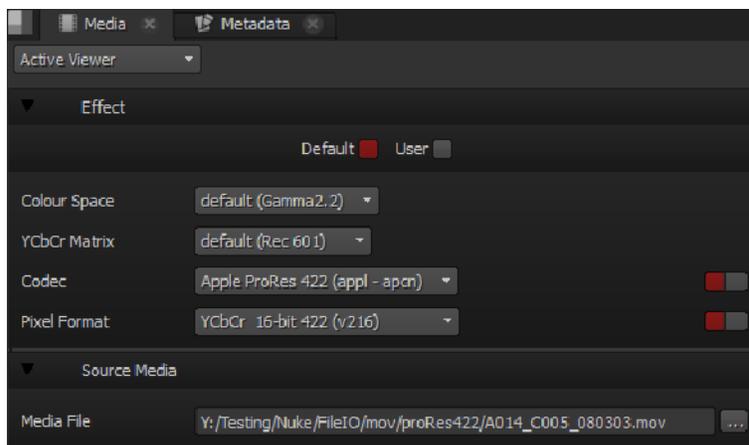
When the playhead is positioned near In and Out markers, the top half of the timecode scale controls the playhead and bottom half controls the markers.



## Using the Media Tab

The **Media** tab contains format specific controls dependent on the media currently in the Viewer. If the **Media** tab is not displayed in your workspace, navigate to **Window > Media** to open it in a floating window.

As an example, **.mov** files allow you to control the **Color Space**, **YCbCr Encoding**, **Codec**, **Pixel Format**, and **Source Media** for clips:

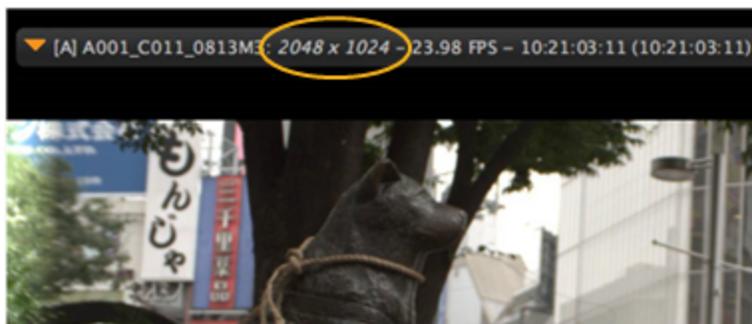


See [About QuickTime Media](#) for more information on QuickTimes.

R3D and ARRIRAW media, however, use their own software development kits (SDKs) to control the extensive settings usually seen on RED and ARRIRAW Cameras, as well as the **Source Media**.

The RED **Decode Resolution** and ARRIRAW **Resolution** and **Proxy** dropdowns control the maximum allowed Viewer resolution, overriding the **Image Quality** setting.

When a clip's resolution is altered using these controls, the resolution displayed in the Viewer is *italicized* to indicate that the clip is not displayed at full resolution.



## Notes for R3D clips

The following R3D controls have no effect in Hiero's default 16-bit half-float decoding mode:

- Version (always set to ColorVersion2)
- Shadow
- Contrast
- CustomPDLogBlackPoint, CustomPDLogWhitePoint and CustomPDLogGamma
- RestrictedRange

This list is subject to change depending on the R3D software version in use.

## Notes for ARRIRAW clips

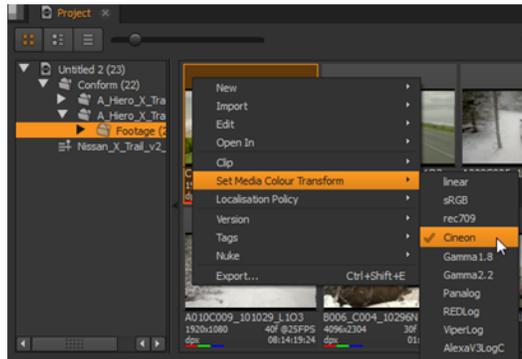
- ARRIRAW specific controls do not currently work in **LogC** colorspace.
- Generally, the **Unsqueeze Anamorphic** control should not be enabled because the Hiero, HieroPlayer, and Nuke Viewers expand the image automatically.

## Working with Colorspaces

Colorspace changes are applicable to clips in bins and track items, as well as in the Viewer using the **Media** tab.

To apply colorspace changes to clips in bins:

1. Select the clip or clips in the bin view.
2. Right-click a selected clip and navigate to **Set Media Color Transform**.



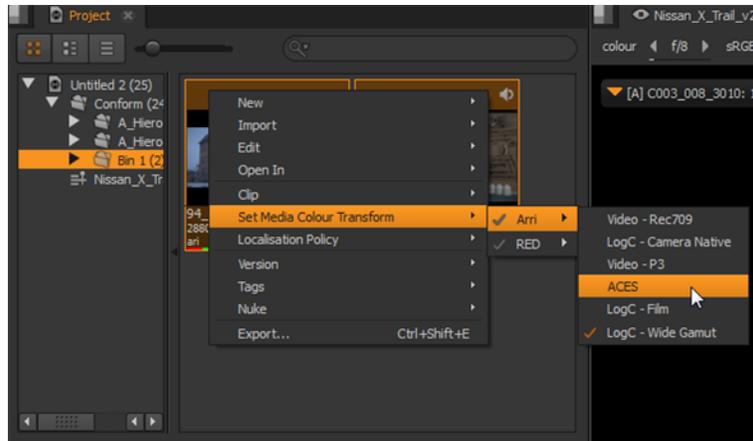
The current colorspace is highlighted with a tick mark.

3. Select the colorspace to apply to the clip selection.



**NOTE:** Only colorspaces applicable to the selection are displayed. For example, **REDspace** and **LogC - CameraNative** are only available for R3D and ARRIRAW clips, respectively.

4. Selecting multiple formats supporting different colorspaces, for example R3Ds and ARRIRAW, breaks the available LUTs into sub-menus:



To apply colorspace changes to track items:

1. Select the item(s) on the timeline.
2. Right-click a selected item and navigate to **Set Media Color Transform**.
3. Select the colorspace to apply to the selection.

## Previewing on a Broadcast Monitor

Hiero's monitor out feature allows you to preview Viewer images on an external broadcast video monitor to check the final result, including the correct colorspace and aspect ratio. This option requires additional hardware, such as a monitor output card or a FireWire port.



**NOTE:** HieroPlayer does not support Monitor Out cards.

Our monitor out architecture interfaces directly with the AJA and BlackMagic device drivers, which are unified across their respective hardware lines, meaning all current supported cards for the following versions should work:

- BlackMagic: 9.1
- AJA: 3.2 on Mac OS X, 10.5.2 on Windows

We test using a selection of the following hardware :

- BlackMagic: Current BlackMagic Decklink PCI hardware, including Decklink SDK, DeckLink 4K Extreme, and Ultrastudio SDI Thunderbolt devices (Mac only).
- AJA: Current AJA Kona PCI Family, including Kona 3G, LHi, LHe Plus, and ioXT Thunderbolt device (Mac only).



**NOTE:** AJA monitor out cards are not currently supported on Linux.



**NOTE:** On Mac, the AJA Kona 3G is only supported on OS X 10.7 (Lion), or above.



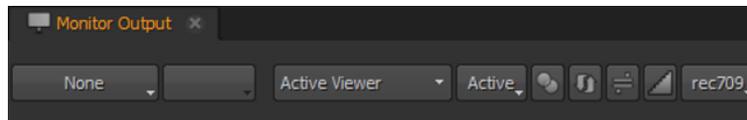
**NOTE:** Monitor out on Windows machines with AMD graphics cards is not currently supported.

Some monitor out cards allow you to extend or mirror your desktop so that Hiero's user interface is visible on the monitor. Please refer to your card's documentation for more information.

To preview output on an external broadcast video monitor:

1. Navigate to **Window > Monitor Output**.

The **Monitor Output** toolbar displays in a floating pane.



2. Select the external device you want to use from the output device dropdown. All available devices are automatically detected and listed in this menu, along with the following default options:
  - **None** - disables the monitor out feed.
  - **Floating Window** - opens up a pseudo output monitor window, without the need for a monitor device and card. This is intended for full-screen use without displaying any of Hiero's interface.
3. Select the display format for the device selected in the previous step. The available options depend on the device you are using.
4. Select the Viewer to feed to the output monitor using the source viewer dropdown. Selecting **Active Viewer** always display the current Viewer.
5. Select the view mode using the A/B selection dropdown. All the usual Hiero A/B controls, such as **SplitWipe**, are available on the output monitor.
6. Click the filter button to apply the active Viewer's filtering, gamma, and gain to the monitor output.
7. Click the flip button to flip the output vertically.
8. Click the range button to switch between full-range 0-255 (default) and 16-236 (ITU-R BT.610-4). This button can correct the image output for certain monitor out cards.
9. Click the bit-depth button to toggle between 8- and 10-bit monitor output.
10. Select the colorspace to apply to the image, **rec709** in the example shown previously. If you've specified an OCIO configuration file in **Preferences > Viewers**, these custom LUTs are also applicable.



**NOTE:** If you plan to use the OCIO config file specified in Hiero or HieroPlayer, ensure that the **Preferences > Color Management > Use OCIO nodes when exporting in Nuke** checkbox is enabled.

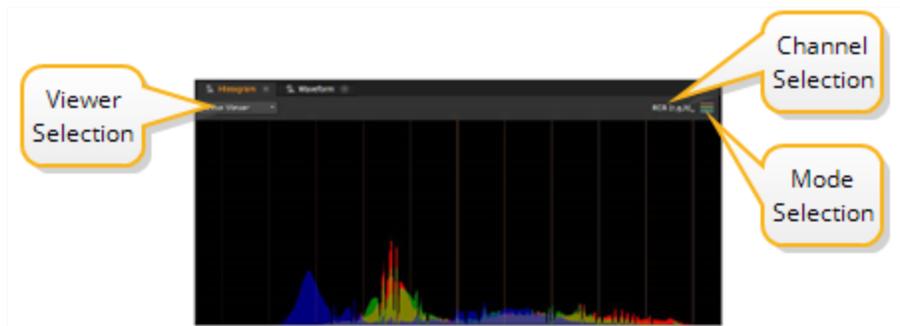
## Using Scopes

Hiero and HieroPlayer provide realtime scopes to help you evaluate your media. Realtime scopes provide data as the Viewer plays your clip, but you can also view the scopes frame by frame if you prefer.

### Histogram

The **Histogram** provides three color channel and luma channel information that describes the distribution of red, green, blue, and luma pixels throughout the current frame.

The Histogram graphs the number of pixels at each brightness level, and from left to right, the areas of the Histogram represent shadow, mid tones, and highlights.

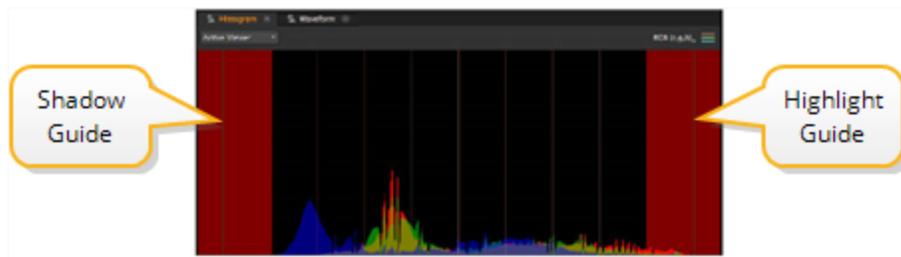


There are also **Viewer** and **Channel** selection controls on the **Histogram** tab:

- **Viewer selection** - if you have multiple Viewers open, use the dropdown menu to associate Histogram output to the required clip.  
The default value, **Active Viewer**, automatically displays details on the last Viewer you selected.
- **Channel selection** - select the channels to output. The default setting displays RGB, but you can also view channels separately.
- **Mode selection** - select the mode to output. The default setting displays ganged RGB, but you can also view the channels separately.

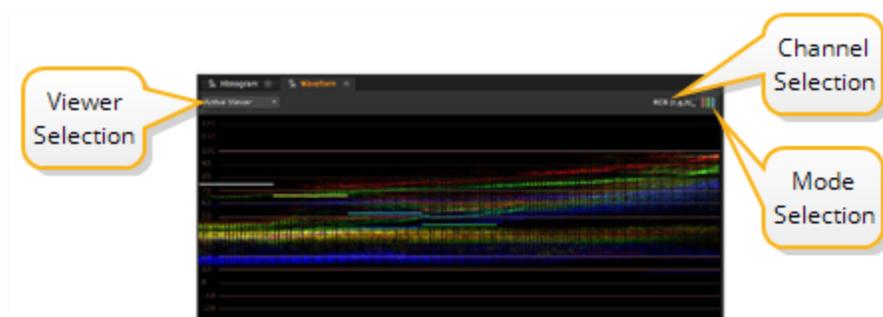
The scopes feature global customizable guides to help you view your clips. Navigate to **Hiero** (HieroPlayer) > **Preferences** > **Scopes** (OS X) or **Edit** > **Preferences** > **Scopes** (Linux and Windows) and enter values between **0** and **1** for the **Black** and **White** points. Note that this also sets the values for the Waveform display.

The guides at the edges of the Histogram turn red to warn you when the distribution is out of range:



## Waveform

The **Waveform** scope provides information on clip luminance, or brightness, which you can use to decide whether the clip is over or under exposed. The white traces represent luminance values from 0 - 100% (black through the spectrum to white). The higher the waveform, the brighter the image in the Viewer.



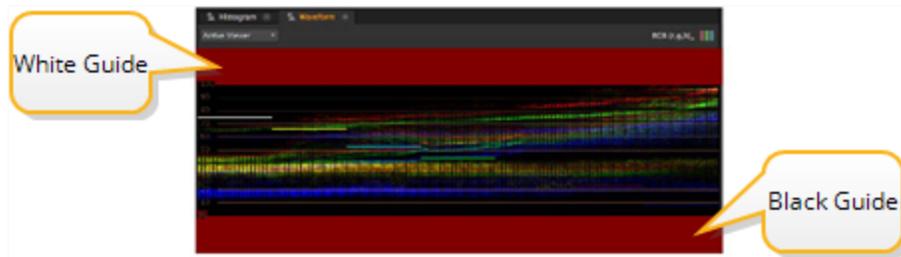
The upper white marker is used to measure when over exposure could be a problem. If your waveform has a lot of traces over the white marker, you should consider reducing the brightness of the clip. The opposite is true of the lower black marker.

There are also **Viewer** and **Mode** selection controls on the **Waveform** tab:

- **Viewer selection** - if you have multiple Viewers open, use the dropdown menu to associate Waveform output to the required clip.  
The default value, **Active Viewer**, automatically displays details on the last Viewer you selected.
- **Channel selection** - select the channels to output. The default setting displays RGB, but you can also view channels separately.
- **Mode selection** - select the mode to output. The default setting displays ganged RGB, but you can also view the channels separately.

The scopes feature global customizable guides to help you view your clips. Navigate to **Hiero** (HieroPlayer) > **Preferences** > **Scopes** (OS X) or **Edit** > **Preferences** > **Scopes** (Linux and Windows) and enter values between **0** and **1** for the **Black** and **White** points. Note that this also sets the values for the Histogram display.

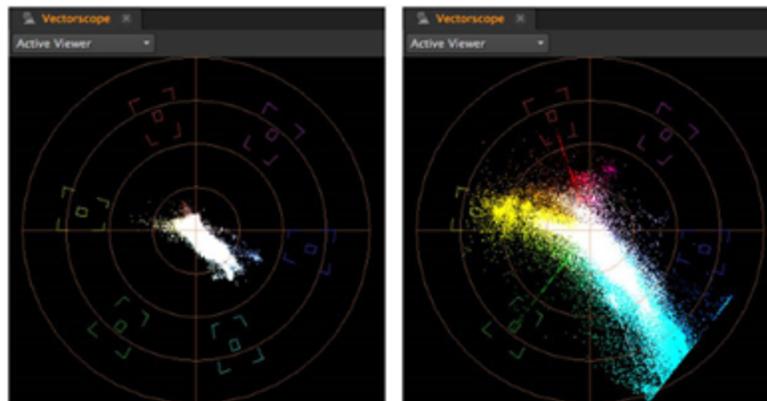
The guides at the top and bottom of the Waveform turn red to warn you when the distribution is out of range:



## Vectorscopes

**Vectorscopes** display color, saturation, and hue information for the current frame. Similar to color wheels, Vectorscopes display information radially, from the center outward. The farther from the center the data spans, the more saturation is represented.

In the image on the left, you can see that the frame represented contains mostly blues and cyans, but the values are not oversaturated. The image on the right represents a badly saturated frame. Notice the spill of cyan traces distributed toward the edge of the scope pass the target (the highlighted square).



Normal saturation.

High Saturation.

There is also a **Viewer** selection control on the **Vectorscope** tab:

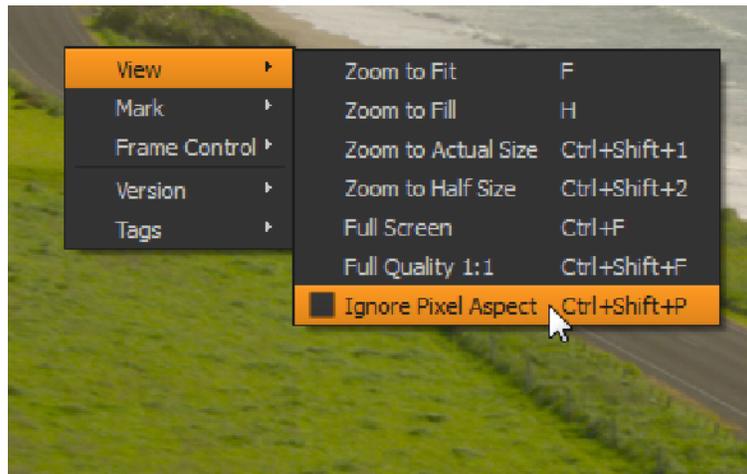
- **Viewer selection** - if you have multiple Viewers open, use the dropdown menu to associate Vectorscope output to the required clip.

The default value, **Active Viewer**, automatically displays details on the last Viewer you selected.

## About Anamorphic Media

The Viewer automatically recognizes anamorphic clips and displays them with the correct aspect ratio.

If for any reason you want to display an anamorphic clip with a 1:1 aspect ratio, right-click in the Viewer displaying the clip and enable the **Ignore Pixel Aspect** checkbox, or use the **Ctrl/Cmd+Shift+P** hotkeys.

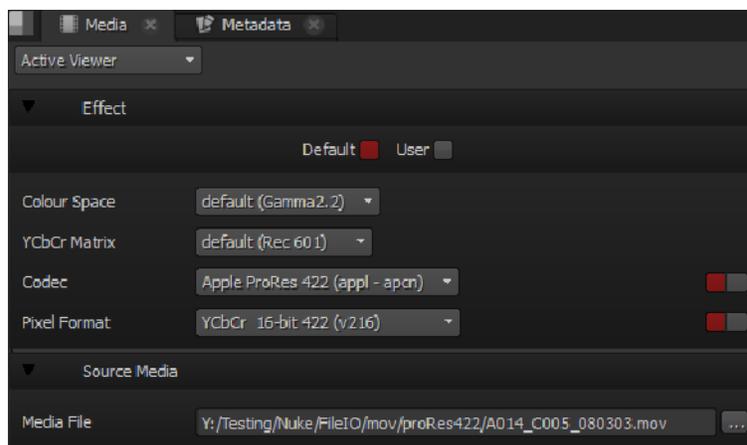


## About QuickTime Media

Working with **.mov** files can be unpredictable when compared to other formats, so Hiero and HieroPlayer give you a few QuickTime options when reading and writing **.mov** files.

Hiero attempts to select the 'best fit' combination by reading an extended list of metadata key/value pairs from the QuickTime header, including **nclc atom**, **gama atom**, and **ProRes** codec headers.

If you place a clip in the Viewer or select a track item on the timeline and open the **Media** tab, you'll see that Hiero has a number of controls that you can manually override if the 'best fit' is not what you're looking for:



- **YCbCr Matrix** - sets the way YCbCr is converted to RGB. You can choose to use the new **Rec 601** and **Rec 709** or the **Legacy** encoding methods, which are the methods used previously in Nuke and Hiero.
- **Codec** - sets the codec used to read (write already had a similar control) the QuickTime file.

The codec dropdown defaults to a codec appropriate for the QuickTime in question, where available, and only lists those that declare themselves able to read the file.

- **Pixel Format** - sets the read and write pixel format, which includes bit depth, colorspace, pixel packing, and ranges. This setting defaults to the best format accepted by the codec, allowing Nuke to perform the conversion to RGB without the use of an unknown QuickTime transform, where possible. RGB pixel types rely on QuickTime to do the conversion from Y'CbCr when dealing with a non-RGB codec.

In addition to the **nclc**, **gama**, and **ProRes** data Hiero, and by extension Nuke, also write additional metadata into the file headers during export, retaining your QuickTime preferences. This combined metadata represents myriad potential QuickTimes preferences, so Hiero and Nuke read the available metadata in the following order, reverting down each level as the level above is unavailable or set to a reserved or unknown value:

- The Foundry specific metadata
- ProRes header data
- nclc atom data
- gama atom data
- The defaults associated with the chosen codec

In this way, the worst case scenario is that you end up with the chosen codec class' default values. See [Export Management](#) for more information on writing files.

## About RED Media

When working with RED clips, using a RED Rocket card can increase the rendering speed significantly, especially at higher resolutions.



**NOTE:** The RED Rocket icon is only visible if you have a RED Rocket installed.

The RED Rocket icon has three states:



**Inactive** - the RED Rocket card is inactive.



**Firmware error** - there is a problem with the card firmware. Hover the mouse over the icon for more information.



**Active** - the RED Rocket card is present and active.

To modify the RED Rocket options:

1. Click the  icon in the **Viewer**.



**NOTE:** You must have **Use RED Rocket** enabled in the **Preferences** dialog to access these options. See [Workspace Preferences](#) for more information.

The **RED Rocket Settings** dialog displays.



2. Temporarily disable the RED Rocket card by deselecting **Use RED Rocket card**. Unlike the option in the **Preferences** dialog, changing this setting does not affect the application at startup.
3. Click **OK** to save your settings.



**NOTE:** Projects containing large amounts of movie files (for example **.r3d** and **.mov**) may exceed the number of available file handles per process, causing problems opening new files or projects and exporting.

You can increase the default limit of 1024 by entering the following command from the terminal, then running Hiero from the same session:

```
ulimit -Sn 2048
```

## Using RMD Look Files

RED metadata files, or RMDs, are designed to contain grade information for R3D clips. You can automatically create RMDs for all files, or create RMDs manually for specific clips. RMDs reside in the same folder as the source R3D clip.

### Automatic RMDs

The **Preferences** dialog contains an option to automatically create RMDs for files as you make changes to the RED Look.



**NOTE:** When **Automatically save RMD files** is enabled, all changes you make to RED Look settings are added to the RMD file, overriding any metadata that was present.

To enable Automatic RMDs:

1. Navigate to **Hiero** (HieroPlayer) > **Preferences** > **General** (OS X) or **Edit** > **Preferences** > **General** (Linux and Windows),

OR

Use the **Preferences** hotkeys **Shift+,** (comma).

The **Preferences** dialog box displays.

2. Select **Automatically save RMD files** and click **OK**.

## Manual RMDs

Sometimes in your workflow, it's not practical or necessary to constantly save RMDs for all your clips. You can create individual RMDs using the **Media** tab.

1. Modify the RED Look parameters as required.
2. Right-click in the **Media** tab **Effect** panel and select **Clip Options > Save RMD**.

An RMD file is created in the same folder as the source clip.

## Syncing to VBlank on Linux

Hiero and HieroPlayer automatically account for tearing that can occur due to NVIDIA and OpenGL issues on Linux, but with dual screen setups, you need to specify which screen to synchronize. The `__GL_SYNC_DISPLAY_DEVICE` environment variable enables you to specify the synch device by appending the screen device name to the variable.

To determine your screen names:

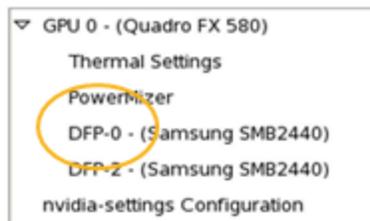
1. From the console, enter:

```
nvidia-settings
```

The **NVIDIA X Server Settings** dialog box displays.



2. Open up the **GPU** dropdown to display the screen device names.



3. Make a note of the device names, for example, **DFP-0** or **CRT-1**.

Set the `__GL_SYNC_DISPLAY_DEVICE` environment variable value to the device name as described in [Setting Environment Variables](#).

# 7 Using Tags

Tags are used by Hiero and HieroPlayer to quickly sort or filter clips and track items for better visibility, organization, and export.

## Introduction

Tags are used to mark shots of a particular type or content as you organize your project. The default tags supplied include **Approved**, **Notes**, **Reference**, and other general purpose tags. You can also create custom tags by right-clicking in the **Tags** tab or by pressing **Ctrl/Cmd + Y**. You can apply tags to clips, track items, individual frames, sequences, and tracks.

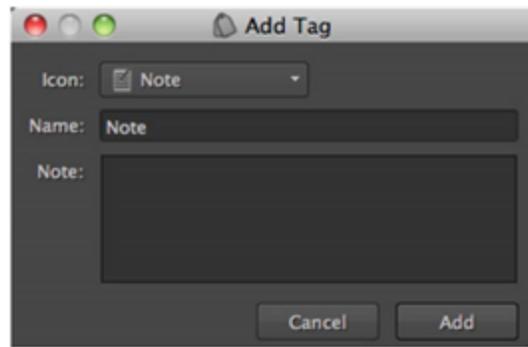
Clip and track item tags and notes can be added to exports using Hiero's burn-in feature. See [Adding Burn-in Text to Exports](#) for more information.

## Using Quick Tags

Quick tags allow you to add tags, depending on context, by right-clicking a selection and then choosing the type of tag to apply. If you're tagging a large amount of media, you might find it more convenient to use the drag-and-drop methods described later on.

Quick tags are accessible from bins, spreadsheets, Viewers, and timelines for single or multiple selections.

1. Select the target clips or sequences.
2. Right-click a highlighted selection, go to **Tags**, and choose the required action, dependent on context.  
For example, bin items only allow you to **Tag Selection**, whereas track items allow you to **Tag Shot Selection**, **Tag Tracks**, or **Tag this Sequence**  
Once you've selected the tag type, the **Add Tag** dialog displays.

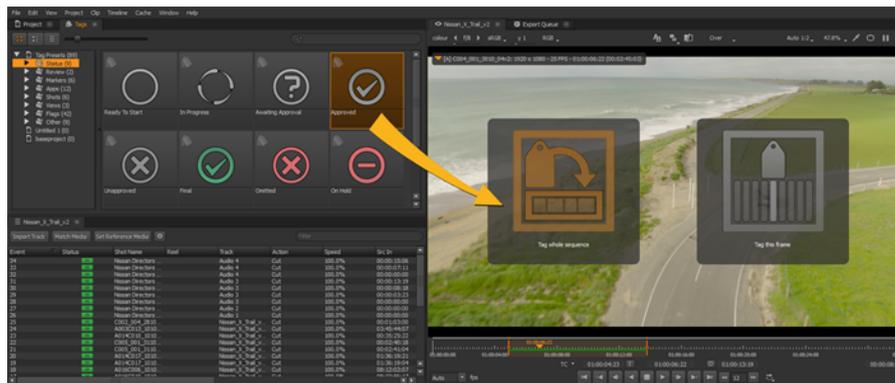


3. Select the icon to represent the tag using the **Icon** dropdown.
4. Enter a **Name** and **Note** as required.
5. Click **Add** to mark your selections with the chosen tag.  
See [Creating Custom Tags](#) and [Removing Tags](#) for more information.

## Tagging Using the Viewer

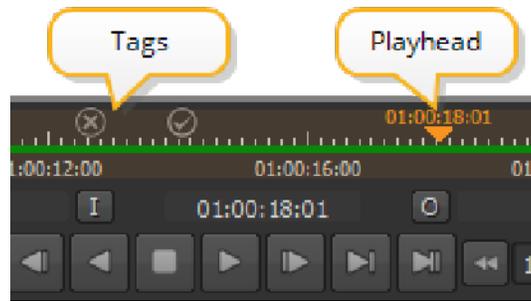
To apply a tag using the Viewer:

1. Click the **Tags** tab, or navigate to **Window > Tags**.  
The **Tags** tab displays.
2. Drag-and-drop the required tag from the **Tags** tab to the Viewer.



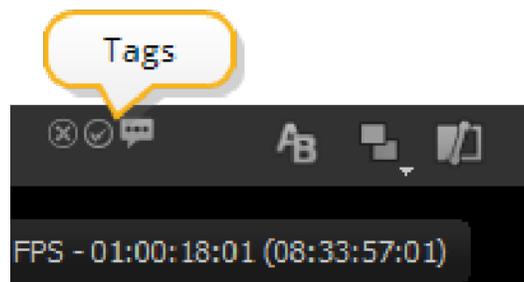
Depending on whether you're looking at a clip or sequence, drop the tag on **Tag this frame**, **Tag whole clip**, or **Tag whole sequence** as required.

Tags applied to frames appear above the playback tools in the Viewer timeline.



**TIP:** You can use **Alt+Shift+ ,** (comma) or **.** (period) to skip to the previous or next tag on the current clip. You can also reposition tags by dragging them along the Viewer timeline.

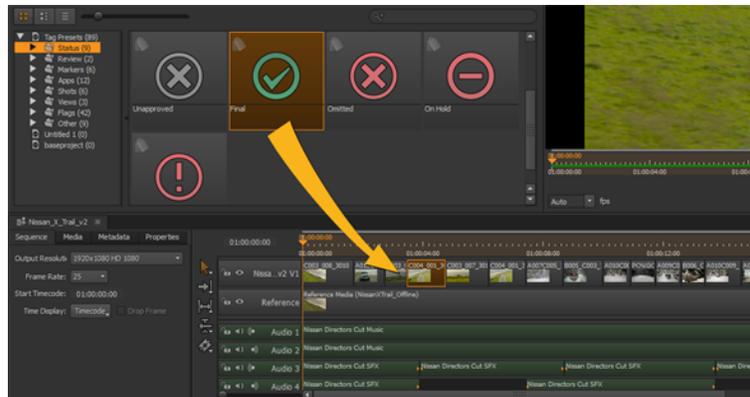
Tags applied to entire clips or sequences appear above the Viewer, next to the **A/B layout** dropdown.



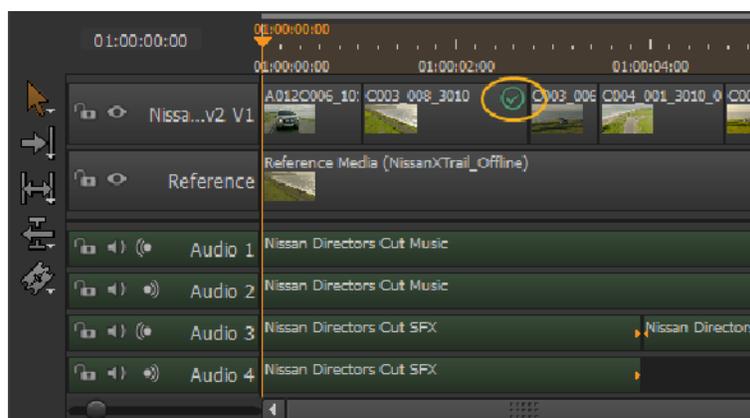
## Tagging Track Items

To apply a tag to a track item on the timeline:

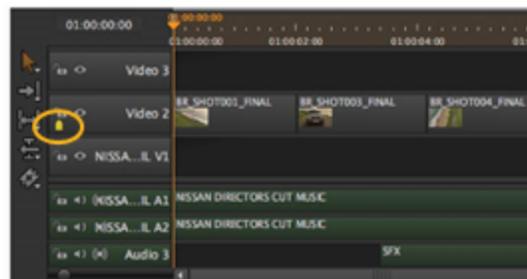
1. Click the **Tags** tab, or navigate to **Window > Tags**.  
The **Tags** tab displays.
2. Drag-and-drop the required tag from the **Tags** tab to the timeline.  
Depending on where the tag is dropped, you'll mark a track item (or items if you make multiple selections) or a track.



Tags applied to track items appear on the right of the selected item(s) on the timeline.



Tags applied to tracks appear in the track header on the left of the timeline.



## Adding Notes to Tags

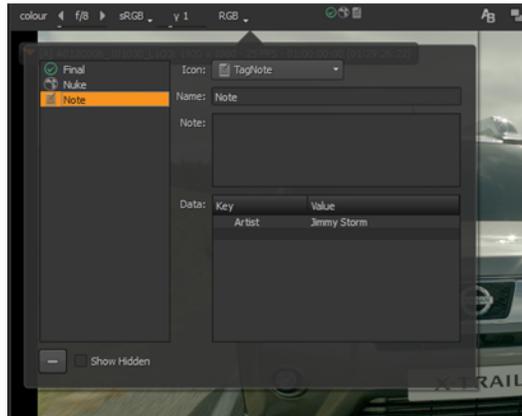
In some cases, a simple tag on a frame or clip may not contain all the information that you wish to pass on to the next stage of production. Adding notes to a tag can provide that extra detail.



**WARNING:** To delete a note, don't click the - button because this refers to the tag. Instead, simply delete the notes in the window and click outside the note dialog.

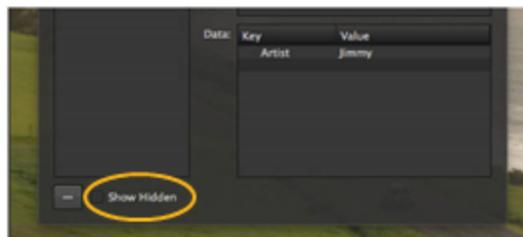
1. Add notes to tags by clicking on the required tag and entering text or editing the metadata keys and values.

The example shows a note and metadata key “Artist” added to a clip tag, but you can add notes to frame and timeline tags in the same way.



2. Click outside the dialog to save the note.

Hiero and HieroPlayer allow you to “hide” tags using the Python API. Hidden tags are not displayed in the interface, unless you enable **Show Hidden** in the Tags popup, but the notes and metadata are still accessible.



Navigate to **Help > Python Dev Guide** for more information on creating hidden tags.

## Filtering and Flagging Media Using Tags

You can search for clips containing certain tags, for example, if you wanted to find all clips that you tagged as **Approved**.

There are two types of tag search you can perform: **Filter** and **Flag**. Select the desired search type by clicking the magnifier icon in the **Project** tab.

- **Filter** - displays all objects that contain the specified tag. This is the default search method.
- **Flag** - displays all objects and marks the items that don't match the search tag.

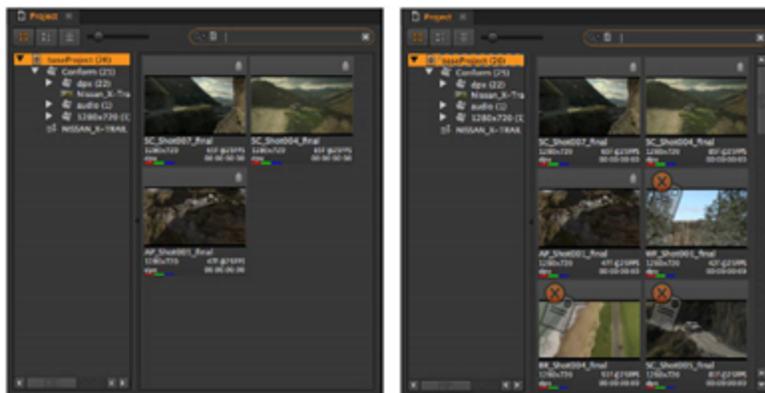
Drag the required tag from the **Tags** tab into the search box and select the bin or bins you want to Filter or Flag.



**TIP:** If you have more than one search criteria, click the icons in the search box to display a brief description of the icons.

Filters and flags persist until you change the search criteria or click the **x** icon in the search box.

The following examples show **Filtering** a bin to display only clips with the **Notes** tag applied and **Flagging** all clips that don't have the **Notes** tag applied.



Filtering...

...Flagging.

## Creating Custom Tags

You may find that you require a specific tag or suite of tags that are not provided by default. Creating custom tags allows you to really control the organization of your media, and you can even create your own tag icons.



**NOTE:** Custom tags can only be created in the **Tags** tab.

To create a custom tag:

1. Click the **Tags** tab, or navigate to **Window > Tags**.
2. Select your project and navigate to **Project > New Tag**, or press **Ctrl/Cmd + Y**.  
The new tag is placed in the selected project.
3. Double-click the tag to open the **Edit Tag** dialog box.
4. Click the **Icon** dropdown menu to select an icon for the custom tag.

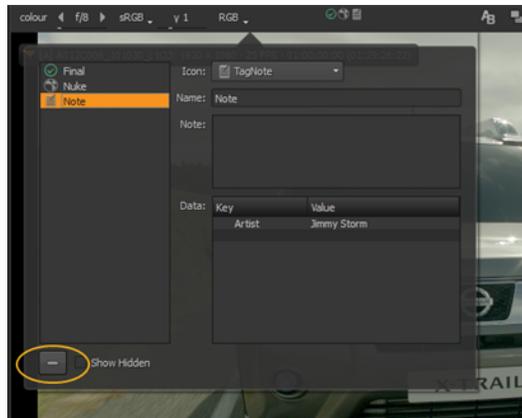


**TIP:** You can import your own image for the tag by selecting **Custom** to open the browser.

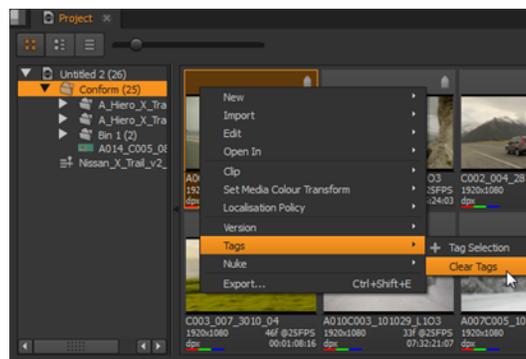
5. Enter a description for the tag in the **Name** field.
6. Click **OK** to save your changes.

## Removing Tags

To remove a tag from a frame or clip, click the tag and then click .



You can remove all tags from a clip or selection of clips by right-clicking your selections in the bin and choosing **Tags > Clear Tags**.



To remove a tag from a track or track item, click on a tag icon and select the required tag to remove.

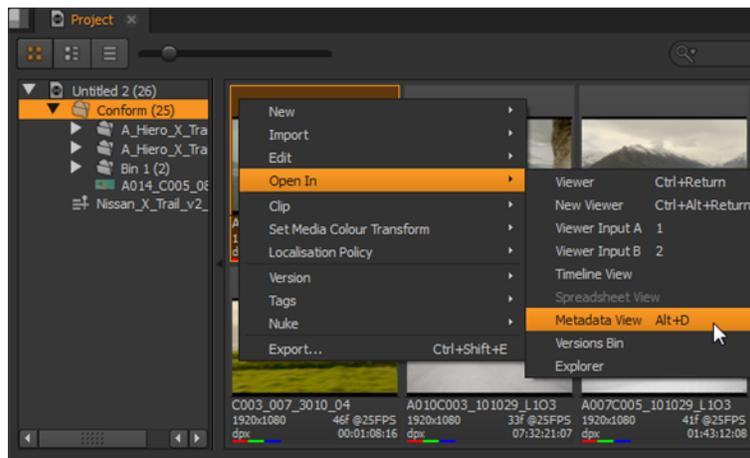
Click  to remove your selection.

# 8 Viewing Metadata

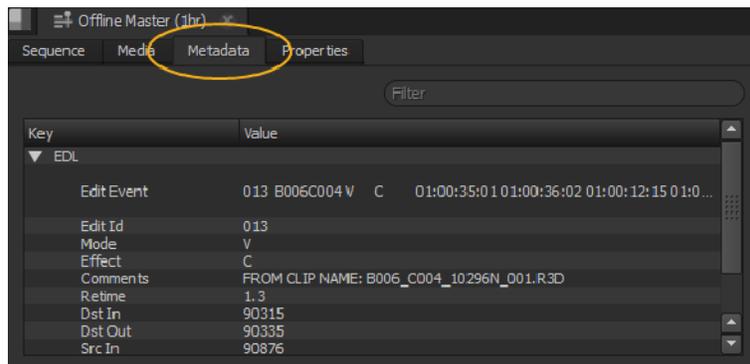
Metadata is information that describes media content, separate from the clip itself, in the form of a table on the **Metadata** tab. Types of metadata include **Duration**, **File Size**, and the **Path** to the location of the source media.

## Clip and Track Item Metadata

To view metadata for a bin clip, right-click the clip and select **Open In > Metadata View**, or press **Alt+D**.



To view metadata for a track item, select the **Metadata** tab in the timeline pane and click on the item to examine.

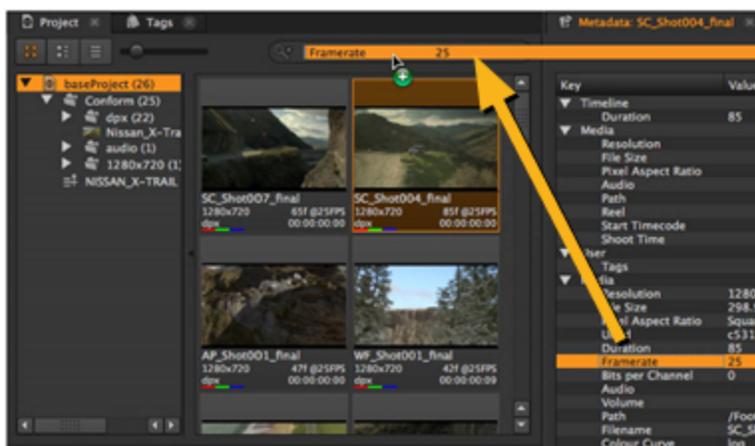


## Filtering and Flagging Media Using Metadata

If searching your project using tags has not filtered your media effectively, you can search for clips containing certain metadata. For example, if you wanted to find all clips that had a particular resolution or frame rate.

To filter or flag using metadata:

1. Right-click the clip that contains the required metadata key and select **Open In > Metadata View**, or press **Alt+D**.
2. Drag-and-drop the required key from the **Metadata** pane to the bin view search box.



3. Use the metadata key as a filter or flag as described in [Filtering and Flagging Media Using Tags](#).

# 9 Conforming Using Hiero

Conforming describes the process of matching up the footage from a shoot with the required edit decisions to create a meaningful timeline.

## Introduction

Hiero accepts sequences either from edit decision lists (EDLs) or Final Cut Pro XML files from a specified directory structure containing the source media files. Hiero attempts to conform the media, warning you if there are missing media.

Hiero conforms EDLs into single tracks, and XMLs into multi-track timelines. You can either conform into a brand new timeline, or into an existing timeline by adding new tracks. For example, when conforming multiple EDLs into the same timeline, you would add new tracks for each EDL sequence conformed.



**NOTE:** HieroPlayer does not support any Conforming functionality. If you need to work on conformed sequences in HieroPlayer, import a Hiero project and select **File > Save as Player Project** to make it editable in HieroPlayer.

## Project Settings

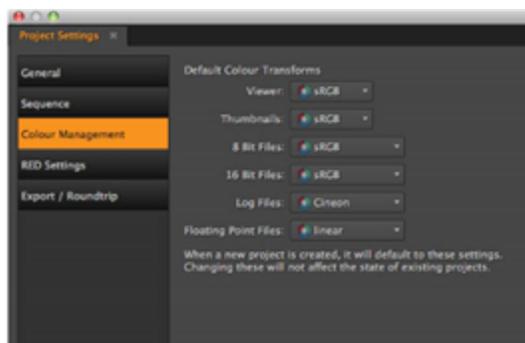
A good place to start work is by defining default **Project Settings** before importing sequences, particularly in the case of EDLs as they may not contain frame rate information. **Project Settings** only apply to the current project and override **Preferences** settings.



**NOTE:** You can modify **Project Settings** later on, for example, when you're ingesting media.

To define Project Settings in Hiero or HieroPlayer:

1. Navigate to **Project > Edit Settings**.  
The **Project Settings** dialog displays.
2. Click the **General** sub-menu to set the project **Name**.
3. Click the **Sequence** sub-menu to set the default timeline **Output Resolution**, **Frame Rate**, and **Start Timecode**.
4. Click the **Color Management** sub-menu to manage the display and file colorspace for the project.



5. Use the dropdown menus to define how clips in the Viewer, thumbnails, and so on are displayed.
6. Check **Use OCIO nodes when exporting in Nuke** to force Nuke to use the LUTs read from the OCIO config file specified in Hiero or HieroPlayer, rather than the Nuke native LUTs. This adds the relevant OCIO nodes to the script on a per project basis.

Enable this option in the **Preferences** to apply it to all new projects.

7. Click the **RED Settings** sub-menu to define the **Default Video Decode Mode** for R3D files. The dropdown contains a sliding resolution scale from **FullPremium** to **SixteenthGood**, but bear in mind that higher resolutions are slower to decode.
8. Lastly, click the **Export/Roundtrip** sub-menu to create the locked **Project Shot Template** in the **Export** dialog. Hiero and HieroPlayer rely on this locked template when you select **Open in Nuke**. For more information on shot templates and tokens, see [Using the Shot Template](#).



**NOTE:** HieroPlayer is limited to editing the **External Media Track Name** as there is no support for creating shot templates in HieroPlayer. You cannot use **Open in Nuke** if the project was created in HieroPlayer.

You might also consider setting performance, caching, and localization behavior at this point, though the defaults may suit your purposes:

- **Performance** - sets the number of threads used for disk reads and decoding, either globally or on a per format basis. See [Optimizing Read and Decode Performance](#) for more information.
- **Playback cache size** - sets the percentage of total memory available for use as cache. See [Workspace Preferences](#) for more information.
- **Max localized files** - sets the maximum space available for localized caching. See [Caching Media Locally](#) for more information.
- **Localize from and to** - sets the working directory that is automatically cached on ingest and the local directory where cached files are stored. See [Caching Media Locally](#) for more information.

## Importing Sequences

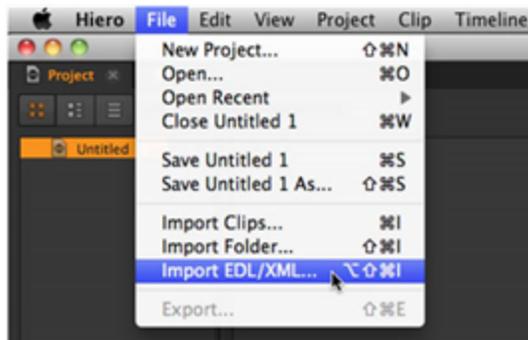
Hiero allows you to import your EDL or XML sequences in one of two ways, depending on your preferences.



NOTE: HieroPlayer does not support importing sequences.

If you're a menu-orientated user:

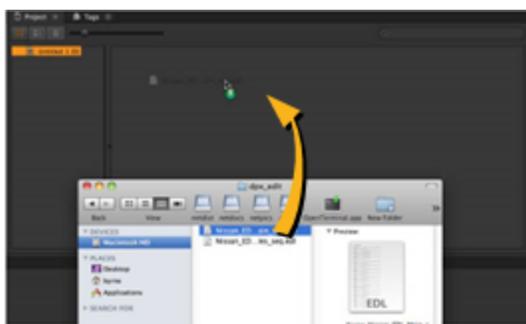
1. Navigate to **File > Import EDL/XML** and use the browser to locate the EDL or XML.



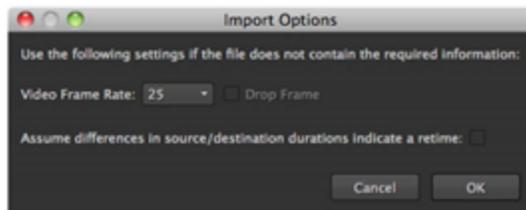
2. Select the file and click **Open** to import the sequence.

If you're a more hands-on user:

Drag-and-drop the EDL or XML files directly from a file browser into Hiero.



3. If you're importing an EDL, bear in mind that there is no guaranteed frame rate information included in the file. When you import EDLs, an **Import Options** dialog displays.



4. Select the correct frame rate and use the following check boxes, if required:
  - **Drop Frame** - when enabled, the EDL is assumed to contain drop file information. See [Playback Tools](#) for more information.
  - **Assume differences in source/destination durations indicate a retime** - when enabled, any disparity between the source clip (Src) and track item (Dst) duration is treated as a retime.
5. Click **OK** to import.

After importing the EDL or XML, the **Conforming** workspace displays and the spreadsheet and timeline are populated with offline clips - media with an unknown location.



**NOTE:** The **Event** column represents the clip's position on the timeline, not its event number from the EDL.

Event	Status	Shot Name	Track	Action	Speed	Src In
01	OFF	IK_SHOT1201_FINAL	NISSAN_X-TRAIL V1	Cut	350.0%	00:00:01:02
02	OFF	IK_SHOT1202_FINAL	NISSAN_X-TRAIL V1	Cut	350.0%	00:00:01:05
03	OFF	IK_SHOT1203_FINAL	NISSAN_X-TRAIL V1	Cut	350.0%	00:00:01:09
04	OFF	IK_SHOT1204_FINAL	NISSAN_X-TRAIL V1	Cut	350.0%	00:00:01:12
05	OFF	IK_SHOT1205_FINAL	NISSAN_X-TRAIL V1	Cut	350.0%	00:00:01:14
06	OFF	IK_SHOT1206_FINAL	NISSAN_X-TRAIL V1	Cut	350.0%	00:00:01:18
07	OFF	IK_SHOT1207_FINAL	NISSAN_X-TRAIL V1	Cut	350.0%	00:00:01:22
08	OFF	IK_SHOT1208_FINAL	NISSAN_X-TRAIL V1	Cut	350.0%	00:00:01:26
09	OFF	IK_SHOT1209_FINAL	NISSAN_X-TRAIL V1	Cut	350.0%	00:00:01:30
10	OFF	IK_SHOT1210_FINAL	NISSAN_X-TRAIL V1	Cut	350.0%	00:00:01:34
11	OFF	IK_SHOT1211_FINAL	NISSAN_X-TRAIL V1	Cut	350.0%	00:00:01:38
12	OFF	IK_SHOT1212_FINAL	NISSAN_X-TRAIL V1	Cut	350.0%	00:00:01:42
13	OFF	IK_SHOT1213_FINAL	NISSAN_X-TRAIL V1	Cut	350.0%	00:00:01:46
14	OFF	IK_SHOT1214_FINAL	NISSAN_X-TRAIL V1	Cut	350.0%	00:00:01:50
15	OFF	IK_SHOT1215_FINAL	NISSAN_X-TRAIL V1	Cut	350.0%	00:00:01:54
16	OFF	IK_SHOT1216_FINAL	NISSAN_X-TRAIL V1	Cut	350.0%	00:00:01:58
17	OFF	IK_SHOT1217_FINAL	NISSAN_X-TRAIL V1	Cut	350.0%	00:00:02:02
18	OFF	IK_SHOT1218_FINAL	NISSAN_X-TRAIL V1	Cut	350.0%	00:00:02:06
19	OFF	IK_SHOT1219_FINAL	NISSAN_X-TRAIL V1	Cut	350.0%	00:00:02:10
20	OFF	IK_SHOT1220_FINAL	NISSAN_X-TRAIL V1	Cut	350.0%	00:00:02:14

Notice that clicking entries in the spreadsheet highlights the corresponding track items on the timeline?

The spreadsheet, timeline, and Viewer are linked together when viewing sequences. If suitable screen real estate exists within the current workspace, double-clicking a sequence forces the associated panes to open automatically. You can also close all three panes by holding the **Alt** modifier while closing one of the linked panes.



**NOTE:** If you imported an XML sequence, you may find that Hiero has automatically matched media for you.

## Conforming Sequences

Once your EDLs or XML sequence are imported, it's time to begin the conform process to match the offline track items in your spreadsheet with the source clips on disk. You can conform sequences by searching on disk or by pre-ingesting the required clips into Hiero.



**NOTE:** Projects containing large amounts of movie files (for example **.r3d** and **.mov**) may exceed the number of available file handles per process, causing problems opening new files or projects and exporting.

You can increase the default limit of 1024 by entering the following command from the terminal, then running Hiero from the same session:

```
ulimit -Sn 2048
```



**NOTE:** HieroPlayer does not support conforming sequences.

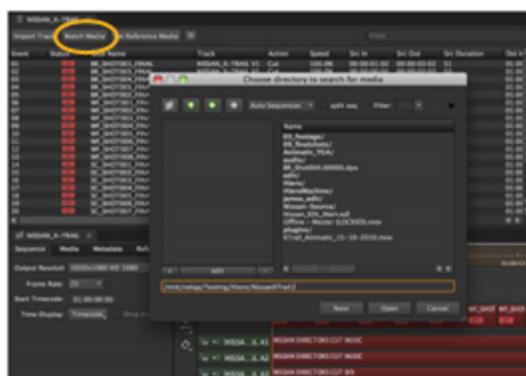
## Conforming Using a Browser

To conform a sequence using a browser:

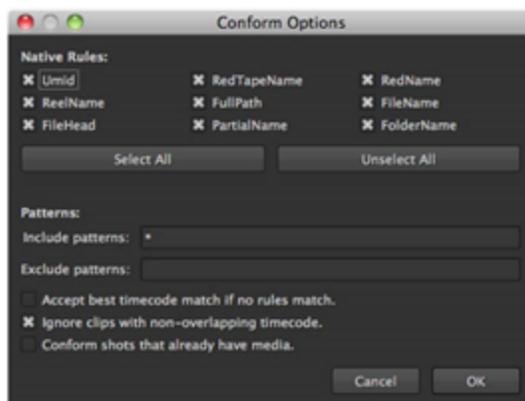
1. After importing a sequence, click **Match Media** on the spreadsheet and use the browser to locate the source folder containing the correct media.



**NOTE:** **Match Media** can also be used on selected events in the Spreadsheet view.



2. Click **Open** to display the **Conform Options** dialog box.



Hiero uses a set of conform **Rules** and file name **Patterns** to match candidate media files on disk to the events, or track items, in a sequence:

- **Rules** - sets the offline media properties to match to the corresponding spreadsheet entry during conform. Rules that rely on information that doesn't exist in the event or candidate clip are ignored, and some rules compound others to identify a better match.

Rule	Description
Umid	Match a file's unique material ID (UMID) – that is written into the file's metadata on creation – to the candidate media's UMID. If either, or both, lack a UMID this rule is ignored.
RedTapeName	Match a RED-style camera reel name from the event to the candidate media name.
RedName	Look for a RED-style camera file name in the event that matches the candidate media name.
ReelName	Look for the event's reel name in the candidate's media name.
FullPath	Match the event's entire filepath to the candidate media's entire filepath.
FileName	Match only the event's file name (no path) to the candidate media's file name.
FileHead	Match the event's file name head (no path, file extension, or padding) to the candidate media's file name.
PartialName	Look for the event's name in the candidate media's name and vice versa.
FolderName	Look for the event's name in the filepath of the candidate media.

All rules are enabled by default, but you may occasionally need to disable rules if they cause incorrect matches between a particular edit and set of source clips.



**TIP:** Use the **Select/Deselect All** buttons to quickly enable or disable rules.

- **Patterns** - sets the inclusion and exclusion parameters during the conform, separated by spaces. For example, **\*mov \*dpx** would only include or exclude MOV and DPX files.

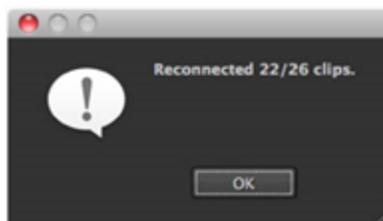
You could also conform by name, such as **BR\_Shot\***, which would only include or exclude source clip names starting with that string.

**TIP:** It's always a good idea to be as specific as possible with search locations during conforms, but if the need arises, conform **Rules** and **Patterns** can save time.

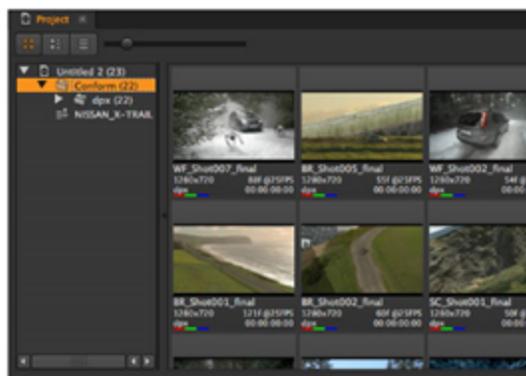
3. Enable **Accept best timecode match...** to use the nearest source timecode match to conform the event, if no rules are matched.
4. When **Ignore clips with non-overlapping timecodes** is enabled, any potentially matching source clip whose timecode doesn't overlap the track item in question at all is ignored.
5. Check **Conform shots that already have media** if you want to update all timeline track items. By default, Hiero doesn't try to conform events that are not offline.
6. Click **OK** to begin the conform process.

Hiero attempts to conform the EDL or XML with the selected media.

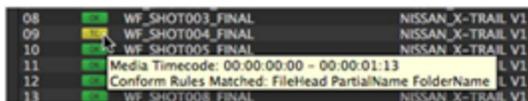
A dialog box informs you of the success rate once the conform is complete.



Successfully matched media is placed in a new **Conform** bin in the project.



**NOTE:** You can display the conform Rules matched for each spreadsheet object by hovering the cursor over the required entry.



## Conforming with Pre-ingested Media

To conform with pre-ingested media:

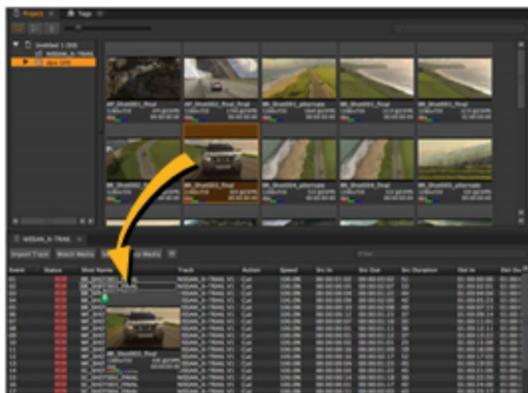
1. If your source media has been ingested into Hiero, you can drag-and-drop media from the bin view onto the **Match Media** button.

See [Ingesting Media](#) for information on getting media into Hiero.



2. Follow the **Conform Options** instructions described previously to complete the conform process.

If you want to conform a single entry in the spreadsheet, drag-and-drop the media from the bin view onto the required entry in the spreadsheet.



Conforming individual, pre-ingested media doesn't require **Conform Options** because Hiero already knows the exact location of the media and trusts the decision to replace a track item.

## About the Media Spreadsheet

All events in a sequence are displayed in an easy to read format in the spreadsheet including status, the track it resides on, length, and the source file location.

After conforming, you can use the spreadsheet to locate bin clips or replace track items in the timeline, as well as massage timecodes if they are invalid.

The media spreadsheet displays each entry's current media state:

-  - the media was successfully conformed and its timecode is correct.
-  - the media was successfully conformed, but the timecode is currently incorrect.
-  - the media could not be conformed.



**NOTE:** Any source or destination field highlighted in yellow indicates that the entry has been rounded down for display purposes.

See [Managing Timelines](#) for more information on importing tracks and reference media.

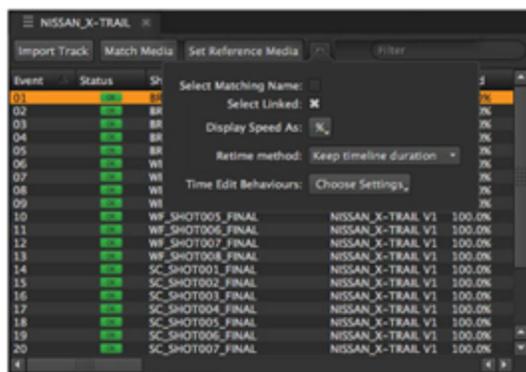
## Sorting and Custom Columns

Hiero's spreadsheet can be organized in much the same way as accounting spreadsheets:

- Right-click the column headers to display the list of default columns available. Enable or disable each column using the checkboxes.
- Click the required column to sort the spreadsheet in ascending or descending order, as indicated by the arrow in the column header.
- Drag-and-drop column headers to reorder the spreadsheet as required.
- Add custom columns, such as Tags, using the Python API. See Hiero's **Help > Python Dev Guide** for more information.

## Spreadsheet Controls

There are also a number of controls, accessed by clicking the cog icon, that determine the spreadsheet's appearance and behavior

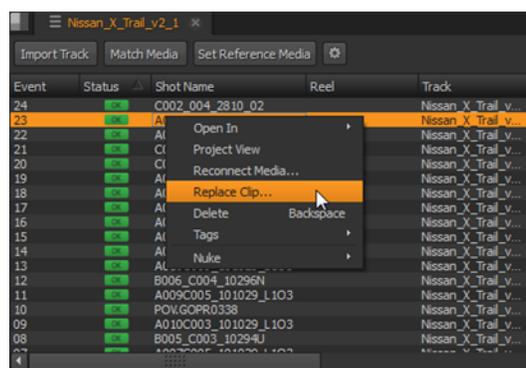


- **Select Matching Name** - when enabled, selecting an item in the spreadsheet highlights all items with the same name.
- **Select Linked** - when enabled, selecting an item in the spreadsheet highlights other items linked to it, such as audio tracks ingested with video tracks.
- **Display Speed As** - sets the unit used in the Speed column of the spreadsheet. Select either **fps** (frames per second) or **%** (the percentage of the media frame rate).
- **Retime method** - sets the type of **Speed** retime applied on the timeline.
- **Time Edit Behaviours** - sets how source and destination **In**, **Out**, and **Duration** are calculated.

See [Retiming Clips](#) for more information on retime methods and [Timeline Editing Tools](#) for source/destination calculations.

You can locate, display, reconnect, or rename track items directly from the spreadsheet.

- Hold **Alt** and click an entry to move the playhead to the track item's **In** point on the timeline.
- Hold **Alt** and double-click an entry to move the playhead to the track item's **In** point on the timeline and zoom to fit the timeline view.
- Right-click a spreadsheet entry and select the required option:



- **Open In** - the associated bin clip opens in the selected location, such as a Viewer.
- **Project View** - the associated clip is highlighted in the bin view.
- **Reconnect Media** - Hiero attempts to reconnect the media from a specified location on disk, such as when the source was originally on a drive that is no longer connected.

- **Replace Clip** - replaces the selected entry with a specified source clip. Hiero assumes that any source clip you choose is acceptable, regardless of timecode.
- **Delete** - deletes the selected entries from the spreadsheet and timeline.
- **Tags** - allows you to add tags to your selection directly from the spreadsheet view. See [Using Quick Tags](#) for more information.
- **Nuke** - provides access to the Hiero<>Nuke functionality directly from the spreadsheet. See [Round-Tripping Using Hiero<>Nuke](#) for more information.

## Adjusting Timecodes

You can easily adjust single or multiple event timecodes:

1. Select the invalid entry or entries in the spreadsheet.
2. Double-click in the **Src In** column.
3. Adjust the timecode as required. You can enter **absolute** or **relative** timecode values:
  - **Absolute** - absolute timecodes contain eight digits and specify the new timecode for the event, regardless of the current timecode.

Example	Result
01:05:43:21	Sets the timecode at 1 hour, 05 minutes, 43 seconds, and 21 frames
01054321	

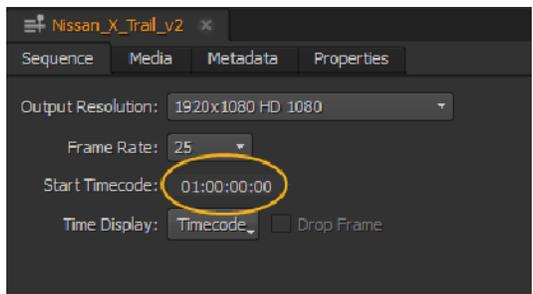
- **Relative** - uses + and - values to alter the timecode relative to its current value. You can also use **h**, **m**, and **s** to denote hours, minutes, and seconds.

Current Position	Example	Result
01:05:43:21	+1h	02:05:43:21
	-110	01:05:42:11
	+10000	01:06:43:21
	-6m	00:59:43:21

The media changes state to .



**NOTE:** Timelines start at 01:00:00:00 by default, but you can change this to any value using the **Sequence** tab.



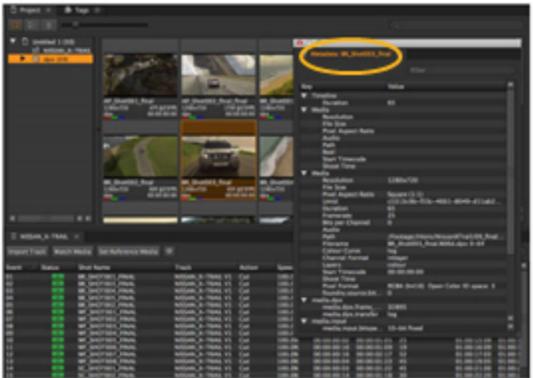
If you're not sure what the timecode should be, you can:

- Hover the mouse over the target entry in the spreadsheet to view a timecode tooltip.

Event	Status	Shot Name	Reel	Track	Action	Speed
01	✔	BR_SHOT001_FINAL		NISSAN_X-TRAIL_V1	Cut	100.0%
02	✔	BR_SHOT003_FINAL		NISSAN_X-TRAIL_V1	Cut	100.0%
03	✔	BR_SHOT004_FINAL		NISSAN_X-TRAIL_V1	Cut	100.0%
04	✔	BR_SHOT005_FINAL		NISSAN_X-TRAIL_V1	Cut	100.0%
05	✔	BR_SHOT002_FINAL		NISSAN_X-TRAIL_V1	Cut	100.0%
06	✔	BR_SHOT003_FINAL		NISSAN_X-TRAIL_V1	Cut	100.0%
07	✔	Media Timecode: 00:00:00:00 - 00:00:02:09		S_V1	Cut	100.0%
08	✔	Conform Rules Matched: Filehead PartialName FolderName		S_V1	Cut	100.0%
09	✔	WP_SHOT004_FINAL		NISSAN_X-TRAIL_V1	Cut	100.0%
10	✔	WP_SHOT005_FINAL		NISSAN_X-TRAIL_V1	Cut	100.0%
11	✔	WP_SHOT006_FINAL		NISSAN_X-TRAIL_V1	Cut	100.0%
12	✔	WP_SHOT007_FINAL		NISSAN_X-TRAIL_V1	Cut	100.0%
13	✔	WP_SHOT008_FINAL		NISSAN_X-TRAIL_V1	Cut	100.0%
14	✔	SC_SHOT001_FINAL		NISSAN_X-TRAIL_V1	Cut	100.0%
15	✔	SC_SHOT002_FINAL		NISSAN_X-TRAIL_V1	Cut	100.0%
16	✔	SC_SHOT003_FINAL		NISSAN_X-TRAIL_V1	Cut	100.0%

OR

- Examine the bin clip's metadata and calculate the correct **Src In**:
  1. Right-click the required entry and select **Reveal in Project**.
  2. Right-click the clip in the bin and select **Show Metadata**.
 The selected clip metadata is displayed in a floating pane.



## Renaming Shots on the Timeline

Once you've conformed your EDL or XML, you may want to rename track items on the timeline sequentially for clarity.



**NOTE:** If you need to work on conformed sequences in HieroPlayer, import a Hiero project and select **File** > **Save as Player Project** to make it editable in HieroPlayer.

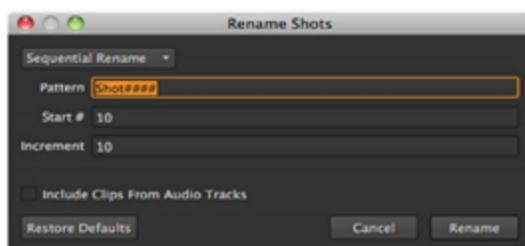
To rename track items:

1. Select the track items to rename using the timeline or spreadsheet view.
2. Right-click on the timeline or spreadsheet and select **Rename Shots**.



**TIP:** You can also navigate to **Timeline** > **Rename Shots** or use the **Alt+Shift+I** customizable hotkey. Navigate to **Help** > **Python Dev Guide** for more information on custom hotkeys.

The **Rename Shots** dialog displays.



3. Select the rename type from the dropdown:
  - **Sequential Rename** - rename shots sequentially using the **Pattern**, **Start #**, and **Increment** fields.
  - **Find and Replace** - a simple find and replace shot name. All selected shots containing the specified **Find** pattern are substituted with the **Replace** pattern.
  - **Simple Rename** - all shots are replaced by the **New Name** specified.
  - **Match Sequence** - allows you to select a sequence to copy shot names from, providing that they use the same track items. For example, renaming track items on a 30 second timeline to mirror the shot names from a 60 second timeline.



**NOTE:** You can only use sequences that reside in the same project and track items that have overlapping frame ranges.

- **Clip Name** - all shot names are replaced by the name of the source clip they reference. This option can be used to revert previous rename operation.

4. Rename operations also accept token substitutions. The following tokens are recognized:

Token	Resolves to
{clip}	The name of the source clip referenced by the target track item.
{event}	The EDL event number associated with the target track item.

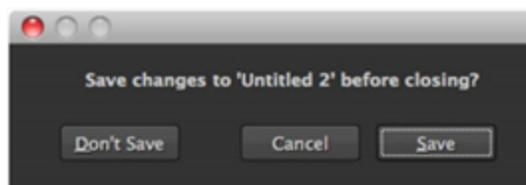
Token	Resolves to
{fps}	The frame rate of the sequence containing the rename target.
{sequence}	The name of the sequence containing the rename target.
{shot}	The name of the track item.
{track}	The name of the track containing the rename target.

5. Enable **Include Clips From Audio Tracks** to rename audio track items as well as video track items.
6. Click **Rename**.  
The selected track items are renamed as specified.

## Saving and Loading Projects

You can save your work as a Hiero or HieroPlayer project using the **.hrox** file extension.

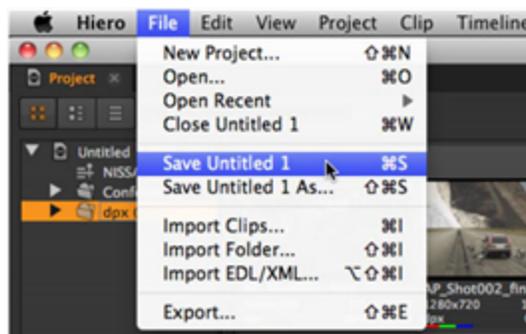
If you quit the application without saving, you'll be prompted to save or discard your changes:



Click the required button or press **D** for **Don't Save** or **S** to **Save**.

To save a project:

1. Navigate to **File > Save Untitled 1** or **Save Untitled 1 As...**



OR

Use the **Ctrl/Cmd+S** or **Shift+Ctrl/Cmd+S** hotkeys respectively.

The **Save Project** dialog box displays.

2. Browse to the save location and enter a name for the project.
3. Click **Save**.

Hiero saves your project to the location specified and appends the **.hrox** file extension automatically.



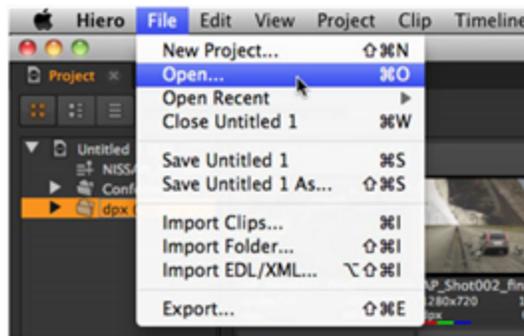
**NOTE:** Projects saved in Hiero are read only when loaded into HieroPlayer. If you want to edit Hiero **.hrox** files in HieroPlayer, use the **File > Save As Player Project** function to create a copy.

To load a project:

1. Navigate to **File > Open**.



**TIP:** If you need to open a project that you worked on recently, you can select **Open Recent** to quickly locate your work.



OR

Use the **Ctrl/Cmd+O** hotkeys.

The **Open Project** dialog box displays.

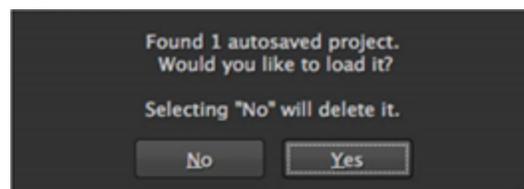
2. Browse to the file location and click **Open**.

Hiero opens your project and populates the necessary panes automatically.

## Autosaved Projects

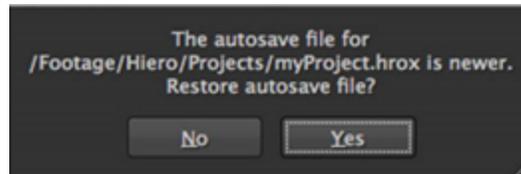
The autosave function creates a temporary save file at 5 minute intervals, but you can adjust the **Autosave period** in the **Preferences** dialog. See [Workspace Preferences](#) for more information.

At startup, the application scans for autosaved projects and displays a prompt if autosaves exist.



Click **Yes** to load the autosave or **No** to ignore and delete it.

Opening a project also uses the autosave functionality. If the autosave is more recent than the saved project file, a prompt displays:



Click **Yes** to load the autosave file or **No** to load the original project file.



NOTE: Clicking **No** does not delete the autosaved project in this case.

# 10 Managing Timelines

Timelines contain video and audio track items that reference the source clips in your project. Once the conform process is complete, the timeline displays your clips in context and enables you make finer edits.

## Introduction

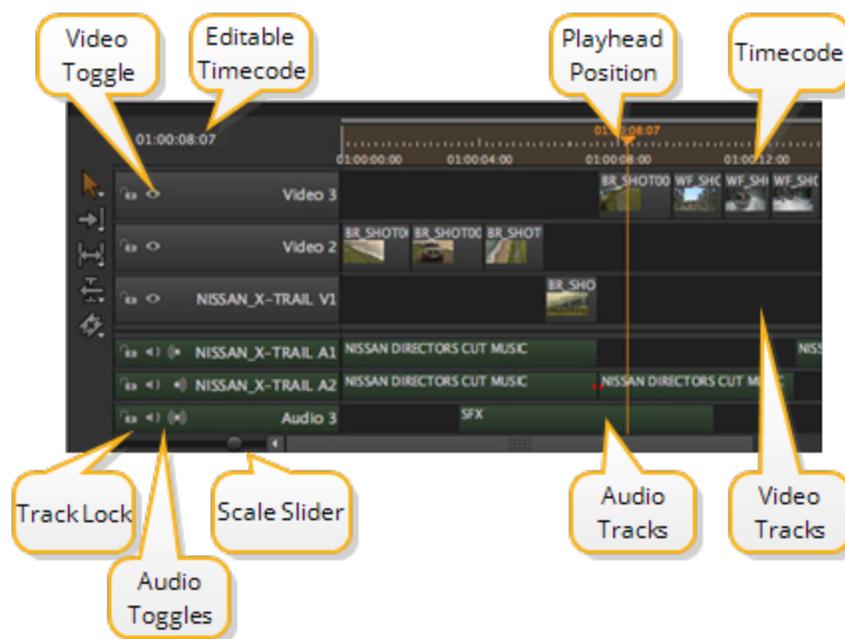
Timelines can contain any number of video sequences and audio tracks with each track containing track items that reference the source clips in your project - making changes to track items in the timeline does not affect the original source clip.



**NOTE:** HieroPlayer does not allow you to edit read-only projects. If you need to edit an imported Hiero project, select **File > Save as Player Project** to make it editable in HieroPlayer.



**NOTE:** Conformed EDLs only support one video sequence. If you've created multiple EDLs from the same edit, you can add each one into the timeline using the right-click **Import New Tracks** menu or the **Import Track** button under the spreadsheet. See [Adding Tracks to the Timeline](#).



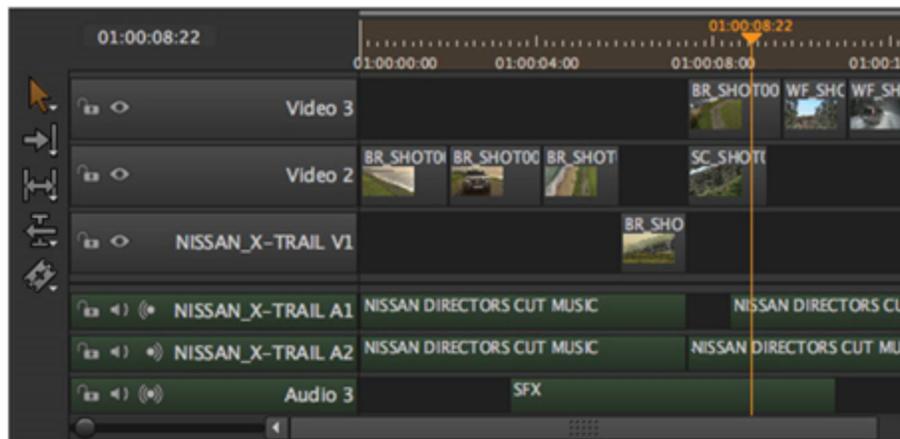
- **Video Toggle** - quickly turn off and on video tracks during playback. Hold **Alt** and click to solo the selected track.

- **Editable Timecode** - manually enter the required playhead position or use the up and down arrow keys or mouse scroll wheel to increment the playhead position.
- **Playhead Position** - displays the playhead location synchronized with the contents of the Viewer.
- **Timecode** - displays the timecode or frame number depending on the **Time Display** mode selected. You can adjust the scale using the Scale Slider or by using the mouse wheel.
- **Video Tracks** - contain all video sequences for the current timeline.
- **Audio Tracks** - contain all the audio clips for the current timeline.
- **Scale Slider** - adjusts the scale of the timeline. You can fit the contents of the timeline to the screen space available by pressing the **F** hotkey.
- **Audio Toggles** - quickly mute audio or set the track output during playback to left, right, or mono.
- **Track Lock** - secure the selected track to disable all editing tools.

**TIP:** Selecting tracks while holding **Ctrl/Cmd** allows tools to affect multiple tracks at once, such as locking, disabling, and resizing tracks.

Video tracks in multi-track timelines are read from the highest number track downward, for example Video 3, Video 2, Video 1. As a result, if video is present on track 3, video on track 2 in the same time slice is obscured.

In this example, although the playhead crosses clips on two video tracks, only the clip in Video 3 is displayed in the Viewer.



Audio tracks, on the other hand, can be played back simultaneously - all three audio tracks crossed by the playhead in the example play back together, creating a complete audio backing for the video.

## Adding Tracks to the Timeline

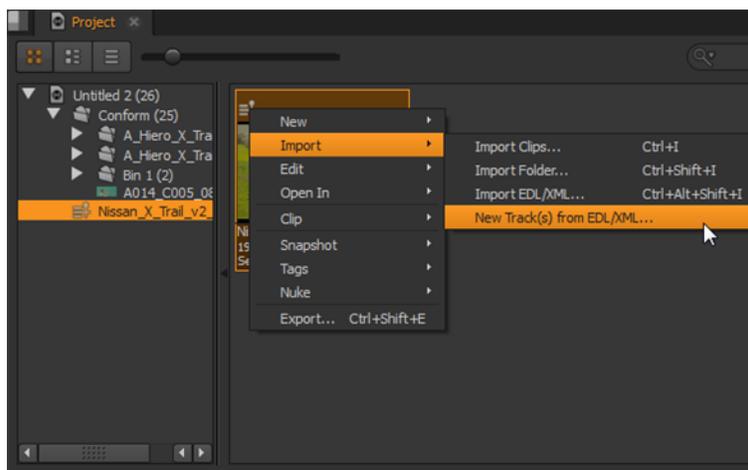
You can add empty tracks to existing timelines or import other EDLs or XML edits - effectively another sequence within the timeline.



**NOTE:** HieroPlayer cannot import EDLs or XMLs, but you can add scratch tracks to HieroPlayer projects or imported, read-only Hiero projects if you resave them using **File > Save as Player Project**.

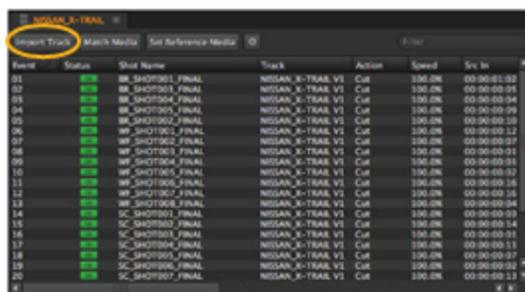
To import EDL or XML edits:

1. Select the required sequence in the project bin, right-click, and select **Import > New Track(s) from EDL/XML**,



OR

2. Click **Import Track**.



3. Use the browser to locate the EDL or XML files, select the file(s) and click **Open** to import the sequence.

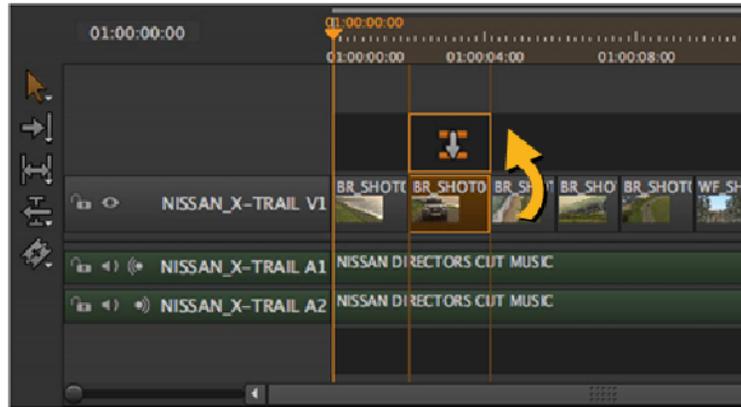


**NOTE:** If you're importing EDLs, bear in mind that there is no guaranteed frame rate information included in the file. Select the correct frame rate then click **OK** in the dialog supplied.

4. Conform the new track as described in [Conforming Sequences](#).

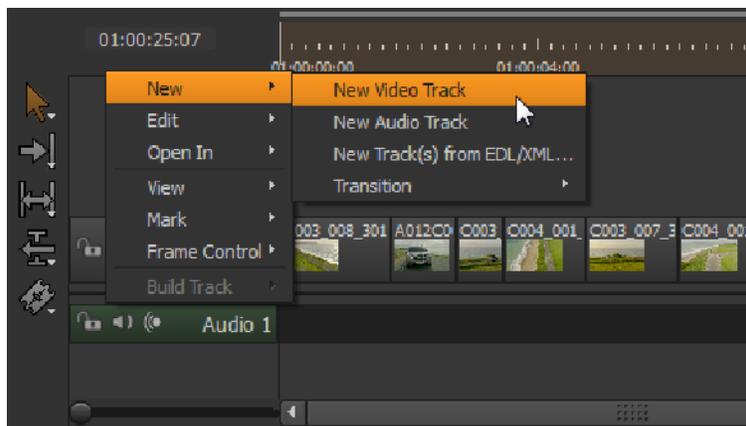
To add new tracks:

- Drag-and-drop a clip above or below existing tracks as shown,



OR

- Right-click in the timeline and select **New > New Video Track** or **New Audio Track**.



**NOTE:** You can also collapse and expand existing tracks using the right-click menu, and resize the track header to accommodate longer track names.

## Adding Clips to the Timeline

Hiero's timeline allows you to add clips by simple drag-and-drop from either the Viewer or bins. Using the Viewer restricts you to a single clip, the current clip, but you can drag as many clips as you like from bins.

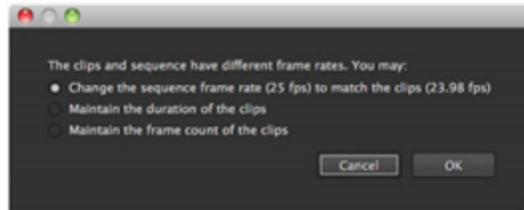


**NOTE:** HieroPlayer does not allow you to edit read-only projects. If you need to edit an imported Hiero project, select **File > Save as Player Project** to make it editable in HieroPlayer.



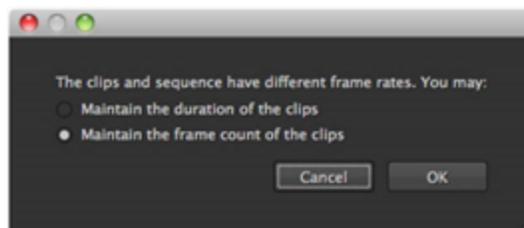
**TIP:** You can create a new sequence by dragging a clip to an empty timeline pane.

New timelines pick up their frame rate from the **Preferences > Sequence** dialog by default. Dropping a clip with a different frame rate to the sequence preferences on a new timeline displays a warning:



The timeline default frame rate is set by the first clip added to it.

However, if the timeline is already populated and the clip you're adding doesn't have the same frame rate as the timeline, you're prompted to choose whether the clip's duration or frame rate is retained.



Take care not to overwrite existing track items - the most recent clip overlays any existing track item. To avoid this, do one of the following:

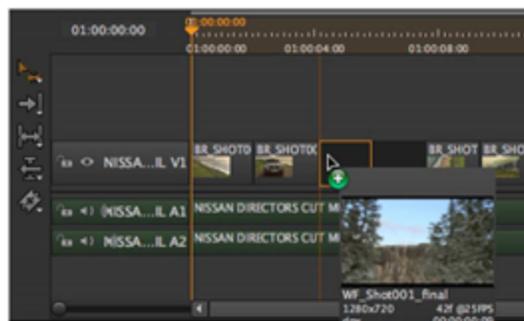
- Move the playhead to the target area of the timeline in the record Viewer , load the required clip in a source Viewer , and then use **Insert** (N) or **Overwrite** (M) to place the clip into the timeline at the playhead position on the lowest, unlocked track available.



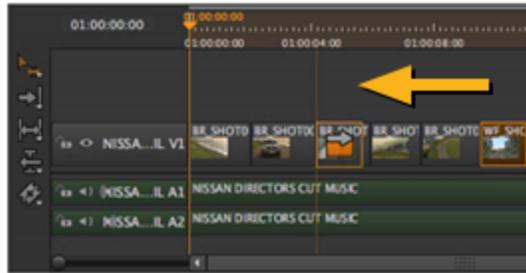
**NOTE:** You can only **Insert** or **Overwrite** using clips from the current project.

See [Insert, Overwrite, and 3-Point Editing](#) for more information on source/record editing.

- Use the **Multi** or **Move/Trim** tools to make space for the new clip and then drag-and-drop it in to the space (see [Using the Move/Trim Tool](#) for more information).



- Drag-and-drop the new clip at the end of the sequence, then using the **Multi** or **Move/Trim** tools, drag the new clip to an existing transition, hold down the **Alt** modifier, and drop the clip to **Ripple** all other track items down the timeline.



## Audio and the Timeline

Audio tracks on the timeline are handled in much the same way as video tracks. By default, linked audio and video tracks are edited at the same time, but you can lock either track and move them independently or hold **Alt** to select a single track, if required.



**NOTE:** Although you can import and edit multi-channel audio, during playback audio is mixed to 48 KHz stereo output.

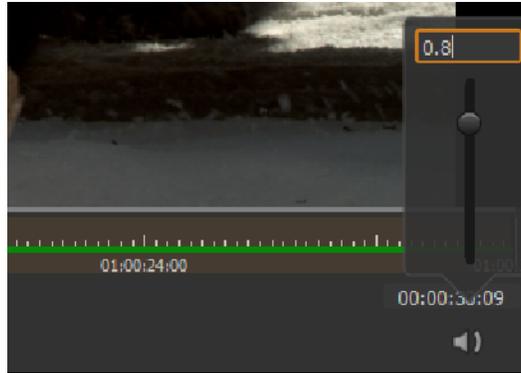


**NOTE:** Hiero and HieroPlayer do not currently support any QuickTime audio on Linux. Support for audio on Linux is scheduled for a later release.

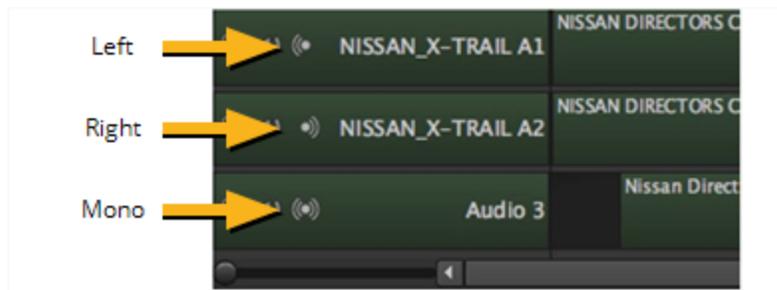
When both Viewer inputs contain clips, the audio output is set by the input marker on the overlays. In the following example, input A is providing the audio output:



The volume slider in the lower right corner of the Viewer controls the output level for that Viewer only.

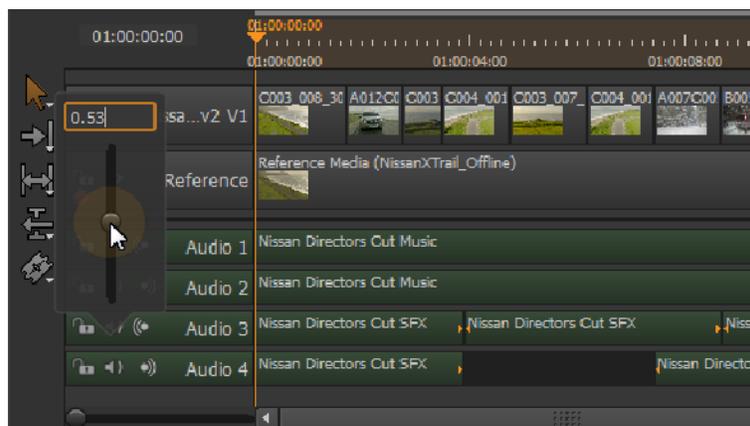


Audio output for track items can be toggled between left, right, and mono using the audio toggles in the track header. Click on the icon to cycle between outputs:



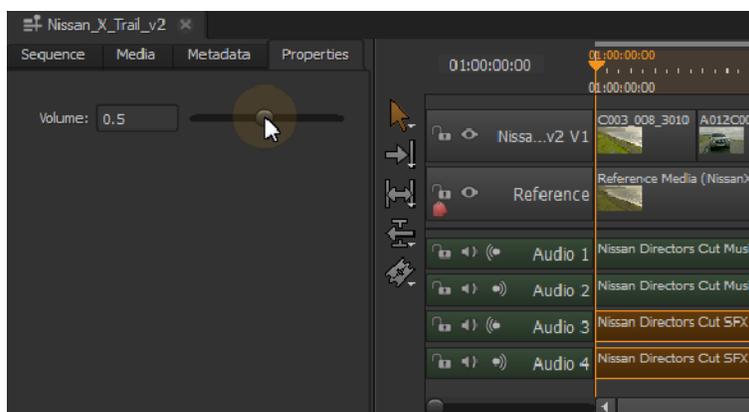
You can also control audio on a per track and per track item basis. Audio track headers and track items have independent volume controls in the timeline and **Properties** tab.

- **Track headers** - click and hold the mute icon on the header to display the volume slider.



- **Track items** - select an audio track item and click on the **Properties** tab to display the Volume control.

**TIP:** You can control the volume on multiple track items simultaneously by holding **Ctrl/Cmd** and selecting the required items before adjusting the volume slider.



The **Preferences** contain a toggle for audio, allowing you to enable and disable audio playback across the entire interface as well as control the volume level for all new Viewers. See [Workspace Preferences](#) for more information.



**NOTE:** If the frame rate drops too low, audio is automatically muted and the speaker changes to the no audio playback icon.

## WAV Track Items

Audio can be recorded at the same time as shooting the video or it can be unrelated to the shoot, for example sound effects or music. You can add **.wav** clips to the timeline in two ways:

- **Drag-and-drop** - drag your **.wav** clip to a timeline audio track and drop it in to place.
- Navigate to **File > Import Clips** or **Import Folders**.



**TIP:** You can also use the **Ctrl/Cmd+I** and **Ctrl/Cmd+Shift+I** hotkeys.

Use the [Timeline Editing Tools](#) to move the clip into place and set its output.

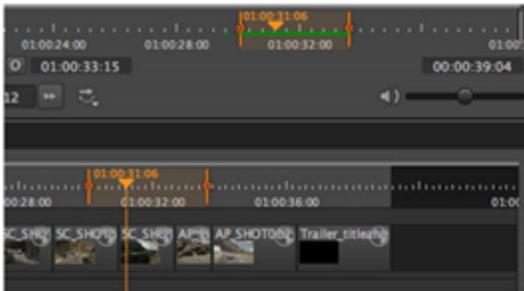
## Synchronizing Audio and Video

Hiero and HieroPlayer allow you to massage the synchronization between audio and video tracks using audio latency adjustment during playback in the Viewer, or by a default amount in the **Preferences > Audio** dialog.

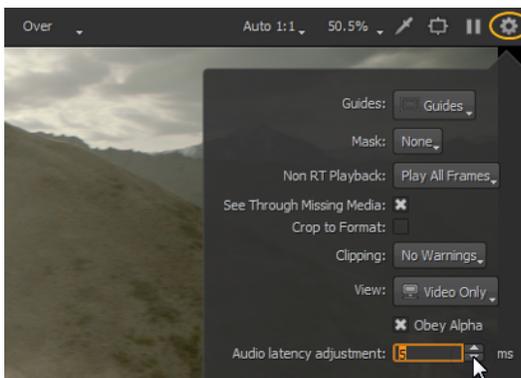


**NOTE:** Latency adjustments can take a few seconds to affect the audio track.

1. Mark a portion of the timeline containing the target audio and video track items using In and Out markers.
2. Press  or use the **L** hotkey to begin playback.



3. Click the Viewer settings icon and increment the latency using the controls in the popup.



4. Adjust the latency until the tracks are in synch.

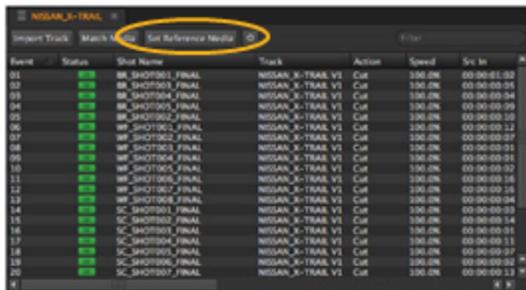
## Using Reference Media

Importing a lower resolution version of your timeline enables you to compare your current timeline against the reference media to avoid issues with continuity, missed media frames, and so on.

To import reference media, click **Set Reference Media** and use the browser to locate the required file.

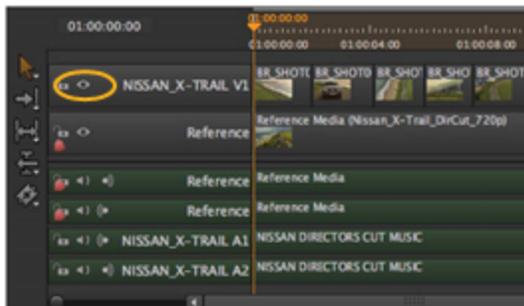


**NOTE:** HieroPlayer does not support **Set Reference Media**, but you can import reference files manually and use A/B compare in the Viewer.



The reference media is automatically imported into **Reference** tracks, pushing existing tracks outward, and marked with the **Reference Media** tag.

After importing the reference media, use the show/hide icon to compare the current timeline against the reference clip. Hold **Alt** and click to solo the selected track.



## Comparing Media

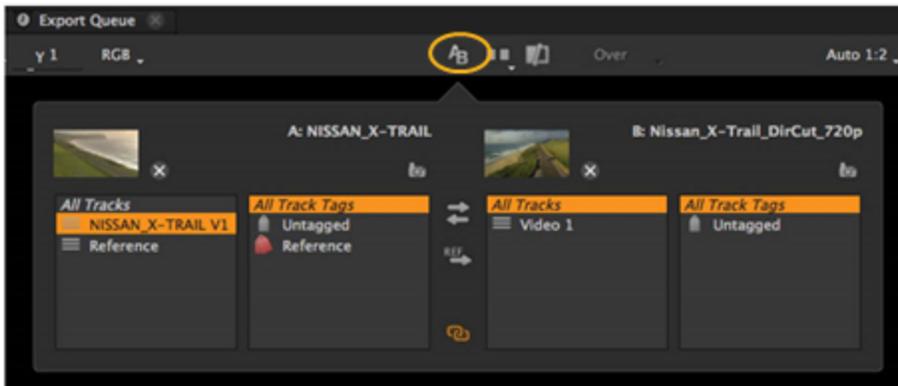
You can drag media from the bin view to the second Viewer input, and use the **SplitWipe** tool to compare media.



**NOTE:** Hiero and HieroPlayer currently treat all alpha channels as premultiplied, which can result in the Viewer background being “added” to the image. If you’re working with un-premultiplied images, set the Viewer background to **Black**. See [Workspace Preferences](#) for more information.



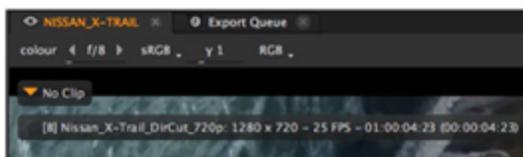
Alternatively, switch the Viewer to **Horizontal** mode and click the **A/B** button to determine the Viewer output using tracks flags and/or tags.



The following controls affect the A/B output:

Icon	Description
	Clear the associated Viewer input.
	Set the associated clip's thumbnail to the current frame.
	Swap the A and B inputs.
	Automatically places any tagged Reference media on the timeline in Viewer input B.
	Click to toggle A/B time synchronization.

The Viewer overlay displays a description of the contents of the A and B inputs, or **No Clip** when there is no clip at the playhead, for instance, when there is a gap in a timeline.



The orange triangle in the A/B overlay denotes the clip currently supplying audio and timecode information in the Viewer.

## Viewing Multi-Format Timelines

Initially, sequences have an **Output Resolution** applied across all video tracks on a timeline. You can apply this resolution project-wide through **Project > Edit Settings > Sequence** or to individual sequences using the timeline **Sequence** tab.

In the real world, however, clips are often of different formats so Hiero and HieroPlayer provide clip-by-clip formatting options to help you standardize sequences more easily.

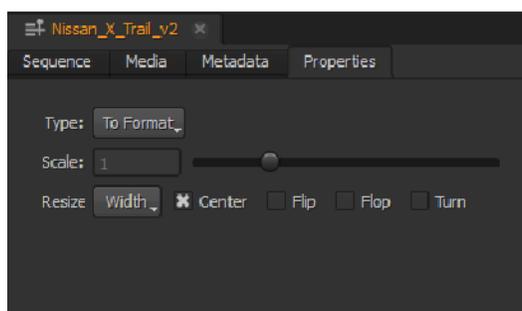
Reformatting applied to track items on a timeline carries over into any export from Hiero. The reformat options in the **Export** dialog are applied after the transforms applied here. See [Export Management](#) for more information.



**NOTE:** Track items default to **Resize Type > Width** when you change the format of the sequence.

To apply format changes:

1. Select the track item(s) to reformat on the timeline.
2. Click the **Properties** tab on the timeline pane to display the reformat options.



3. Select the reformat **Type** from the dropdown:
  - **Disabled** - no reformatting is applied.
  - **To Format** - enables the **Resize Type** and orientation controls.
  - **Scale** - enables the **Scale** controls.



**TIP:** You can enable the **Format** guide in the Viewer controls to overlay the current format as a red box.

4. **To Format** controls how a clip is resized and its orientation. The following **Resize Types** are supported:
  - **None** - no resize is applied.
  - **Width** - scale the original until its width matches the format's width. Height is then scaled to preserve the original aspect ratio.
  - **Height** - scale the original until its height matches the format's height. Width is then scaled to preserve the original aspect ratio.

- **Fit** - scale the original until its smallest side matches the format's smallest side. The original's longer side is then scaled to preserve original aspect ratio.
- **Fill** - scale the original until its longest side matches the format's longest side. The input's shorter side is then scaled to preserve original aspect ratio.
- **Distort** - to scale the original until all its sides match the lengths specified by the format. This option does not preserve the original aspect ratio, so distortions may occur.

You can also change the clip orientation:

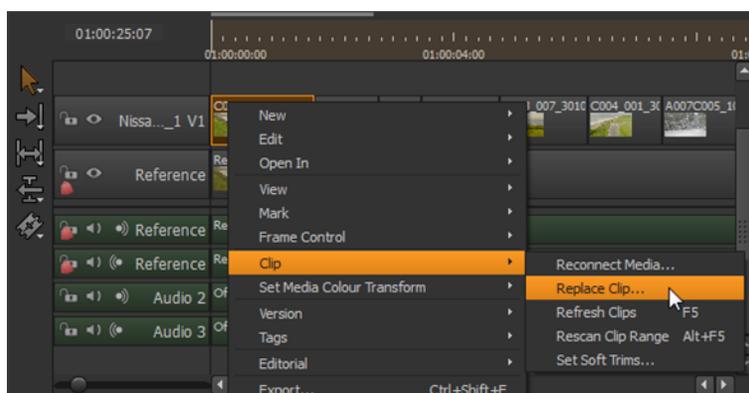
- **Center** - centers the clip within the format dimensions.
  - **Flip** - flips the clip the X axis.
  - **Flop** - flops the clip on the Y axis.
  - **Turn** - rotates the clip 90 degrees clockwise.
5. **Scale** allows you to directly control the size of the clip without changing its aspect ratio. Use the slider or enter a value in the field provided to scale the clip.
  6. You can crop the clip outside the format by enabling **Crop to Format** in the Viewer controls.

## Refreshing and Replacing Track Items

During the post process, media inevitably changes location or form. Hiero can reload or replace your media using the refresh, rescan, reconnect, and replace functions.



**NOTE:** HieroPlayer cannot perform the **Replace Clip(s)** function on read-only projects.



Though all four options deal with reloading track items, each has a particular use dependent on context:

- **Reconnect Media** - allows you to redirect the filepath when the source file location changes.
- **Replace Clip** - replaces the selected track item with a specified source clip. Hiero assumes that any source clip you choose is acceptable, regardless of timecode.
- **Refresh Clips (F5)** - allows you to reload the track item when the source file location has not changed, such as when work has been done on the clip offline. Selecting refresh only refreshes the clip's current frame range.

- **Rescan Clip Range (Alt+F5)** - similar to **Refresh Clips**, above, but rescan also checks for additional frames that may have been added to the source file and adds them to the track item's frame range.
- **Set Soft Trims** - sets the files handles on the selected clip(s). See [Setting Soft Trims](#) for more information.

## Setting Soft Trims

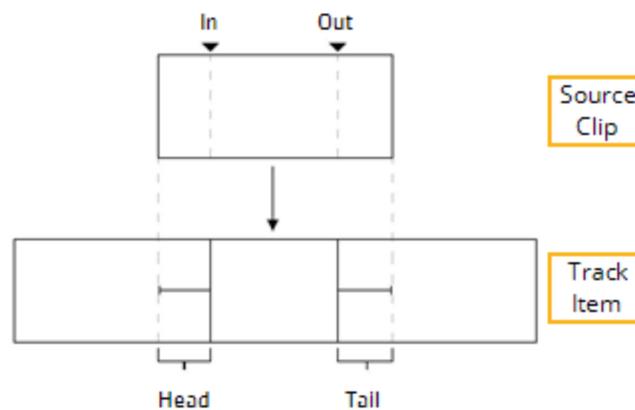
Soft Trims limit the handles on track items to a pre-defined amount, simulating In and Out points on the source clips, allowing you to use other timeline tools on the track items such as **Slip Clip** and **Slide Clip**.



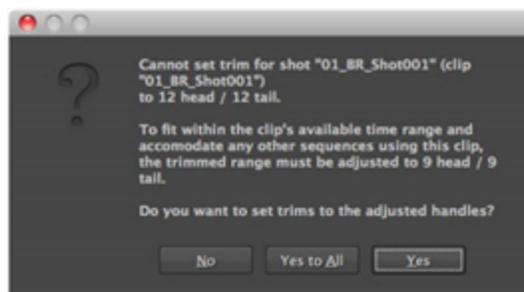
**NOTE:** HieroPlayer does not support Soft Trimming.

To set Soft Trims on a track item(s):

1. Select the track item(s) on the timeline.
2. Right-click and select **Clip > Set Soft Trims**.  
The **Set Soft Trims** dialog displays.
3. Set the number of frames to add to the head and tail of each track item:



- **Use full available range** - sets the handles to the full extent of the source clip frame range.
  - **Use Frames** - adds the specified number of frames to the head and tail of the track item(s).
4. Click **OK** to add the specified number of handles.  
If the handles requested are not within the available frame range, Hiero displays a warning dialog with a suitable correction for each selected track item.



Click **Yes** to accept, or **No** to abort the operation.



**NOTE:** With track items used in multiple sequences, click **Yes to All** to accept the correction in all instances.

## Enabling and Disabling Track Items

You can temporarily enable or disable tracks and track items on the timeline to selectively view your media without removing track item(s), for example if you wanted to view to lower level video tracks within a timeline.

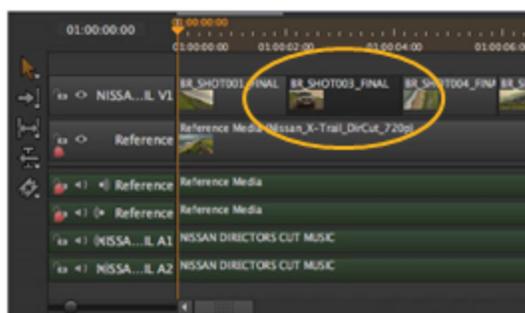
To enable or disable a track or track item(s):

1. Select the item(s) you want to enable or disable.
2. Right-click on a highlighted item and select **Editorial > Disable Track** or **Disable Items** to disable the selection.



**TIP:** You can also use the **D** hotkey to disable or enable your selection.

Disabled items appear black, and are effectively removed from the timeline.



3. Right-click the item and select **Enable Clip** to re-enable the clip.

## Adding Transitions

Hiero supports basic fade transitions as well as dissolves between track items. Transitions come in three flavors:

- **Fade in** - fades in from black on a single track item.
- **Fade out** - fades out to black on a single track item.
- **Dissolve** - fades out from one track item and into the next, by merging frames.



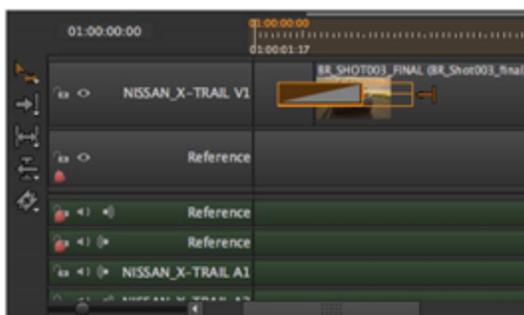
**NOTE:** HieroPlayer does not support adding transitions, though you can edit existing transitions in HieroPlayer projects.



**TIP:** Once a transition is in place, it can be nudged in the same way as an edit using the **Ctrl/Cmd+←→** hotkeys, providing the required handles exist.

To add a fade transition:

1. Right-click the target track item and select **Editorial > Transition > Fade In** or **Fade Out** to add the fade icon.
2. Adjust the fade by dragging the fade icon using the **Multi Tool** or **Move/Trim** tool.



To add a dissolve transition:



**NOTE:** Dissolves must be between track items on the same track.

1. Select the **Multi Tool** or **Roll Edit** tool and hover the mouse pointer over an edit between two track items.  
The cursor changes to .



**TIP:** Clicking the edit point displays available handles as a red overlay.

2. Right-click and select **Editorial > Transition > Dissolve**, or use the **Ctrl/Cmd+T** hotkeys, to add the dissolve icon to the edit.
3. Adjust either side of the dissolve by dragging the icon, in a similar way to using the **Multi Tool** or **Move/Trim** tool.

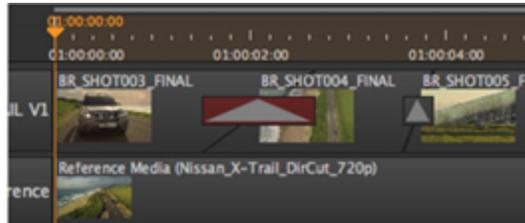
## Invalid Transitions

Transitions are controlled in a similar way to track items, in that you can drag-and-drop them, but with the following restrictions:

- A fade can not be dragged past the ends of the track item it's attached to, and if the item is deleted, the fade is deleted with it.
- Dissolve ends can not be dragged past the ends of the track items they are attached to, and if both items are deleted, then the dissolve is also deleted.

If only one of the track items linked by the dissolve is deleted, the transition remains so that another item can be placed on the other side.

Invalid transitions are colored red on the timeline. In most cases, adjusting the length of the transition should be enough to correct the error.



## Retiming Clips

In addition to transitions, Hiero (and HieroPlayer in writable projects) supports constant retimes on track items. Decreasing the speed of a track item causes frames to play more than once, whereas increasing the speed skips frames.



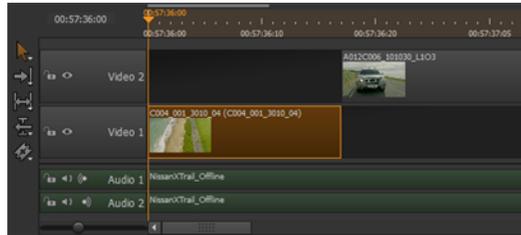
**NOTE:** Audio is not currently supported for retimes and is automatically muted to avoid playback problems.

To retime track items using the **Speed** column in the spreadsheet:

1. Select the required event(s) in the spreadsheet view.
2. Click the cog icon and select the required **Retime method**:
  - **Keep source duration** - the track item length is altered on the timeline depending on the retime applied. For example, retiming a track item to 50% renders frames 1, 1, 2, 2, 3, 3, 4, 4, and so on in the Viewer, and as a result, the item's length is doubled on the timeline. Retiming a track item to 200% renders frames 1, 3, 5, 7, and so on in the Viewer, but the item's length is halved on the timeline.
  - **Keep timeline duration** - the track item length on the timeline is maintained regardless of the retime applied. For example, retiming a track item to 50% renders frames 1, 1, 2, 2, 3, 3, 4, 4, and so on in the Viewer, but the item's length on the timeline remains the same, effectively removing the second half of the item. Retiming a track item to 200% renders frames 1, 3, 5, 7, and so on in the Viewer, but the item's length on the timeline remains the same. If no extra frames are available from the source, the item is filled with black frames.
3. Double-click the **Speed** column and enter the retime value.

The following example shows a track item and the results of 50% and 200% retimes with the **Keep source duration** and **Keep timeline duration** methods selected.

Notice that the **Keep timeline duration** method doesn't change the length of the track item on the timeline and inserts blank filler frames on the 200% retime?



Original clip



50% **Source** retime



200% **Source** retime



50% **Destination** retime



200% **Destination** retime

You can also retime track items using the **Src**, **Dst**, and **Duration** columns of the spreadsheet, though the calculation method depends on the **Time Edit Behaviors** applied.

1. Select the event(s) in the spreadsheet view.
2. Click the cog icon and select the required **Time Edit Behaviors**:

Modify	Using	Result																												
Src In	Retime	<p>Adjusts the event's <b>Src In</b> and retimes the remaining frames to maintain <b>Dst Duration</b>.</p> <p>Before and after a 2 second <b>Src In</b> increase:</p> <table border="1"> <thead> <tr> <th>Speed</th> <th>Src In</th> <th>Src Out</th> <th>Src Dur</th> <th>Dst In</th> <th>Dst Out</th> <th>Dst Dur</th> </tr> </thead> <tbody> <tr> <td>100.0%</td> <td>00:00:00:01</td> <td>00:00:04:00</td> <td>100</td> <td>01:00:00:00</td> <td>01:00:03:24</td> <td>100</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Speed</th> <th>Src In</th> <th>Src Out</th> <th>Src Dur</th> <th>Dst In</th> <th>Dst Out</th> <th>Dst Dur</th> </tr> </thead> <tbody> <tr> <td>50.0%</td> <td>00:00:02:01</td> <td>00:00:04:00</td> <td>50</td> <td>01:00:00:00</td> <td>01:00:03:24</td> <td>100</td> </tr> </tbody> </table>	Speed	Src In	Src Out	Src Dur	Dst In	Dst Out	Dst Dur	100.0%	00:00:00:01	00:00:04:00	100	01:00:00:00	01:00:03:24	100	Speed	Src In	Src Out	Src Dur	Dst In	Dst Out	Dst Dur	50.0%	00:00:02:01	00:00:04:00	50	01:00:00:00	01:00:03:24	100
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3. Adjust the values as required to retime the track item(s) by the specified amount.



**NOTE:** Any source or destination field highlighted in yellow indicates that the entry has been rounded down for display purposes.

To retime a track item using the **Timeline** menu:

1. Select the required track item(s) on the timeline.
2. Navigate to **Timeline > Retime**.  
The **Clip Speed** dialog displays.
3. Enter the required retime value as a percentage.
4. Select the required retime method using the dropdown:
  - **Keep timeline duration** - the track item length on the timeline is maintained regardless of the retime applied. When increasing speed, if no extra frames are available from the source, the track item is filled with black frames.
  - **Keep source duration** - the track item length is altered on the timeline depending on the retime applied. For example, a 200% retime halves the length of the item.
  - **Anchor current frame** - the track item length on the timeline and the current frame's position are maintained after the retime. When increasing speed, if no extra frames are available from the source, the track item is filled with black frames.

5. Click **OK** to retime the track item(s).

## Using Freeze Frames

The freeze frame feature enables you to create track items of any length using a single frame. To achieve this, the application takes the first frame of the track item and applies a 0% retime, which is reversible by applying a 100% retime.

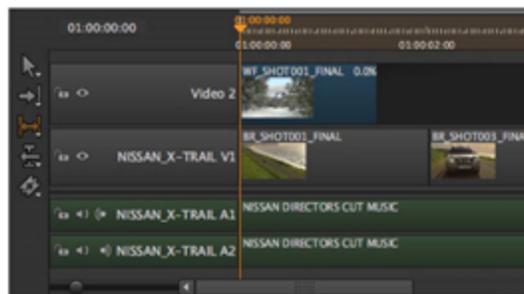
To freeze frame track items:

1. Select the target item(s) on the timeline.
2. Right-click the item and select **Make Freeze Frame**,  
OR  
Navigate to **Timeline > Make Freeze Frame**.



**NOTE:** Freeze Frames can also be created using the spreadsheet retime modes to modify **Src Dur** to 0, or make **Src In** and **Src Out** equal.

3. The selection is retimed to 0% and colored blue on the timeline for easy identification.



4. Use the **Multi Tool** or **Slip Clip** to set the freeze frame from the available range.
5. Drag the item's edit points, using the **Multi Tool** or **Move/Trim** as required, to set the length of the track item. There's no upper limit for the length of a freeze frame track item.

# 11 Timeline Editing Tools

The timeline editing tools allow you to manipulate your track items directly in the timeline using a series of modal editorial tools that complement the **Multi Tool**. You select the tool you need for the job and then select a new tool and continue editing.

## Introduction

The editing tools in Hiero are grouped for convenience - each tool group contains several tools and you can cycle between them by clicking the tool or using hotkeys.



**NOTE:** HieroPlayer does not allow you to edit read-only projects. If you need to edit an imported Hiero project, select **File > Save as Player Project** to make it editable in HieroPlayer.

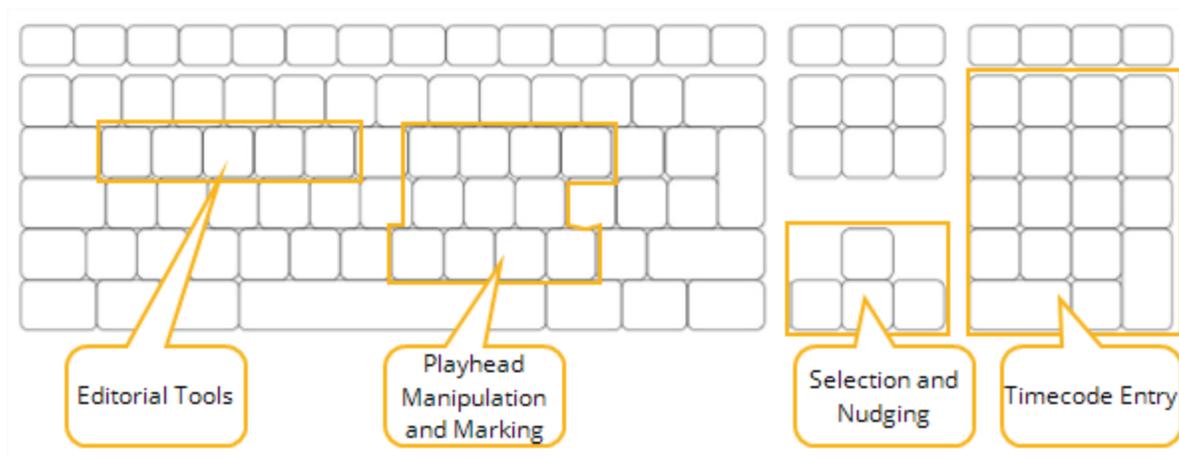
Icon	Tools	Description
	Multi Tool	The <b>Multi Tool</b> 's functionality is equivalent to most of the other tools combined, but doesn't require modal tool selection.
	Move/Trim	The <b>Move/Trim</b> tool allows you to manipulate the position of a track item or its output by adding or removing handles.
	Select	The marquee <b>Select</b> tool allows you to make multiple selections quickly by lassoing track items. Hold <b>Shift</b> to add to the selection and <b>Alt</b> to subtract from the selection.
	Selection by Track	The track selection tools allow you to quickly select multiple items depending on the initial selection. For example, the <b>Select Track to Right</b> tool selects all track items to the right of the target track item, within a single track.
	Slip Clip	The <b>Slip Clip</b> tool allows you to shift a track item's In and Out points by the same amount and in the same direction, retaining the original duration but altering the timeline output.
	Slide Clip	The <b>Slide Clip</b> tool allows you to move a track item in relation to the item before and/or after the target item, without changing its length or timeline output.

Icon	Tools	Description
	Roll Edit	The <b>Roll Edit</b> tool enables you to roll a single edit within the available handles, shortening one track item while lengthening the other, but keeping the overall duration the same.
	Ripple Edit	The <b>Ripple Edit</b> tool operates similarly to the trim function of the <b>Move/Trim</b> tool, except that downstream track items are rippled to automatically close any resulting gaps in the timeline.
	Retime Clip	The <b>Retime Clip</b> tool allows you to trim a track item's In or Out point and automatically retime the clip to fill the new track item duration.
	Razor	The <b>Razor</b> and <b>Razor All</b> tools allow you to cut track items in to separate parts so you can remove sections or rearrange items on the timeline.
	Join	The <b>Join</b> tool can only be used on edit points between two razored track items, denoted by the yellow arrows at the edit.

The modal editorial tools are mapped to the **Q**, **W**, **E**, **R**, and **T** hotkeys when the timeline is the active tab.



NOTE: For a full list of hotkeys, please see [Appendix A](#).



Pressing a hotkey multiple times selects the tools within each mode. For example, pressing **E** twice, rapidly in succession activates **Slide Clip**. Pressing them slowly in succession does not achieve the same result, but instead, remains on the first item in the menu. This allows you to activate a tool without knowing the current state of tool selection.

- mapped to **Q**, cycles through **Multi Tool**, **Move/Trim**, and **Select**.

- mapped to **W**, cycles through **Track Selection** tools.
- mapped to **E**, cycles through **Slip Clip** and **Slide Clip**.
- mapped to **R**, cycles through **Roll Edit**, **Ripple Edit**, and **Retime Clip**.
- mapped to **T**, cycles through **Razor**, **Razor All**, and **Join**.

## Using the Multi Tool

Unlike the other editing tools available in Hiero and HieroPlayer, the **Multi Tool** changes function depending on the position of your mouse in relation to the track item(s) selected.



The **Multi Tool**'s functionality is equivalent to most of the other tools combined, but doesn't require modal tool selection:

- **Move** - placing the mouse in the center of a track item activates the tool. Drag the selected track item to the required position on the timeline.
- **Trim** - placing the mouse at the left or right of the track item activates the tool. Drag the edit point to the new position and release the mouse to complete the trim.  
See [Using the Move/Trim Tool](#) for more information.
- **Select** - click-and-drag to marquee select clips. Hold **Shift** to add to your selection or **Alt** to subtract.  
See [Using the Selection Tools](#) for more information.
- **Slip** - placing the mouse at the bottom of the track item activates the tool and displays the slip handles. Drag the track item to the new position and release the mouse to complete the slip.  
See [Using the Slip Clip Tool](#) for more information.
- **Slide** - placing the mouse at the top of the track item activates the tool and displays the slide handles. Drag the track item to the new position and release the mouse to complete the slide.  
See [Using the Slide Clip Tool](#) for more information.
- **Roll** - placing the mouse on the edit between track items activates the tool and displays the handles. Drag the edit to the new position and release the mouse to complete the roll.  
See [Using the Roll Edit Tool](#) for more information.

- **Razor** - when using the Multi Tool, Razor cuts are menu driven. Navigate to **Timeline > Razor Selected** or **Razor All** to make cuts at the current playhead position.

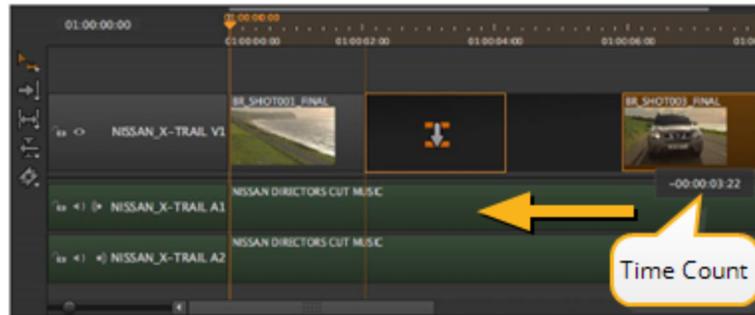
See [Using the Razor and Join Tools](#) for more information.

## Using the Move/Trim Tool

The **Move/Trim** tool allows you to manipulate the position of a track item or its output by adding or removing handles. Activate the **Move/Trim** tool by clicking the tool or pressing **Q** twice.

### Moving Track Items

Click and drag the selected track item(s) to the required position on the timeline. A time count popup, in conjunction with the snap to edit function, helps you to reposition the track item(s) accurately.



You can also move track items up and down the track hierarchy using drag-and-drop or the **Ctrl/Cmd+↑↓** hotkeys.



The following table describes the **Move/Trim** tool's modifiers and actions:

Mode	Method	Indicator	Description
Overwrite	drag-and-drop		The default move mode. The dragged track item overwrites any items that are present in the move location.
Ripple	drag then hold <b>Alt</b> and drop		Drag-and-drop track items on top of other items without overwriting content - items are pushed down the timeline to accommodate the move.
Duplicate	hold <b>Alt</b> and drag then release <b>Alt</b> and drop	 	Copy the track item, then drag-and-drop on top of other items overwriting existing content - items are <b>not</b> pushed down the timeline to accommodate the move.
Ripple and Duplicate	hold <b>Alt</b> then drag and drop while holding <b>Alt</b>	 	Copy the track item, then drag-and-drop items on top of others without overwriting content - items are pushed down the timeline to accommodate the move.



NOTE: On Linux, hold **Ctrl+Alt** for **Duplicate** and **Ripple Duplicate** modifiers.

Action	Hotkeys	Description
Delete	<b>Backspace</b>	Delete the selected track item(s) or gap(s).
Ripple Delete	<b>Shift + Backspace</b>	Remove the selected track item(s) and ripple items down stream to close gaps in the timeline.



NOTE: The ripple effect may not close gaps entirely, because Hiero does not allow linked tracks to become desynchronized during rippling.

If you need to nudge track items by just a frame or two, you can select the items on the timeline and press **Ctrl/Cmd+←→** to nudge by one frame in the chosen direction. Press **Ctrl/Cmd+Shift+←→** to nudge by the **Frame Increment** set under the Viewer.



NOTE: You cannot overwrite other track items on the timeline using the nudge keys.

## To Move Track Items Using the Spreadsheet View:

1. Select the required events in the spreadsheet view.

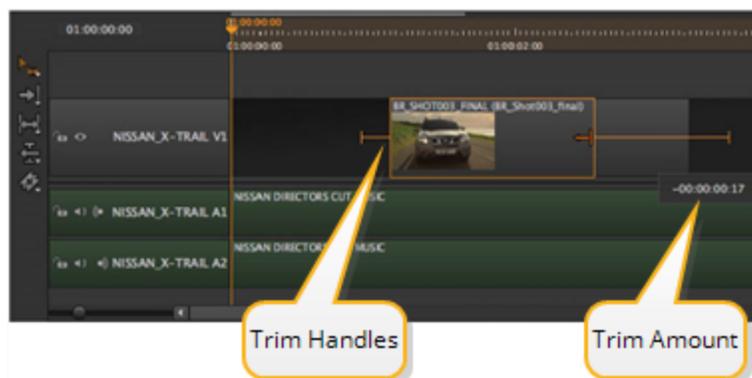
2. Click the cog icon and select the required **Time Edit Behaviors**:

Modify	Using	Result																												
Dst In	Move Destination	<p>Adjusts the event's <b>Dst In</b> and <b>Out</b> by the same amount, moving the track item's position on the timeline by the specified amount, while maintaining Speed.</p> <p>Before and after a 2 second <b>Dst In</b> increase:</p> <table border="1"> <thead> <tr> <th>Speed</th> <th>Src In</th> <th>Src Out</th> <th>Src Dur</th> <th>Dst In</th> <th>Dst Out</th> <th>Dst Dur</th> </tr> </thead> <tbody> <tr> <td>100.0%</td> <td>00:00:00:01</td> <td>00:00:04:00</td> <td>100</td> <td>01:00:00:00</td> <td>01:00:03:24</td> <td>100</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Speed</th> <th>Src In</th> <th>Src Out</th> <th>Src Dur</th> <th>Dst In</th> <th>Dst Out</th> <th>Dst Dur</th> </tr> </thead> <tbody> <tr> <td>100.0%</td> <td>00:00:00:01</td> <td>00:00:04:00</td> <td>100</td> <td>01:00:02:00</td> <td>01:00:05:24</td> <td>100</td> </tr> </tbody> </table>	Speed	Src In	Src Out	Src Dur	Dst In	Dst Out	Dst Dur	100.0%	00:00:00:01	00:00:04:00	100	01:00:00:00	01:00:03:24	100	Speed	Src In	Src Out	Src Dur	Dst In	Dst Out	Dst Dur	100.0%	00:00:00:01	00:00:04:00	100	01:00:02:00	01:00:05:24	100
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3. Adjust the **Dst In** or **Dst Out** to move the track item(s) by the specified amount.

## Trimming Track Items

Click-and-drag the edit point to the new position and release the mouse to complete the trim.





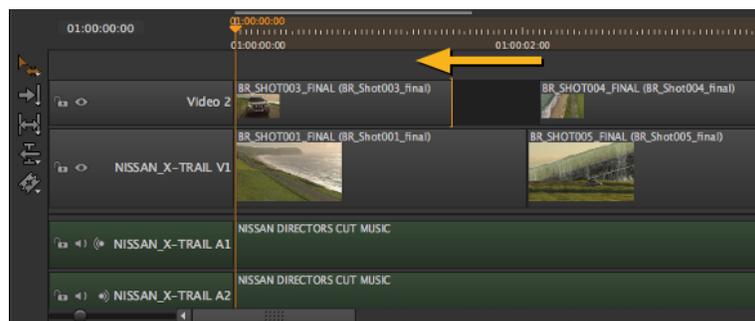
**TIP:** Use the **Ripple Edit** tool, activated by pressing **R** twice, to ripple downstream track items automatically.

The Viewer displays the new In or Out point (depending on whether you're adjusting the beginning or end of the track item), allowing you to accurately gauge the new output.

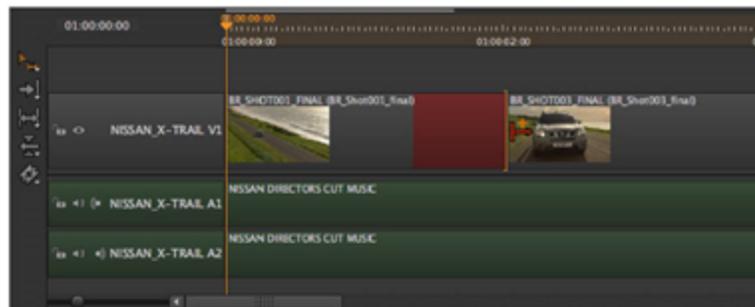


**NOTE:** Trimming multiple track items simultaneously trims each item by the same amount and in the same direction.

Alternatively, click an edit point and nudge the edit using the **Ctrl/Cmd+←→** keys or hold **Shift** to nudge by the **Frame Increment** set under the Viewer.



By holding **Ctrl/Cmd** and dragging an edit, you can add blank frames past the end of the track item's handles. Blank frames are colored red on the timeline for clarity:



## To Trim Track Items Using the Spreadsheet View:

1. Select the required events in the spreadsheet view.
2. Click the cog icon and select the required **Time Edit Behaviors** depending on whether you're using the In or Out points or duration:

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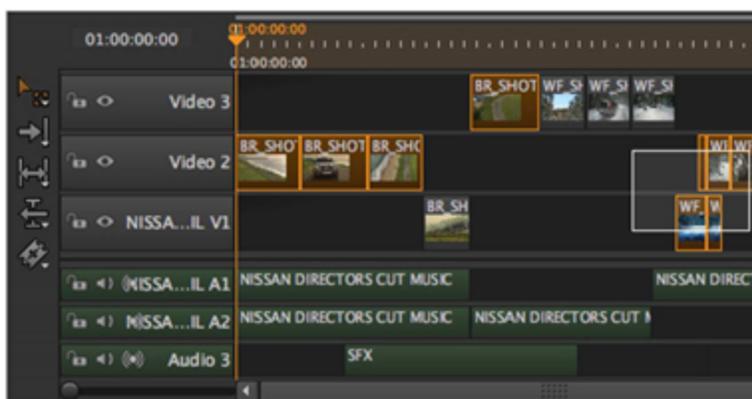
- Adjust the values as required to trim the track item(s) by the specified amount.

## Using the Selection Tools

The timeline editing tools include a marquee selection tool and several context dependent track selection tools.

The marquee **Select** tool, activated by clicking the tool or pressing **Q** three times, allows you to make multiple selections quickly by lassoing track items.

Hold **Shift** to add to the selection and **Alt** to subtract from the selection.



The track selection tools, activated by clicking the tool or by pressing **W**, selects multiple items depending on the initial selection:

- **Select Track to Right** or **Left** - all track items right or left of the target track item are selected, within a single track.



- **Select All in Track** - all track items on the target track are selected, regardless of the item selected.



- **Select All Tracks Right** or **Left** - all track items right or left of the target item are selected, regardless of which track they occupy.



## Using the Slip Clip Tool

The **Slip Clip** tool allows you to shift a track item's In and Out points by the same amount and in the same direction, retaining the original duration but altering the timeline output. Activate the **Slip Clip** tool by clicking the tool or pressing **E**.



**NOTE:** The target track item must have handles to use the **Slip** tool.

The **Slip Clip** tool displays different Viewer previews depending on whether the playhead is on the target track item or not, but the basic principals are the same.

Click the target clip to display the available handles and then drag the track item to the new position. Release the mouse to complete the slip.



**NOTE:** Using the **Slip Clip** tool does not move the track item on the timeline, only the output is changed.

Alternatively, nudge the slip using the **Ctrl/Cmd+←→** keys or hold **Shift** to nudge by the **Frame Increment** set under the Viewer.



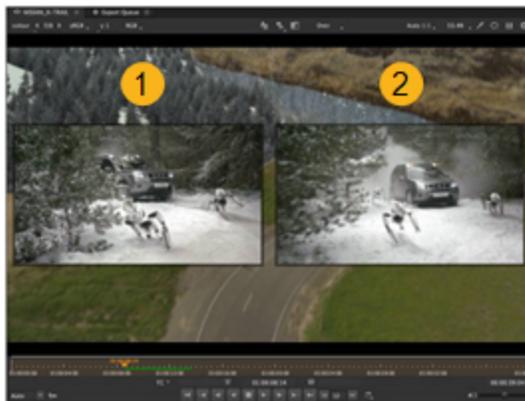
**TIP:** If you're using the **Multi Tool**, you can nudge using the "slip bar" by clicking at the bottom the track item.

The following Viewer previews are displayed, depending on the playhead position:



**NOTE:** The Viewer background always displays the playhead's current position.

- When the playhead is not currently on the target track item, the Viewer displays the **In** frame (1) and **Out** frame (2), allowing you to accurately gauge the new output.



- When the playhead is on the target track item, the Viewer displays the **In** frame (1), the **current** frame (2), and **Out** frame (3), allowing you to accurately gauge the output of the track item against the current frame.



- When the playhead is on the target track item and A/B compare is active, the Viewer displays the target track item (1) and the reference track item (2), allowing you to synchronize your working track against the reference track.



## Slipping Using the Spreadsheet View

You can slip track items using the **Src In** and **Src Out** columns of the spreadsheet:

1. Select the required event in the spreadsheet view.
2. Click the cog icon and select the required **Time Edit Behaviors** depending on whether you're using the In or Out point:

Modify	Using	Result																												
Src In	Slip Source	<p>Adjusts the <b>Src In</b> and <b>Src Out</b> by the same amount, slipping the event while maintaining speed.</p> <p>Before and after a 2 second <b>Src In</b> increase:</p> <table border="1"> <thead> <tr> <th>Speed</th> <th>Src In</th> <th>Src Out</th> <th>Src Dur</th> <th>Dst In</th> <th>Dst Out</th> <th>Dst Dur</th> </tr> </thead> <tbody> <tr> <td>100.0%</td> <td>00:00:00:01</td> <td>00:00:04:00</td> <td>100</td> <td>01:00:00:00</td> <td>01:00:03:24</td> <td>100</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Speed</th> <th>Src In</th> <th>Src Out</th> <th>Src Dur</th> <th>Dst In</th> <th>Dst Out</th> <th>Dst Dur</th> </tr> </thead> <tbody> <tr> <td>100.0%</td> <td>00:00:02:01</td> <td>00:00:06:00</td> <td>100</td> <td>01:00:00:00</td> <td>01:00:03:24</td> <td>100</td> </tr> </tbody> </table>	Speed	Src In	Src Out	Src Dur	Dst In	Dst Out	Dst Dur	100.0%	00:00:00:01	00:00:04:00	100	01:00:00:00	01:00:03:24	100	Speed	Src In	Src Out	Src Dur	Dst In	Dst Out	Dst Dur	100.0%	00:00:02:01	00:00:06:00	100	01:00:00:00	01:00:03:24	100
Speed	Src In	Src Out	Src Dur	Dst In	Dst Out	Dst Dur																								
100.0%	00:00:00:01	00:00:04:00	100	01:00:00:00	01:00:03:24	100																								
Speed	Src In	Src Out	Src Dur	Dst In	Dst Out	Dst Dur																								
100.0%	00:00:02:01	00:00:06:00	100	01:00:00:00	01:00:03:24	100																								
Src Out	Slip Source	<p>Adjusts the <b>Src Out</b> and <b>Src In</b> by the same amount, slipping the event while maintaining speed.</p> <p>Before and after a 2 second <b>Src Out</b> increase:</p> <table border="1"> <thead> <tr> <th>Speed</th> <th>Src In</th> <th>Src Out</th> <th>Src Dur</th> <th>Dst In</th> <th>Dst Out</th> <th>Dst Dur</th> </tr> </thead> <tbody> <tr> <td>100.0%</td> <td>00:00:00:01</td> <td>00:00:04:00</td> <td>100</td> <td>01:00:00:00</td> <td>01:00:03:24</td> <td>100</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Speed</th> <th>Src In</th> <th>Src Out</th> <th>Src Dur</th> <th>Dst In</th> <th>Dst Out</th> <th>Dst Dur</th> </tr> </thead> <tbody> <tr> <td>100.0%</td> <td>00:00:02:01</td> <td>00:00:06:00</td> <td>100</td> <td>01:00:00:00</td> <td>01:00:03:24</td> <td>100</td> </tr> </tbody> </table>	Speed	Src In	Src Out	Src Dur	Dst In	Dst Out	Dst Dur	100.0%	00:00:00:01	00:00:04:00	100	01:00:00:00	01:00:03:24	100	Speed	Src In	Src Out	Src Dur	Dst In	Dst Out	Dst Dur	100.0%	00:00:02:01	00:00:06:00	100	01:00:00:00	01:00:03:24	100
Speed	Src In	Src Out	Src Dur	Dst In	Dst Out	Dst Dur																								
100.0%	00:00:00:01	00:00:04:00	100	01:00:00:00	01:00:03:24	100																								
Speed	Src In	Src Out	Src Dur	Dst In	Dst Out	Dst Dur																								
100.0%	00:00:02:01	00:00:06:00	100	01:00:00:00	01:00:03:24	100																								

3. Adjust the **Src In** or **Src Out** to slip the track item(s) by the specified amount.

## Using the Slide Clip Tool

The **Slide Clip** tool allows you to move a track item in relation to the item before and/or after the target item, without changing its length or timeline output. Activate the **Slide Clip** tool by clicking the tool or pressing **E** twice.

The track item either side of the target are shortened or lengthened within the limits of their handles to accommodate the slide.

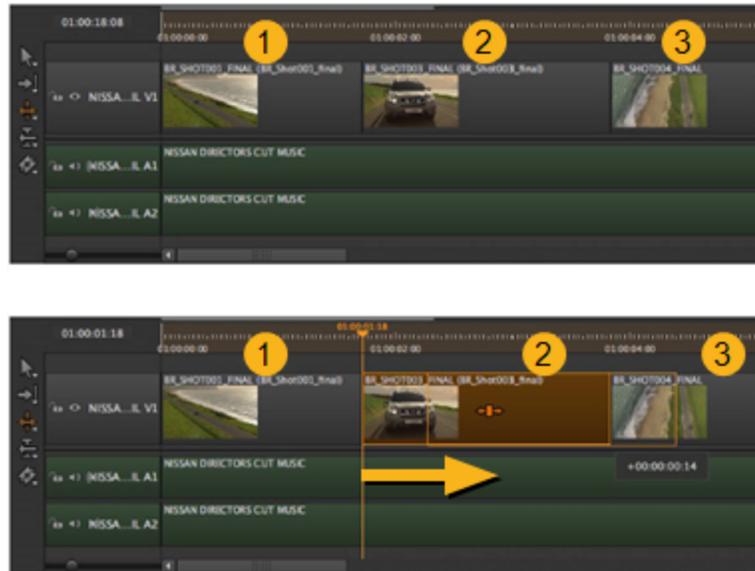


**NOTE:** The surrounding track items must have handles to use the **Slide** tool.

Click the target track item and then drag it to the new position and release the mouse to complete the slide.

For example, if you slide the target track item (2) five frames to the right, the preceding item (1) ends five frames later and the next item (3) starts five frames later.

The first image shows a timeline containing three track item, and the second shows the same track items with the target (2) sliding to the right.



The Viewer displays the new end point of the previous track item on the left and the new start point of the next track item on the right, allowing you to accurately gauge the slide.

The two center images (2) represent the start and end frames of the target track item, which don't change.



## Using the Roll Edit Tool

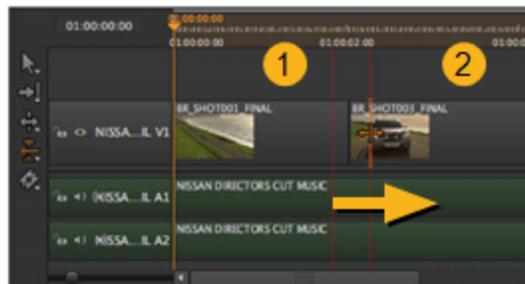
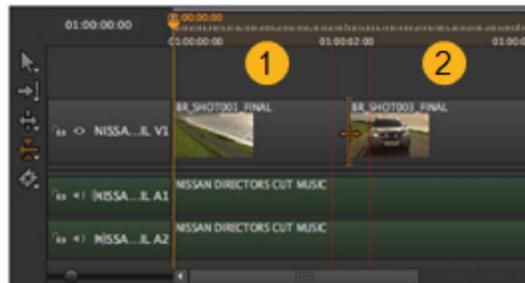
The **Roll Edit** tool enables you to roll a single edit within the available handles, shortening one track item while lengthening the other, but keeping the overall duration the same. Activate the **Roll Edit** tool by clicking the tool or pressing **R**.



**NOTE:** At least one of the target items must have handles to use the **Roll** tool.

1. Click an edit point between two track items to display the available handles as a red overlay.
2. Drag the edit to the new position and release the mouse to complete the roll.

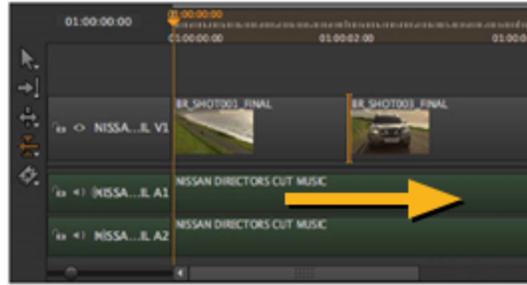
For example, if you roll five frames at the end of one track item (1), the next item (2) starts five frames later. The first image shows a timeline containing two track items, and the second shows the same items with the edit point “rolled” to the right.



The Viewer displays the pre-edit track item on the left and the post-edit item on the right, allowing you to accurately gauge the new position of the edit.



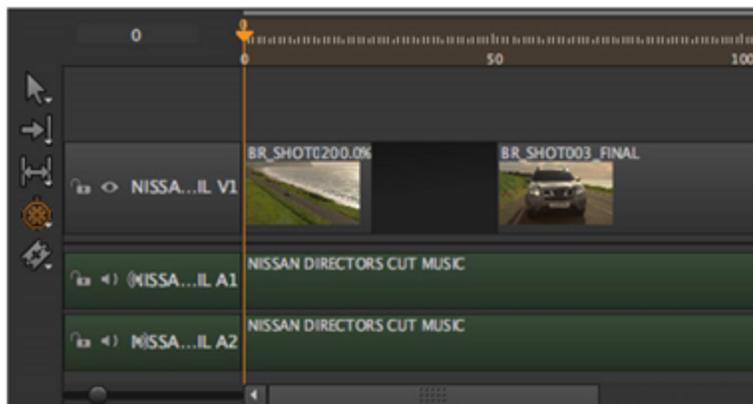
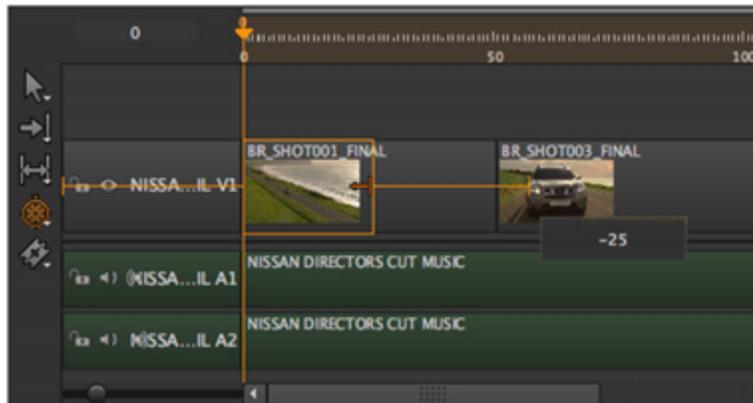
Alternatively, click the edit point between the track item and nudge the edit using the **Ctrl/Cmd+←→** keys or hold **Shift** to nudge by the **Frame Increment** set under the Viewer.



## Using the Retime Clip Tool

The **Retime Clip** tool allows you to trim a track item's In or Out point and automatically retime the clip to fill the new track item duration. Activate the **Retime Clip** tool by clicking the tool or pressing **R** three times.

Click-and-drag the edit point to the new position and release to complete the trim and retime. For example, trimming a 50 frame track item to 25 frames retimes the clip to 200%.



Alternatively, click an edit point and nudge the edit using the **Ctrl/Cmd+←→** keys or hold **Shift** to nudge by the **Frame Increment** set under the Viewer.

**TIP:** By holding **Ctrl/Cmd** and dragging an edit, you can retime past the end of the track item's handles.

## Using the Razor and Join Tools

The **Razor** tools allow you to cut track items in to separate parts so you can remove sections or rearrange items on the timeline. Activate **Razor** and **Razor All** by clicking the tool or pressing **R**.

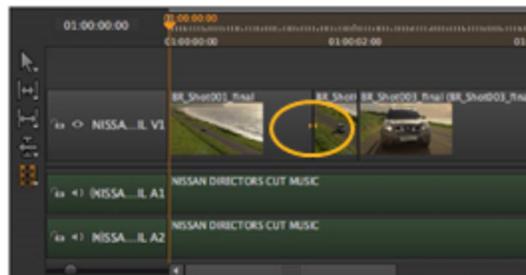
Place the cursor on the target track item, and if the cut is permissible, click to razor the track item or all track items depending on which tool you have selected.

**TIP:** The Razor cursor indicates whether a cut is permissible or not, such as on existing edits.

You can also apply cuts at the playhead position from the menu bar using **Timeline > Razor Selected**, or all tracks using **Timeline > Razor All**.

**TIP:** Use the **C** and **Shift+C** hotkeys, or the right-click context menu, to perform the respective cuts.

The **Join** tool can only be used on edit points between razored track items, denoted by the yellow arrows at the edit.



## Copying Cuts Between Tracks

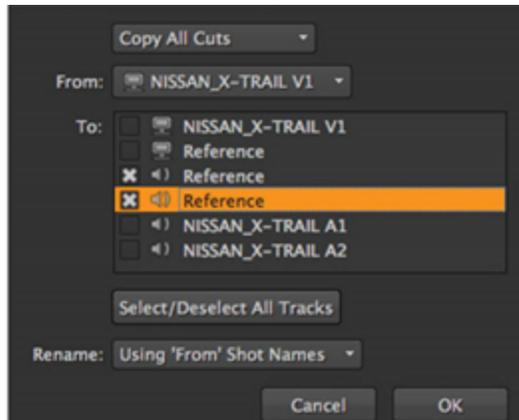
The **Copy Cuts** function allows you to quickly apply cuts from one track to other tracks on the timeline. For example, in the timeline shown, you could copy the cuts from the second video track to the Reference audio tracks.



To copy cuts:

1. Select the track items containing the cuts to copy, or if you intend to copy all the cuts from a track you don't need to make a selection.
2. Right-click in the timeline and select **Editorial > Copy Cuts**.

The **Copy Cuts** dialog displays.



3. If you made a selection on the timeline, use the dropdown to select **Copy All Cuts** or **Copy Selected Cuts** as required.

This dropdown is not displayed if no track items were selected.

4. Click the **From** dropdown to select the source track.
5. Check all the destination tracks in the **To** field to which you want to copy the cuts.
6. Choose whether or not the resulting track items are named identically to the source track. Selecting **None** retains the destination clip name.
7. Click **OK** to copy the cuts to the destination track(s).

## Insert, Overwrite, and 3-Point Editing

**Insert** and **Overwrite** edits are applied at the current playhead position by default, but the use of In and Out points in the clip Viewer and/or sequence Viewer can give you greater control over the result. 3-point editing, makes use of In and Out points in the clip Viewer and an In or Out in the sequence Viewer to control where the clip is placed on the timeline.

### Inserting Clips

By default, **Insert** places the entire contents of the clip Viewer into the timeline at the current playhead position, on the lowest available track. All track items downstream of the playhead are rippled to make room for the clip. No items are overwritten or removed.



Pre-insert timeline

Post-insert timeline



**NOTE:** If the playhead is not positioned at an edit point, or there are track items on other tracks, the **Insert** action cuts the track item(s) at the playhead and ripples the cut downstream. For example, the Post-insert image shows the audio track item being cut and rippled, even though it doesn't reside on the same track.

You can select a track before inserting if you don't want to target the lowest available track. Even if the target track is empty, track items on all other unlocked tracks are rippled by the same amount.

You can also use In and Out points to control where the clip is inserted and how many frames are included. See [3-Point Editing](#) for more information.

To insert a clip at the playhead:

1. Navigate to **Window > Workspace > Editing** to display the 2-up Viewer layout.
2. Double-click your sequence in the bin view to load it into the right-hand sequence Viewer .
3. Double-click the source clip to load it into the left-hand clip Viewer .
4. Place the playhead at the required edit point or timecode and select the target track, if necessary.
5. Navigate to **Clip > Insert**, or press **N**, to insert the clip into the timeline.  
All track items downstream of the clip are rippled to make room for the duration of the edit.

To insert a clip at an In or Out point:

1. Navigate to **Window > Workspace > Editing** to display the 2-up Viewer layout.
2. Double-click your sequence in the bin view to load it into the right-hand sequence Viewer .
3. Double-click the source clip to load it into the left-hand clip Viewer .
4. Place an In or Out point on the timeline to determine the clip's position:
  - **In point** - the source clip is inserted so that the first frame is at the In point specified.
  - **Out point** - the source clip is inserted so that the last frame is at the Out point specified.
5. Navigate to **Clip > Insert**, or press **N**, to insert the clip into the timeline.  
All track items downstream of the In or Out point are rippled to make room for the duration of the edit.

## Overwrite Edits

Unlike inserting, **Overwrite** does not incorporate downstream ripple and doesn't alter the length of your sequence. Any track items you overwrite are destroyed, though they can easily be recovered from the source clips in the bin view.



Pre-overwrite timeline

Post-overwrite timeline

You can select a track before overwriting if you don't want to target the lowest available track.

You can also use In and Out points to control what the clip overwrites and how many frames are included. See [3-Point Editing](#) for more information.

To overwrite at the playhead:

1. Navigate to **Window > Workspace > Editing** to display the 2-up Viewer layout.
2. Double-click your sequence in the bin view to load it into the right-hand sequence Viewer .
3. Double-click the source clip to load it into the left-hand clip Viewer .
4. Place the playhead at the required edit point or timecode and select the target track, if necessary.
5. Navigate to **Clip > Overwrite**, or press **M**, to overwrite from the playhead for the duration of the source clip. All track items under the source clip are overwritten.

To overwrite from an In or Out point:

1. Navigate to **Window > Workspace > Editing** to display the 2-up Viewer layout.
2. Double-click your sequence in the bin view to load it into the right-hand sequence Viewer .
3. Double-click the source clip to load it into the left-hand clip Viewer .
4. Place an In or Out point on the timeline to determine the clip's behavior:
  - **In point** - the source clip begins overwriting from its first frame at the In point specified downstream for the duration of the clip.
  - **Out point** - the source clip begins overwriting from its last frame at the Out point specified upstream for the duration of the clip.
5. Navigate to **Clip > Overwrite**, or press **M**, to overwrite from the In or Out point for the duration of the source clip. All track items under the source clip are overwritten.

## 3-Point Editing

Setting the output of a source clip and then editing the clip into a timeline at a specific point is sometimes referred to as 3-point editing. Using this method, you can insert and overwrite edits in an existing timeline or quickly construct scratch timelines from your bin clips.

Firstly, set the output of your source clip using In and Out points in a clip Viewer, then set the reference In or Out point on your timeline to determine the clip's position. Finally, add the clip to the timeline using **Insert** or **Overwrite**.

**TIP:** You can set both In and Out points on the timeline, but bear in mind that there may be insufficient source frames for the range specified. If this is the case, blank frames are added and highlighted in red.

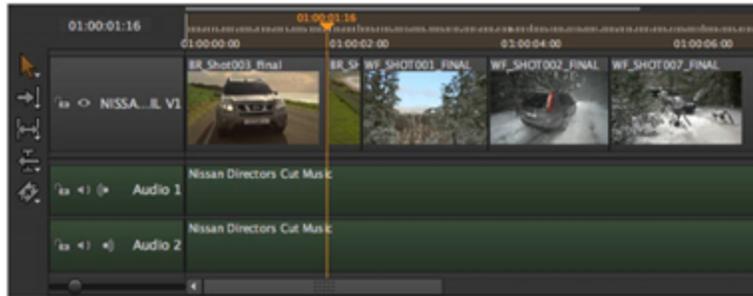
You can select a track before editing if you don't want to target the lowest available track. When inserting, even if the target track is empty, track items on all other unlocked tracks are rippled by the same amount.

1. Navigate to **Window > Workspace > Editing** to display the 2-up Viewer layout.
2. Double-click the required source clip to load it into the left-hand clip Viewer .
3. Set the required frame range using In and Out points. See [Using In and Out Markers](#) for more information.
4. Double-click your sequence in the bin view to load it into the right-hand sequence Viewer .
5. Set In and/or Out points on the timeline to specify where the clip should be added and use **Insert (N)** or **Overwrite (M)** as required.

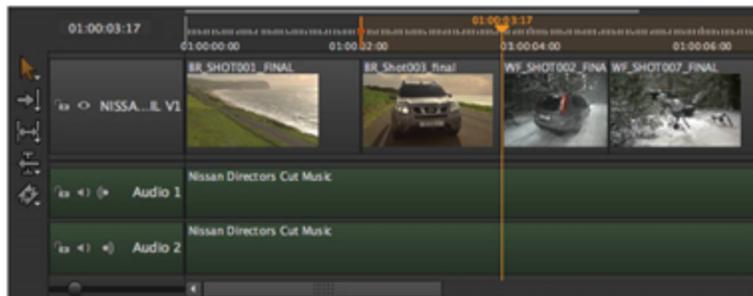
As an example, assuming your clip Viewer and timeline are represented by the following image, and the Overwrite function is used:



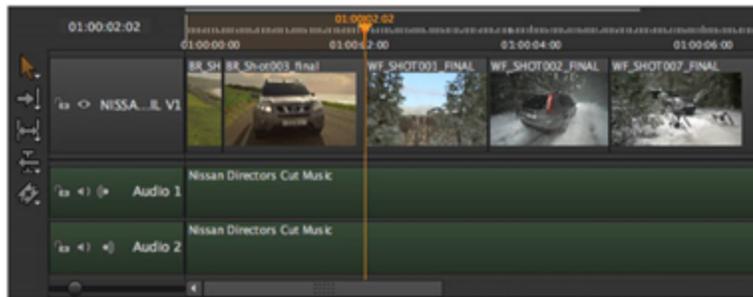
- **No In or Out points** - insert or overwrite at the current playhead position, for the range currently set in the clip Viewer.



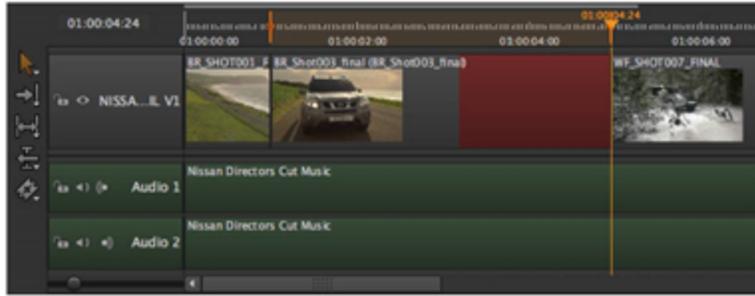
- **In point but no Out point** - insert or overwrite from the In point position downstream, for the range currently set in the clip Viewer.



- **Out point but no In point** - insert or overwrite from the Out point position upstream, for the range currently set in the clip Viewer.



- **In and Out points** - insert or overwrite at the current In point position, for the duration set by the timeline's In and Out points. If there are insufficient source frames for the range specified, blank frames are added highlighted in red.



# 12 Versions and Snapshots

In addition to the regular project save and restore options, Hiero and HieroPlayer can record the different states of your workflow as you progress using versions and snapshots.

## Introduction

**Versions** are children of clips. You can have any number of versions per clip as long as they follow the correct naming conventions, as shown in [Using Versions](#). Versions can only be applied to bin clips and track items and can be swapped in and out without overwriting existing work.

**Snapshots** are time-stamped copies of a sequence, allowing you to save its current state without the inconvenience of saving the entire project. When you restore a snapshot, a warning displays prior to the restore reminding you that edits since the snapshot was taken are lost. See [Using Snapshots](#) for more information.

## Using Versions

Versions can be added to clips and track items to allow greater flexibility in your workflow. You can have as many versions as required and cycle through them quickly using hotkeys.



**NOTE:** You cannot use versions when a clip is opened as a timeline, that is, by using the right-click **Open In** > **Timeline View** option.

The application relies on specific file naming or folder structure conventions to discover versions:

Convention	Description	Example
File name constants		
Clip name	The file name base must remain the same.	<b>myClip_v1.0001.dpx</b> <b>myClip_v2.0001.dpx</b> <b>myClip_v3.0001.dpx</b>

Convention	Description	Example
Version prefix	The delineation between the file name and version information must be either _ (underscore) or . (period) and remain the same for all versions.	myClip_v1.0001.dpx myClip_v2.0001.dpx myClip_v3.0001.dpx
File name variables		
Version padding	The version number padding in the clip name can be increased or decreased.	myClip_v <b>1</b> .0001.dpx myClip_v <b>002</b> .0001.dpx myClip_v <b>03</b> .0001.dpx
Frame padding	The frame padding in the clip name can be increased or decreased.	myClip_v1. <b>01</b> .dpx myClip_v1. <b>1</b> .dpx myClip_v1. <b>0001</b> .dpx
Extension	The file format is interchangeable. See <a href="#">Supported Image Formats</a> for more information.	myClip_v1.01. <b>png</b> myClip_v1.0001. <b>dpx</b> myClip_v1. <b>mov</b>



**NOTE:** If the file extension is a movie format, such as **.r3d** or **.mov**, the **Frame padding** can be omitted.

Folder name constants		
Root folder	The root folder name must remain the same for all folders containing versions.	~/ <b>version</b> /v1/myClip_v1.0001.dpx ~/ <b>version</b> /v2/myClip_v2.0001.dpx ~/ <b>version</b> /v3/myClip_v3.0001.dpx
Folder name variables		
Version padding	The version number padding in the folder name can be increased or decreased.	09_WF_Shot004_ <b>v1</b> 09_WF_Shot004_ <b>v002</b> 09_WF_Shot004_ <b>v03</b>

## Versions in Bins

Versions behave similarly in both bins and sequences, and in both cases, you first have to ingest an existing version.

Ingest and locate the versioned clip, then:

1. Right-click and select **Scan for Versions** to search for available versions.  
A dialog box lets you know how many versions were discovered.
2. Use the right-click **Version** menu to:
  - Go to the next **Version Up** or **Version Down**.
  - Go to the **Minimum** or **Maximum Versions**.



**TIP:** You can also use the **Alt + ↑↓** hotkeys to increment versions or **Ctrl/Cmd+Alt+ ↑↓** to go to the maximum or minimum.

When you reach the end of the discovered versions, incrementing the version automatically scans for new versions that may have become available.

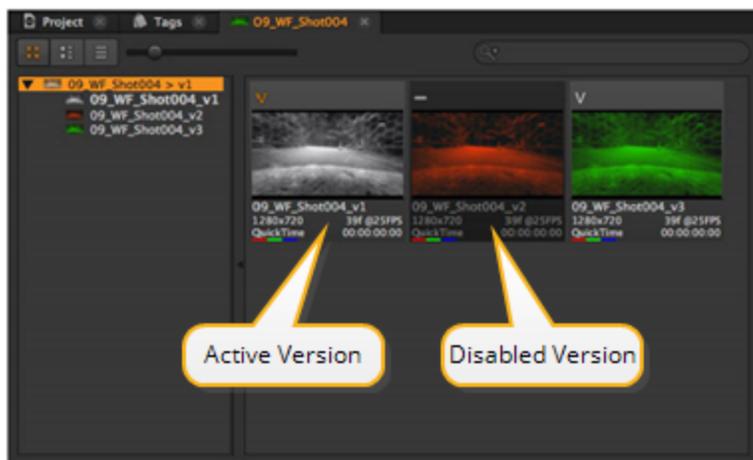


**NOTE:** You can turn off the auto scan function by navigating to **Preferences > General** and disabling **Automatically rescan versions...**

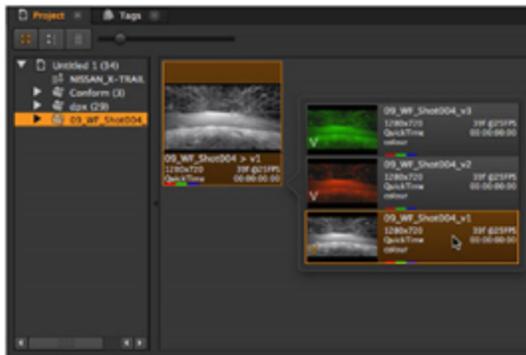
3. For bin clips only, you can right-click the clip and select **Open in > Versions Bin** to display all discovered versions of the target clip.

The versioning conventions may allow clips into the Version Bin that you weren't expecting. You can disable versions by selecting them and pressing **D** or set the **Active Version** of a clip using the right-click **Version** menu.

The **Active Version** is the version displayed when you drag the source clip to the timeline, denoted by the orange **V** in the top left-hand corner of the thumbnail.



- Once you've sorted all the available versions, select a clip in the bin view and press **V** to display all versions for that clip in a convenient window.



- Select the required clip to set the **Active Version** and apply it to the clip.

## Versions in Sequences

As mentioned previously, versions behave similarly in both bins and sequences, but swapping versions in sequences allows you to compare results more easily.



**NOTE:** You cannot use versions when a clip is opened as a sequence, that is, using the right-click **Open In** > **Timeline View** option.

Locate the ingested version clip and drag it to the timeline.

- **Version Up** or **Version Down** to increment the version by one.
- Go to the **Minimum** or **Maximum Version**.



**TIP:** You can also use the **Alt + ↑↓** hotkeys to increment versions or **Ctrl/Cmd+Alt+ ↑↓** to go to the maximum or minimum.

Once you've scanned for versions in the bin view, select a track item on the timeline and press **V** to display all available versions for that item in a convenient window.



Select the required track item version to set the **Active Version**.

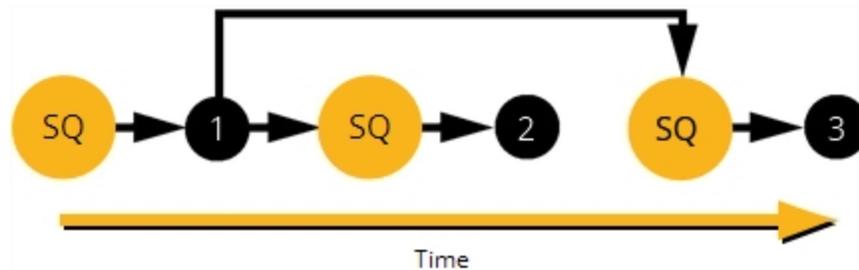
## Using Snapshots

Within a project you can save the current state of a sequence as a snapshot, including a comment or tag to describe that snapshot. You can see what snapshots exist for a sequence in the bin view and flip it back to any previously saved state.



**NOTE:** HieroPlayer does not support creating snapshots, but you can restore snapshots created in Hiero.

An example workflow might appear as follows:

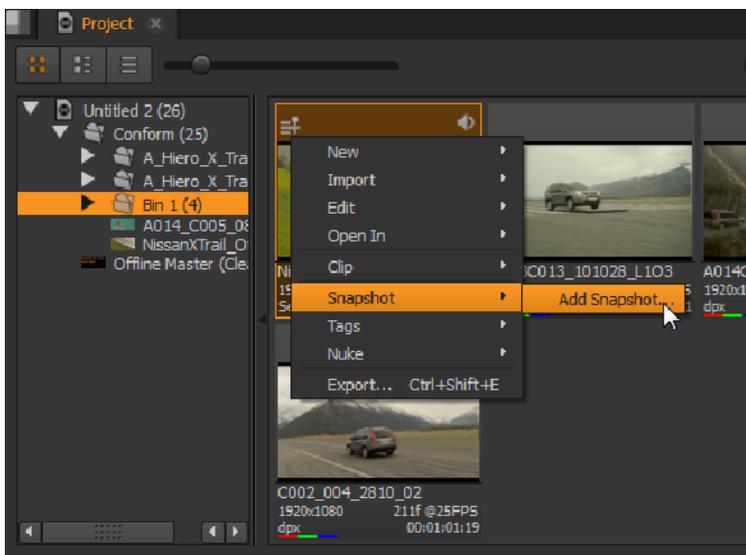


1. Two snapshots of the sequence (SQ) are recorded after edits. See [Creating Snapshots](#).
2. Snapshot 1 is then restored. See [Restoring Snapshots](#).
3. Further edits are made, then the sequence is recorded as snapshot 3.

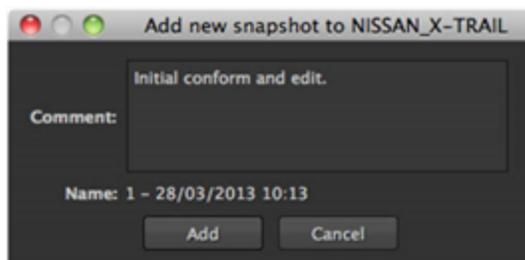
## Creating Snapshots

To create a snapshot for a sequence:

1. Locate the sequence in the bin view.
2. Right-click the sequence and select **Snapshot > Add Snapshot**.

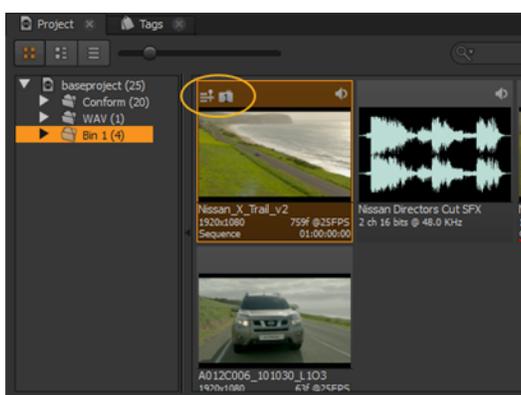


The **Add new snapshot** dialog box displays.



3. Enter a comment, or use the default date and time supplied.
4. Click **Add** to create the snapshot.

Snapshots are indicated in the bin view with a camera icon containing the number of snapshots available.



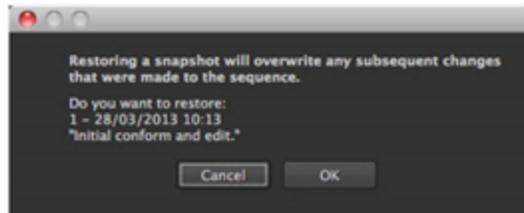
## Restoring Snapshots

To restore a snapshot:

1. Locate the sequence in the bin view.

2. Right-click the sequence and select **Snapshot > Restore Snapshot**.
3. Select the required snapshot from the list.

A warning displays reminding you that edits since the snapshot was taken are lost.



4. Click **OK** to restore the sequence to the point at which the snap was recorded.

# 13 Export Management

This chapter deals with Hiero's shot management and export functionality, though HieroPlayer only supports round-tripping using Hiero<>Nuke.

## Introduction

Hiero's export suite can automate round-trips through Nuke, send clips back and forth between Hiero and Nuke using Hiero<>Nuke, transcode, export clip selections from a timeline or bin, write out EDLs and XMLs, or bake out an entire timeline as a single clip in your required delivery format.



**NOTE:** HieroPlayer only supports round-tripping using Hiero<>Nuke.

With the addition of Python bindings to perform the same functions, this infrastructure provides a massive amount of flexibility, whether your pipeline is GUI or command line orientated.



**NOTE:** Hiero is non-destructive and can slot into your pipeline if you setup your shot template to mirror the existing file structure.

Hiero ships with several context-sensitive and ad hoc export options:

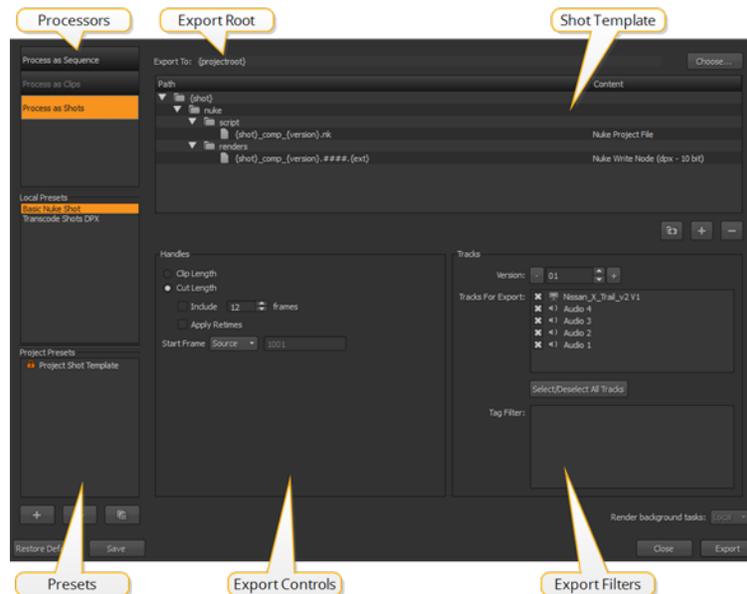
- [Round-Tripping Using the Export Dialog](#) - the process of preparing a project for export and paving the way for VFX work to come back into Hiero.
- [Round-Tripping Using Hiero<>Nuke](#) - enables you to open selections in Nuke scripts, from either bin clips or track items, add clips and track items to existing scripts, and send rendered Write nodes from Nuke back to Hiero.
- [Advanced Send to Nuke](#) - a single clip or bin export option that doesn't require the Export dialog or Hiero<>Nuke.
- [Ad Hoc Exports](#) - an umbrella covering exports that you might not perform on a per project basis, such as EDL or XML exports.

## Round-Tripping Using the Export Dialog

A round-trip describes the process of exporting clips to another application, in this case Nuke, and then paving the way back into Hiero to conform the new VFX clips.

## Introduction to the Export Dialog

Hiero uses shot templates and processors to perform some export operations, including round-tripping and EDL/XML creation. The **Export** dialog controls what is exported and where, and whether or not to expect versioned clips as part of a round-trip from Nuke.



Two types of **Presets** are available to construct commonly used export tasks:

- **Local Presets** - saved in a Task Presets folder using the XML file format. See [Running Python During Startup](#) for more information on save locations and the differences between platforms.
- **Project Presets** - you can drag-and-drop **Local Presets** into this panel to save the preset within a project **.hrox** file. This option is designed for collaborative work, allowing you to quickly share your export presets.



**NOTE:** If you select **Process as Shots**, you'll notice there is a locked **Project Shot Template** included in the **Project Presets**. This preset can only be edited from the main **Project > Edit Settings** menu. See [Using the Shot Template](#) for more information.

Hiero also uses **Content Presets** in all shot templates, enabling you to create commonly used export conditions, which are then available across all projects. Some presets are only available with certain processors, for example, the **EDL Exporter** preset cannot be used with **Process as Shots**.

You can filter your exports using the **Tracks for Export** and **Tag Filter** lists, exporting only certain tracks or track items marked with a particular tag. See [Using Tags](#) for more information.

For your convenience, Hiero ships with a number of ready-made presets, but you can edit these as required:

- **Transcode Images** - defines transcode parameters allowing you to save your most-used file type conversions.
- **Nuke Project File** - defines the paths used by Nuke Read and Write nodes during a round-trip.

- **Nuke Write Node** - defines the render format for Nuke Write nodes. Add multiple Nuke Write Node presets to create multiple Write nodes in Nuke.
- **External Render** - defines the export paths used by third party applications, such as Adobe® After Effects®, during a round-trip.

The **External Render** preset functions as a marker in the template so that other tasks can find the location of external renders and so that you can write your own custom exporters. You can find an example of the marker function in the **examples** directory, called **FnExternalRender.py**, and example custom exporters on Nukepedia ([www.nukepedia.com](http://www.nukepedia.com)).

See [Running Python During Startup](#) for more information on where to find the **examples** directory.

- **EDL Exporter** - used to export a sequence to the EDL format.
- **SymLink Exporter** - creates symlinks to the location of the source files, rather than making copies.
- **XML Exporter** - used to export a sequence to XML format.
- **Copy Exporter** - creates copies of the source files to a specified location, rather than symlinking.
- **Audio Export** - copies any audio tracks to **.wav** files in a specified location.

## Using the Shot Template

The shot template sets up the folder hierarchy and naming conventions for export processors such as Transcode Images. Any folders added to the template are created during export unless they already exist, in which case the export writes to the existing structure.

Hiero ships with default templates for your convenience, but you can quickly create custom templates using folders and “tokens”, which are replaced with the relevant information during export.



**TIP:** A useful auto-expansion feature can save time when creating folder structures in the shot template. Simply type the required folder structure in the first field of the shot template, then press enter to create the specified hierarchy.

Hiero can resolve the following tokens during export:

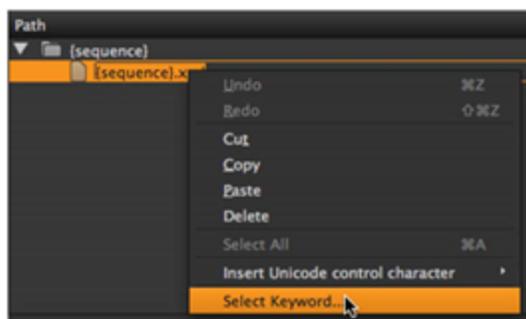
Token	Resolves to
{ampm}	The local equivalent of either AM or PM.
{binpath}	The bin structure to preserve. Including this token recreates your bin structure upto the nearest parent bin.
{clip}	The name of the clip used in the shot processed.
{day}	The local weekday name, abbreviated to Mon, Tue, and so on.

Token	Resolves to
{DD}	The day of the month as a decimal, 01, 02, and so on.
{event}	The timeline event number associated with the track item to process.
{ext}	The extension of the file to output, such as <b>.dpx</b> or <b>.mov</b>
{filebase}	The base of the clip name to process. For example, the filebase of Shot01_####.dpx is Shot01_####.
{fileext}	The format of the clip to process, such as <b>.dpx</b> or <b>.mov</b>
{filehead}	The source clip filename not including frame padding or extension. For example, the filehead of Shot01_####.dpx is Shot01.
{filename}	The source clip name of the media to process.
{filepadding}	The source filename padding, which you might use for formatting frame indices.
{fullbinpath}	The full bin structure to preserve. Including this token recreates the bin structure upto the project level.
{fullday}	The local full weekday name.
{fullmonth}	The local full month name.
{hierotemp}	The Hiero temp directory as specified in the Preferences.
{hour12}	The export start time hour component (12-hour clock).
{hour24}	The export start time hour component (24-hour clock).
{MM}	The month of the year as a decimal, 01, 02, and so on.
{minute}	The export start time minute component.
{month}	The local month name, abbreviated to Jan, Feb, and so on.
{project}	The name of the parent project of the export item.
{projectroot}	The root export filepath as specified in the <a href="#">Project Settings</a> .
{second}	The export start time second component.
{sequence}	The sequence name to process.
{shot}	The name of the track item to process.

Token	Resolves to
{timestamp}	The export start time in the 24-hour clock format (HHMM).
{track}	The name of the track to process. Exporting EDLs using this token generates a separate EDL for each track.
{user}	The current username.
{version}	The string <b>v#</b> , defined by the number (#) set in the Version section of the export dialog
{YY}	The year of the century as a decimal, 01, 02, and so on.
{YYYY}	The year, including century.



**TIP:** After double-clicking the path column, right-click and choose **Select Keyword** to display a list of available export tokens, though only valid tokens for the current selection are listed.



Token substrings are valid if you need to extract a certain part of an evaluated string. For example, if **{shot}** resolves to JB100, then:

- {shot [0:2] } - resolves to JB
- {shot [-3:]} - resolves to 100

Similarly, anything within the outer brackets is evaluated as a Python string. For example, if **{shot}** resolves to JB\_10\_20, then:

- {shot.split('\_') [0] } - resolves to JB
- {shot.split('\_') [2] } - resolves to 20

## Example Shot Templates

Hiero's shot template enables you to create as many Nuke Read and Write nodes as required for a project. A typical use case might be creating **.jpg** clips for review and **.dpx** resolution clips for finishing.



**TIP:** A useful auto-expansion feature can save time when creating folder structures in a template. Simply type the required folder structure in the first field of the template, then press enter to create the specified hierarchy.

## Multi-format Exports

The following example describes how to build a shot template to export a sequence of **.mov** clips, create **.dpx** and **.jpg** Write nodes in Nuke, and bring the **.dpx** clips back into Hiero.

1. Set up an export as described in [Round-Tripping Using the Export Dialog](#).
2. In the **Export** dialog, select **Basic Nuke Shot** in the **Local Presets** pane to auto-complete the shot template with the preset values.
3. Click **Duplicate selected preset** and give the new preset a name.
4. Rename the **renders** folder **renders\_dpx**.
5. Select the **nuke** folder and click the folder icon to add a new folder. Name the new folder **renders\_jpg**.
6. Select the **renders\_jpg** folder and click  to add a new entry.
7. Replace the **{filename}** token with **{shot}\_comp\_{version}.####.{ext}**, the same as the existing entry under **renders\_dpx**.

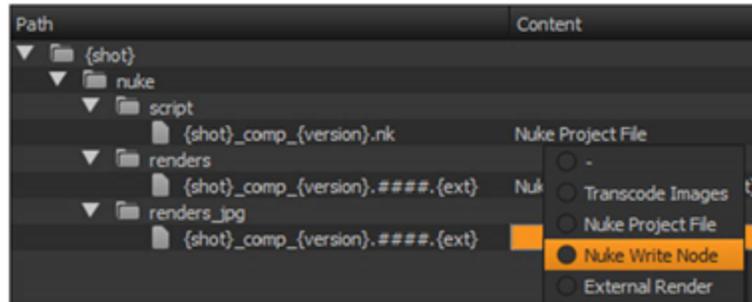


**NOTE:** The **####** marks represent frame numbers for image sequences. If you were creating **.mov** clips, they'd be omitted.

The shot template should look something like this:

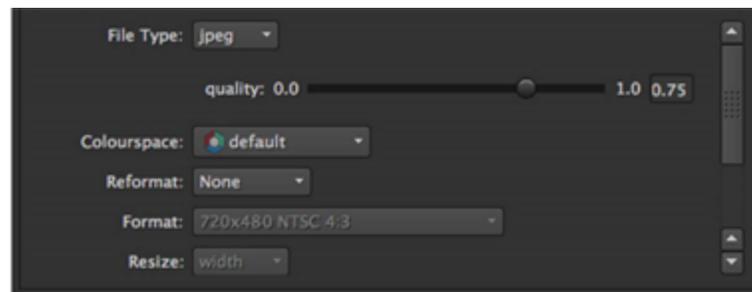
Path	Content
▼ (shot)	
▼ nuke	
▼ script	
(shot)_comp_{version}.nk	Nuke Project File
▼ renders	
(shot)_comp_{version}.####.{ext}	Nuke Write Node (dpx - 10 bit)
▼ renders_jpg	
(shot)_comp_{version}.####.{ext}	

8. Click the **Content** column and select **Nuke Write Node**.



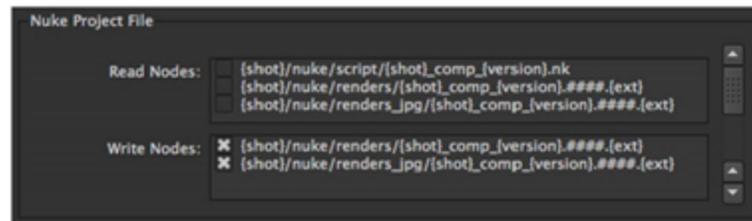
**NOTE:** When using a third party application to produce the VFX work, select **ExternalRender** instead of **Nuke Write Node**.

9. In the **Nuke Write Node** settings, use the **File Type** dropdown to select **jpeg**.

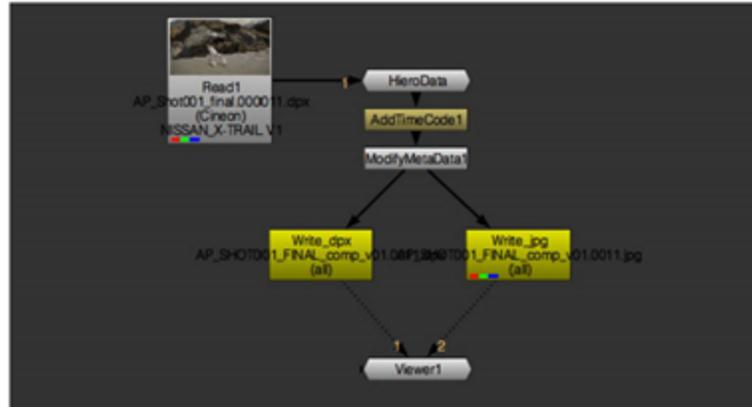


Notice that the settings available change depending on the **File Type** selected?

10. Click **Nuke Project File** in the shot template and check that both **Write** nodes are enabled.

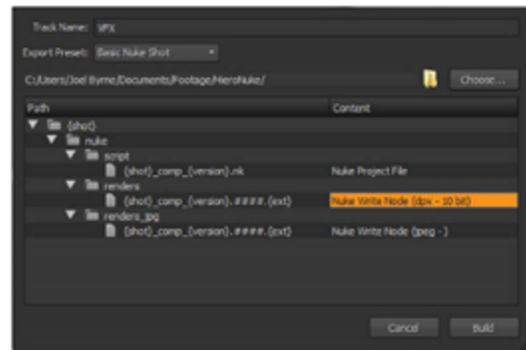


11. Set up the rest of the export as described in [Exporting to Nuke](#) and click **Export**.
12. When complete, locate a **Nuke Shot Exporter** entry in the **Export Queue** and click the magnifying glass icon to reveal the Nuke scripts in a browser.
13. Drag the script into Nuke's Node Graph to display the script.



Once the VFX work is complete, bring the **.dpx** clips back into Hiero:

1. Select the original clips on the Hiero timeline.
2. Right-click and select **Build Track > From Export Structure**.  
The **Build Track From Export Structure** dialog displays.
3. Enter a **Track Name** or use the default **VFX**.
4. Select the **Export Preset** used from the dropdown menu. In this case, **Dual Render**.
5. Enter the filepath of the **Export Root** directory or click **Choose** and browse to the location.
6. Select the **Nuke Write Node (dpx - 10 bit)** entry.



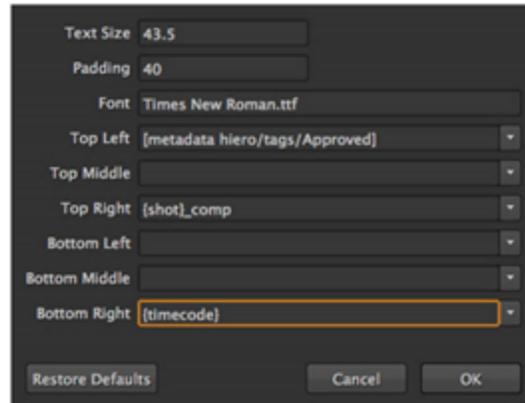
7. Click **Build** to create the VFX track.  
Hiero automatically creates the new track containing the **.dpx** clips.

## Adding Burn-in Text to Exports

Hiero can burn-in text during the export process using a simple Nuke gizmo. The gizmo contains controls for the font style and fields denoting the position of the text.



**NOTE:** The **Font** field only accepts the full filepath and name of the font file to use. For example, on Mac OS X ~/Library/Fonts/Verdana.ttf



You can mix-and-match the following methods to create burn-in text:

- Enter text manually, what you see is what you get in the burn-in.
- Use any of the tokens valid in the shot template as burn-in tokens. For example:

```
{shot}_comp
```

Extracts the shot name from the timeline and appends **\_comp**.

See [Using the Shot Template](#) for more information.

- Use metadata from tags applied to clips and track items. For example:

```
[metadata hiero/tags/Approved]
```

Extracts the Approved tag from the clip or track item. You can also append **note** to include any notes associated with the tag:

```
[metadata hiero/tags/Approved/note]
```



**NOTE:** You must precede spaces and slashes in the tag name with `\\` ( backslashes) to enable Hiero to process it correctly. For example:

```
[metadata hiero/tags/Blue\\ Screen/note]
```

## Adding Additional Nuke Nodes During Export

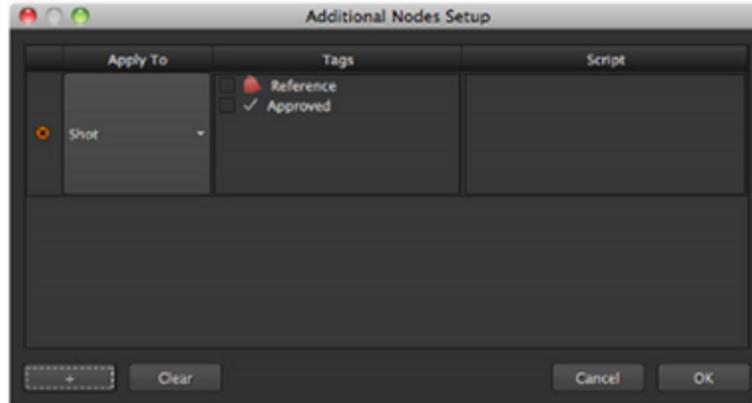
Hiero can include additional Nuke nodes, in any **Nuke Project File** or **Transcode** export in the Shot Template, by simply copying and pasting scripts from Nuke.

You can add nodes to shots, tracks, or sequences, or include them as unconnected ad hoc nodes in the script, filtered by tags if necessary.

1. In the **Export Controls** panel, scroll down to the **Additional Nodes** control and click **Edit**.

The **Additional Nodes Setup** dialog displays.

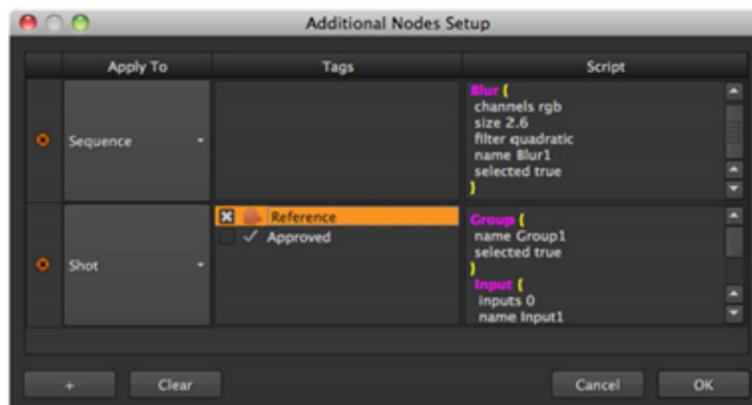
2. Click  to add an entry.



3. Click the **Apply To** field and select what the current entry applies to:
  - **Shot** - the additional nodes are added to the script for each shot in the export.
  - **Track** - the additional nodes are added to the script for each track in the export.
  - **Sequence** - the additional nodes are added to the script for the entire sequence.
  - **Unconnected** - the additional nodes are added to the script, but are not connected to the export node tree.
  - **None** - temporarily disables the current entry.
4. Select the **Tags** that you intend to use to filter which items receive the additional nodes.  
If you want to affect only the Reference track, for example, select the Reference tag. All items without that tag are ignored.
5. Copy and paste a node from Nuke into the **Script** panel.



**NOTE:** If you need more than one node, you might consider creating a Group in Nuke and pasting that into the Script panel.



6. Click **OK** to accept the additional nodes.
7. Select the **Additional Nodes** checkbox and complete the export process as described later in this chapter.

## Exporting to Nuke

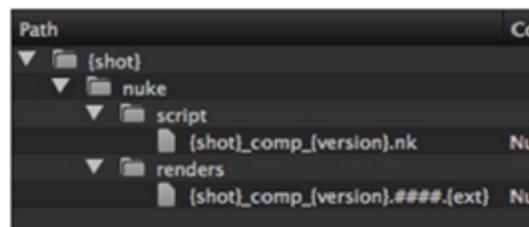
To export to Nuke:

1. Select a sequence in the bin view and navigate to **File > Export**.  
The **Export** dialog displays.
2. Select **Process as Shots** from the Processors list.
3. Enter the **Export To** directory or click **Choose...** and browse to the location.  
The **Export To** directory is the starting point from which the shot template builds your shot hierarchy.
4. Select the **Basic Nuke Shot** preset under **Local Presets** to auto-complete the shot template or select **Project Shot Template** to use the **Project Settings** template.



**NOTE:** You can build a custom shot template using **Path** tokens, the **Contents** field, and the folder and +/- buttons. Simply copy an existing template and edit as required.

**Basic Nuke Shot** creates a folder for each clip, or shot, containing a **plates** folder and a **nuke** folder containing **script** and **renders** folders.



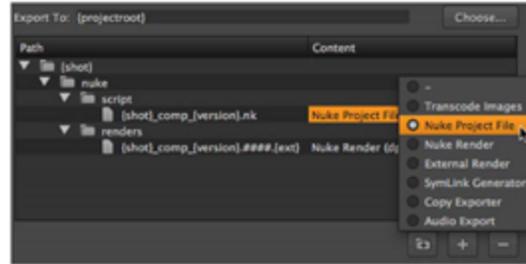
The tokens in the **Basic Nuke Shot** template break down as follows:

- **{filename}** simply extracts the source filenames as they appear in the file browser.
- **{shot}\_comp\_{version}.nk** extracts the track item name for each clip and the version selected in the **Export Controls**. For example, **Shot01\_comp\_v03.nk**
- **{shot}\_comp\_{version}.###.{ext}** appends padding and the specified file extension. For example, **Shot01\_comp\_v03.0001.dpx**



**NOTE:** See the [Example Shot Templates](#) for information on how to use the shot template to create multiple format Write nodes in Nuke.

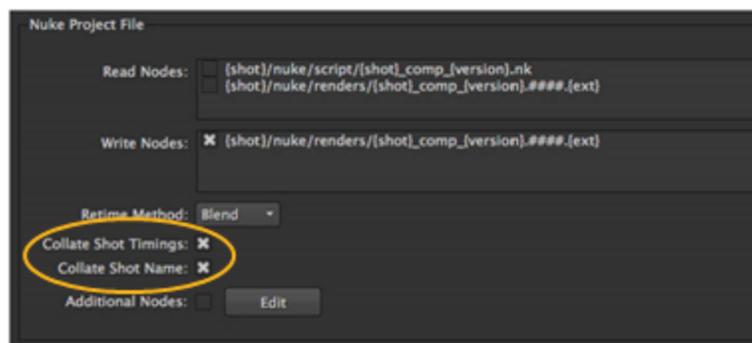
5. Click the **Nuke Project File** preset to display the **Read Node** and **Write Node** settings.



6. Check which path from the shot template should be used for the Nuke Read and Write nodes. In this case:
  - **{shot}/plates/{filename}** to resolve to the symlinks during export.
  - **{shot}/nuke/renders/{shot}\_comp\_{version}.####.{ext}** to resolve the render path where Hiero expects to find the Nuke files.
7. Enable **Collate Shot Timings** or **Collate Shot Names** to create additional Nuke Read nodes in the same script for clips that would normally be hidden by clips higher up the track hierarchy or clips on the same track with the same track item name.



**NOTE:** If you have a Read node selected, you can't enable the **Collate** functions.



For example:

- Items on track 1 that would otherwise be hidden by track 2.



Exporting these track items  
from Hiero...

...creates a Nuke script for  
each track item containing  
both clips.

- Two items on the same track with the same shot name.



Exporting these track items  
from Hiero...

...creates this Nuke script.

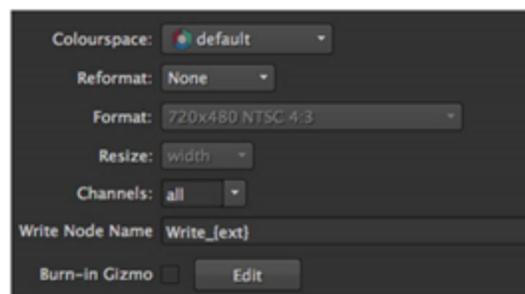
8. Click the **Nuke Write Node** preset to display the **file type** settings.
9. Select the **file type** to render using the dropdown and complete the relevant fields, dependent on the **file type** selected.



**NOTE:** Selecting **mov** from the dropdown provides additional QuickTime specific controls, allowing you to choose a **codec** and **YCbCr Matrix**. The matrix control enables you to use the new **Rec 601** and **Rec 709** or the **Legacy** encoding methods, which are the methods used previously in Nuke and Hiero.

Similarly, selecting **exr** provides an additional metadata dropdown allowing you to export or roundtrip selected metadata along with your **.exr** output.

10. Set the following controls common to all file types:



- **Colourspace** - use the dropdown to set the colorspace to render, such as **linear**, **REDLog**, or **raw**.
- **Reformat** - select the required reformatting option to enable the **Format** dropdown.
- **Format** - sets the format to render out in Nuke, such as **1920x1080 HD 1080**.  
Select **Custom...** to create formats that don't appear in the list of presets.
- **Resize** - sets the method by which you want to preserve or override the original aspect ratio:
  - **width** - scales the original until its width matches the format's width. Height is then scaled in such a manner as to preserve the original aspect ratio.
  - **height** - scales the original until its height matches the format's height. Width is then scaled in such a manner as to preserve the original aspect ratio.

- **fit** - scales the original until its smallest side matches the format's smallest side. The original's longer side is then scaled in such a manner as to preserve original aspect ratio.
  - **fill** - scales the original until its longest side matches the format's longest side. The input's shorter side is then scaled in such a manner as to preserve original aspect ratio.
  - **distort** - scales the original until all its sides match the lengths specified by the format. This option does not preserve the original aspect ratio, so distortions may occur.
- **Channels** - set the channels to export using the dropdown.



**NOTE:** The default, **all**, exports all channels in the image, so any Nuke Read nodes created have **auto alpha** enabled by default.

If you want to export a non-standard channel, type the name of the channel into the field manually.

- **Write Node Name** - if you intend to create more than one Nuke Write node, define the name here. The default, **Write\_{ext}**, appends the individual Write nodes with the file extension being written. You can, however, use any of the tokens Hiero recognizes.
- **Burn-in Gizmo** - when enabled, text burn-in is applied to the media using a Nuke gizmo. Click **Edit** to define the information applied during burn-in.

See [Adding Burn-in Text to Exports](#) for more information.

11. Set the **Handles**, if required:

- **Clip Length** - exports the full clip length available, as if the clip was opened as a Viewer.
- **Cut Length** - exports only the cuts included on the timeline.



**NOTE:** Selecting **Cut Length** allows you to add handles to each clip, up to the maximum available source clip length.

12. Check **Apply Retimes** to export any retimes present on the timeline.

13. Set how clip **Start Frames** are derived using the dropdown menu:

- **Source** - use the source clip's start frame.
- **Custom** - specify a start frame for all clips using the field to the right.

14. Set the **Version** number, **Tracks For Export**, and **Tag Filter**, if applicable.



**NOTE:** See [Using Versions](#) for more information on how versioning works in Hiero.

15. If you're using a render farm, select the renderer from the **Render background task** dropdown.

Hiero requires a Python script to pass exports to your render farm of choice. Scripts must be located in specific directories, dependent on platform, as listed in [Running Python During Startup](#). If no scripts exist, the dropdown is disabled.

Some example scripts are included in the Hiero package in the following directories:

- On Mac: `/Applications/Hiero1.9v1/Hiero1.9v1.app/Contents/Plugins/site-packages/hiero/examples/`
- On Linux: `/usr/local/Hiero1.9v1/Plugins/site-packages/hiero/examples/`

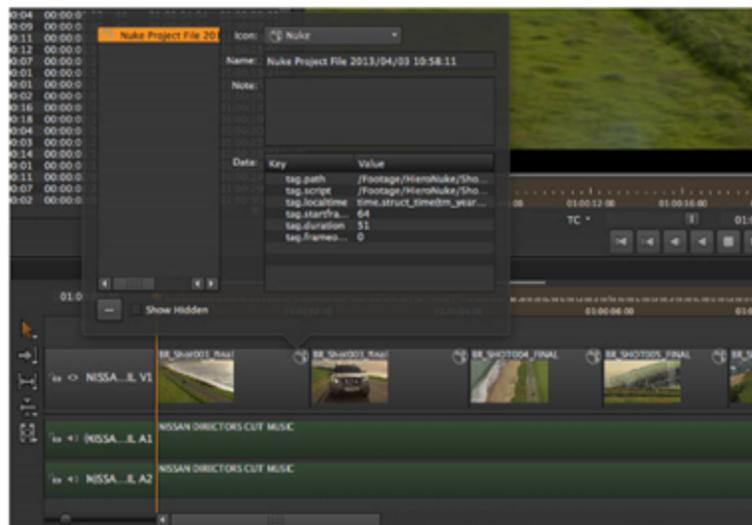
- On Windows: drive letter:\Program Files\Hiero1.9v1\plugins\site-packages\hiero\examples

## 16. Click **Export**.

The **Export Queue** window displays an estimate of how long each component of the export is expected to take. Once the export is complete, the file structure specified in the shot template is created. You can then import the Nuke clips on a separate track when they're ready.

**TIP:** Click the magnifying glass icon to reveal the exported file in a browser window.

When clips are exported from Hiero, they are marked with a Nuke tag flagging which clips have an export history. Clips tagged in this way can be used to build VFX tracks quickly as described in building [Tracks From Export Tags](#).



## Building VFX Tracks

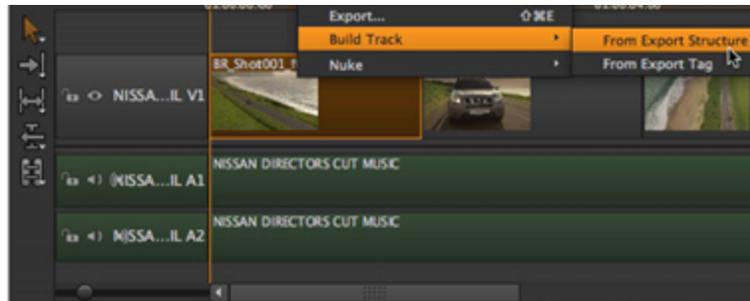
When the compositing work is complete, the clips are ready to re-ingest. The shot template defines where the Nuke files reside, so all you need to do is instruct Hiero to build [Tracks From Export Structure](#).

Alternatively, if you have a history of rendered VFX clips, different versions and so on, you can also build [Tracks From Export Tags](#) to select from a list of available clips.

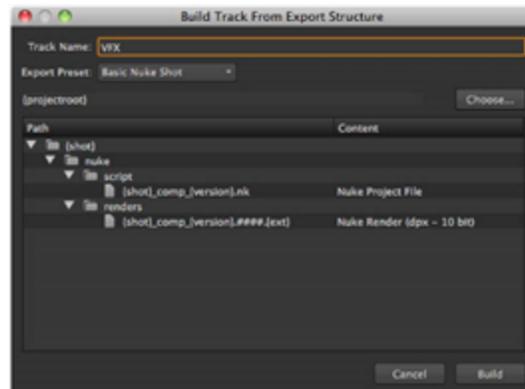
## Tracks From Export Structure

1. Select the required clips on the timeline and right-click to display the context sensitive menu.

**TIP:** You may find it easier to select clips in the spreadsheet and then right-click on the timeline.



2. Click **Build Track > From Export Structure**.  
The **Build Track From Export Structure** dialog displays.



3. Enter a **Track Name** or use the default **VFX**.
4. Select an **Export Preset** using the dropdown menu. In this case, select the same preset used during the export.
5. Enter the filepath of the **Export Root** directory or click **Choose** and browse to the location.



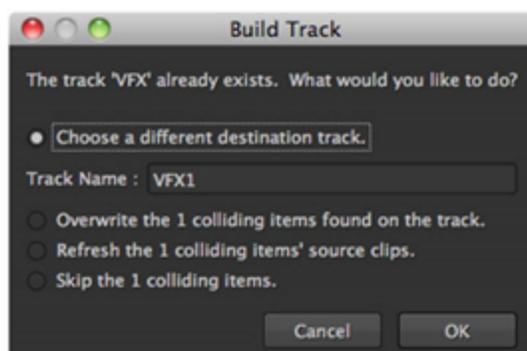
**NOTE:** The root directory is the location entered in **Export To** when exporting the project.

6. Select the content you intend to ingest from the shot template. In this case, the **Nuke Write Node**.
7. Click **Build** to create the VFX track.



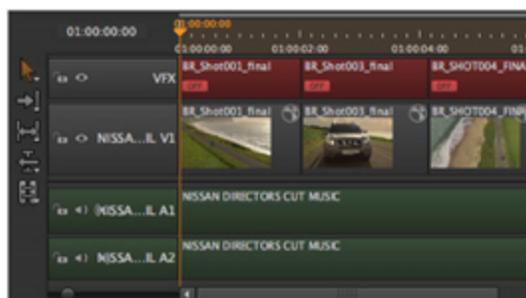
**NOTE:** Hiero warns you if no selection is made in the **Contents** column.

8. If a clip already exists in any of the target tracks, a dialog displays containing options on how Hiero should behave.



9. Select the required option and click **OK** to proceed.

Hiero automatically creates a new track containing the VFX clips, if they exist, or offline place holders if the clips are a work in progress.

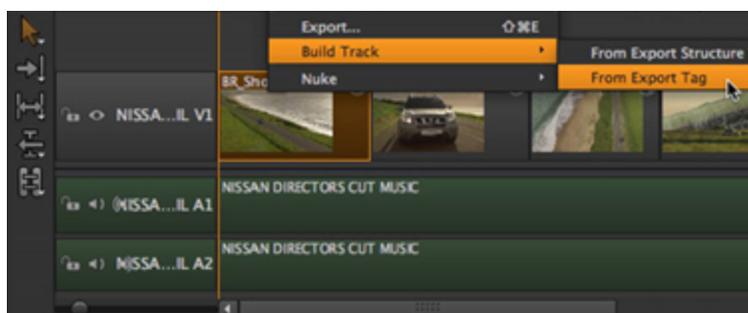


The clips are automatically updated when work is complete as long as they are saved with the expected name and location, as specified in the shot template.

## Tracks From Export Tags

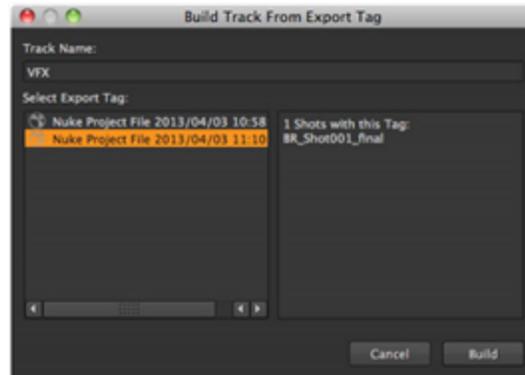
1. Select the required clips on the timeline and right-click to display the context sensitive menu.

**TIP:** You may find it easier to select clips in the spreadsheet and then right-click on the timeline.

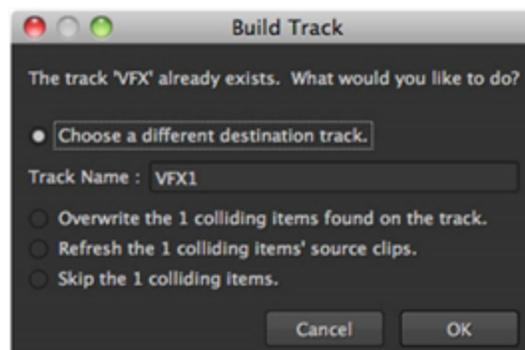


2. Click **Build Track > From Export Tag**.

The **Build Track From Export Tag** dialog displays.

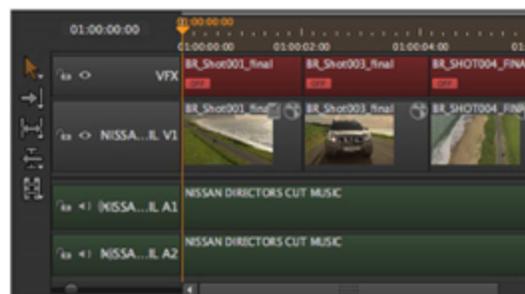


3. Enter a **Track Name** or use the default **VFX**.
4. Select the required export tag in the left-hand panel to display tag information in the right-hand panel.
5. Click **Build** to create the VFX track.
6. If a clip already exists in any of the target tracks, a dialog displays containing options on how Hiero should behave.



7. Select the required option and click **OK** to proceed.

Hiero automatically creates a new track containing the VFX clips, if they exist, or offline place holders if the clips are a work in progress.



## Round-Tripping Using Hiero<>Nuke

Selections in Hiero and HieroPlayer can be opened in Nuke using Hiero<>Nuke, which is an open port between the two applications. When the connection is established, Hiero<>Nuke “listens” for changes applied to clips, in either application, and updates them automatically with the latest version.



**NOTE:** Hiero and HieroPlayer rely on the locked **Project Shot Template** when you select **Open in Nuke**. Navigate to **Project > EditSettings > Export / Roundtrip** to define the template using the **Local Nuke Roundtrip** settings. HieroPlayer is limited to editing the **External Media Track Name** as there is no support for creating shot templates in HieroPlayer. You cannot use **Open in Nuke** if the project was created in HieroPlayer.

Once established, the link operates in three distinct ways:

- **Open in Nuke** - allows you to open your selections in single or multiple new Nuke scripts, depending on context.
- **Send to Nuke** - sends your selections to an existing Nuke script. This option is only available when a connection to an open Nuke script has been established.
- **Send to Hiero** - allows you to send a rendered Write node from Nuke to Hiero, creating a new bin.

## Connecting Hiero<>Nuke

To connect Hiero<>Nuke:

1. Navigate to **Window > Hiero<>Nuke** and then click **Start Server** to begin “listening” for new Nuke output.
2. Click **Install Nuke Scripts** and follow the on-screen instructions to edit your **init.py** file. The application then installs **hiero\_tools.py** in your **.nuke** directory.
3. Click **OK** to dismiss the install dialog and then click **Launch Nuke** to start the application. Once the connection has been verified, enable **Start server on startup** in Hiero or HieroPlayer and **Start connection on startup** in Nuke to establish the link automatically in future.



**NOTE:** Hiero<>Nuke is configured to run between applications on the same machine, but if you know the address and port number of a remote machine, click **Edit Server Address** and enter the appropriate details to connect the applications.

## Open in Nuke

**Open in Nuke** operates differently depending on whether you’re opening clips or track items. Clips are opened independently, whereas track items are opened with additional nodes to produce a timeline position relative to a specified master track item.

## To Open Bin Clips in Nuke

1. Select the clip(s) in the bin view.
2. Right-click a highlighted clip and select **Open in Nuke**.

The selected clips are opened in the Nuke application specified in the **Preferences > Nuke / Export > Nuke Path** field.



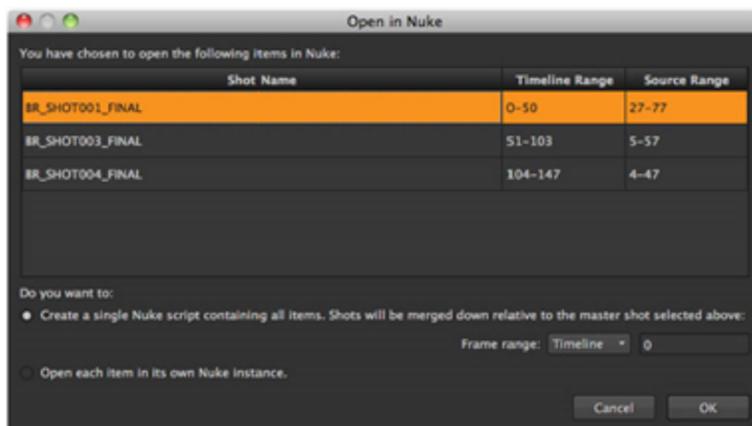
These selections from Hiero...

...Opened in Nuke

## To Open Track Items in Nuke

1. Select the track items in the timeline view.
2. Right-click a highlighted item and select **Open in Nuke**.

The **Open in Nuke** dialog displays.



3. Select the track item to use as the master, that is, the item to use to create the relative timeline positions of the other track items.
4. Select the frame range to use from the dropdown menu:
  - **Timeline** - use the frame range occupied by the track item on the timeline.
  - **Source** - use the frame range from the source file.
  - **Custom** - use a custom frame range by entering the required start frame in the field provided.
5. Click **OK**.



**NOTE:** If you haven't set a valid **Project Root**, a dialog prompts you for a file path.

The selected track items are opened in the Nuke application specified in the **Preferences > Nuke / Export > Nuke Path** field.



These selections from Hiero...

...Opened in Nuke

Hiero also adds a single offline track item to receive the incoming VFX work.



**NOTE:** If you selected **Open each item in its own Nuke instance**, in the example above you'd get three clips, each in a separate Nuke.

## Send to Nuke

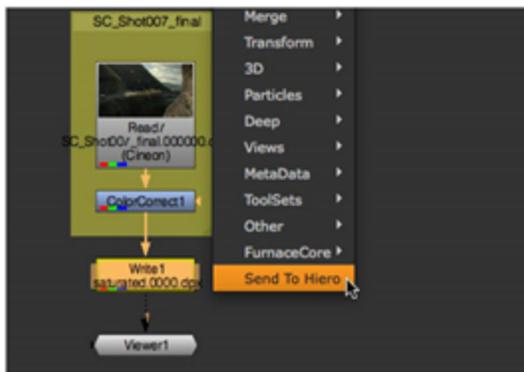
**Send to Nuke** enables you to add clips and track items to existing Nuke scripts that are connected to Hiero using Hiero<>Nuke. **Send to Nuke** operates similarly to **Open in Nuke**, in that clips are opened independently and track items are opened with additional nodes, but they are added to an existing script.

1. Select the required clip(s) or track item(s).
2. Right-click a highlighted item and select **Send to Nuke**.  
A list of available scripts is displayed in the sub-menu.
3. Select the required script to receive the additional items.  
Hiero adds the items to the selected script.

## Send to Hiero

**Send to Hiero** enables you to send rendered Write nodes from Nuke back into Hiero using Hiero<>Nuke.

1. Select the required Write node(s) in Nuke's Node Graph.
2. Right-click a highlighted node and select **Send to Hiero**.



The selected files are added to Hiero in a new Nuke bin.

## Using Hiero<>Nuke in HieroPlayer

Hiero projects loaded in HieroPlayer are read-only, but Hiero<>Nuke creates a link between the two applications in the same way.

Because the project was exported from Hiero, important information is stored in tags on the individual track items. The tags contain the filepath to the Nuke script for each shot as well as the location of the source files and the path to the VFX clips that don't exist yet.

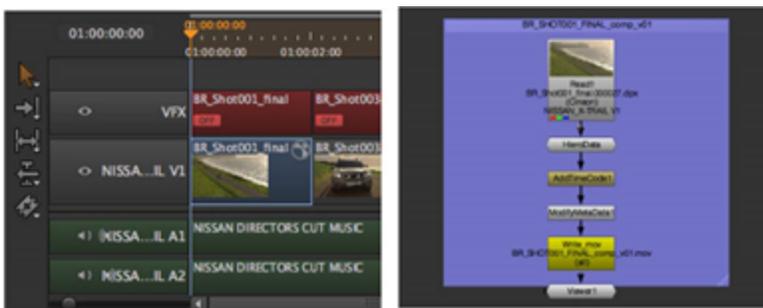
## Open in Nuke

**Open in Nuke** enables you to open track items using an existing Nuke script stored in a track item tag using Hiero<>Nuke.

### To Open a Track Item in Nuke

1. Select the track item(s) in the timeline view.
2. Right-click a highlighted item and select **Open in Nuke**.

The selected track items are opened in the Nuke application specified in the **Preferences > Nuke / Export > Nuke Path** field. Each track item is opened in a separate Nuke.



This selection from  
HieroPlayer...

...Opened in Nuke

- Once you've completed the VFX work in Nuke, render the clip using the Write node supplied in the script. The new clip is automatically picked up by HieroPlayer, superseding the placeholder clip.
- You can create multiple versions of the same clip by incrementing the filepath in the Write node's Properties panel:
  - Use the **Alt+↑↓** hotkeys to increment the version up and down as required.
  - OR
  - Manually edit the file name. For example:  
/renders/BR\_SHOT001\_FINAL\_comp\_v02.mov
- You can create as many versions of a clip as required and cycle through the available files in HieroPlayer to select the latest version. See [Using Versions](#) for more information.

## Send to Nuke

**Send to Nuke** enables you to add a track item to an existing Nuke script that is connected to HieroPlayer using Hiero<>Nuke. **Send to Nuke** operates similarly to **Open in Nuke**, in that track items are opened with additional nodes, but they are added to an existing script.

- Select the required track item.
- Right-click the highlighted item and select **Send to Nuke**.  
A list of available scripts is displayed in the sub-menu.
- Select the required script to receive the additional track item.  
HieroPlayer adds the item to the selected script.



This selection from  
HieroPlayer...

...Sent to Nuke

You can create as many versions of a clip as required and cycle through the available files in HieroPlayer to select the latest version. See [Using Versions](#) for more information.

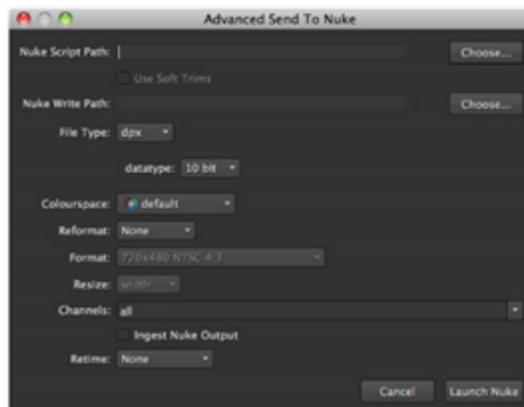
## Advanced Send to Nuke

Hiero provides a single clip or bin **Advanced Send to Nuke** option along with its other export functionality.

To send a clip or bin to Nuke using Advanced send:

1. Locate the required source clip or bin in the bin view.
2. Right-click the clip or bin and select **Nuke > Advanced Send to Nuke**.

The **Advanced Send to Nuke** dialog displays.



3. Enter the output script name and location in **NukeScriptPath** field.
4. If the clips you're exporting have Soft Trims enabled, check **Use Soft Trims** to adjust the frame range accordingly.
5. Enter the Nuke output location in the **Nuke Write Path** field.
6. Select the **File Type** to transcode to within Nuke. The available transcode options depend on the **File Type** selected.



**NOTE:** Selecting **mov** from the dropdown provides QuickTime specific controls, allowing you to choose a **codec** and **YCbCr Matrix**. The matrix control enables you to use the new **Rec 601** and **Rec 709** or the **Legacy** encoding methods, which are the methods used previously in Nuke and Hiero.

Similarly, selecting **exr** provides an additional metadata dropdown allowing you to export or roundtrip selected metadata along with your **.exr** output.

7. Set the controls common to all file types as described in [Round-Tripping Using the Export Dialog](#).
8. If you intend to bring the transcoded clips back into Hiero, check **Ingest Nuke Output**.
9. If your selection requires retiming, choose the retime to apply:
  - **None** - no retimes are applied.
  - **Add 3:2 Pulldown** - converts 24 fps clips to 30 fps clips.
  - **Remove 3:2 Pulldown** - converts 30 fps clips to 24 fps clips.

- **To Timebase** - enter the retime to apply as frames per second.
- **Speed** - enter the retime to apply as a percentage.



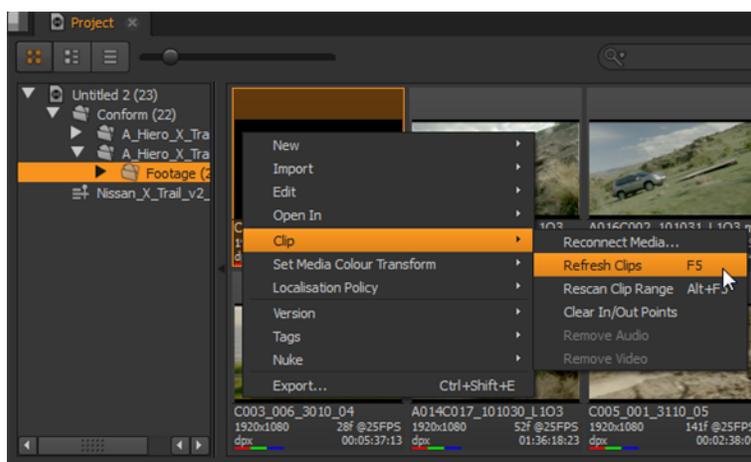
**NOTE:** The 3:2 Pulldown options are only displayed when applicable. See [About 3:2 Pulldown](#) for more information.

10. Click **Launch Nuke** to send the clip to the Nuke specified in **Preferences > Nuke / Export > Nuke Path**.  
Nuke starts up with Read and Write nodes for each clip incorporating the selected **File Type** settings and **Write Path**.



**NOTE:** The Nuke script is saved in the directory specified as the **Write Path**.

When **Ingest Nuke Output** is enabled, offline placeholders are added to the bin view. Once the VFX work is complete, right-click a placeholder and select **Refresh Clips**, or press **F5**, to ingest the VFX clips.

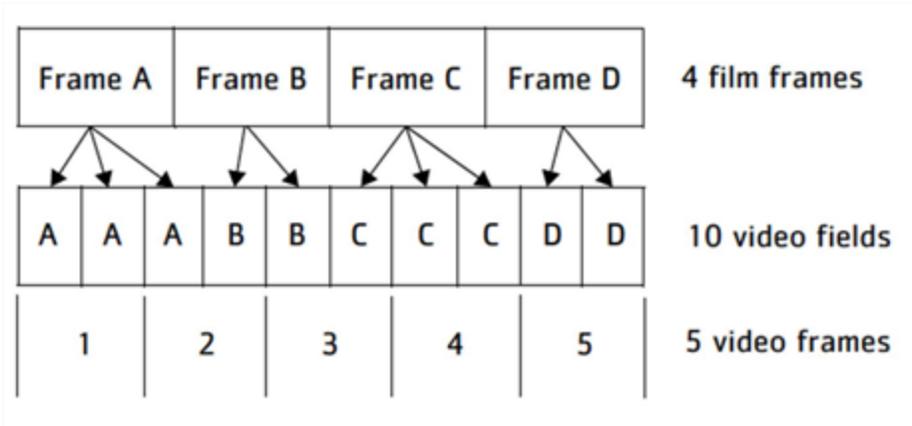


## About 3:2 Pulldown

3:2 pulldown is the process of converting 24 fps film to 29.97 fps interlaced video and vice versa. Hiero uses Nuke's Add and Remove 3:2 Pulldown nodes to achieve this, but only offers the option to do so when the selected clip is 24 or 30 fps.

When adding 3:2 pulldown, the film is first slowed down 0.1% to match the speed difference between 29.97 fps and 30 fps. Then, film frames are distributed across video fields in a repeating 3:2 pattern in order to make 24 film frames fill the space of 30 video frames per second:

- The first frame of film is copied to 3 fields of video,
- the second frame of film is copied to 2 fields of video,
- the third frame of film is again copied to 3 fields,
- the fourth frame of film is copied to 2 fields, and so on.



The opposite process is used to remove 3:2 pulldown. Hiero allows you to employ 3:2 pulldown from inside the **Advanced Send to Nuke** dialog using the **Retime** dropdown, or directly from a bin clip by right-clicking and selecting **Nuke > Add 3:2** or **Remove 3:2**.

## Transcoding

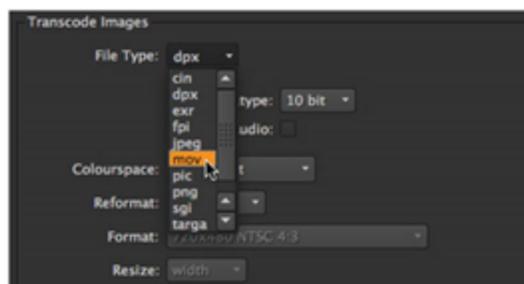
Transcoding in Hiero can use a specified external Nuke application, HieroNuke, or a specified background render process to convert one file format to another.

**TIP:** If you don't want to use HieroNuke, select the required Nuke application using the **Preferences > General** tab as described in [Workspace Preferences](#).

## Transcoding a Sequence or Shots

To transcode a sequence:

1. Select a sequence in the bin view and navigate to **File > Export**.  
The **Export** dialog displays.
2. Select **Process as Sequence** and click the **Content** column to select a format to transcode to using the **File Type** dropdown.



The controls exposed depend on the transcode you're applying.

3. Complete the **File Type** specific controls. For example, selecting **.dpx** exposes the **datatype**, **timecode**, and **edge\_code** settings.
4. Complete the general controls common to all file types:
  - **Include Audio** - when enabled, any audio tracks are exported alongside the video.
  - **Colorspace** - use the dropdown to set the colorspace to render, such as **linear**, **REDLog**, or **raw**.
  - **Reformat** - select the required reformatting option to enable the **Format** dropdown.
  - **Format** - sets the format to render out in Nuke, such as **1920x1080 HD 1080**.  
Select **Custom...** to create formats that don't appear in the list of presets.
  - **Resize** - sets the method by which you want to preserve or override the original aspect ratio:
    - **width** - scales the original until its width matches the format's width. Height is then scaled in such a manner as to preserve the original aspect ratio.
    - **height** - scales the original until its height matches the format's height. Width is then scaled in such a manner as to preserve the original aspect ratio.
    - **fit** - scales the original until its smallest side matches the format's smallest side. The original's longer side is then scaled in such a manner as to preserve original aspect ratio.
    - **fill** - scales the original until its longest side matches the format's longest side. The input's shorter side is then scaled in such a manner as to preserve original aspect ratio.
    - **distort** - scales the original until all its sides match the lengths specified by the format. This option does not preserve the original aspect ratio, so distortions may occur.
5. Select the **Channels** to export from the dropdown. The default, **all**, exports all channels in the image.  
If you want to export a non-standard channel, type the name of the channel into the field manually.
6. Select the **Retime Method** to apply, if applicable.
7. Check **Keep Temporary Nuke Script** if you require the **.nk** files after the transcode operation.
8. Enable the **Burn-in Gizmo** to burn-in text using a Nuke gizmo. Click **Edit** to define the information applied during burn-in.  
See [Adding Burn-in Text to Exports](#) for more information.
9. Specify any **Additional Nodes** required during export by clicking **Edit**.  
See [Adding Additional Nuke Nodes During Export](#) for more information.
10. If you set In and Out points on the sequence, select **Range > In/Out Points** to export only the specified range.
11. Set the **Version** number, **Tracks For Export**, and **Tag Filter**, if applicable.



**NOTE:** See [Using Versions](#) for more information on how versioning works in Hiero.

12. If you're transcoding using a render farm, select the renderer from the **Render background task** dropdown.  
Hiero requires a Python script to pass exports to your render farm of choice. Scripts must be located in specific directories, dependent on platform, as listed in [Running Python During Startup](#). If no scripts exist, the dropdown is disabled.  
Some example scripts are included in the Hiero package in the following directories:

- On Mac: /Applications/Hiero1.9v1/Hiero1.9v1.app/Contents/Plugins/site-packages/hiero/examples/
- On Linux: /usr/local/Hiero1.9v1/Plugins/site-packages/hiero/examples/
- On Windows: drive letter:\Program Files\Hiero1.9v1\plugins\site-packages\hiero\examples

### 13. Click **Export**.

The **Export Queue** window displays an estimate of how long each component of the export is expected to take. Once the export is complete, the file structure specified in the shot template is created containing the transcoded files.



**TIP:** Click the magnifying glass icon to reveal the exported file in a browser window.

To transcode shots:

1. Select **Process as Shots** and use the defaults or build a shot template using the **Path** and **Contents** fields and the folder and +/- buttons.

For example:

Path	Content
<ul style="list-style-type: none"> <li>{shot}</li> <li>{filename}.{ext}</li> </ul>	Transcode Images (dpx - 10 bit)

Creates a folder for each timeline item {shot}, containing a clip {filename} with the required file extension {ext}.

2. Enter the **Export To** directory or click **Choose...** and browse to the location.

The **Export To** directory is the starting point from which the shot template builds your shot hierarchy.

3. Complete the **File Type** specific and general controls common to all file types as described previously.

4. Set the clip **Handles**:

- **Clip Length** - exports the full clip length available, as if the clip was opened as a Viewer.
- **Cut Length** - exports only the cuts included on the timeline.



**NOTE:** Selecting **Cut Length** allows you to add handles to each clip, up to the maximum available source clip length.

5. Check **Apply Retimes** to export any retimes present on the timeline.
6. Set how clip **Start Frames** are derived using the dropdown menu:
  - **Source** - use the source clip's start frame.
  - **Custom** - specify a start frame for all clips using the field to the right.
7. Set the **Version** number, **Tracks For Export**, and **Tag Filter**, if applicable.



**NOTE:** See [Using Versions](#) for more information on how versioning works in Hiero.

8. If you're transcoding using a render farm, select the renderer from the **Render background task** dropdown.

Hiero requires a Python script to pass exports to your render farm of choice. Scripts must be located in specific directories, dependent on platform, as listed in [Running Python During Startup](#). If no scripts exist, the dropdown is disabled.

Some example scripts are included in the Hiero package in the following directories:

- On Mac: /Applications/Hiero1.9v1/Hiero1.9v1.app/Contents/Plugins/site-packages/hiero/examples/
- On Linux: /usr/local/Hiero1.9v1/Plugins/site-packages/hiero/examples/
- On Windows: drive letter:\Program Files\Hiero1.9v1\plugins\site-packages\hiero\examples

9. Click **Export**.

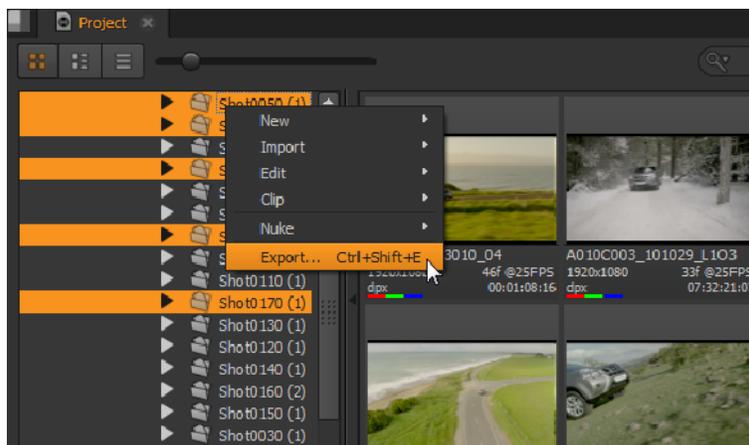
The **Export Queue** window displays an estimate of how long each component of the export is expected to take. Once the export is complete, the file structure specified in the shot template is created containing the transcoded files.

**TIP:** Click the magnifying glass icon to reveal the exported file in a browser window.

## Transcoding from the Bin View

To transcode directly from the bin view:

1. Select the bin(s) to export from the bin view.
2. Right-click a highlighted bin and select **Export**.



The **Export** dialog displays.

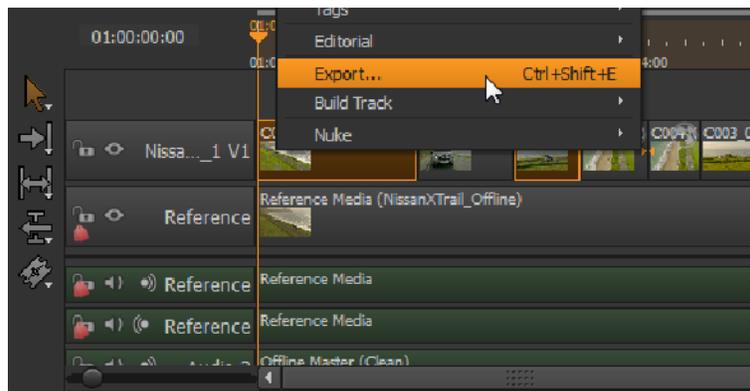
3. Select **Process as Clips** and modify the shot template, if required.
4. Follow the steps under [Transcoding a Sequence or Shots](#) to complete the export.

## Transcoding Timeline Selections

Transcoding an entire timeline can be time consuming, or even unnecessary, if all you're looking for is a new version of a selection of track items.

To transcode a selection of clips from a timeline:

1. Select the required track items on the timeline.
2. Right-click a highlighted item and select **Export**.



The **Export** dialog displays.

3. Refer to [Transcoding a Sequence or Shots](#) to complete the export.

## Ad Hoc Exports

This section covers exports that you might not perform on a per project basis, such as EDL or XML exports.

### Exporting EDLs and XMLs

Hiero supports export to EDL and XML using very similar methods, the main difference being that EDL doesn't support multiple video tracks in a single file whereas XML does.

To export to EDL or XML:

1. Select a sequence in the bin view and navigate to **File > Export**.

The **Export** dialog displays.

2. Select **Process as Sequence** from the Processors list.
3. Enter the **Export To** directory or click **Choose...** and browse to the location.  
The **Export To** directory is the starting point from which the shot template builds your shot hierarchy.
4. Click the **Contents** column to display a list of available presets and the associated **Export Controls**.



NOTE: You can build a custom shot template using **Path** tokens, the **Contents** field, and the  buttons.

5. Select the **EDL Exporter** or **XML Exporter** as required.



NOTE: EDLs only support one video track per file. If you have more than one track, include the **{track}** token in the shot template to write out an EDL for each track preset. For example, **{filename}\_{track}.{ext}** might produce a separate EDL for each track on your timeline called **myTimeline\_Video1.edl**, **myTimeline\_Video2.edl**, and so on.

6. When exporting EDLs, check the additional EDL Exporter controls if required:
  - **Reel Name** - define the reel name written into the EDL, independent of the clip's reel name. Enter text or standard shot-level tokens in this field. See [Using the Shot Template](#) for more information. If the field is left blank, the reel name from the clip is used or the name of the track item, if no reel name exists.
  - **Include Absolute Path** - adds the full filepath for each clip to the EDL comments field.
  - **Truncate Reel Name** - restricts the **Reel** name to eight characters.
  - **From Clip Name** - define the text appended to "from" comment fields in EDLs, such as **\*FROM CLIP NAME**. Text and/or standard shot-level tokens are valid in this field: {shot}, {clip}, {track}, {sequence}, {event}, {fps}, and the default {filename}.
7. If you set In and Out points on the sequence, select **Range > In/Out Points** to export only the specified range.
8. Set **Start Frame** to **Custom** if you want to specify a particular frame.
9. Set the **Version** number and **Tracks For Export**.
10. Click **Export**.  
The **Export Queue** window displays an estimate of how long the export is expected to take. Once the export is complete, the file structure specified in the shot template is created. You can then import the EDL or XML into other applications.



TIP: Click the magnifying glass icon to reveal the exported file in a browser window.

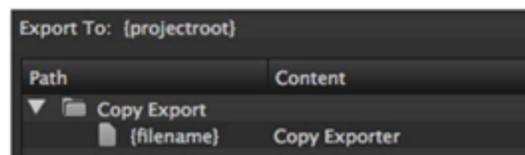
## Using the Copy Exporter

Copying media from various locations is very time consuming and can waste disk space. Hiero's Copy Exporter allows you to consolidate sequences containing only your project media in a named file structure using the shot template.

To copy media to a named location:

1. Select a sequence in the bin view and navigate to **File > Export**.  
The **Export** dialog displays.
2. Select **Process as Shots** from the Processors list.
3. Enter the **Export To** directory or click **Choose...** and browse to the location.  
The **Export To** directory is the starting point from which the shot template builds your shot hierarchy.
4. Create a new preset by clicking  or copy an existing preset.
5. Build a custom shot template using **Path** tokens, the **Contents** field, and the folder and +/- buttons.

An example shot template is shown below:



6. Set the **Handles**, if required:
  - **Clip Length** - exports the full clip length available, as if the clip was opened from the bin.
  - **Cut Length** - exports only the cuts included on the timeline.



**NOTE:** Selecting **Cut Length** allows you process retimes and add handles to each clip, up to the maximum available source clip length.

7. Check **Apply Retimes**, if **Cut Length** is enabled, to export any retimes present on the timeline.
8. Set how clip **Start Frames** are derived using the dropdown menu:
  - **Source** - use the source clip's start frame.
  - **Custom** - specify a start frame for all clips using the field to the right.
9. Set the **Version** number, **Tracks for Export**, and **Tag Filter**, if applicable.



**NOTE:** See [Using Versions](#) for more information on how versioning works in Hiero.

10. Click **Export**.  
The **Export Queue** window displays an estimate of how long the export is expected to take.  
Once the export is complete, the file structure specified in the shot template is created.



TIP: Click the magnifying glass icon to reveal the exported file in a browser window.

# 14 Customizing Hiero

This chapter provides a basic overview and some simple examples to get you started, but more information is available in the dedicated Python API document included in the Hiero package. See **Help > Python Dev Guide** for more information.

## Environment Variables

Environment variables are used to store values that influence the behavior of Hiero and HieroPlayer, such as adding additional file paths to check at startup for plug-in scripts.

## Setting Environment Variables

The process of setting environment variables differs depending on the operating system you're using:

### On Mac OS X and Linux

1. The first step is to determine the type of the shell you're using. Launch a terminal and enter:

```
echo $SHELL
```

Your shell type is printed to the screen. For example, `/bin/bash` indicates that your shell is "bash".

2. Depending on the output of the `$SHELL` command, do one of the following:

- **csh** or **tcsh** - add the following command to the **.cshrc** or **.tcshrc** file in your home directory:

```
setenv VARIABLE value
```

Replace `VARIABLE` with the name of the environment variable and `value` with the value you want to give it, for example:

```
setenv HIERO_PLUGIN_PATH /SharedDisk/Hiero
```

- **bash** or **ksh** - add the following command to the **.bashrc** or **.kshrc** file in your home directory:

```
export VARIABLE=value
```

Replace `VARIABLE` with the name of the environment variable and `value` with the value you want to give it, for example:

```
export HIERO_PLUGIN_PATH=/SharedDisk/Hiero
```



**NOTE:** These steps set the environment variable until you manually remove it from the file in your home directory. If you want to set a variable for a single session, you can simply type the variable in the terminal then run Hiero from the same session.

## On Windows

1. Right-click on **My Computer** and select **Properties**.
2. Click the **Advanced** tab.
3. Click the **Environment Variables** button.  
The **Environment Variables** dialog opens.
4. Click the **New** button under either **User variables** or **System variables**, depending on whether you want to set the variable for the current user or all users.



**NOTE:** You must have administrator privileges to set system-wide variables.

5. In the **Variable** name field, enter the name of the environment variable you want to set.
6. In the **Value** field, enter the value for the variable. The value can be a directory path, for example.
7. Click **OK** to save the variable.

The following table lists the environment variables that Hiero recognizes:

Environment Variable	Description
__GL_SYNC_DISPLAY_DEVICE	On Linux, set this variable to the name of screen device to synchronize in dual screen setups. See <a href="#">Synching to VBlank on Linux</a> for more information.
FN_DISABLE_LICENSE_DIALOG	By default, if you have installed a temporary license, Hiero displays a dialog at start-up alerting you to the number of days remaining. If you want to disable this behavior, you can set this environment variable to 1 to suppress the warning message about imminent license expiration.   <b>NOTE:</b> When this environment variable is set, a warning message is still displayed if no license is found.
HIERO_DISABLE_THUMBNAIL_CACHE	Set this variable to TRUE to stop Hiero caching thumbnails.   <b>NOTE:</b> This variable does not clear the cache, you must remove cached files manually.

Environment Variable	Description
HIERO_PLUGIN_PATH	<p>Set this variable to the location of additional scripts to run at startup. You can use <b>.&lt;folder&gt;</b> to point to hidden folders, for example <b>.myPlugins</b>.</p> <p>For example, you could create a facility-wide location to share presets and use this variable to point multiple Hiero's to it. See <a href="#">Sharing Presets</a> for more information.</p> <p>Use the following method to display set paths:</p> <pre>print hiero.core.pluginPath()</pre>
HIERO_SINGLE_THREADED_PLAYBACK	<p>This variable launches Hiero in single-thread mode, which can solve playback issues on various Linux Fedora flavors.</p>
FOUNDRY_LOG_FILE	<p>This variable specifies the location of Hiero's logfile. If you don't specify a logfile, all output is to screen.</p>
FOUNDRY_LOG_LEVEL	<p>This variable sets the level of logging Hiero produces during operation. There are four levels of detail, on a sliding scale from minimal to verbose:</p> <ul style="list-style-type: none"> <li>• <b>error</b></li> <li>• <b>warning</b></li> <li>• <b>message</b></li> <li>• <b>verbose</b></li> </ul> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;">  <p><b>NOTE:</b> Setting the logging level to verbose can produce large log files when FOUNDRY_LOG_FILE is specified.</p> </div>
OCIO	<p>Set this variable to the location of your OCIO configuration file for color conversion.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;">  <p><b>NOTE:</b> If you plan to use the OCIO config file specified in Hiero or HieroPlayer, ensure that the <b>Preferences &gt; Color Management &gt; Use OCIO nodes when exporting in Nuke</b> checkbox is enabled.</p> </div>

## Sharing Presets

Hiero and HieroPlayer support facility-wide preset sharing by pointing multiple seats to a single network location using the `HIERO_PLUGIN_PATH`. As long as the folder hierarchy mirrors what the application expects, you can place this repository anywhere on your network.

To setup sharing:

1. Create the shared repository directory, for example:  
`/Volumes/myFacility/Shared/`
2. Follow the instructions under [Setting Environment Variables](#) to point individual machines to the shared location. For example, if you're using a **bash** shell, you could use:  
`export HIERO_PLUGIN_PATH=/Volumes/myFacility/Shared/`  
 Any file that can be read locally can be placed in the shared path.

## Startup Projects

Hiero and HieroPlayer search `<path>/StartupProjects/Hiero`, `<path>/StartupProjects/HieroPlayer` and `<path>/Templates` for preset projects saved as **.hrox** files. See [Mac OS X](#), [Linux](#), and [Windows](#) for a description of the `<path>` variable by platform.

Projects placed in these folders behave differently, depending on which folder they are read from:

- **StartupProjects/Hiero** or **HieroPlayer** - projects in these folders are displayed in the bin view at startup and are read only. An example project, **Tag Presets**, is included in the **Tags** tab.
- **Templates** - projects in this folder appear in a dropdown menu when you open a new project. Select the template to use for the new project.



**NOTE:** You may need to create the **StartupProjects/Hiero**, **StartupProjects/HieroPlayer**, and **Templates** folders manually in the chosen path.

To remove a startup project, either:

- Remove it from `<path>/StartupProjects/Hiero`, `<path>/StartupProjects/HieroPlayer` or `<path>/Templates`, or
- Rename the file extension so the application doesn't recognize it on startup. For example, **myStartup.hrox\_hidden**.

To modify a startup project:

1. Load the project using **File > Open**.
2. Make any required edits and save over the original in the same location.

The edited project loads at startup.

## Using the Python API

Hiero and HieroPlayer ship with a comprehensive Python application programming interface (API) enabling you to perform most user interface actions using Python scripting.

This section provides a basic overview and some simple examples to get you started, but more information is available in the dedicated Python API document included in the Hiero package. See **Help > Python Dev Guide** for more information.

### Running Python During Startup

On startup, Hiero and HieroPlayer scan various directories for Python scripts that customize the behavior of the application. These scripts can be downloaded from online resources and placed in specific locations on disk, depending on the platform you're using.

If you're familiar with Python scripting, you can place custom startup scripts in the same locations, though bear in mind that you should take care as mistakes can produce performance issues.

Some example scripts are included in the application package in the following directories:

#### On Mac:

- /Applications/Hiero1.9v1/Hiero1.9v1.app/Contents/Plugins/site-packages/hiero/examples/
- /Applications/HieroPlayer1.9v1/HieroPlayer1.9v1.app/Contents/Plugins/site-packages/hiero/examples/

#### On Linux:

- /usr/local/Hiero1.9v1/Plugins/site-packages/hiero/examples/
- /usr/local/HieroPlayer1.9v1/Plugins/site-packages/hiero/examples/

#### On Windows:

- drive letter:\Program Files\Hiero1.9v1\plugins\site-packages\hiero\examples
- drive letter:\Program Files\HieroPlayer1.9v1\plugins\site-packages\hiero\examples

At startup, Hiero and HieroPlayer search **<path>/Python/Startup** and **<path>/Python/StartupUI** for any Python **.py** modules or packages containing **\_\_init\_\_.py**. Scanning is done in two passes - all the Startup folders are searched and then all the StartupUI folders.

You can also add your own Startup folders, which are scanned after the standard paths, by creating a Python file pointing to the custom location. For example:

```
import hiero.core
hiero.core.addPluginPath("/myCustomPlugins")
```

Searches **/myCustomPlugins/Python/Startup** after the standard paths.

Each package or module discovered is imported and added to the built-in package **hiero.plugins**.



**NOTE:** Python startup scripts are imported in alphabetical order so you can force ordering if necessary.

The **<path>** varies by platform as follows:

### Mac OS X

- /Applications/Hiero1.9v1/Hiero1.9v1.app/Contents/Plugins
- /Applications/HieroPlayer1.9v1/HieroPlayer1.9v1.app/Contents/Plugins
- /Library/Application Support/TheFoundry/Hiero
- ~/Library/Application Support/TheFoundry/Hiero
- ~/.hiero

### Linux

- /usr/local/Hiero1.9v1/Plugins
- /usr/local/HieroPlayer1.9v1/Plugins
- ~/.hiero

### Windows

- drive letter:\Program Files\Hiero\plugins\hieroscripts
- drive letter:\Program Files\HieroPlayer\plugins\hieroscripts
- drive letter:\Program Files (x86)\Hiero\plugins\hieroscripts
- drive letter:\Program Files (x86)\HieroPlayer\plugins\hieroscripts

You can specify any number of user-defined paths using the environment variable `HIERO_PLUGIN_PATH`, separating them with `:` just like the standard unix `PATH` environment variable and Nuke's `NUKE_PATH`. See [Setting Environment Variables](#) for more information.

## Using the Script Editor

Hiero and HieroPlayer include a Python **Script Editor**, accessible from the user interface, allowing you to enter Python statements directly.

To access the Script Editor:

1. Navigate to **Window > Script Editor**.  
The **Script Editor** displays.
2. Enter scripts in the lower half of the editor and press **Ctrl/Cmd + Enter** to execute the script.

The results are displayed at the top of the editor. A simple example might be:

```
from hiero.core import *
bin = projects()[-1].clipsBin()
bin.addItem(Bin("Plates"))
bin["Plates"].importFolder("/Footage/Hiero/finalshots")
```

Which imports **hiero.core**, defines **bin** in the last project opened, creates a bin called **Plates** at root level, and imports the specified folder into **Plates**.

Script Editor buttons and commands are described below:

Icon	Hotkeys	Description
	Ctrl/Cmd+[	Go to the previous script.
	Ctrl/Cmd+]	Go to the next script.
	n/a	Clear the script history.
	n/a	Load and execute a script.
	n/a	Load an existing script.
	n/a	Save a script as a <b>.py</b> file.
	Ctrl/Cmd+ enter	Run the current script.
	n/a	Show the input pane only.
	n/a	Show the output pane only.
	n/a	Show both the input and output panes.
	Ctrl/Cmd+ Backspace	Clear the output pane.

The Script Editor also features auto-completion and help for commands. Classes, attributes and so on are discoverable by:

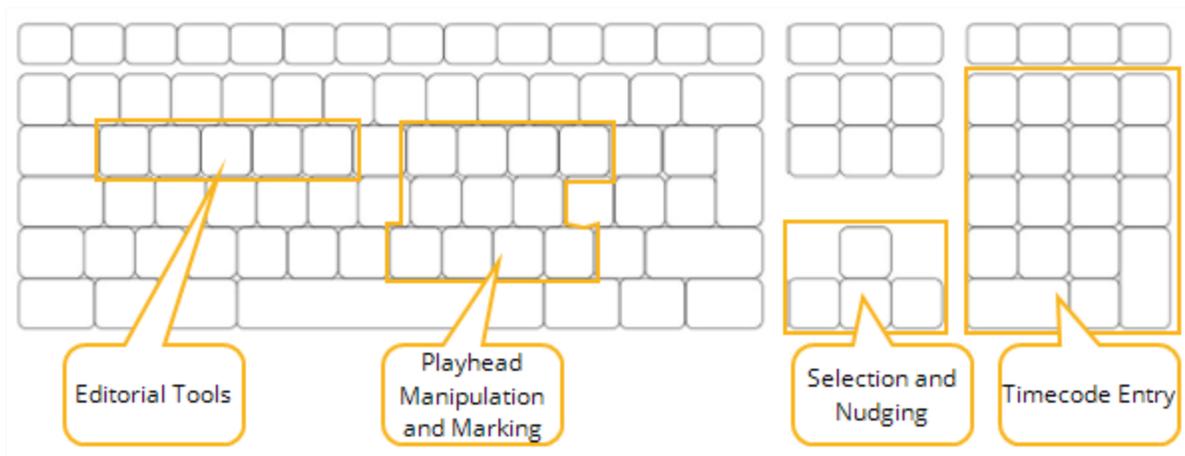
- Entering the beginning of an object name and pressing the **Tab** key.



# Appendix A

## Hiero and HieroPlayer Hotkeys

This appendix lists the hotkeys used by both applications, along with their function. In general, contiguous areas of the keyboard are assigned to related functionality. The left-hand keys on a QWERTY keyboard are used for tool selection and actions, the right-hand side for playhead manipulation including source/record and insert/overlay, the arrow keys for selection and nudging, and the numeric pad for timecode entry.



Hotkeys	Button	Menubar	Function
Timeline and Editing Controls			
Q		n/a	Cycles between the available move tools: <ul style="list-style-type: none"><li>• <b>Multi Tool</b></li><li>• <b>Move/Trim</b></li><li>• <b>Select</b></li></ul>

Hotkeys	Button	Menubar	Function
W		n/a	<p>Cycles between the available selection tools:</p> <ul style="list-style-type: none"> <li>• <b>Select Track to Right/Left</b></li> <li>• <b>Select All in Track</b></li> <li>• <b>Select All Tracks Right/Left</b></li> </ul> <p> NOTE: Holding <b>Alt</b> toggles between track and all tracks behavior.</p>
E		n/a	Cycles between the <b>Slip Clip</b> and <b>Slide Clip</b> tools.
R		n/a	<p>Cycles between the available edit tools:</p> <ul style="list-style-type: none"> <li>• <b>Roll Edit</b></li> <li>• <b>Ripple Edit</b></li> <li>• <b>Retime Clip</b></li> </ul>
T		n/a	<p>Cycles between the available razor tools:</p> <ul style="list-style-type: none"> <li>• <b>Razor</b></li> <li>• <b>Razor All</b></li> <li>• <b>Join</b></li> </ul>
left-click	n/a	n/a	Select a clip including any linked tracks.
Alt + left-click	n/a	n/a	Select a clip, ignoring linked tracks (for example, audio only).
Shift + drag clip	n/a	n/a	Disable snap to transition when dragging clips.
left-click then Shift + left-click	n/a	n/a	Select all clips between the left-clicks (use <b>Shift + Alt + left-click</b> to ignore linked tracks).
drag then Alt	n/a	n/a	Activate Ripple mode while dragging track item.
Alt then drag	n/a	n/a	Duplicate the dragged track item.
Alt and drag	n/a	n/a	Ripple and duplicate the dragged track item.
Alt and left-click	n/a	n/a	Select a clip, ignoring linked tracks.
Ctrl/Cmd + A	n/a	n/a	Select all track items.

Hotkeys	Button	Menubar	Function
Ctrl/Cmd + Shift + A	n/a	n/a	Deselect all track items.
File Menu			
Ctrl/Cmd + Shift + N	n/a	File > New Project	Open a new project.
Ctrl/Cmd + O	n/a	File > Open	Open an existing project.
Alt + Shift + <num>	n/a	File > Open Recent > Project Name	Open a previously saved project from the list.
Ctrl/Cmd + W	n/a	File > Close	Close the current project.
Ctrl/Cmd + S	n/a	File > Save	Save the current project.
Ctrl/Cmd + Shift + S	n/a	File > Save As...	Save the current project with a different name.
Ctrl/Cmd + I	n/a	File > Import Clips	Import a clip or clips.
Ctrl/Cmd + Shift + I	n/a	File > Import Folder	Import a folder or folders.
Ctrl/Cmd + Alt + Shift + I	n/a	File > Import EDL/XML	Import an EDL or XML sequence.
Ctrl/Cmd + Shift + E	n/a	File > Export	Export the selected sequence.
Ctrl/Cmd + Q	n/a	File > Quit	Close Hiero and display a prompt to save any unsaved work.
Edit Menu			
Ctrl/Cmd + Z	n/a	Edit > Undo	Undo the last action.
Ctrl/Cmd + Shift + Z	n/a	Edit > Redo	Redo the last undo action.
Ctrl/Cmd + X	n/a	Edit > Cut	Cut the selected item(s) and place in the buffer.
Ctrl/Cmd + C	n/a	Edit > Copy	Copy the selected item(s) to the buffer.

Hotkeys	Button	Menubar	Function
Ctrl/Cmd + V	n/a	Edit > Paste	Paste item(s) from the buffer.
Backspace / Delete	n/a	Edit > Delete	Delete selected item(s).
Ctrl/Cmd + A	n/a	Edit > Select All	Select all files in the current bin.
Ctrl/Cmd + Shift + A	n/a	Edit > Clear Selection	Deselect all files in the current bin.
Ctrl/Cmd + D	n/a	Edit > Duplicate	Duplicate the selected object(s).
Shift + S	n/a	Edit > Preferences	Open the Preferences dialog.
View Menu			
Ctrl/Cmd + Shift + 1	n/a	View > Zoom to Actual Size	Zoom the contents of the Viewer to actual size.
Ctrl/Cmd + Shift + 2	n/a	View > Zoom to Half Size	Zoom the contents of the Viewer to half size.
H	n/a	View > Zoom to Fill	Fit the current clip to the height or width of the Viewer, depending on the clip's format.
F	n/a	View > Zoom to Fit	Zoom to fit the clip to the Viewer.
+	n/a	View > Zoom In	Zoom in to the Viewer.
-(minus)	n/a	View > Zoom Out	Zoom out of the Viewer.
Ctrl/Cmd + F	n/a	View > Full Screen	Toggle Full Screen mode.
Ctrl/Cmd + Shift + F	n/a	View > Full Quality 1:1	Toggle Full Screen mode at Full Quality 1:1 zoom.
Esc	n/a	n/a	Exit full screen mode.
E	n/a	View > Clipping Warning	Toggle the Level Warning tool on and off.
I		View > Mark In	Set the In Point at the current frame.

Hotkeys	Button	Menubar	Function
O		View > Mark Out	Set the Out Point as the current frame.
Alt + I	n/a	View > Clear In Point	Clear the In point for the current clip or timeline.
Alt + O	n/a	View > Clear Out Point	Clear the Out point for the current clip or timeline.
Alt + U	n/a	View > Clear In and Out Points	Clear the In and Out points for the current clip or timeline.
Home		View > Go to Start	Go to the start of all clips.
End		View > Go to End	Go to the end of all clips.
Shift + I	n/a	View > Go to In Point	Go to the In Point in the current clip.
Shift + O	n/a	View > Go to Out Point	Go to the Out Point in the current clip.
, (comma) (K + J)		View > Frame Backwards	Skip one frame backwards.
. (period) (K + L)		View > Frame Forwards	Skip one frame forwards.
Shift + , (comma)		View > Skip Backwards	Skip backwards by the frame increment value specified in the Viewer tools.
Shift + . (period)		View > Skip Forwards	Skip forwards by the frame increment value specified in the Viewer tools.
Alt + , (comma)		View > Previous Edit	Go to the previous clip in the Viewer.
Alt + . (period)		View > Next Edit	Go to the next clip in the Viewer.
Alt + Shift + , (comma)	n/a	View > Previous Tag	Go to previous frame tag.

Hotkeys	Button	Menubar	Function
Alt + Shift + . (period)	n/a	View > Next Tag	Go to next frame tag.
Space		View > Play	Play the clip or sequence currently in the Viewer.
P		n/a	Pause RAM caching in the Viewer.
J		View > Play Backward	Play clip or sequence currently in the Viewer backward (click multiple times to increase playback speed).
K		View > Pause	Pause playback.
L		View > Play Forward	Play clip or sequence currently in the Viewer forward (click multiple times to increase playback speed).
Enter (numeric pad)	n/a	View > Edit Playhead Time	Shift focus to the timecode field under the Viewer, allowing you to manually edit the playhead position.
Ctrl/Command + Shift + P	n/a	View > Ignore Pixel Aspect	Display the clip in the Viewer with a 1:1 aspect ratio.
Ctrl/Command + /	n/a	Show Timeline Editor	Display the timeline pane, if it is not already visible.
Return (main keyboard)	n/a	View > Swap Inputs	Controls the AB inputs: <ul style="list-style-type: none"> <li>• <b>Stack</b> - swaps which input is visible.</li> <li>• <b>Horizontal</b> - swaps the inputs horizontally.</li> <li>• <b>Vertical</b> - swaps the inputs vertically.</li> </ul>
R, G, B, A, Y		View > Channels	Set the Viewer output channel.
PgUp		n/a	Scroll up and down through available layers in the Viewer.
PgDn	n/a	PgDn	n/a
\ (back slash)	n/a	View > Show Overlays	Toggle the HUD overlays.

Hotkeys	Button	Menubar	Function
W		View > Toggle SplitWipe	Toggle the SplitWipe compare mode on and off.
Project Menu			
Ctrl/Command + B	n/a	Project > New Bin	Create a new bin in the current bin.
Ctrl/Command + Y	n/a	Project > New Tag	Create a new tag in the current bin (tags can only be created in the <b>Tags</b> tab).
Ctrl/Command + N	n/a	Project > New Sequence	Create a new sequence in the current bin.
Clip Menu			
Ctrl/Command + Return  (main keyboard)	n/a	Clip > Open In > Viewer	Open the selected clip in the Viewer.
Ctrl/Command + Alt + Return  (main keyboard)	n/a	Clip > Open In > New Viewer	Open the selected clip a new Viewer.
1	n/a	Clip > Open In > Viewer Input A	Open the selected clip in Viewer input A.
2	n/a	Clip > Open In > Viewer Input B	Open the selected clip in Viewer input B.
Alt + D	n/a	Clip > Open In > Metadata View	Open the metadata view for the selected clip.
D	n/a	Clip > Hide Version	Hide the currently selected version(s) of a clip in the Versions Bin view.
Alt + ↑	n/a	Clip > Version Up	Cycle up through the available clip versions.
Alt + ↓	n/a	Clip > Version Down	Cycle down through the available clip versions.
Ctrl/Command + Alt + ↑	n/a	Clip > Max Version	Jump to the maximum known version or scan for new versions if the max version is already reached.

Hotkeys	Button	Menubar	Function
Ctrl/Cmd + Alt + ↓	n/a	Clip > Min Version	Jump to the minimum known version or scan for new versions if the min version is already reached.
V	n/a	Clip > Select Version	Display the available versions of a clip or sequence.
F5	n/a	Clip > Refresh Clips	Reload the clip or track item when the source file location has not changed, such as when work has been done on the clip offline. Selecting refresh only refreshes the clip's current frame range.
Alt + F5	n/a	Clip > Rescan Clip Range	Similar to <b>Refresh Clips</b> , above, but rescan also checks for additional frames that may have been added to the source file and adds them to the track item's frame range.
N	n/a	Clip > Insert	Insert the contents of a source Viewer into the timeline at the current playhead position and ripple existing track items downstream to accommodate the change.
M	n/a	Clip > Overwrite	Insert the contents of a source Viewer into the timeline at the current playhead position overwriting existing track items.
Timeline Menu			
Shift + U	n/a	Timeline > Mark Selection	Place the In and Out markers around the selected track item or track items on the timeline.
U	n/a	Timeline > Mark Clip	Place the In and Out markers around the upper-most timeline clip under the current playhead position.
C	n/a	Timeline > Razor Selected	Apply the Razor tool to the currently selected track(s) within the selected clip(s).
Shift + C	n/a	Timeline > Razor All	Apply the Razor tool to all tracks within the selected clip(s).
Shift + Backspace	n/a	Timeline > Ripple Delete	Remove the selected clip(s) and ripple clips downstream to close gaps in the timeline.

Hotkeys	Button	Menubar	Function
Ctrl/Cmd + T	n/a	Timeline > Transition > Dissolve	Add a dissolve between two selected track items.
D	n/a	n/a	Enable or disable the selected clip(s) or track(s).
Ctrl/Cmd + Alt + A	n/a	Timeline > Select All in Track	Select all the track items on the current track.
Ctrl/Cmd + ←	n/a	Timeline > Nudge > Nudge Left	Trim, roll, or nudge a selected transition or track item to the left (within the available handles for trim and roll).
Ctrl/Cmd + →	n/a	Timeline > Nudge > Nudge Right	Trim, roll, or nudge a selected transition or track item to the right (within the available handles for trim and roll).
Ctrl/Cmd + Shift + ←	n/a	Timeline > Nudge > Nudge Left More	Trim, roll, or nudge a selected transition or track item to the left by the frame increment value specified in the Viewer tools (within the available handles for trim and roll).
Ctrl/Cmd + Shift + →	n/a	Timeline > Nudge > Nudge Right More	Trim, roll, or nudge a selected transition or track item to the right by the frame increment value specified in the Viewer tools (within the available handles for trim and roll).
Ctrl/Cmd + ↑	n/a	Timeline > Nudge > Nudge Up	Nudge the selected track item(s) up one track.
Ctrl/Cmd + ↓	n/a	Timeline > Nudge > Nudge Down	Nudge the selected track item(s) down one track, where possible.
Alt + Shift + /	n/a	Timeline > Rename Shots	Display the <b>Rename Shots</b> dialog for the selected track items.
Cache Menu			
F12	n/a	Cache > Clear Playback Cache	Click to clear the frames stored in the playback cash, represented by the green bar under the Viewer playhead.
Window Menu			

Hotkeys	Button	Menubar	Function
Alt + S	n/a	Window > Toggle Fullscreen	Expand the interface to fill the available screen space.
Ctrl/Cmd + Alt + Shift + ` (backtick)	n/a	n/a	Cycle backwards through all current panes.
Ctrl/Cmd + Alt + ' (backtick)	n/a	n/a	Cycle forwards through all current panes.
Ctrl/Cmd + Shift + [	n/a	n/a	Jump between tabs in the current pane.
Ctrl/Cmd + Shift + ]	n/a	n/a	
Shift + F1	n/a	Window > Workspace > Conforming/Editing	Switch to Hiero's Conforming workspace or HieroPlayer's Editing workspace.
Shift + F2	n/a	Window > Workspace > Editing/Flipbook	Switch to Hiero's Editing workspace or HieroPlayer's Flipbook workspace.
Shift + F3	n/a	Window > Workspace > Reviewing	Switch to the Reviewing workspace.
Shift + F4	n/a	Window > Workspace > Timeline	Switch to the Timeline workspace.
Shift + F<num>	n/a	Window > Workspace > Custom Workspace Name	Switch to the custom workspace associated with the number selected.
<b>Viewer Controls</b>			
Alt + left-click + drag  (middle-click and drag on Linux)	n/a	n/a	Pan the contents of the Viewer.
Scroll wheel  (over Viewer or Viewer timeline)	n/a	n/a	Zoom the Viewer or Viewer timeline.

Hotkeys	Button	Menubar	Function
Scroll wheel middle-click + drag  (over Viewer timeline or timeline)	n/a	n/a	Zoom the Viewer timeline to the indicated frame range.
Scroll wheel Alt + middle-click + drag  (over Viewer or timeline)	n/a	n/a	Zoom the contents of the Viewer or timeline.
middle-click  (over Viewer timeline or timeline)	n/a	n/a	Zoom to fit the Viewer timeline to Viewer contents.   <b>NOTE:</b> If your mouse preferences are not set to <b>Button 3</b> for the middle mouse button, you may have to use <b>Ctrl/Cmd + middle-click</b> .
Alt + close Viewer		n/a	Close only the selected tab. Clicking close without holding <b>Alt</b> closes any linked tabs as well.
Spreadsheet Controls			
Alt + left-click	n/a	n/a	Move the playhead to the selected clip's <b>In</b> point on the timeline.
Alt + double left-click	n/a	n/a	Move the playhead to the selected clip's <b>In</b> point on the timeline and zoom to fit the clip in the timeline view.
Alt + close Spreadsheet		n/a	Close only the selected tab. Clicking close without holding <b>Alt</b> closes any linked tabs as well.
Bin View Searchbox Controls			
left-click	n/a	n/a	Select a tag search criteria.

Hotkeys	Button	Menubar	Function
Ctrl/Cmd + left-click	n/a	n/a	Toggle select individual tag search criteria.
Shift + left-click	n/a	n/a	Select a range of tag search criteria.
Script Editor Controls			
Ctrl/Cmd + [		n/a	Go to the previous script.
Ctrl/Cmd + ]		n/a	Go to the next script.
Ctrl/Cmd + Enter		n/a	Execute current script.
Ctrl/Cmd + Backspace		n/a	Clear the output pane.

# Appendix B

## Supported Image Formats

The following table lists supported image formats.

Format Name	Bit Depths	Read/Write	Extension
ARRIRAW	12	read only	ari
AVI	n/a	read only	avi
CIN	10 (log)	read and write	cin
DPX (see the notes below)	8, 10, 12, and 16	read and write	dpx
Radiance	16	read only	hdr, hdri
JPEG	8	read and write	jpg, jpeg
Maya IFF	8 and 16	read only	iff
OpenEXR (see the notes below)	16 and 32	read and write	exr
PNG	8 and 16	read and write	png (8-bit) png16 (16-bit)
PSD	8	read only	psd
QuickTime	n/a	read and write	mov
RAW	n/a	read only	n/a

Format Name	Bit Depths	Read/Write	Extension
REDCODE (see the notes below)	16	read only	r3d
SGI	8 and 16	read and write	sgi, rgb, rgba (8-bit sequences)  sgi16 (for 16-bit sequences)
SoftImage® PIC	8	read and write	pic
TIFF	8, 16, and 32	read and write	tif, tiff (8-bit sequences)  tif16, tiff16 (16-bit sequences)  ftif, ftiff (32-bit sequences)
Truevision® TARGA	8	read and write	tga, targa
Wavefront® RLA	8	read only	rla
XPM	8	read only	xpm
YUV	8	read only	yuv

## Optimized Formats and Limitations

Hiero and HieroPlayer play most formats as fast as they can be read from the file system. The frames are cached in RAM up to the cache limit specified in the **Preferences** dialog. When the cache is full, frames are ejected and must be re-read from disk if needed again.

The playback system supports automatic resolution switching, which enables realtime playback of source clips on typical desktop and graphics card combinations.

Most file formats are read through the same image I/O library used by The Foundry's Nuke. Formats are optimized for realtime playback based on user feedback about what is most frequently used. The following formats have been optimized, so that the only limiting factor in achieving realtime playback is the rate at which files can be read from the file system:

### DPX

8-, 10-, 12-, and 16-bit RGB and RGBA reads are optimized, if the channels are all stored in the same element.

## EXR

EXR reads have been partially optimized. They currently still load more slowly if any part of the data window lies outside the display window, or if the data window is smaller than the display window and aligned to one of the edges of the display window. This reduction in speed is most noticeable for large data windows.

## R3D

In conjunction with a RED Rocket, Hiero and HieroPlayer can take advantage of the lower scale/quality available from the RED SDK based on the current Viewer zoom level.

## Other Format Optimisation

The **.jpg**, **.cin**, and **.sgi** formats are also optimized. Reads of other formats may be optimized depending on the number, bit depth and layout (within elements) of the channels. Future releases will handle more formats.

## Reader Fallback Paths

If Hiero can't find a suitable reader when reading source clips from disk, the following paths are searched for fallback **.dylib**, **.so**, and **.dll** readers compiled against the comparable Nuke version:

### Mac OS X:

- /\$HOME/.nuke
- /Library/Application Support/Nuke/x.x/plugins/

### Linux:

- /\$HOME/.nuke
- /usr/local/Nuke/x.x/plugins/

### Windows:

- \\$.HOME\nuke
- C:\Program Files\Common Files\Nuke\x.x\plugins\
- C:\Program Files (x86)\Common Files\Nuke\x.x\plugins\



**NOTE:** You can also add your own search paths using the `NUKE_PATH` environment variable. See [Setting Environment Variables](#) on page 191 or the *Configuring Nuke* chapter in the *Nuke User Guide* for more information.

## Supported Audio Formats

The following table lists supported audio formats.



**NOTE:** Although Hiero and HieroPlayer support the import and editing of multi-channel audio, during playback audio is currently mixed to 48 KHz stereo output.

Format Name	Extension
All platforms	
RED Audio	n/a
Wave	wav
Audio interchange format	aiff
Mac and Windows	
QuickTime Audio	.m4a

# Appendix C

This appendix lists third party libraries and versions used in Hiero and HieroPlayer, along with their licenses.

## Third-Party Library Versions

Library	Version	Library	Version
ARRIRAW SDK	4.4	OpenALSoft	1.13
Boost	1.46.0	OpenColorIO	1.0.7
Breakpad	1.0	OpenEXR	2.0.0
bzip2	1.0.6	OpenImageIO	r1719
Curl	7.21.1	OpenSSL	1.0.0a
EuCon	2.5.5	PortAudio	v19
Expat	2.0.1	PySide	1.0.9
FBX	2012.2	PyString	1.1.0
FFmpeg	1.0	Python	2.6.5
FreeType	2.4.4	Qt	4.7.2
GLEW	1.5.8	QuaZip	0.3
Google BSD	1.5.0	QuickTime	7.3
JPEG	6b	R3D SDK	4.5
Libexif	0.6.20	Skein	1.1
Libpng	1.2.25	TBB	N/A
libresample	0.1.3	VXL	1.10.0

Library	Version	Library	Version
libsndfile	1.0.25	xmlrpcpp	0.7
Libtiff	3.9.4	Zlib	1.2.5
Mshinttypes	r20		

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