

Release Notes for Hiero and HieroPlayer 1.9v1

Release Date

30 September 2014

Supported Operating Systems

- Mac OS X 10.6 “Snow Leopard” 64-bit, or above
- Linux RHEL 5.4 / RHEL 6.3 for Intel64 or AMD64
- Windows 7 64-bit, or above, with the latest version of QuickTime installed

New Features

Performance Improvements

- Hiero now 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 new option is disabled by default on Windows and Mac OS X, 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.

Results may vary depending on your platform, graphics card, drivers, and source image format. In some tests, we found that NVIDIA Quadro graphics cards responded very favorably with both PBO and 3 to 4 channel expansion enabled.

- Hiero now recycles the allocated memory used by cached frames more aggressively to improve performance during decoding. This improves both playback fps consistency, maximum frame rate, and decode speed (the speed at which the cache bar fills).

Exact performance improvements depend heavily on the material played back as well as the operating system in question. On Mac OS X and Windows, render performance is greatly improved, whereas on Linux the noticeable improvement is in decode speed.



NOTE: These improvements only impact streaming playback - playback whilst simultaneously decoding data from disk to cache memory. If the playback region or clip fits entirely within the RAM cache, performance improvements are negligible.

- Hiero's handling of 3-channel, 10-bit **.dpx** sequences has been improved, resulting in faster upload times and increased RAM cache capacity for this format. In internal tests, 3-channel, 10-bit **.dpx** sequences now play back up to twice as fast as previous releases.
- Hiero's JPEG reader has been optimized.
- Decode speed and playback reliability has been improved as a result of better cache recycling and a reduction in lock contention in decoders.
- Render and decode performance has been improved in this release, particularly when dealing with mixed format clips. In general, both render and decode performance is now more reliable.
- The recycling of sequence Viewers is now more aggressive, in that opening a new sequence Viewer replaces the existing one, unless you right-click the sequence and select **Open In > New Viewer (Ctrl/Cmd+Alt+Return)**.
- BUG ID 41848 - The accuracy of the Viewer FPS indicator has been improved on playback.
- BUG ID 42636 - Playback is now more stable when playing at high frame rates.

Monitor Output Improvements



NOTE: To use AJA devices on Windows you need to upgrade your driver to use AJA 10.5.2, or later.

- Viewer overlays, masks, and guides are now available through monitor output.
- Synchronized audio playback is now also implemented for SDI out on BlackMagic and AJA cards. When SDI out is enabled, the Viewer on screen acts as a frame source, the output of which is subsequently buffered and sent to the SDI board. As a result when SDI is switched on, the card plays back synchronized audio and video whilst the onscreen Viewer is ahead by some number of frames.
- BUG ID 29520 - Monitor Output: Hiero now supports 4K SDI output from for AJA Kona 3G and AJA iO4K hardware (the latter requires Thunderbolt 2 on Mac OS X).
- BUG ID 32195 - Monitor output playback performance has been improved for 10-bit output over SDI.

Audio Improvements

- In Viewer (not SDI) audio/video playback synchronization. The sequence Viewer now attempts to synchronize video frame playback against the audio clock as the sequence plays back. Note that it still observes the behavior of the

Non RT Playback dropdown found in the cog menu, either pausing audio whilst catching up buffering video frames or skipping frames to keep up to speed.

- Audio and Video synchronization has been improved. Now when you start playback or seek, a delay of approximately 100 ms occurs, allowing the audio tracks to synchronize correctly with the video tracks.



NOTE: The delay between audio and video playback has been reduced, so any projects created in a previous version may not be synchronized correctly.

Open the **Preferences**, click on the **Audio** submenu, and adjust the **Default latency adjustment** to correct any differences.

- Several other audio improvements are included in this release as part of the overhaul of Hiero's playback system:
 - Audio tracks are no longer mixed-down to prevent clipping.
 - Each track and track item has an individual volume slider, including a numeric field for precise control which accepts multipliers greater than 1.
 - The Viewer volume slider now affects monitor out volume in the same way as in-application volume.



WARNING: As a result of these audio fixes, output volume may be up to eight times louder than in previous releases. Please adjust the volume controls on your audio device(s) before playing audio back.

UI Improvements

- When you open a selected track item from the timeline editor in the Viewer, in/out points are automatically inserted in the Viewer timeline to reflect the selected track item. If the timeline's playhead is within the selected track item, the Viewer's playhead matches the current frame, otherwise the Viewer's playhead defaults to the in point.



NOTE: When in/out points are inserted in the Viewer's timeline to reflect the currently selected track item, any previous in/out points on the clip are cleared.

- Context menus in the bin view, timeline editor, and Viewer have been rearranged to group conceptually related items together, ensuring panel-specific functionality is available in relevant contexts.
- Clicking the close panel button now closes all linked panels (Viewer, spreadsheet, and timeline) by default. Holding **Alt** and clicking close panel closes only the selected panel.
- Actions within the right-click **Open In** clip and track item menus now work for multiple selections.
- BUG ID 41800 - The timeline track lock and the video show/hide toggle now allow you to solo a selected track or multiple tracks. To do this for one track, hold **Alt** and select the **lock** or **show/hide** button on the track you want to solo. Selecting multiple tracks beforehand, solos the selected tracks.
- BUG ID 42993 - The **Add Transition** sub-menu has moved under **Editorial** for clarity.

File Format Improvements

- BUG ID 42803 - The R3D SDK has been updated to version 5.0. This update adds RedDragon support and various **.r3d** specific controls, including the **DRAGONcolor** colorspace and **RedGamma4** gamma space.

Feature Enhancements

- You can now use the **Zoom to Fill** function (hotkey **H**) in the timeline editor. This ignores the current selection, as well as in/out points to show the full length of the sequence. You can use the **Zoom to Fill** function to toggle between a focused region (using **Zoom to Fit**) and a full sequence (**Zoom to Fill**) without having to clear in/out points or selections.
- A new display metadata hotkey, **Alt+D**, has been added to display the metadata associated with a clip or track item. The hotkey works on single and multiple selections.
- BUG ID 22672 - You can now use the **Match Media** function to conform only selected spreadsheet items.
- BUG ID 25553/31447 - Hiero now displays a progress bar during saves and when you execute **Build Track From Export Structure** or **Export Tag**.
- BUG ID 34333 - Tags: Two new Viewer hotspots have been added, in addition to the current **sequence** and **frame**, allowing you to tag the current **track item** or the current **clip**.
- BUG ID 40071 - A new **Safe** mode has been added when launching Hiero from the command line (--safe, or -s). Launching in safe mode prevents Hiero loading any plug-ins, Export presets, and so on.
- BUG ID 43401 - The timeline right-click **Open In** menu now includes OS specific (Explorer, Finder, and so on) options to open the target in its location on disk.
- BUG ID 43844 - Opening a project containing custom tags on a different machine now imports the icons for the tags.
- BUG ID 43867 - Metadata: You can now pass custom key/value pair metadata in tags to **.nk** scripts.

Bug Fixes

- BUG ID 31663 - The **Edit Tag** dialog was not scalable and did not retain its layout state.
- BUG ID 33014 - Exporting multi-part R3D clips using the Copy Exporter only exported the first part, namely *_001.R3D.
- BUG ID 35541 - Project names containing dots were truncated when loaded.
- BUG ID 35727 - Hiero discarded the first character of the comments field in imported EDLs.
- BUG ID 37572 - Exporting freeze framed, or retimed to 0%, track items produced an error in the Nuke script.
- BUG ID 38622 - Monitor Out: Audio output from Hiero was very low compared to other applications.



WARNING: As a result of this audio fix, monitor output volume may be up to eight times louder than in previous releases. Please adjust the volume controls on your SDI out device before playing audio back.

- BUG ID 40344 - The interface was noticeably unresponsive when a project contained **.tmp** files or very high frame numbers.
- BUG ID 40394 - Audio latency adjustments were not applied to existing Viewers.
- BUG ID 40970 - Windows only: The default install location was not consistent with other The Foundry products. Hiero and HieroPlayer are now installed to **C:\Program Files** by default.
- BUG ID 41015 - Windows only: Render times increased significantly during playback when the playhead looped around to the beginning of the clip or sequence.
- BUG ID 41157 - Under certain conditions, Hiero was failing to detect plug-in paths specified by the PYTHONPATH environment variable.
- BUG ID 41447 - Decoding images containing a single channel caused Hiero to become unresponsive.
- BUG ID 41480 - Right-clicking in the bin view during thumbnail rendering was slow to respond.
- BUG ID 41508 - The Viewer **over** blending mode for 10-bit RGB files was incorrect.
- BUG ID 41539 - Playing back image sequences containing corrupt frames caused Hiero to crash.
- BUG ID 41568 - Attempting to create thumbnails for newly imported bin clips when the playback cache was full, displayed and 'Internal memory Error' on the clips.
- BUG ID 41606 - Audio was muted unnecessarily during video playback at the expected frame rate.
- BUG ID 41712 - Playing clips with different resolutions caused the frame rate to vary incorrectly.
- BUG ID 41923 - Decoding certain packed 10-bit **.dpx** files caused Hiero to crash.
- BUG ID 41981 - Mac OS X only: Using multiple Thunderbolt devices on new Mac Pros caused Hiero to crash.
- BUG ID 42163 - Linux Only: Significant texture tearing was occurring during playback.
- BUG ID 42175 - Playback was slowing down when the playhead reached the cut between one track item and the next.
- BUG ID 42247 - Tag metadata keys were renamed and became read-only after saving and re-opening a project.
- BUG ID 42408 - The **Preferences > Viewers > Playback Mode > Skip Frame** option did not play back at the correct frame rate when compared to **Play All Frames**.
- BUG ID 42433 - The **Cache > Clear Playback Cache** option left a single cached frame under the playhead.
- BUG ID 42638 - Monitor out: Playback occasionally paused during audio and video resynchronization.
- BUG ID 42688 - Caching was unpredictable during playback when switching between sequences containing different format sizes.
- BUG ID 42727 - The playback frame rate dropped slightly after playing back for protracted periods.
- BUG ID 42745 - Scrubbing past the last clip on a timeline multiple times caused the Viewer to freeze.
- BUG ID 42797 - Certain QuickTime files set as Reference Media did not playback all the available audio channels.
- BUG ID 42973 - The Copy Exporter failed for **.r3d** clips in a sequence when **Process as Shots** was selected in the **Export** dialog.

- BUG ID 43311 - Scrubbing the playhead in sequences with longer audio tracks than video tracks caused Hiero to become unresponsive.
- BUG ID 43759 - Reading in **.psd** files swapped parts of the image around in the Viewer when the file contained an alpha channel.
- BUG ID 43849 - It was not possible to access different tags used on the same frame from the Viewer.
- BUG ID 43850 - Metadata changes were not retained when an existing tag was copied and edited.
- BUG ID 43916 - Using the **Process as Sequence** exporter with **Nuke Project File** tasks always set the **Retime** method to **Blend** in the OFlow node controls.
- BUG ID 43921 - Playback occasionally stuttered when the playhead was moved around a particular long sequence containing 10-bit RGBA **.dpx** files.
- BUG ID 43964 - Opening the **Export** dialog for large selections was slow.
- BUG ID 44165 - Slipping a track item in a timeline did not update the Viewer overlays.
- BUG ID 44188 - When the Viewer cache was full, the playhead occasionally stalled after changing the Viewer proxy resolution for timelines containing clips at 720p or 4K resolutions.

Known Issues and Workarounds

This section deals with known issues with the application and any workarounds, where appropriate.

Format-Specific Issues

- BUG ID 39897 - Importing and playing back very large format **.tif** files causes Hiero to crash.
- BUG ID 35080 - QuickTime: Certain files read into Hiero with a different start timecode to other applications, such as Premiere or Resolve.
- BUG ID 31549 - Single layer exports from multi-pass clips fail if the selected layer is not a default Nuke layer, such as **depth** or **motion**.
- BUG ID 31424 - Sub-sampling in **.exr** files is not currently supported.
- BUG ID 18880 - R3D: The aspect ratio of anamorphic **.r3d** footage is not displayed correctly when added to the timeline.

Platform and Hardware Issues

Cross-Platform Issues

- BUG ID 26870 - Mac and Linux only: 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. The default limit of 1024 can be increased to workaround this issue using the terminal. For example, to increase the limit to 2048:

```
ulimit -Sn 2048
```

Run Hiero or HieroPlayer from the same terminal session to use the new limit, for that session only.

Mac OS X Only

- BUG ID 39113 - QuickTime: ProApps Codecs v1.0.3 break HDV and XDCAM on Mac OS X 10.7.5, and earlier.
This is a codec issue rather than an application issue.
- BUG ID 34779 - The shortcut for **Clear In/Out Points (Alt+U)** is not always triggered correctly due to a conflict with the combination for the umlaut symbol.
To work around this, press **U** momentarily before **Alt+U**.
- BUG ID 31107 - When running the application from the terminal, pressing **Ctrl+C** doesn't always close Hiero or HieroPlayer.
As a workaround, press **Ctrl+C** twice to exit.

Linux Only

- Hiero does not currently support any QuickTime audio. Support for audio on Linux is scheduled for a later release.
- BUG ID 32613 - Dragging clips to the timeline with certain older NVIDIA drivers occasionally causes Hiero and HieroPlayer to crash.
As a workaround, ensure that you have the latest NVIDIA drivers installed, available from:
www.nvidia.com/Download/index.aspx?lang=en-us
- BUG ID 22063 - Playback can be unreliable on the latest versions of the various Linux builds, such as Fedora 14 (or greater) and Centos 6.0. If you encounter this issue, run Hiero from the terminal with the following argument:
`./Hiero --single-threaded-playback`

Windows Only

- BUG ID 28701 - Hiero cannot currently parse unicode characters during export.

Hardware Issues

- BUG ID 24942 - Hiero and HieroPlayer do not support the NVIDIA Quadro 4500 FX and GeForce 7300 GT.

Python API Issues

- BUG ID 30532 - Adding a MediaSource to **TrackItem.setSource()** causes Hiero and HieroPlayer to become unstable.

SDI Monitor Output Issues

- BUG ID 37435 - Floating Window output is flipped in the A/B view mode.

- BUG ID 32191 - Blackmagic Extreme 2 cards are not supported and may cause Hiero to become unresponsive.
- BUG ID 28067 - Certain formats produce no monitor output, such as 2K 23.98 and 720P 25.

Timeline and Editing Issues

- BUG ID 29069 - Retiming **.mov** files containing missing (out of range) frames, produces unexpected results when sent to Nuke.
- BUG ID 27484 - It is not currently possible to alter the **Output Resolution** of clips opened using the right-click **Open in Timeline** option.

Miscellaneous Issues

- The **Preferences > Path substitution** table for cross platform compatibility currently only comes into effect at project load, not EDL/XML import.

As a workaround, import your sequence and set the **Path substitution** rule, then save the project and reload to force the conversion.

Developer Notes

Here are the changes relevant to Python developers and pipeline engineers.



NOTE: See **Help > Python Dev Guide** from the Hiero menu bar for more information on the Python API.

New Features

- A new **keys()** method has been added to retrieve keys from metadata DataCollection objects.
- Several new methods have been added to **hiero.ui** to trigger certain behavior:
 - `openInNewViewer`
 - `openInSpreadsheet`
 - `openInTimeline`
 - `openInViewer`
 - `sendToViewerA`
 - `sendToViewerB`

Feature Enhancements

- BUG ID 30991 - Drop events, **EventType.kDrop**, can now be registered and handled in the timeline view using **EventType.kTimeline**. For example:


```
from hiero.core import events
events.registerInterest((events.EventType.kDrop, events.EventType.kTimeline),
dropHandler)
def dropHandler(event):
    print "event.sender: " + str(event.sender) # The view sender which got the drop
    event
    print "event.items: " + str(event.items) # The items that were dropped
    print "event.time: " + str(event.time) # The time (x-position), where the mouse
    event was dropped
    print "event.track: " + str(event.track) # The track on which the event was dropped
```
- BUG ID 43616 - The search order for plug-ins has been reversed so that the shipped DDImage plug-ins directory in the **.exe** directory is added at the end rather than the beginning of the list of plug-in paths. This change allows you to override the shipped readers without having to modify the installation. So, the ordering is now:
 - `$HOME/.nuke` (or `$USERPROFILE` on Windows if the `$HOME` environment variable isn't set)
 - `$NUKE_PATH`
 - `.` (since we don't set **ddimage_program_name**)

- <application support/app data/Nuke/<version>/plugins> (and sub-directories)
- <exe path>/plugins

Bug Fixes

- BUG ID 40767 - Windows only: Calling **.image()** on the Viewer to return a QImage was unreliable.