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FLINT® 2008
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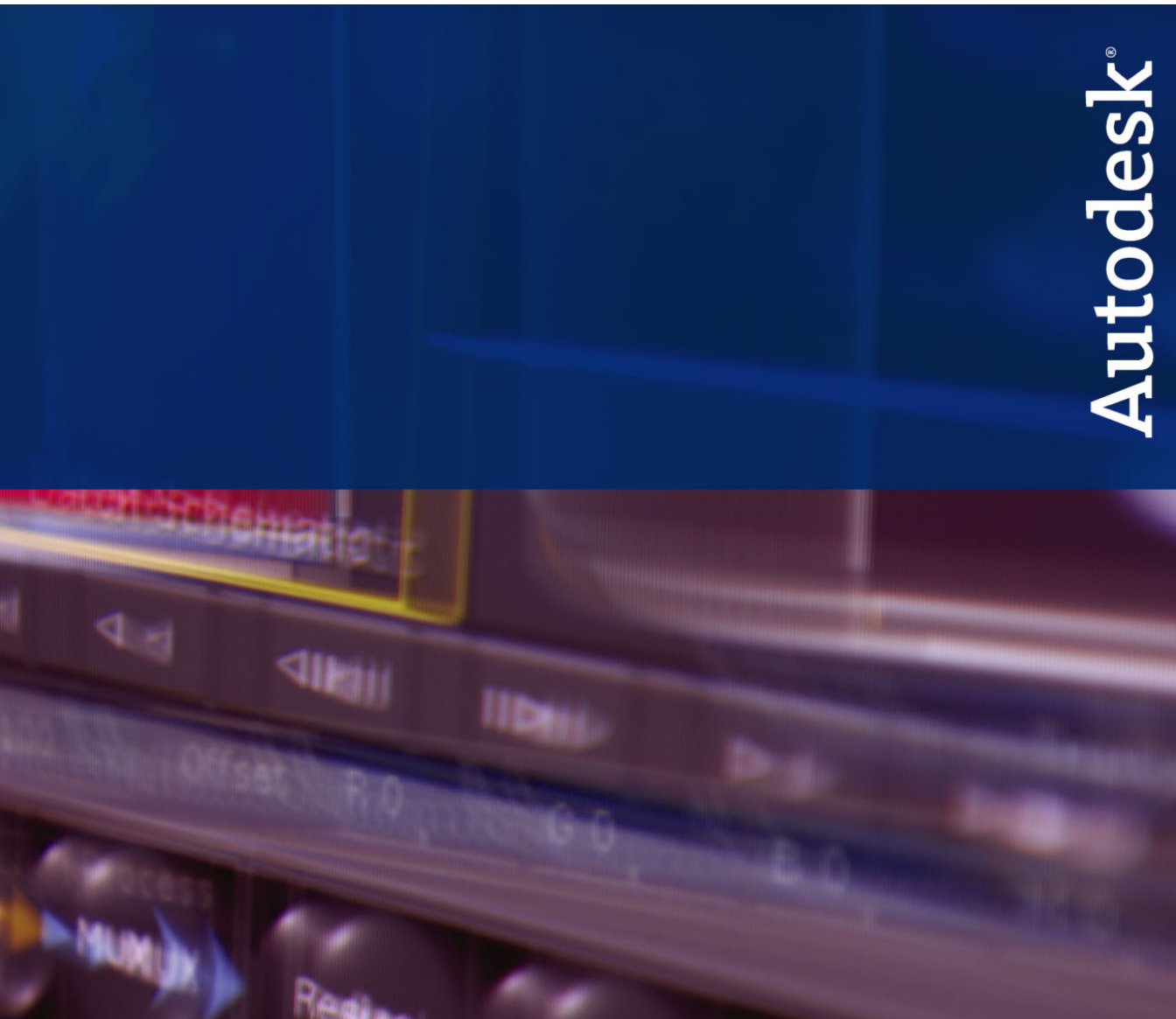
What's New



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Action

Many new features have been implemented in the Action module to help your workflow and improve the interoperability between Editing and Effects products.

The following list some of the highlights of the updated Action module.

- The new Object Node bin allows you to easily add objects to the scene.
- Object menus are tabbed to give you more control over changing settings of the elements in your scene.
- The DVE Layer Object is a new object providing similar functionality to the DVE layer from earlier versions of Editing products.
- You can now enter Action from a multitrack clip.
- You can now change Z-buffer and depth of field settings per source node. You can also choose to process certain effects before or after a source node.
- A new mode allows you to duplicate objects in your scene so that any settings that you apply to one object are applied automatically to the other.
- You can now import multiple 3D models into an animated sequence.
- New camera edit modes, such as dolly and tilt, have been added.
- The 3D tracker has been redesigned to offer a faster and more effective analysis to extract camera motion information from a live action shot. You have the choice of using the manual 3D tracker or the new auto tracker. With the auto tracker, you can export your tracking results to the *.fbx* format.
- You can now lock a shadow's transparency to the transparency of its parent surface using the Transparency Lock button in the Action Shadow menu.

For complete details, see the Action chapters, starting with the "Action: Basics" chapter.

Animation

The Animation menu has been standardized across all Editing and Effects products, allowing you to more easily orient yourself between applications. See the "Animation" chapter.

Audio Features

Flint now supports a variety of new and expanded audio features:

- Soft effects that can be applied to audio segments in the timeline. These include: Modulation, Delay, Reverb, Gain, EQ, Compression, Noise Gate, and Audio Timewarp. You can apply these effects on the fly.
- The EQ, Compression, and Noise Gate soft effects can be adjusted through graphical displays.
- Audio soft effects are real-time effects so you can, for example, edit, create, and mute them while playing them in real time. For more information, see "Working with Audio in the Timeline" in the "Audio" chapter.
- In the AudioDesk, you can adjust Gain, Pan, Mute, Phase Shift, and Solo settings for up to 32 individual input strips, and you can adjust the output Gain and Limiting for up to 8 output strips.
- In the new Auxiliary Effects Desk, you can adjust global settings for the Modulation, Delay, and Reverb auxiliary effects.
- Dolby E encoded tracks are now supported.
- You can now import audio and export audio from the Library menu.
- In Batch, you can now use the same enhanced tools in the Audio menu and in the Batch timeline to work with audio.

See the "Audio" chapter.

Batch

The following changes now apply in Batch.

Floating-Point Image Support

Floating-point images in the OpenEXR file format can be added to a Batch processing tree. Some nodes can be connected immediately downstream of a clip, while others must first be attached to a LUT Editor node to convert it to an integer image. See "OpenEXR Image Files".

Defining Missing Media

You can define how missing media in a clip is processed by a node. In the Basic menu, the Tail Media, Gap Media, and Head Media options determine how missing media is processed at the beginning, middle, and end of a clip, respectively.

See "Defining Missing Media Output" in the "Batch Processing" chapter and "Managing Missing Media Output" in the"Batch: Node Reference" chapter.

There are nodes that exhibit special behaviours for No Media clips. See the "Batch: Node Reference" chapter.

Breaking and Attaching Connections

You can now combine the operation of breaking a connection to a node and attaching a connection from the same source node or clip to a new input. See "Connecting Clips and Nodes" in the "Batch Processing" chapter.

Renamed Batch Nodes

The following nodes have been renamed.

Old Node Name	New Node Name
Reels	Desk
Film Compress	Remove Pulldown
Film Expand	Add Pulldown

Colour Curves Node

You can now save and load Colour Curves setups directly in Batch. See "Colour Curves Node" in the "Batch: Node Reference" chapter.

Logic Op Node

The Mix node has been removed and its features have been incorporated into Blend, Add, and Add Inverse options of the Logic Op node. See "Logic Op Node" in the "Batch: Node Reference" chapter.

LUT Editor Node

You can now convert an OpenEXR image using EXR Display in the LUT Editor node. See "LUT Editor Node" in the "Batch: Node Reference" chapter.

Motion Analysis Node

The Motion Analysis node is used to analyse image displacement in a frame with respect to the frame before it. From this node, forward and backward motion data can be input into the Vector Viewer node or Motion Blur node.

See "Motion Analysis Node" in the "Batch: Node Reference" chapter and "Motion Estimation Using Batch Nodes" in the "Timewarps" chapter.

Motion Blur Node

The Motion Blur node is used to create a motion-estimated motion blur. You can also create a timewarp, or select a point of reference in a clip and create a motion blur that is relative to the displacement of a selected reference point in the frame. See “Motion Blur Node” in the “Batch: Node Reference” chapter and “Motion Estimation Using Batch Nodes” in the “Timewarps” chapter.

Paint Node

The Paint node has simplified the painting process in Batch. You now input a single front and matte layer, which are output as a result and matte output layer. You can paint on the result and output matte using paint operations such as Clone and Blur. Batch Paint also allows you to connect multiple sources and use them to paint the contents of source images onto the result using the Reveal operation. See the “Batch Paint” chapter.

Segment FX Node

You can now edit a segment’s LUT and Resize settings. See “Segment FX Node” in the “Batch: Node Reference” chapter.

Vector Viewer Node

The Vector Viewer node displays motion analysis data as motion vectors. You can view forward and backward motion vectors, and customize the colour and size of the vectors to make them easier to view. The arrow length indicates displacement, and the size of the arrowhead indicates the relative speed of the motion. See “Vector Viewer Node” in the “Batch: Node Reference” chapter and “Motion Estimation Using Batch Nodes” in the “Timewarps” chapter.

Batch Timeline Editing

The following features are now supported when editing with the Batch timeline. Some features enhance editing with the Batch timeline; others improve clip interoperability between Effects and Editing products.

Accessing the Batch Timeline

The method for accessing the Batch timeline has changed slightly. To accommodate new features, many of the buttons in the Batch timeline menu have been reorganized. See “Accessing the Timeline” in the “Navigating the Timeline” chapter.

Managing Time in Batch

When editing with the Batch timeline, you have the option of working with Batch timecode or with a clip's record timecode. Working with Batch timecode is useful when multiple clips of different origins are used in Batch. Working with a clip's record timecode is useful when clips from the same timeline are used in Batch.

You can also offset the starting frame of a clip using the Offset field. This feature replaces the Slip field in the Basic menu.

See "Setting the Starting Frame in Batch" in the "Navigating the Timeline" chapter.

Editing with Source and Record Clips

It is now easier to edit with source and record clips in Batch. When editing part of a source clip into a record clip, the current time position of the source clip serves as an implicit in point. To help keep track of the frames you want to edit, you can display the source clip and the record clip in the viewports as you edit.

See "Setting Record and Source Clips" in the "Editing to the Batch Timeline" chapter.

Managing Edited Clips

When editing clips in Batch, you now have the option of automatically saving the modified clip to the desktop or to the _Edited library. Saving to the desktop is more convenient if you plan to continue editing the clip.

See "Managing Edited Clips in Batch" in the "Managing Timeline Media"chapter.

Multi-track Timelines

The Batch timeline now supports multiple video tracks and up to 32 audio tracks. Having multiple video tracks on the same timeline is useful if you need quick access to different versions of your work.

See "Track Basics" in "Navigating the Timeline" chapter and "Working with Audio in the Timeline" in the "Audio" chapter.

Multi-layer Timelines

The Batch timeline now supports multiple layers for vertical editing. You can either add layers to a track or load a clip that contains multiple layers. If you load a multi-layer clip from an Editing product, any compositing done between the timeline layers is preserved. You can edit the layers that make up the composite and then send the modified clip back to the Editing product.

See "Creating Layers" in the "Vertical Editing" chapter.

Containers

The Batch timeline now supports containers. Containers are a way of grouping elements from different layers or tracks into one unit. You can edit layers as one unit or enter the Container Editor to edit the individual layers.

See "Working with Containers" in the "Vertical Editing" chapter.

Creating Soft Effects on the Batch Timeline

All soft effects created in Autodesk® Editing products are now supported on the Batch timeline. In addition, you can create Resize, Blend, and Timewarp soft effects directly on the Batch timeline. Soft effects are similar to segment effects in that they are applied to the timeline. Whereas segment effects can only be created on an individual clip's timeline, soft effects can be created directly on the main Batch timeline as well as on an individual clip's timeline.

Soft effects from Editing products can be copied to other segments, rendered, deleted, and temporarily turned off. Resize, Blend, and Timewarp soft effects can also be edited.

See the "Batch Timeline Effects" chapter.

Gaps

The Batch timeline now supports transparent gaps. With transparent gaps, you can perform vertical editing, for example, to see through one empty layer to another. You can also create gap effects such as Resize and Blend, or load a clip with a gap effect from an Editing product.

See "Controlling the Transparency of Gaps" in the "Vertical Editing" chapter.

Viewing Segment Effects in Context

When creating segment effects, you now have additional context views in which to work. You can display the result of the current timeline's segment effect in context of all segments effects further up in the pipeline. You can also display the result of the current timeline's segment effect in context of all segment effects in the pipeline.

See "Viewing Segment Effects in Context" in the "Batch Timeline Effects" chapter.

Processing

The following processing features are now supported in Flint:

- You can now process segments effects from the desktop without going back into Batch.
- You can now process to Burn™ from the Batch timeline. This option is useful if you have many segment effects to process.

See "Processing Timeline Effects" in the "Processing and Publishing" chapter.

Searching for Timeline Elements

You can now use Filter Select options to find specific video or audio elements on the timeline. You can refine your search if you are searching specifically on segments.

See "Searching for Timeline Elements" in the "Navigating the Timeline" chapter.

Timeline: Partial Rendering

You can now render selected frames of a video segment on the timeline instead of the entire segment. When you later render the timeline, any frames already rendered are not rendered again. Frames viewed while in Preview Fx mode are now cached.

See "Partial Rendering of the Timeline" in the "Managing Timeline Media" chapter.

Snapping to Timeline Elements

When you insert edits on the Batch timeline gesturally, you now have more control of where your edits will go. New Snap options allow you to snap to in or out points or to the closest element.

You can also display a phantom of the segment as a preview of where your edit will be placed when moving segments on the same track. The phantom segment appears in all Snap modes including when Snap is off.

See "Setting Snap Options" and "Previewing the Placement of Shots on the Timeline" in the "Editing to the Batch Timeline" chapter.

Swapping Timeline Elements

You can now swap elements on the Batch timeline using hot keys instead of moving them gesturally. If the elements contain timeline effects, they are swapped as well.

See "Swapping Batch Timeline Elements" in the "Navigating the Timeline" chapter.

Clip History

The following changes in clip history now apply to Flint .

- Fire® and Smoke® support clips created with the desktop Action module in Inferno®, Flint®, and Flame®.
- Inferno, Flint, and Flame support clips created with the DVE module in Fire and Smoke.
- In Fire and Smoke, you can view the icons of modules downstream of an ineditable module for a clip created Inferno, Flint and Flame.

See “About Clip History” and “Compatibility between Autodesk Products” in the “Clip History” chapter.

Clip Input and Output

The 2007 release of Flint included important improvements to multi-format input/output. These included sync detection and the ability to change preview timing and switch VTRs during a work session. The 2008 release extends these enhancements. See “Working with Multi-Format Input and Output” in the “Clip Input/Output Using a VTR” chapter.

The controls for adjusting audio gain during input have been removed. This is because you can now manipulate audio after capture using the many new audio features in this release. See the “Audio” chapter.

The documentation has been modifed to better explain the principles behind capturing with headroom and conserving super black and super white values. See “Inputting and Outputting with Headroom” in the “Clip Input/Output Using a VTR” chapter.

Clip Library: Processing Segment Effects

When you process clips from the clip library, unprocessed segment effects will also be processed. When you are in the clip library, you can process clips from the Rendering Tools menu, which you access from the Tools menu.

Desktop

Display options for reels are now available on the desktop, including direction, clip spacing, and number of reels. See “Setting Display Options for Reels” in “The Desktop” chapter.

You can now add notes to clips on the desktop. See “Adding Notes to Clips”in “The Desktop” chapter.

EDL Support

The following changes in EDL support apply to Flint:

- You can now assemble multiple EDLs in Flint. See the “Importing EDL Files” chapter.
- You can now import AAF and FCP XML files. See the “Importing AAF Files” chapter and the “Importing Final Cut Pro XML” chapter.

Hot Keys

The following hot keys are new when working with record and source clips in the Batch timeline:

- Press **F7** to display Source view.
- Press **F8** to display Record view.
- Press **ALT+SHIFT+1** to display C:Main level.
- Press **ALT+SHIFT+2** to display C:Level-up view.

A new hot key combination has been created for zooming in and out of viewports. The hot key combination is **CTRL+SPACEBAR**.

NOTE: In the Text module, this new zoom hot key replaces the pan hot key. The new hot key for panning in Text is **CTRL+SHIFT+SPACEBAR**. In a module's animation view, the new zoom hot key replaces the **ALT** hot key.

The following general hot keys have been modified:

- The hot key for accessing the message history has been changed from **F7** to **CTRL+ALT+F7**.
- The hot key for accessing the Hot Key Editor has been changed from **F8** to **CTRL+ALT+F8**.

Import/Export Media Features

Flint now supports a number of new import and export features for media files:

- Import and export of floating-point OpenEXR images is now supported.
- The import options for DPX files have been improved.
- There are now reorganized chapters for Importing Media Files and Exporting Media Files, which makes it easier to find the information you need.

See the "Importing Media Files" chapter and the "Exporting Media Files" chapter.

Managing Hot Keys

In the Hot Key Editor you can now select what type of keyboard you are using to take advantage of extra keys on certain keyboards. See "Selecting Your Keyboard Type" in the "Managing Hot Keys" chapter.

Managing Projects and Users

Flint HD and Smoke HD now support 12-bit data.

You can now access projects on remote framestore from all Editing and Effects applications. Previously, you could only do this with Backdraft® Conform. See "Working with Remote Framestores" in the "Managing Projects and Users" chapter.

Clips are now compatible between Editing and Effects applications. You can open and render clips created in any Editing or Effects application. You can see the result of all effects and edits in the clips as they were created in the source application.

However, to edit a clip, the effect or edit used to create the clip must be available in the application you are working in. Otherwise, you can only edit the clip in the Editing or Effects application that created it.

Mix Node Operations Moved to the Logic Ops Module

The Mix Node has been removed. The Non Additive and Inverse Non Additive operations are now available from the Logic Ops module.

You can open Mix Node setups in Logic Ops node. Mix setups are mapped to the following logical operations:

The Mix Node operation:	Is mapped to the following logical operation:
Additive	Blend
Non Additive	Non Additive
Inverse Non Additive	Inverse Non Additive

The Progressive/Interlace parameter is ignored and the Mix percentage value is mapped to the transparency value in Logic Ops.

Online Help and Documentation

Online help and documentation is now available right from the Desktop. See "Accessing Online Help and Documentation" in the "Getting Started" chapter.

OpenEXR Image Files

Flint supports the OpenEXR file format. This file format can store 16 or 32-bit floating-point image data; all OpenEXR files are converted to 16 bits when stored on the framestore. Advantages of the OpenEXR format include a high dynamic range, high-quality colour resolution and portability.

From the desktop or Batch, you can convert OpenEXR files using the LUT Editor. You can alter image channel values; however, you cannot alter the original file.

You can convert the output of an OpenEXR image to an integer image with a bit depth of 8, 10, or 12 bits. You still have the option of exporting to a new 16-bit floating point image.

See "Converting an OpenEXR Image in the LUT Editor" in the "Colour Management with LUTs" chapter.

OpenEXR-formatted clips can be loaded from the desktop or imported from the library into Batch. See "Using OpenEXR Images in Batch" in the "Batch Processing" chapter.

Operations Supporting OpenEXR

The following modules and operations support OpenEXR images:

- Add Pulldown
- Archive
- Batch (see "Using OpenEXR Images in Batch" in the "Batch Processing" chapter.)
- Change TC/KC/Rate
- Deal
- Deinterlace
- Dominance
- Export Image
- Extract Proxies
- Field Merge
- Import Image
- Interlace
- Interleave
- LUT
- Output
- Regenerate Proxies
- Remove Pulldown
- Resize
- Sparks® (if the selected spark allows support of OpenEXR images)

Editing Operations Supporting OpenEXR

OpenEXR-formatted clips can be edited on the timeline. Three types of soft effects are supported when using OpenEXR-formatted clips: Resize, Blend and Timewarp.

The following Edit menu operations can be performed on OpenEXR-formatted clips.

- Commit
- Consolidate
- Cut
- Dissolve
- Force Render
- Insert
- Match Source
- Repeat
- Replace
- Splice
- Swap Shot
- Timewarp

Nodes Supporting OpenEXR Images

The following Batch nodes support floating point data, allowing you to connect an OpenEXR image stored at 16 bits to the node directly:

- Add Pulldown
- Deal
- Deinterlace
- Export
- Field Merge
- Import
- Interlace
- LUT Editor
- Motion Analysis
- Motion Blur
- MUX
- Output
- Remove Pulldown
- Resize

- Spark (if the selected spark allows support of OpenEXR images)
- Vector Viewer

Preferences

The Preferences menu has been redesigned to group common preferences in tabbed sections. You can access the Preferences menu by clicking Preferences on the desktop or by using the new hot key **Ctrl+Alt+F6** from anywhere in the application. See the "Setting Preferences" chapter.

Stabilizer

When you access the 2D Tracker or Stabilizer from Action, you can now track on the result from Action by enabling the Context button. See "Stabilizing a Clip from Action" in the "Tracking and Stabilizing" chapter.

Starting Flint

The start-up process across all Editing and Effects applications is now the same. See the "Command Line Start-up and Exit Options" chapter.

Timeline in Player Module

You can now view a clip's timeline in the Player module. The EditReel option has been removed. Timeline controls are available in the Preferences menu.

See "Playing Clips in the Player" in the "Player Essentials" chapter. See also the "Navigating the Timeline" chapter.

Tooltips

Tooltips display the keyboard shortcut and a brief description for objects (like buttons) on the user interface. They are now available in the following modules:

- Action
- Audio
- Batch
- Batch Paint
- Clip Library
- Clip History

- Desktop
- EDLs
- Export Media Files
- Import Media Files
- Player
- Timeline

You can set tooltip display options in the Preferences menu. See “Tooltips Preferences” in the “Setting Preferences”chapter .

Widescreen Menus

Many of the menus in the application have been redesigned to take advantage of 16:9 monitors. As a result, buttons have been repositioned to make better use of the screen size and improve the access to commands.

Infrastructure

This section contains a list of new infrastructure features for this release.

Standard Filesystem Support

Standard filesystem support provides the option to store the media created and managed by any Effects and Editing application on a standard UNIX-compatible filesystem. This capability is transparent to the artist, as the clip libraries workflow and procedures remain unchanged. Clip libraries and the clips they contain can be manipulated in exactly the same manner, whether they are referencing media stored on a Stone® FS or a standard FS.

As opposed to the Stone FS proprietary filesystem, which provides guaranteed performance for real-time operations such as Video I/O, a standard FS is by definition open and therefore ideal to enable shared media access to several creative applications without needing to transfer and replicate media files. Standard FS support also allows Effects and Editing applications to access third-party storage infrastructure, such as SAN, NAS, or Direct attached RAID arrays, as their main media storage volume.

Highlights

- Supported UNIX-compatible filesystems can be used for media storage in the same capacity as a Stone FS.
- There are no operational changes to the Effects and Editing applications. From the artist's perspective, standard FS support is transparent and identical to the existing Stone FS based workflow.
- When stored on a standard FS volume, all clip material in a project, such as managed sources, intermediates, and proxies, can be stored in any one of the supported standard file formats, including DPX and RAW. The preferred file format is user defineable for each standard FS volume.
- Stone FS and standard FS partitions can co-exist on a workstation and can be mounted simultaneously.
- Multiple workstations and applications can connect to a shared storage volume (usually a SAN) and share media.
- Shared volume configurations obtain significant workflow improvements, saving time on publish and soft-import operations and avoiding needless media replication.

Volume Integrity Check (VIC) Performance Improvements

Major VIC performance improvements can be seen on a Stone FS volume. Even more dramatic is the performance improvement of the VIC over-soft imported media. This is due to a complete redesign of the soft-import links mechanism.

NOTE: The redesign or the soft-import link mechanism breaks backward compatibility for soft-imported media created on previous versions of Effects and Editing applications. Such soft-imported media will have to be reimported or restored from archives before being available to the 2008 version of the applications. Consult the Release Notes for your product for details and guidelines on preparing soft-imported media for the upgrade to 2008.

Wiretap SDK Version 2008.1

This release also includes an update to the Wiretap™ SDK version 2008.1, which introduces the following new features:

Support for Floating Point Images

Now that Effects and Editing applications work natively with floating point images, the Wiretap server serves up and accepts raw float and half-float media. New format tags (available through WiretapClipFormat) have been added.

Ability to Access All Project and User Metadata

New samples (copyProject.cpp and copyUser.cpp) have been created to show how to access all ASCII and binary user preferences and project setup files, along with existing project and user metadata. Wiretap clients can now copy or move projects and users between stations using the new Wiretap Stream API.

Wiretap Web Now Part of the SDK

The Wiretap Web Server will be bundled with the SDK as of the 2008 release. It will also still exist as a separate RPM package.

NOTE: The Wiretap SDK is available at no cost for in-house development and under a special license for third-party development organization. Contact your sales representative for information.

New Wiretap SDK 2008 Documentation

The Wiretap SDK documentation has been updated and now features the following improvements:

- Complete structure change of the guide making it easier for new developers to get started and for advanced developers to find what they want. The guide has much more content than the previous version.
- Improved diagrams
- Full XML metadata tag descriptions, especially for project and user metadata
- Full description of the Stone video frame formats including 12-bit packed/compressed frames
- Improved documentation in the sample code, aligned with terminology in the guide
- Fully functional Microsoft® Visual Studio sample project
- C++ Command-line build parameters for all platforms
- Complete and up-to-date Doxygen-generated HTML reference guide