Final Cut Studio

Product Overview
July 2009

Contents

Quick Look at the New Final Cut Studio

Better. Faster. And even more affordable.

The world of Final Cut continues to grow at a phenomenal rate, with more than 1.3 million paid users and more than 200 partners offering compatible plug-ins, control surfaces, I/O devices, and integrated systems. In fact, a recent study identifies Apple as the market leader for post-production, with 50 percent of broadcast and post NLE purchases in 2008.[1]

Building on this strength, Apple has designed the new Final Cut Studio to offer powerful new features, a wide range of enhancements requested by the worldwide community, and dramatically improved performance—at a price that is more affordable than ever.

What's New in Final Cut Studio

Apple's industry-leading post-production suite now includes significant upgrades to Final Cut Pro, Motion, and Soundtrack Pro, and updated versions of Color and Compressor. It also includes DVD Studio Pro, the industry standard for DVD authoring.

Final Cut Pro 7
The leading nonlinear editor now includes a wide range of features designed to make editing even more efficient. Top new features include:

• **Expanded ProRes family.** You can edit faster and at higher quality across a wide variety of workflows with three new ProRes versions. Choose ProRes 422 (Proxy) for offline editing; ProRes 422 (LT) for projects that require reduced file sizes at broadcast quality, such as news, sports, and events; and ProRes 4444 for compositing and digital workflows that require the highest-possible quality.

• **Easy export.** Use the new Share window in Final Cut Pro or Motion for single-click delivery to your Apple devices, the web, a Blu-ray disc, or a DVD. Choose your output format from the Share window, then keep working while your projects are rendered, compressed, and even published to the web in the background.

• **iChat Theater support.** Now you can work with clients or colleagues in real time from anywhere in the world. Just output your Final Cut Pro video to iChat Theater. You can instantly switch the iChat view between clips and sequences as you talk, and turn on a timecode overlay to help identify specific frames.[2]

• **New speed change tools.** Change clip speeds with ease from the redesigned Change Speed window, which includes presets that ease in and ease out retimed clips. A new option lets you make speed changes without rippling the sequence. You can also create constant or variable speed changes right in the Timeline.

Motion 4

Motion includes real-time 2D and 3D graphics compositing, with drag-and-drop behaviors that make animation easy. Top new features include:

- **3D shadows and reflections.** Motion 4 makes it easy to add realism to your project, with dramatic shadows and dazzling reflections that respond naturally as objects and lights move through 3D space. Activate a shadow or reflection with a click, then adjust color, softness, opacity, and more.

- **Depth of field.** Motion 4 lets you call attention to objects in 3D space by defining a range of focus, with an interface that illustrates the near and far focus planes as well as the point of focus. Add a Focus camera behavior to bring a single object into focus, or create a rack focus effect by using multiple Focus camera behaviors.

- **New text and titling tools.** Use the new Adjust Glyph tool to distort a single character, then apply the redesigned Sequence Text behavior to animate the distortion through all the characters in a word or sentence. Animate credit rolls automatically by importing text and applying the new Scroll Text behavior.

Soundtrack Pro 3

Soundtrack Pro makes it easy to edit and mix sound for picture, with point-and-click tools and seamless round-tripping with Final Cut Pro. Top new features include:

- **Voice-level match.** The new Voice Level option in the Lift and Stamp tools lets you instantly match dialogue levels across your project. Just click a clip to "lift" the volume of the dialogue, then click again to "stamp" the level on other clips in the Timeline.

- **Enhanced audio file editor.** The File Editor now lets you use a simple drag-and-drop interface to add, remove, and reorder channels—ideal for working with multichannel field recordings. In the Frequency Spectrum view, you can adjust the amplitude of frequency selections as well as cut, copy, and paste them.

- **Advanced time stretch.** You can stretch and compress audio with unprecedented precision using three Apple time-stretch algorithms and popular third-party plug-ins (sold separately). Native support for Serato Pitch 'n Time, iZotope Radius, and SoundToys Speed lets you seamlessly switch algorithms as you work.

Color 1.5

Color lets you enhance a single scene or create a distinctive look for an entire sequence, all with seamless round-trip ease. Top new features include:

- **Support for 4K files.** Color 1.5 allows you to grade and render at maximum quality, with a workflow that supports native 4K files from cameras such as the RED ONE. Output directly to ProRes 4444 for HD delivery or render DPX or Cineon files for digital cinema mastering or film outs.

- **Affordable options for hardware control.** Work quickly and efficiently when you're grading hundreds of shots. In addition to support for high-end controllers from JLCooper and Tangent Devices, Color now supports a new generation of affordable control surfaces, including the Tangent Devices Wave and the Euphonix MC Color.

Compressor 3.5

Compressor works in the background to encode files to a wide variety of formats, all at pristine quality. Top new features include:

- **Job actions.** Use the new Job Action feature to have Compressor open a file, publish it to the web, or send it to your iTunes library. You can also use job actions to burn a Blu-ray disc[3] or a DVD, or even trigger Automator workflows.

- **Batch templates.** New batch templates let you automate end-to-end encoding workflows using any combination of settings and destinations, as well as a job action.
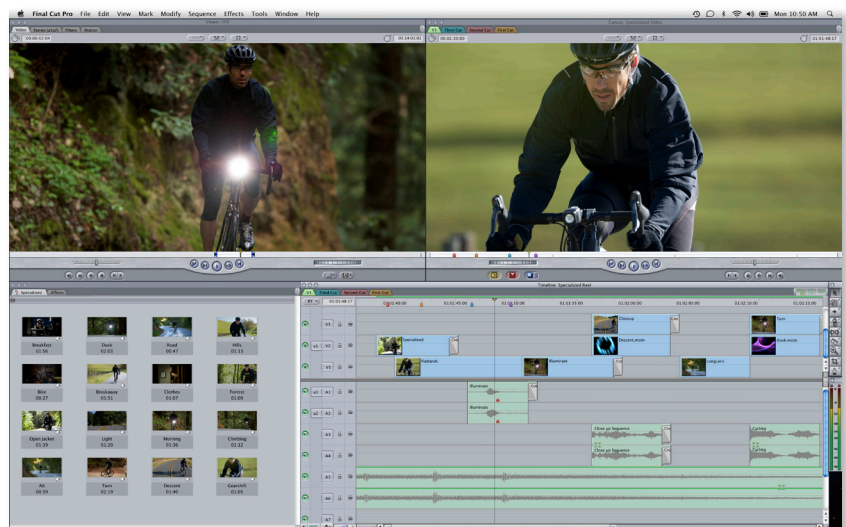
Final Cut Pro 7

The first choice of professional editors, Final Cut Pro delivers high-performance non-linear editing, with native support for virtually any video format. Its workflow extends through the other Final Cut Studio applications as well as Final Cut Server, which is used by post-production workgroups for asset management and workflow automation.

Whether you're working solo or collaborating with a team, Final Cut Pro 7 gives you more creative options and technical control than ever before. It streamlines editing with a range of interface improvements, single-click encoding and delivery, and built-in collaboration options. In addition, the Apple ProRes family now includes five versions of the codec, so you can work efficiently at just the level of quality you need—ranging from rough-cut proxy editing in the field to compositing 4:4:4:4 in the studio.

Key features of Final Cut Pro 7 include:

• Expanded ProRes family
• Broad format support
• Seamless collaboration
• Comprehensive editing tools
• Incredible effects and transitions
• Open, extensible architecture
• Digital cinema workflows

New in Final Cut Pro 7

Final Cut Pro 7 lets you do more—and do it faster—with new versions of Apple ProRes, time-saving interface improvements, and easy collaboration tools. Top new features include:

Expanded ProRes family
There are three new versions of the ProRes codec: ProRes 422 (Proxy) for offline editing; ProRes 422 (LT) for projects that require reduced file sizes at broadcast quality, such as news, sports, and events; and ProRes 4444 for compositing and digital workflows that require the highest-possible image fidelity. For more information, see page 9.

Easy export
Delivery to your Apple devices, the web, and disc is just a click away. Choose your output format in the Share window, then keep working while your projects are rendered, compressed, and even published to the web in the background. For more information, see page 14.

iChat Theater support
Now you can work with clients or collaborators as if they were in the room with you—in real time, from anywhere in the world.[2] For more information, see page 11.

New speed change tools
Change clip speeds with ease in the redesigned Change Speed window. You can also now create constant or variable speed changes right in the Timeline. For more information, see page 15.

Alpha transitions
It's now easier than ever to create dramatic transitions with moving mattes. For more information, see page 15.

Improved markers
Final Cut Pro 7 offers flexible new ways to work with markers, including color coding, custom naming, and more. For more information, see page 12.

Automatic transfer
When you're working under deadline, every second counts. Final Cut Pro now saves you setup time when you transfer clips from a wide range of file-based cameras including Panasonic P2 and Sony XDCAM EX. For more information, see page 10.

Native AVC-Intra support
Final Cut Pro 7 makes it easy to work with the latest high-quality cameras from Panasonic. Native support for the AVC-Intra format means you can ingest footage directly into Final Cut Pro at high speeds—without transcoding. Work with real-time effects and edit with multiple streams, thanks to ultrafast decoding of both 50-Mbps and 100-Mbps formats.

New timecode window

Now you can see the timecode up close or from across the room. The floating, resizable window is easily visible when you're working with clients and can be quickly adjusted for your own logging and note-taking.

Closed captioning support

Final Cut Pro 7 offers expanded support for closed captioning—including both Line 21 for SD and VANC for HD video. You can preserve captioning data when you capture tape sources, and use popular third-party captioning software to create new captions as needed. New options let you output video with captioning to tape as well as to formats for web playback.

Improved tabs

Tabs in Final Cut Pro 7 are even more flexible and convenient to use—which is particularly helpful for editors working on large projects. For more information, see page 12.

Background exporting

Now you can keep editing in Final Cut Pro while using Compressor to render, export, and publish in the background—whether you choose a template in the new Share window or use the Send to Compressor option in the File menu. To render in the background at maximum speed, use the Apple Qmaster QuickCluster feature.

Global transitions

Save time by applying a single transition to multiple cut points in one step. Just select a range—either a set of clips or the entire sequence—then add a transition. Final Cut Pro automatically inserts the effect at every cut point and resizes the transitions to use available media. Easily substitute different transitions until you get just the look you want.

Multi-Touch gesture support

Work quickly when you're on the set or on the road by using the Multi-Touch trackpad on your MacBook Pro. Navigate faster with gestures: Pinch to zoom horizontally within the Timeline; rotate to scrub the Timeline, Viewer, or Canvas; and use a three-finger swipe to advance the playhead across edit points.

Cinema Tools 4.5

Streamline your digital cinema workflows with the improved film management features in Cinema Tools 4.5, an application included in Final Cut Studio. Create new databases simply by dragging files into Cinema Tools, and produce change lists with ease using XML files. For more information, see page 18.

Improved render management

Render management enhancements reduce the need to re-render as you trim clips, move media, and perform a wide range of other functions. This means you can work more efficiently as you experiment with creative options.

Faster media reconnecting for workgroups

Final Cut Pro now uses the Spotlight engine to speed up media searches. The increased speed produces significantly faster media reconnecting as well as better media management for an entire workgroup using a high-speed network such as Xsan.

Markers in multicam
You can now prepare multicam projects faster thanks to new support for markers. Retain markers on multiclips when you switch angles, and add marker notes to make multicam projects more efficient when you're working with multiple editors.

Comprehensive matchframe and reveal options
New matchframe and reveal options make it easy to find original frames or source files that are used in a sequence. For more information, see page 13.

Display SD safe title area inside HD
If you're working in HD but need to deliver in SD, it can be challenging to position titles and graphics. Now you can display tick marks that show where graphics will be cut off on standard-definition displays based on the broadcast-safe title area.
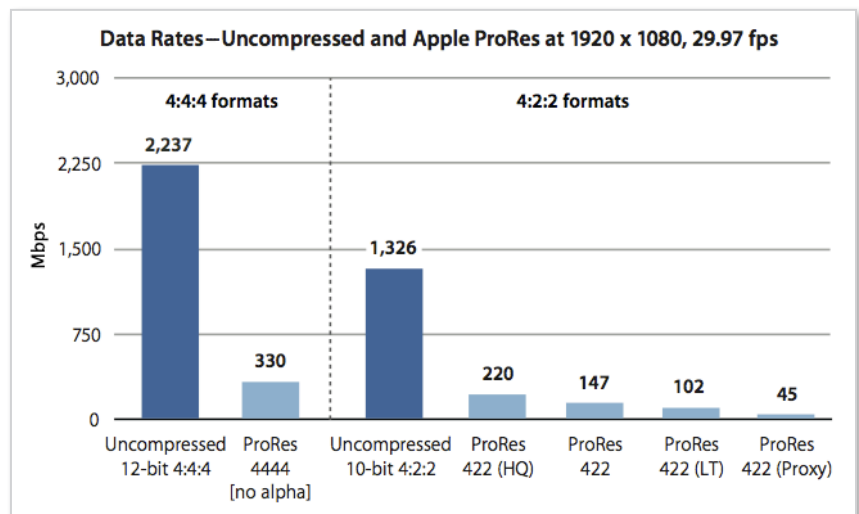
Expanded ProRes Family

Whether you're cutting dailies in the field or finishing at cinema quality in the studio, an expanded ProRes family—including three new versions—lets you work quickly and creatively with surprisingly efficient file sizes.

Three new versions of the Apple ProRes codec join ProRes 422 and ProRes 422 (HQ), which have gained wide acceptance in the professional marketplace by offering the quality of HD at SD file sizes. These additions to the ProRes family expand the range of workflows that can take advantage of the codec.

The new ProRes versions include:

• **ProRes 422 (Proxy).** For craft editing or offline editing on a MacBook or MacBook Pro.

• **ProRes 422 (LT).** For projects such as news, sports, and multicam events that require reduced file sizes at broadcast quality.

• **ProRes 4444.** For compositing and digital workflows that require the highest-possible image fidelity.

All five versions of the ProRes codec share the same fundamental attributes. ProRes uses variable bit rate (VBR) encoding to minimize file sizes for storage efficiency. It also optimizes decoding to offer multistream, real-time editing performance and preserves the original frame width of SD, HD, and 2K source video, so you won't have to reposition or resize graphics in a finishing workflow.

Data Rates—Uncompressed and Apple ProRes at 1920 x 1080, 29.97 fps

Format	Mbps
Uncompressed 12-bit 4:4:4	2,237
ProRes 4444 [no alpha]	330
Uncompressed 10-bit 4:2:2	1,326
ProRes 422 (HQ)	220
ProRes 422	147
ProRes 422 (LT)	102
ProRes 422 (Proxy)	45

Broad Format Support

Final Cut Pro 7 lets you edit virtually anything with the highest-possible quality, including camera-native editing of a wide range of leading SD, HD, and 2K formats. Now with expanded support for file-based formats and even more ProRes options, Final Cut Pro offers maximum flexibility for post-production workflows.

Superior editing for file-based formats
Final Cut Pro 7 makes it easy to work with the latest file-based devices. Use the Log and Transfer function in Final Cut Pro to ingest Panasonic AVC-Intra and DVCPRO HD from P2 cards, Sony XDCAM EX, and AVCHD. Or use Sony's free XDCAM Transfer software to ingest XDCAM, 18-, 25-, and 35-Mbps XDCAM HD, and XDCAM HD 422 media.

Preview shots before you bring them in, add in- and out-points, and set up custom metadata before you transfer files to save time. You can automatically ingest media files in the background at high speeds while you continue to edit or preview other material.

Open format Timeline
The open format Timeline in Final Cut Pro 7 lets you mix and match source material in a wide range of formats and even different frame rates. Freely edit a combination of HD and SD, including NTSC and PAL, all in real time. Final Cut Pro 7 offers real-time scaling for video in various camera-native formats as well as all five versions of the Apple ProRes codec.
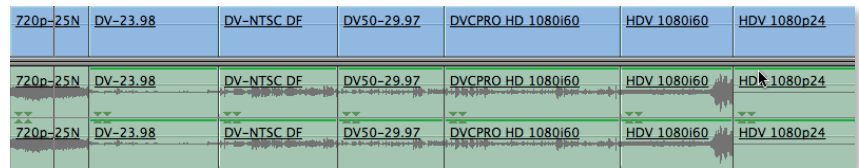
Expanded ProRes family
New versions of the Apple ProRes codec let you work faster and at higher quality across an even wider range of post-production workflows.

The ProRes family now includes ProRes 422 (Proxy), ProRes 422 (LT), and ProRes 4444, in addition to the original ProRes 422 and ProRes 422 (HQ).

Camera-native editing
Final Cut Pro 7 lets you edit virtually any professional format natively. Because there's no need to transcode video from camera-native formats, you can start editing right away. For a comprehensive list of SD, HD, and 2K formats supported by Final Cut Pro 7, visit www.apple.com/finalcutstudio/specs.

Automatic transfer
When you're working under deadline, every second counts. Final Cut Pro now saves you setup time when you transfer clips from a wide range of file-based cameras including Panasonic P2 and Sony XDCAM. The files are automatically copied to your media storage volumes the moment your media is mounted. A new Log and Transfer option allows you to set up custom metadata and add it to all your assets in a single step.

Seamless Collaboration

Editors are accustomed to working with directors and clients in the room, as well as with sound, graphics, and other specialists down the hall. Final Cut Pro 7 includes built-in tools that make it easy to work collaboratively, whether you're in the same building or on the other side of the world.

iChat Theater Preview
Final Cut Pro 7 lets you work with clients or colleagues in real time from anywhere in the world. Just send your Final Cut Pro video to iChat Theater to let everyone see the same footage while you view dailies, select shots, and make edits.[2] You can instantly switch the iChat view between clips and sequences as you talk, and turn on a time-code overlay to help identify specific frames.
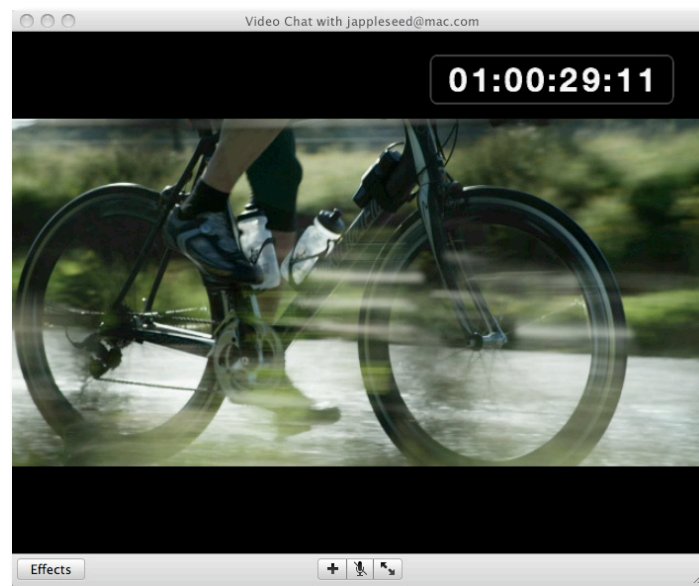
Web-based review and approval
Now you can easily publish projects to the web. Just use the new Easy Export feature. Choose whether you want to publish to YouTube or to MobileMe,[4] then keep working while your video is compressed and posted to the web in the background.

Integration with other Final Cut Studio applications
Final Cut Pro 7 is designed to work seamlessly with the other applications in the suite. Send sequences from Final Cut Pro to Soundtrack Pro, Color, or Motion with round-trip confidence. You can also use Motion templates for repeated-use graphics. Activate Compressor encoding templates with a single click using the new Easy Export feature.

Integration with Final Cut Server
Final Cut Pro 7 is tightly integrated with Final Cut Server 1.5, Apple's software for media asset management and workflow automation. Drag assets from Final Cut Server into Final Cut Pro for immediate use. Or bring other sources into Final Cut Pro, and they'll be added to the catalog when you check your project back into Final Cut Server.

Collaborative workflow with Xsan
Capture once, save time, and share media with multiple editors simultaneously using a consolidated storage pool powered by Xsan.

Comprehensive Editing Tools

The faster the tools, the more time you have to be creative. Final Cut Pro 7 makes it even easier to edit quickly, accurately, and flexibly with a range of interface enhancements that make everything from editing and trimming to sweetening and finishing more efficient.
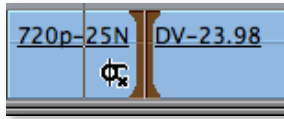
Precision editing and trimming
Final Cut Pro 7 provides a full set of industry-leading editing and trimming tools that are incredibly easy to use. Edit in the Timeline or with the innovative Edit Overlay tool.

Choose from a comprehensive set of edits, including Insert, Overwrite, Replace, Fit-to-fill, Superimpose, and Swap Edit. Then fine-tune your choices with Ripple, Roll, Slip, Slide, Extend, and Shorten, either in the Timeline or in a dedicated Trim window.

You'll find all the tools that professional editors expect—including three-point editing, JKL keyboard navigation, match frame, multitrack and asymmetric trimming, extend and split edit functions, and more. It's all there, it's all frame accurate, and it's all fast.

Real-time multicam editing
Cut multicamera footage as quickly as if you were switching a live show. Simultaneously view and cut from multicamera sources using the intuitive 1-, 4-, 9-, or 16-up display. For even more speed and convenience, group up to 128 sources into multiclips, adding and subtracting cameras at any time.

Flexible markers
Final Cut Pro 7 offers flexible new ways to work with markers. You can now color-code clip and sequence markers and use them to search for or jump directly to important locations.

You can add marker notes and metadata while the clip is playing, create a custom name for each marker color, and control whether markers of a specific color are visible in the Timeline.

A new option allows markers to automatically ripple in the Timeline as you edit. You can even export a tab-delimited Markers list to track marker information in a spreadsheet or a database.
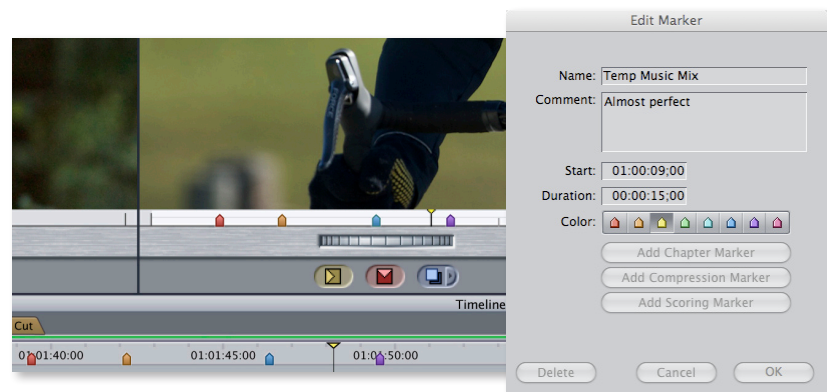
Convenient tabs
You can now color-code tabs to make them easier to identify, and drag to reorder them. It's also easy to distinguish Projects from Bins with the new Project icon in the tab header. Because Final Cut Pro allows you to have multiple sequences open at the same time, you can work faster by using the Close Other Tabs shortcut to close all nonactive sequences or Bins with a click. Save even more time by using a host of new keyboard shortcuts for efficient tab navigation.

Comprehensive matchframe and reveal options
New matchframe options make it easy to find original frames or source files that are used in a sequence. If you're working with subclips, you can choose to matchframe to the subclip or to the original clip. Matchframing now works with freeze frames as well as nested sequences, which are treated like a true master clip.

Use the new Reveal Affiliate Clips feature to automatically select every instance of a clip in a sequence, so you can apply a color correction or efficiently move or delete all instances in a single step. You can also find the project file without digging through your drives. Just right-click an empty space in the Final Cut Browser and choose Reveal Project in Finder.

Full customizable workspace
Final Cut Pro speeds your edit by letting you work the way you want. Easily customize window layouts and Timeline track sizes; customize Browser column order, width, and layout; and adjust font size in the Browser and Timeline. Then zoom through your work with customizable access to more than 600 commands. You can create keyboard shortcuts—or add buttons to the user interface—for the commands you use most.
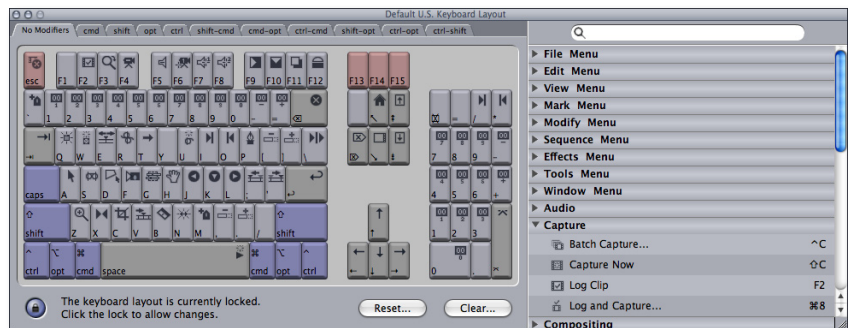
Audio sweetening
Mix and enhance audio directly in Final Cut Pro, with 24 channels of audio input and output in a 99-track timeline, all at up to 24-bit, 96kHz resolution. Freely adjust your mix without altering the original audio files.

You can adjust your levels using the onscreen mixer or ride multiple faders at the same time on any device that supports the Mackie Control protocol. The Normalization Gain feature analyzes and automatically raises the level of any clip to its maximum without distortion.

If you want to use audio effects, you can apply the same high-quality Audio Units filters used in Soundtrack Pro—such as Reverb and EQ—to sweeten audio on the spot or for easy round-tripping.

Pristine finishing and frame-accurate output
Final Cut Pro 7 has complete, frame-accurate Edit to Tape and Print to Video tools for creating professional output. High-quality effects processing, including 32-bit floating-point filters, ensure that picture-in-picture effects or effects with fine detail will look crisp and beautiful.

Enhanced media management
Use the Final Cut Pro Media Manager for project-, sequence-, or clip-level operations. Quickly and accurately copy, move, and consolidate projects. Search, sort, and sift right in the Browser to rapidly find the assets you need for your project. Media reconnecting is lightning fast with new Spotlight integration.

Easy export

Delivery to your Apple devices, the web, and disc is just a click away. Choose your output format in the Share window, then keep working while your projects are rendered, compressed, and even published to the web in the background.

Use this convenient feature to export your file to iTunes for syncing with iPod, iPhone, and Apple TV; publish to YouTube or MobileMe[4]; or burn a Blu-ray disc[3] or a DVD, with a choice of Apple-designed menu templates. You can also create custom presets in Compressor for use in the Share window.
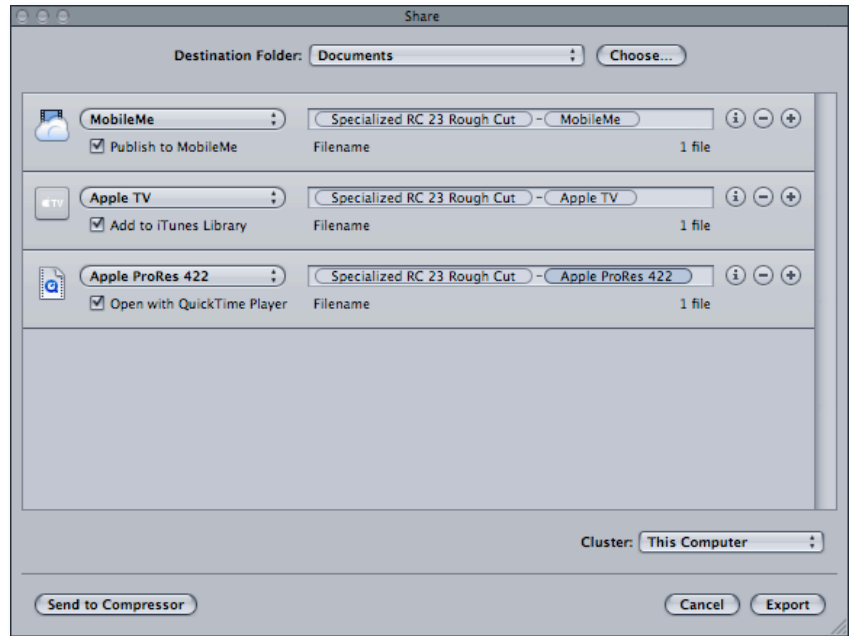
Incredible Effects and Transitions

Add visual interest to any production with the rich set of effects and visualization tools built into Final Cut Pro 7. Experiment freely and iterate quickly. You'll see the results of your changes in real time as you work, with no need to stop and wait for rendering.

**RT Extreme with Dynamic RT**

RT Extreme with Dynamic RT delivers industry-leading real-time performance—with real-time playback of more than 150 effects as well as multiple streams of video used for picture-in-picture effects and multicamera editing.

Enjoy maximum performance on systems ranging from a MacBook to a Mac Pro. Dynamic RT analyzes your system's capabilities and adjusts video playback quality and frame rate on the fly. If you prefer, you can customize preferences to favor playback quality or frame rate as the video plays back.

Speed change tools

Change clip speeds with ease from the redesigned Change Speed window, which includes presets to ease in and ease out retimed clips. A new option lets you make speed changes without rippling the sequence, which means that you can experiment freely without affecting the surrounding clips.

You can also now create constant or variable speed changes right in the Timeline. For constant speeds, use the new Speed tool, which adjusts the speed as you drag to shorten or extend a clip. For variable speeds, add keyframes directly in the Timeline and creatively fine-tune playback with click-and-drag controls.
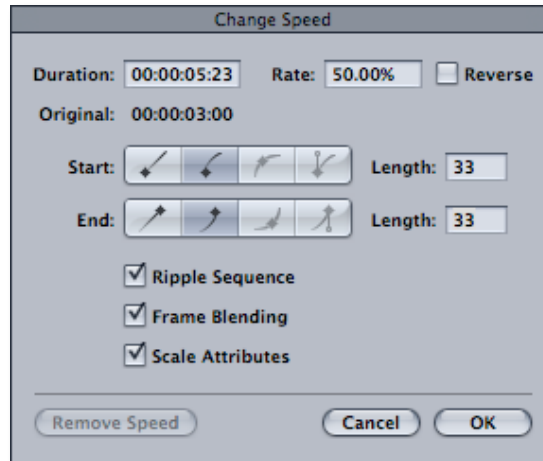
Stunning Alpha transitions

It's now easier than ever to create dramatic transitions with moving mattes. Apply a matte instantly by choosing one of the beautiful Apple-designed transitions, available through a free download. You can also bring in a third-party transition (sold separately), or create a custom transition using a motion graphics or animation program, such as Motion 4. Quickly see how various options look with your video by dragging animated elements into an effects drop zone.

Nine Apple-designed Alpha transitions, in both SD and HD resolutions, are available for download at no charge at www.apple.com/finalcutstudio/resources.
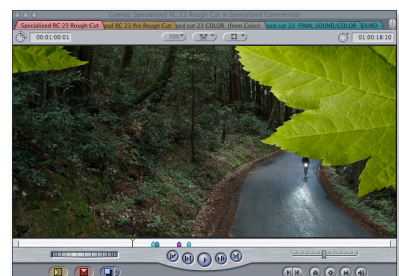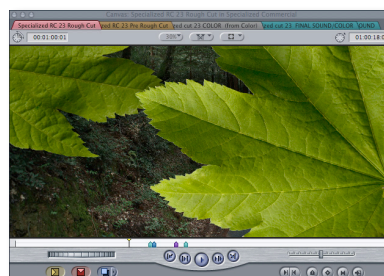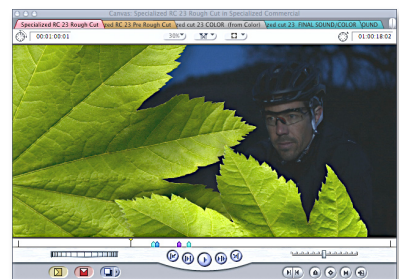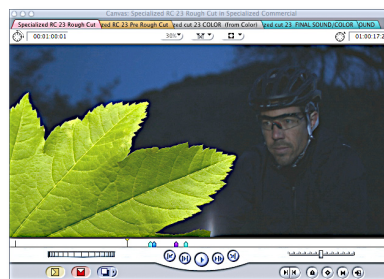
Eye-catching animated titles

Motion 4 makes it easy to create dynamic titles for use in Final Cut Pro 7, with a range of new text tools, generators, and behaviors. Motion also includes LiveFonts, in which every character of the font is a separate animated movie.

Use Motion master templates to update content such as video clips, titles, and lower thirds right in Final Cut Pro, while preserving the underlying motion graphics. The templates include video drop zones and editable text fields that let you rapidly create multiple versions.

Dramatic filters and effects

Make your project memorable by choosing from more than 150 real-time capable filters and effects, many of which use high-resolution 32-bit float image processing to produce stunning, film-quality results.

Then extend your repertoire even further by bringing in third-party filters based on the FxPlug standard—the same format used to produce the extraordinary real-time effects in Motion. Dozens of leading developers support the FxPlug standard to offer hundreds of real-time GPU-accelerated plug-ins at 32-bit float quality.

Real-time color correction

Final Cut Pro includes a comprehensive set of real-time color correction tools, including primary and secondary color correctors; image control filters; broadcast-safe filters; tools for matte and key operations as well as luma and chroma range checking; real-time scopes and monitors; and a frame viewer for comparing your shots.
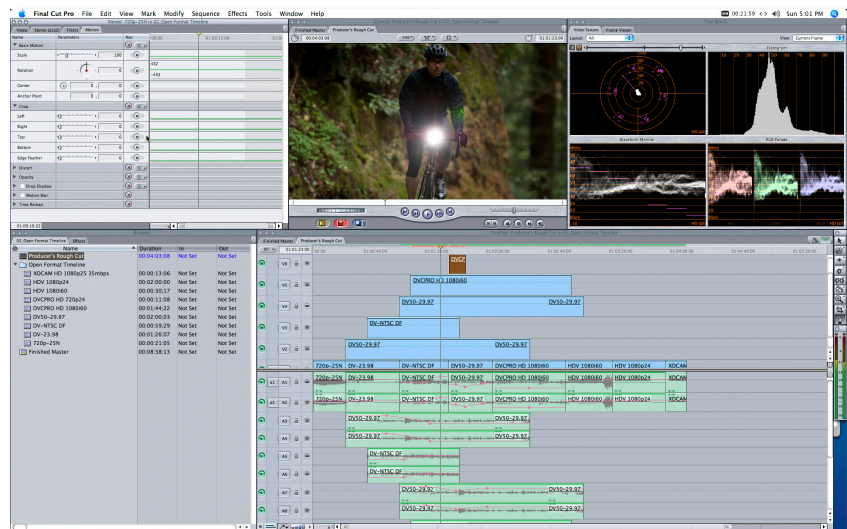
SmoothCam

Smooth out shaky scenes without altering zooms, pans, dollies, and other standard camera movements. The SmoothCam feature uses sophisticated optical flow technology to analyze and adjust your problem shots. Because SmoothCam works in the background, you can edit other material while it analyzes the shaky footage. For additional SmoothCam and retiming refinements, you can send clips to Motion.

Digital Cinema Desktop

Preview a digital cut of your HD video full screen—complete with real-time effects—using Digital Cinema Desktop. Evaluate your edit full screen on a single display. Or use a second display, such as an Apple LED Cinema Display, for video output. Even if you're working on a MacBook, you can view your video full screen or create an impressive screening for your clients with a second high-resolution display or projector.

Open, Extensible Architecture

No matter what type of production work you do, Apple's open-standards approach lets you use a favorite third-party tool or even create best-in-class custom systems for large-scale workflows—all through the open architecture and natural extensibility of the Final Cut Studio platform.

XML Interchange v5

Final Cut Pro 7 uses XML to track and manage all of the thousands of actions and assets that go into an edit. Because Apple has documented its XML format and made it public, developers can use XML to create applications that seamlessly share project data with Final Cut Pro. These applications range from special-purpose tools to high-end systems for broadcast.

FxPlug

FxPlug is Apple's format for filters and transitions that offers astonishing quality through GPU-accelerated 32-bit float processing. The default plug-in format for Final Cut Studio, FxPlug is an open standard. Dozens of leading developers are using the standard to create hundreds of extraordinary effects that can be used in Motion and Final Cut Pro.

QuickTime

QuickTime is an industry standard for professional video. Final Cut Pro supports the full range of QuickTime formats, including the expanded family of Apple ProRes options. QuickTime is flexible enough to contain virtually any type of media—all the way from DV up to fully uncompressed, high-bit-depth video at HD resolutions. This means that developers can easily create products that are interoperable with Final Cut Studio. The QuickTime format also includes custom metadata that can be used to support specialized workflows.

Audio Units

Audio Units is the Apple standard for real-time audio filters used in audio applications. Hundreds of third-party Audio Units effect plug-ins are available for use in Final Cut Pro and Soundtrack Pro. Audio Units plug-ins are also compatible with Logic Pro.

Digital Cinema Workflows

Final Cut Pro 7 offers even deeper support for digital cinema workflows. Work confidently with high-quality proxies and seamlessly relink to the original source for output—whether you're cutting digital intermediate DPX files for film outs or working with 4:4:4 digital video from cameras such as the RED ONE.

Cinema Tools 4.5
Cinema Tools 4.5 is a powerful database that tracks the relationship between film frames and their corresponding video frames, no matter which video standard you use. Because Cinema Tools is deeply integrated with Final Cut Pro 7, you can use it to edit a film or 24p digital intermediate just as you would edit any other project in Final Cut Pro. Use Cinema Tools as part of a digital cinema workflow to track DPX files created during high-resolution film transfers or files from 4K cameras such as the RED ONE.

To create a new database, just drag your files into Cinema Tools. The film lists are completely customizable and can include both timecode and keycode in the same list. Easily export your lists as plain text or as XML and import them into industry-standard tracking systems used to pull film negatives. Or use XML to instantly create change lists. You can even output beautifully formatted, easy-to-read PDF lists to use for reference or to share with clients.

Digital cinema workflows with Color
Digital cinema workflows are used for productions that are shot on film, scanned to a high-resolution 4:4:4 2K data format, edited digitally, and then released on film, as digital cinema, or as high-definition video. Some studios skip the film original and go direct to digital files by shooting with a high-resolution camera such as the RED ONE.

Edit your digital cinema project in Final Cut Pro and relink to original sources using Cinema Tools. Then send your project to Color for color grading and output to 2K or 4K DPX media. For broadcast or video release, you can output high-quality 10-bit ProRes 422 (HQ) or uncompressed HD.

**Digital cinema workflows with Final Cut Server**
Using the collaborative power of Final Cut Server, an assistant can organize bins, log clips, capture dailies, or prepare output for screenings or review—all while the editor continues to work.

Motion 4

With the intuitive interface and rich toolset in Motion 4, the only limit is your imagination. Send particles exploding through space. Swing cameras around an object with breathtaking ease and apply responsive shadows with a click. Squiggle a vector-based paint stroke in 3D through the cosmos, complete with dazzling reflections and dramatic depth-of-field effects. Motion 4 lets you create 2D and 3D motion graphics with drag-and-drop ease, startling performance, and unprecedented color fidelity.

Key features of Motion 4 include:

- Intuitive real-time design environment
- Effortless 3D graphics
- Easy-to-use text and titling tools
- Breathtaking filters and effects
- Powerful compositing
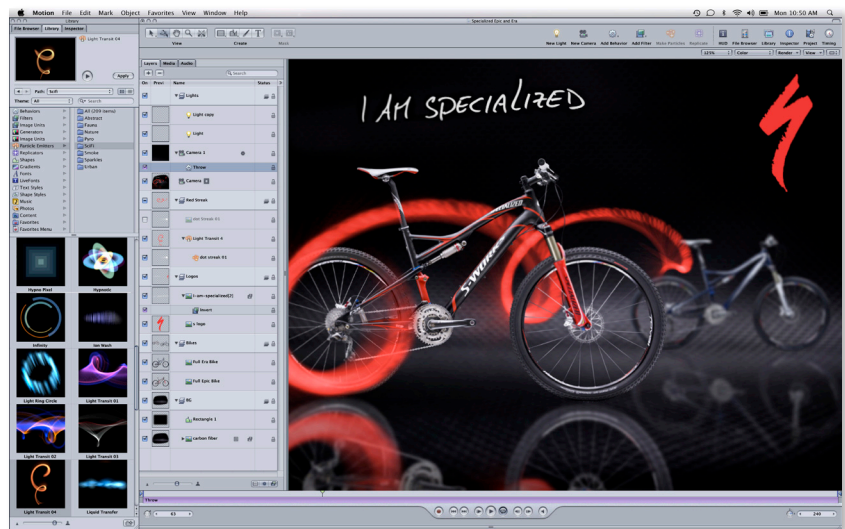
New in Motion 4

Motion 4 makes it easy to add excitement to your motion graphics with dynamic 3D shadows, reflections, and depth-of-field effects, as well as new text effects.

3D shadows
Quickly add dramatic shadows that animate dynamically with the movement of objects and lights. For more information, see page 26.

3D reflections
You can now create reflections that change naturally as objects move through 3D space. For more information, see page 26.

Depth of field
Draw attention to one or more moving objects in 3D space by selectively setting the focal point. For more information, see page 25.
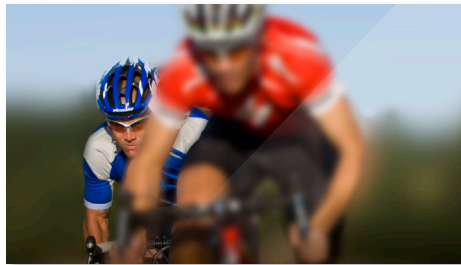
Credit rolls
Now you can create and edit even a long list of production credits with ease, then apply the new Scroll Text behavior to animate the credit roll in a single step. For more information, see page 30.

Text generators
Four new Text generators make it easy to create and animate text sequences. For more information, see page 29.

Link parameter behavior
In Motion 4, when you make changes to one object, other objects can automatically respond. For example, if you animate a moving bicycle, Motion can dynamically change the rotation of the wheels as you adjust the position of the bicycle. For more information, see page 23.

Framing camera behavior
It's now easier than ever to make a camera fly from one object to another, precisely framing each object as the camera slows or stops. For more information, see page 25.

Adjust Glyph tool
The new Adjust Glyph tool allows you to manipulate a character in a text object the same way you manipulate any shape in 3D. For more information, see page 28.
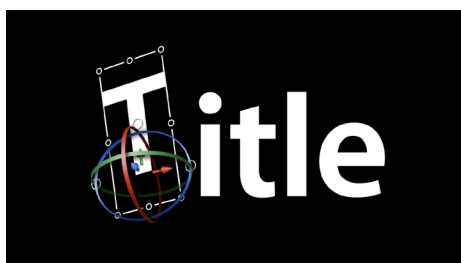
Redesigned Sequence Text behavior
The Sequence Text behavior lets you ripple characters onto or off the screen one charac-ter, word, or line at a time—and even modify all of the glyph attributes. For more infor-mation, see page 29.

New preset Text Sequence behaviors
Save time by choosing one of 149 new preset Text Sequence behaviors, which feature a wide variety of playful or dramatic effects. For more information, see page 29.

Bad Film filter
Instantly give your footage a historical look by making it look like bad or damaged film. Just apply the new Bad Film filter, then easily adjust parameters for focus, brightness, grain, jitter, scratches, dust, and more to get the look you want.

Easy export
Delivery to your Apple devices, the web, and disc is just a click away. Choose your output format in the Share window, then keep working while your projects are rendered, com-pressed, and even published to the web in the background.

Use this convenient shortcut to export your file to iTunes for syncing with iPod, iPhone, and Apple TV; publish to YouTube or MobileMe[4]; or burn a Blu-ray disc[3] or a DVD, with a choice of Apple-designed menu templates.

The Share window also gives you access to Compressor presets that let you export to other formats—including ProRes 422, ProRes 4444, and H.264—with a click.

ProRes 4444 support
With support for the new ProRes 4444 format, Motion 4 makes it possible to work with masks, Alpha transparencies, and other high-resolution effects, maintaining pristine image quality at smaller, highly optimized file sizes. Fast, efficient decoding lets you take advan-tage of dynamic, real-time feedback as you work.

Multi-Touch gesture support
Navigate faster with gestures using the Multi-Touch trackpad on your MacBook Pro. Quickly browse tabs and navigate the Timeline with two-finger scrolling. You can pinch to resize icons or to adjust zoom levels in the Timeline and Canvas, and use the Rotate gesture to scrub the Timeline. A three-finger swipe toggles the Timing and Project panes and lets you move forward and backward in the Library and File Browser.

Polar filter
Create complex image distortions with the new Polar filter. Make the image look as if it has been unwrapped from a sphere. Or warp the image by choosing the rectangular polar view.

Concentric Shapes generator
The Concentric Shapes generator is used to generate patterns derived from circles or from polygons ranging from 3 to 100 sides. Choose two fixed colors or set up a flexible multicolor gradient.

Spirals generator

The new Spirals generator in Motion 4 lets you instantly create and easily modify precise spiral patterns. You can choose between classic and modern spiral types, and color the spiral with two solid colors or a multicolor gradient. Create a hypnotic visual effect by using the rotation parameter to make the spiral spin.

Support for 3Dconnexion SpaceNavigator

Take tactile control of Motion 4 with the SpaceNavigator 3D mouse (sold separately). Move the flexible, joystick-like control on this special-purpose controller to smoothly manipulate cameras, objects, and views. You can simultaneously pan, dolly, and orbit cameras, and intuitively position and rotate objects in 3D space.

Optical flow retiming improvements

Motion 4 lets you perform optical flow retiming tasks more efficiently. Optical flow analysis is now automatically limited to just the portion of the clip you're using. The new Task list lets you pause calculations and reorder the analysis tasks so they finish in order of priority.

Numerous shape improvements

More than 10 new or improved features in Motion 4 let you create and manipulate shapes faster than ever. Use the new Roundness shape parameter to round the corners of any geometric shape or mask. Create a mask instantly by dragging a shape onto an object. You can also save time in mask-intensive projects by customizing the color of mask outlines to eliminate confusion.

Several of the new shape features allow you to work with greater precision. You can now modify the control points of multiple shapes, either separately or simultaneously. The new Transform Control Points feature lets you use a bounding box overlay in the Canvas to intuitively scale, move, or rotate all or selected control points on a single object.

Intuitive Real-Time Design Environment

Motion 4 allows you to animate in real time—and even make changes during playback. Press a key or slide a fader. Drag a behavior, then drag another one on top of it. Work quickly and fluidly. If you want, you can fine-tune your animations with precise keyframe curve editing.

Real-time design engine

Work in real time, using intuitive tools that let you set objects in motion with drag-and-drop ease. Motion 4 lets you enjoy the creative freedom of rapid iteration. Tools for precise refinement and completely custom effects are only a click away, including controls for timing adjustments, keyframe editing, and parameter settings. For final output, you can even render in GPU-accelerated 16- and 32-bit floating-point color.

Behaviors for instant animation

Behaviors are used to produce natural-looking motion and realistic simulations of interactions among objects. Just drag a behavior—such as Gravity, Repel, Throw, or Vortex—onto the Canvas to set objects bouncing, spinning, or orbiting.

Behaviors can also be used to trigger sets of parameters. For example, the Audio parameter behavior can synchronize your animation to a soundtrack. Choose from more than 100 behaviors that let you instantly set objects in motion.

Link parameter behavior
Thanks to the new Link parameter behavior in Motion 4, when you make changes to one object, other objects can automatically respond. For example, if you animate a moving bicycle, Motion can dynamically change the rotation of the wheels as you adjust the position of the bicycle.

The Link parameter behavior lets you associate a parameter value in one object with parameter values in other objects. There is no need to calculate values or manage keyframes. All you have to do is set the scale and offset for each linked parameter. Motion instantly adjusts the linked animations as you make changes.
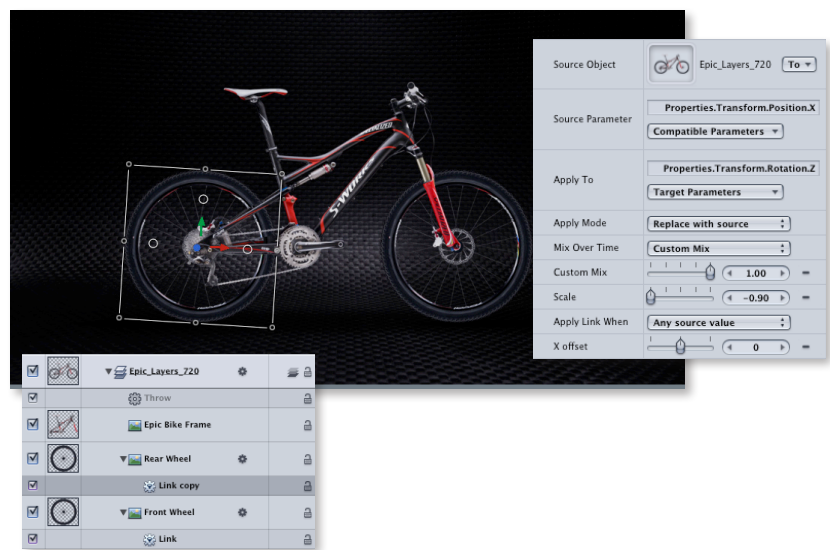
Keyframe Editor
The full-featured Keyframe Editor in Motion 4 makes it easy to draw animation curves. Squish, stretch, and reposition groups of keyframes using the flexible transform box. You can even use time-saving keyboard shortcuts to call up curves for position, opacity, rotation, scale, shear, and anchor point.
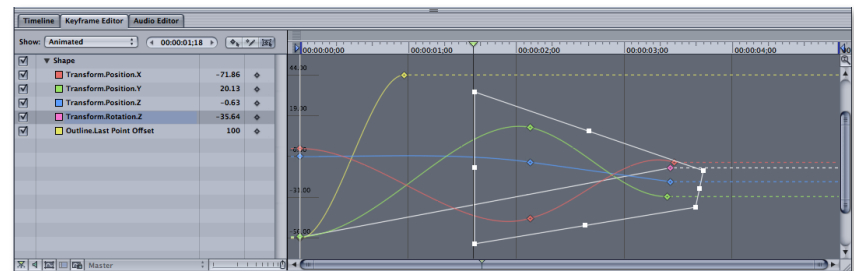
Multi-Touch gesture support
Navigate faster with gestures using the Multi-Touch trackpad on your MacBook Pro. Quickly browse tabs and navigate the Timeline with two-finger scrolling. You can pinch to resize icons or to adjust zoom levels in the Timeline and Canvas, and use the Rotate gesture to scrub the Timeline. A three-finger swipe toggles the Timing and Project panes and lets you move forward and backward in the Library and File Browser.

Apple-designed graphic elements

Jump-start your creativity with an extensive library of royalty-free motion graphic elements designed by Apple. Select from a large set of particle systems, including smoke, fire, rain, bubbles, clouds, snow, glittering sparkles, and more. Pick an elegant animated shape—such as a calligraphic flourish. Instantly create a hypnotic pattern with one of the Replicator options or select from a library of stunning high-resolution textural photo-graphs. You can use combinations of elements as building blocks for your own creations and easily modify any element.
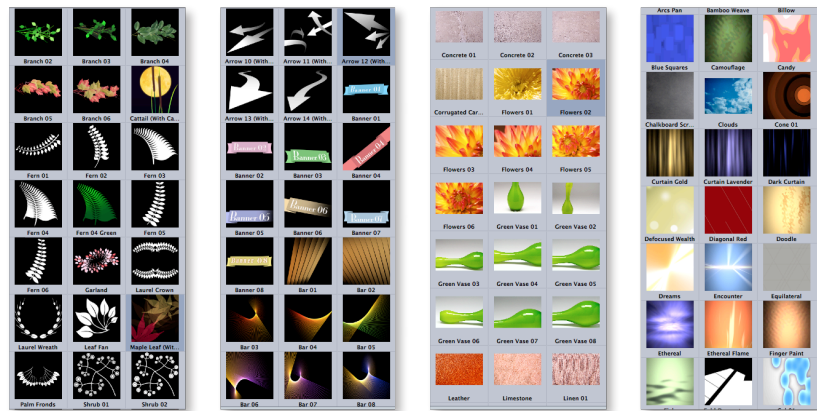
Integration with Final Cut Studio applications

Final Cut Pro sequences sent to Motion retain editable cuts, layers, retiming effects, and more for maximum flexibility.

You can also save any Motion project as a master template for use in Final Cut Pro. A master template includes video drop zones and editable text fields, allowing you to swap out content and update text without leaving Final Cut Pro.
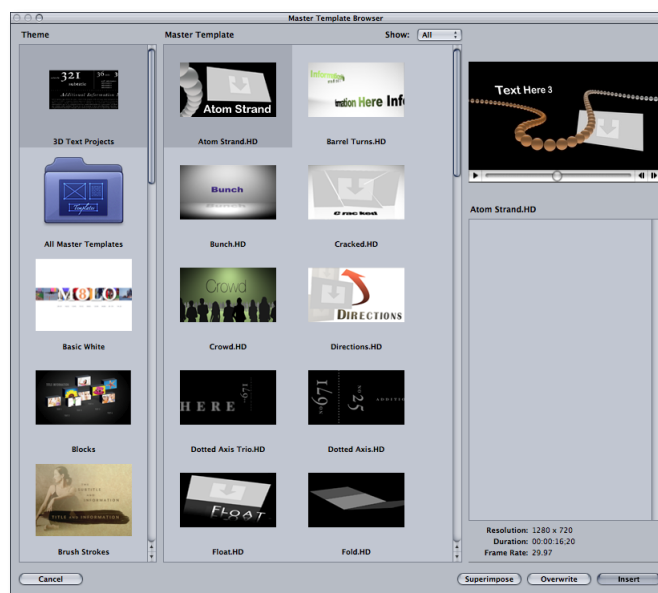
You can drag any Motion project into Final Cut Pro or DVD Studio Pro without having to export or render it first. Changes you save in Motion are instantly reflected in the other applications.

You can also send audio directly from Motion to Soundtrack Pro for editing and mixing, then see the audio update in Motion the moment you save the project in Soundtrack Pro.

Effortless 3D Graphics

Create attention-grabbing 3D motion graphics without learning a new interface or writing expressions. The 3D multiplane environment in Motion 4 lets you freely mix 2D and 3D groups using familiar tools. New shadows, reflections, and camera behaviors allow you to add realism and excitement to 3D space.

3D multiplane environment
Motion 4 offers a comprehensive 3D design environment, complete with cameras, lights, layers, and motion paths. Bring particles, Replicator patterns, and text behaviors into 3D space for instant 3D effects.

Two new camera behaviors let you create dramatic Depth of Field and Camera Framing effects.

Depth of field
Draw attention to one or more moving objects in 3D space by selectively setting the focal point. Motion 4 makes it easy to highlight or de-emphasize objects by defining a range of focus, with an interface that illustrates the near and far focus planes as well as the point of focus. Add a Focus camera behavior to lock focus to a single object, or create a rack focus effect by using multiple Focus camera behaviors.
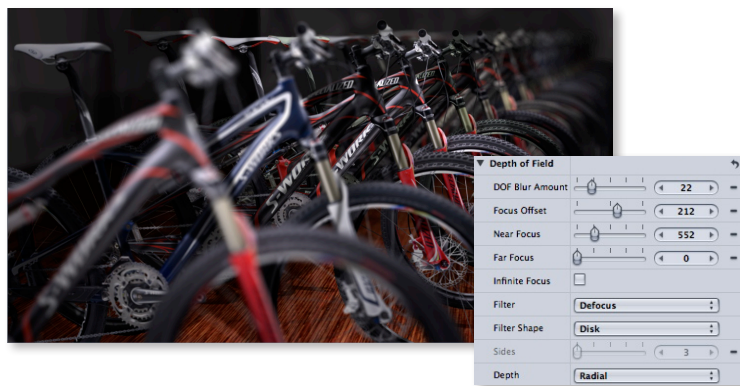
Framing camera behavior
It's now easier than ever to make a camera fly from one object to another, precisely framing each object as the camera slows or stops. To frame a single object, drop a Framing camera behavior on the camera and identify the target object.
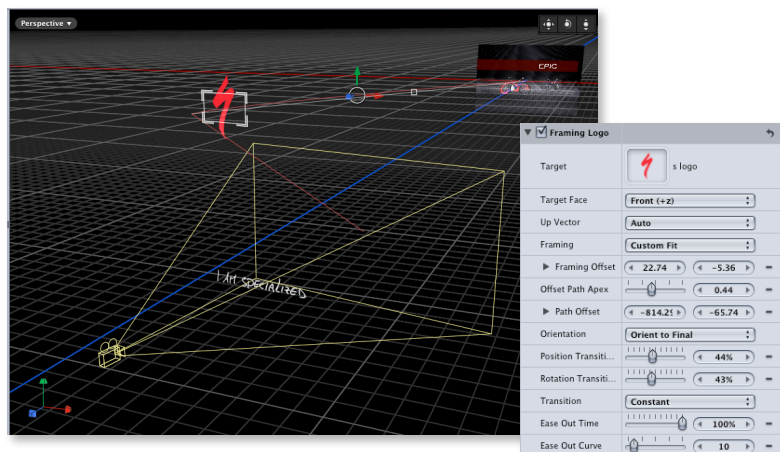
To animate the camera passing from one object to another, set up additional Framing camera behaviors and arrange them in the Timeline.

Dynamic lighting

Add drama to any scene by animating ambient, directional, point, and spot lights, with control over light intensity, falloff, color, and more.

3D shadows

Motion 4 makes it easy to add dramatic shadows that animate dynamically with the movement of objects and lights. When you set up a point or spot light, a single click lets you designate it as a shadow-casting light. Then Motion adjusts the shadow as you position objects, lights, and the camera.

By default, all objects both receive and cast shadows. For greater control, you can restrict an object to be just a shadow-caster, a shadow-receiver, or a shadow-only object. Further refine the look of any shadow by adjusting edge softness and shadow color.
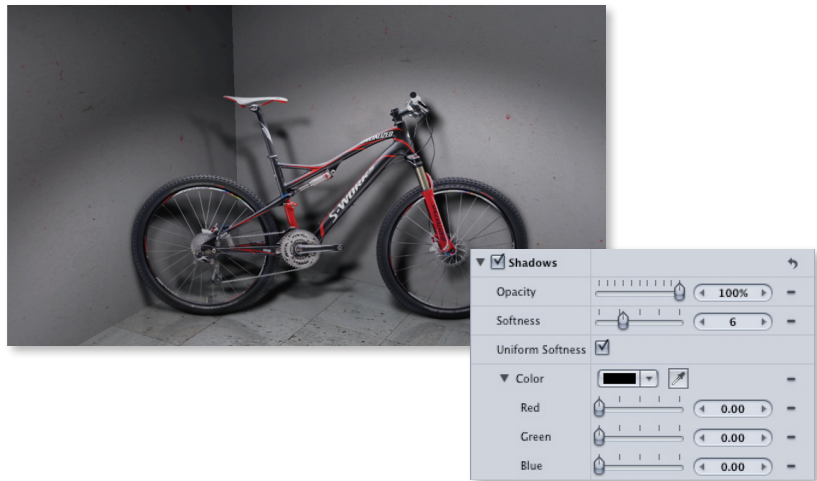
3D reflections

Create reflections that change naturally as objects move through 3D space. You can now turn any shape, video plane, or paint stroke into a reflective surface. Use sliders to adjust the amount of reflectivity, soften reflections by adding blur, and fade them by using the Falloff feature.

3D particles

Enhance your particle presets by turning them into 3D effects with a click. Motion automatically distributes the particles across multiple planes when you select the 3D option. Fly the camera through raindrops, surround an object with rising smoke, or design a star field with thousands of sparkles.

3D behaviors for objects and text

To animate objects, you can create quick, procedural animations using hallmark behaviors like Throw, Spin, Vortex, and more—all of which extend their controls into Z-space. Animate text using sequencing behaviors that ripple through, character by character, for spectacular 3D type-on and type-off animations. For astonishing multidimensional effects, drag 3D text behaviors such as Deal In/Deal Out, Debris In/Debris Out, and Flip In/Flip Out onto your text.
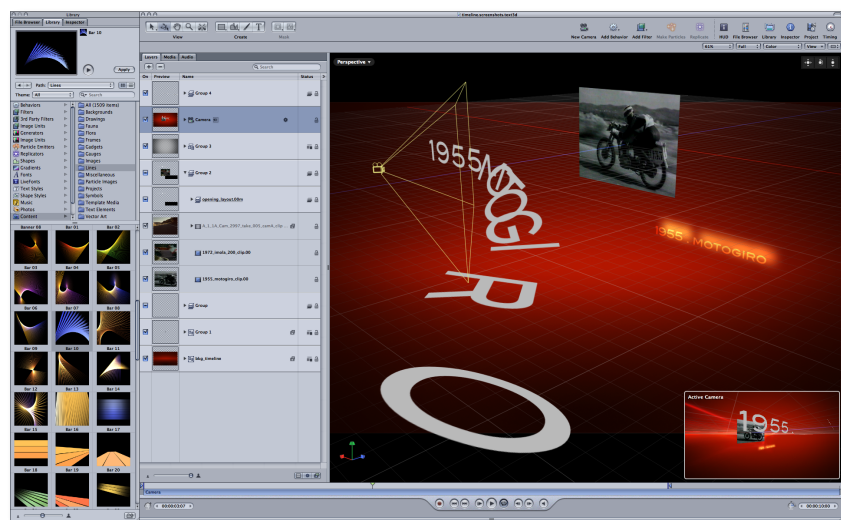
Vector-based paint strokes

Using vector-based paint, turn a simple brush stroke into swirls of chocolate, floating feathers, or glowing light trails with a simple menu selection. Because the strokes are vector based, you can adjust their path and position without losing any of their texture or animated properties. You can also design your own brushes using color, gradients, or even QuickTime files.
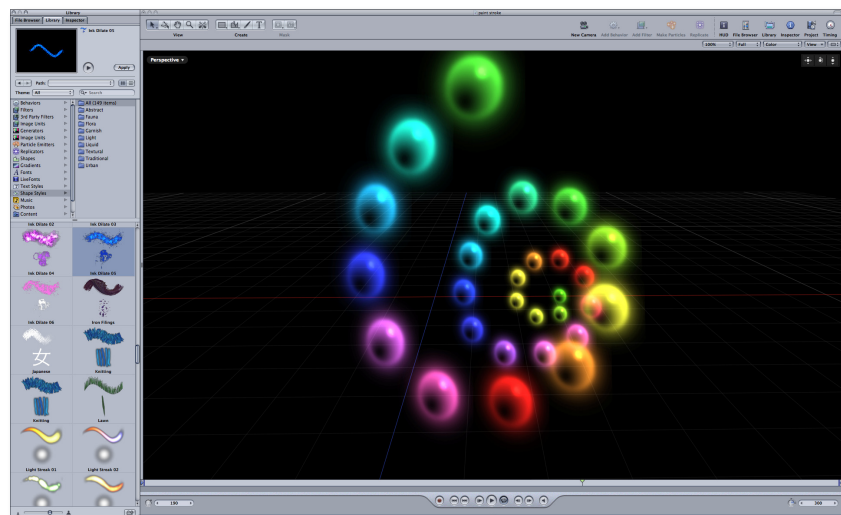
Easy-to-Use Text and Titling Tools

Motion 4 includes a wide variety of text and titling tools that let you quickly shape and animate text. You can use new text behaviors to ripple text onto or off the screen by adjusting one character. Or create a credit roll in seconds.

Text tool
Use the Text tool to generate vector-based text that scales, skews, and rotates while maintaining sharpness. Adjust position, opacity, and rotation, as well as format, style, and layout parameters.

To get started, choose a system font or one of Apple's unique LiveFonts—animated fonts that would take hours, if not days, to create by hand.

Style settings let you customize color and opacity for the character face, outline, glow, and drop shadow. Styles can be saved in the Library and applied in any project.

Adjust Glyph tool
The new Adjust Glyph tool allows you to manipulate a character in a text object the same way you manipulate any shape in 3D. Just select the character to make adjustments directly in the Canvas. Options include Move, Scale, Rotate, and Adjust Four Corner, which lets you skew or corner-pin the face, outline, glow, or shadow style of the character.

Text on a path
Easily place and animate text along a path. Angle, bend, and twist the path to create interesting trajectories, including paths that move on a plane through 3D space.

Text Animation behaviors
Use Text Animation behaviors to animate a credit roll, make characters move closer together or farther apart, and more. Text Animation behaviors include Scroll Text, Text Tracking, Type On, and Sequence Text.

Redesigned Sequence Text behavior

The Sequence Text behavior lets you ripple a text sequence one character, word, or line at a time—and even modify all of the glyph attributes. Just manipulate a single letter, and Motion animates the change through the entire sequence.


New preset Text Sequence behaviors

Save time by choosing one of 149 new preset Text Sequence behaviors, which feature a wide variety of playful or dramatic effects, such as Scramble In or Shimmer Out, for animating text onto or off the screen. Highlight effects include Scale Through, which makes the text look as if a magnifying glass is being passed over each letter in turn. You can use any preset as is or modify its parameters to get just the effect you want.

Text generators

Four new Text generators make it easy to create and animate text sequences. Apply the Numbers generator to create an animation that counts up or down in sequence or at random. The Time Date generator lets you animate time-and-date sequences either forward or backward. Use the Timecode generator to create running time-code sequences in any standard frame rate. The File generator allows you to rapidly sequence lines from the text contained in a file.

You can easily format text using a wide variety of international standards for attributes such as decimal points, currency symbols, and time-and-date syntax. A simple menu selection in the Inspector lets you choose a language and country for the Time Date or Numbers generator.
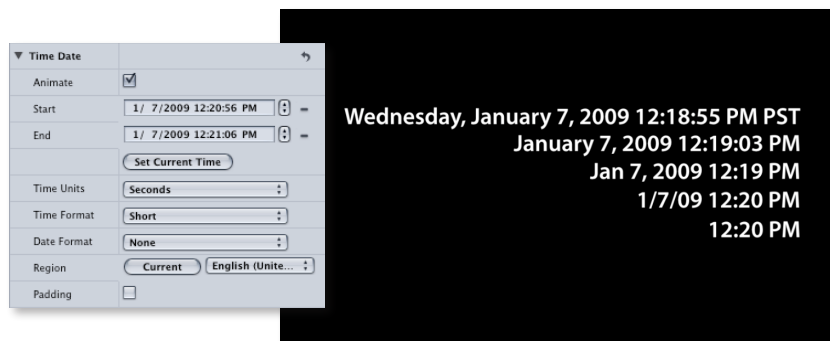
Credit rolls

Now you can create and edit even a long list of production credits with ease. Just import a text file or type in your credits using the new Scroll layout in the Text tool. An innovative graphical interface lets you jump to any location in the credits with a click.
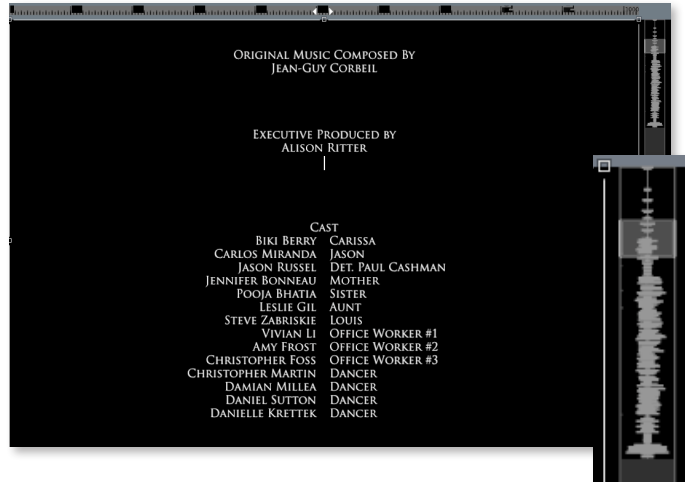
After you've set up your list, apply the new Scroll Text behavior to animate the credit roll in a single step. If you want to make refinements, you can adjust the speed with a slider and set an option to reduce flicker for progressive or interlaced outputs.

Breathtaking Filters and Effects

Create stunning, one-of-a-kind designs by experimenting with an extensive selection of innovative filters, effects, and design tools. Send particles exploding into 3D space, quickly set up replicating patterns, or apply any of more than 120 GPU-accelerated filters and effects to craft a unique visual style.

Real-time filters and effects

Motion includes more than 120 GPU-accelerated filters and effects that can operate at 32-bit floating-point color for extraordinary quality. Have fun with effects such as Underwater, Glass Block, and Insect Eye; or choose from a wide variety of standard effects including blurs, distortions, and color correction filters.

Particles

Motion 4 makes it easy to create dazzling particle systems that explode into 3D space or swirl around other objects in your scene. Particle effects are an essential tool for designing animated elements as well as for generating real-world effects such as smoke and sparkles. Use any object, including a QuickTime movie, as a particle shape, and add simulation behaviors such as Random Motion, Vortex, Gravity, or Edge Collision to send the particles flying through space in spectacular ways.

Replicator
Quickly set up mesmerizing patterns of repeating movies or graphics with Replicator. The patterns are built on a geometric shape that you select, such as a grid, spiral, or any geometry you create. Just select a shape and modify it until you get the desired effect. You can move cameras around Replicator patterns and combine them with other animations in 3D space.

FxPlug
Expand your options even further by bringing in third-party FxPlug filters and effects. Many of these effects work just like native Motion 4 effects, with the same onscreen controls, floating-point processing, and GPU acceleration.

Powerful Compositing

The intuitive yet powerful tools in Motion 4 make it easy to create a layered composite with any combination of 2D and 3D elements. For flawless compositing with video, you can stabilize a shaky shot, smoothly retime a clip, or precisely match the move of an object in your video.

Layering and grouping
Take advantage of unlimited layers and groups in Motion 4 to combine video, text, and graphics. Mix 2D and 3D groups in a single project. This allows you to do basic compositing with some elements and complex 3D animations with others.

Sophisticated shapes and masks
Create a wide variety of shapes and masks with a choice of Bezier and B-spline tools. Give shapes just the look you want by adjusting parameters for opacity, color, drop shadow, edge feathering, and more. Quickly create a mask using the alpha, luminance, or RGB values of an image.

Image stabilization and SmoothCam
Use Motion 4 to correct a shaky shot quickly and easily. You can use the stabilizer to lock down a shot without a time-consuming setup. Or use the SmoothCam feature, which retains standard camera moves as it eliminates handheld camera bumps.

Optical flow retiming
Motion 4 uses optical flow technology to produce crisp, clear retiming. Bring in a clip with a speed change set in Final Cut Pro and see all the details in the Keyframe Editor. Or apply revolutionary retiming behaviors that let you change the speed of a clip and set ramp-in and ramp-out parameters—all while your video continues to play back.

Point tracking and match moving
Motion 4 makes it easy to match the movement of an object in a video clip. For example, if the video shows a bus traveling across the screen, you can add a side-panel billboard that moves as the bus moves. Motion evaluates the video to suggest one or more tracking points, or you can set your own points. After you select the points you want, just click a button and Motion creates the match move.

Soundtrack Pro 3

Soundtrack Pro 3 streamlines audio post-production with a wide range of powerful, time-saving features. Fly through editing and mixing using an intuitive interface and efficient navigation controls. Repair common audio recording problems with point-and-click ease. Enhance a single clip—or craft an entire soundtrack in immersive 5.1 surround—then let Soundtrack Pro automatically conform your audio edit to any changes made in your video edit. Seamlessly integrated with Final Cut Studio, Soundtrack Pro 3 puts professional audio post at your fingertips.

Key features of Soundtrack Pro 3 include:

• Powerful audio editing
• Innovative dialogue tools
• Easy audio restoration
• Sophisticated sound design
• Automatic audio conform process
• Comprehensive 5.1 surround support
• Flexible workflows
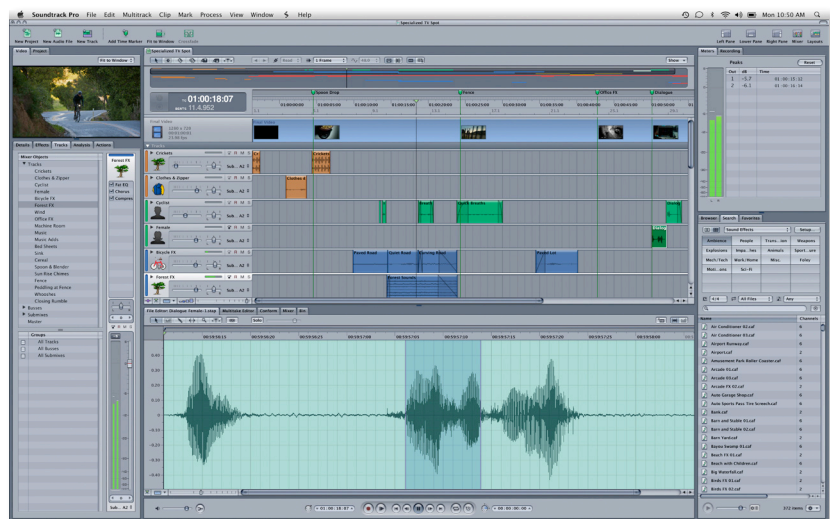
New in Soundtrack Pro 3

New features in Soundtrack Pro 3 let you repair common audio problems in a few clicks and work faster than ever using new, streamlined navigation tools.

Voice-level match
The new Voice Level option in the Lift and Stamp tools lets you seamlessly match dialogue volume in just a few clicks. For more information, see page 37.

Enhanced File Editor
The File Editor in Soundtrack Pro 3 lets you use a simple drag-and-drop interface to add, remove, and reorder channels. In the Frequency Spectrum view, you can adjust the amplitude of frequency selections. For more information, see pages 35 to 36.

Advanced time stretch
Stretch and compress audio with unprecedented precision using three Apple time-stretch algorithms as well as popular third-party plug-ins (sold separately). For more information, see page 36.
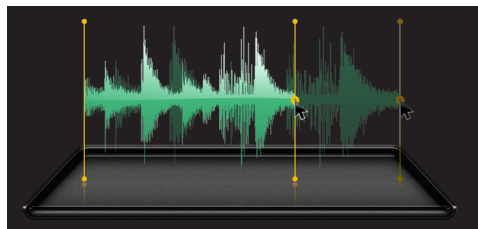
Noise reduction enhancements
Two new features make it easier—and more precise—to repair and restore damaged audio with problems such as background noise or power line hum. The improved broadband noise reduction feature uses a high-resolution noise print to reduce unwanted background audio with even more precision. In addition, the Power Line Hum feature allows you to adjust the number of harmonics you remove when repairing recordings that have picked up hum from ground loops.

Direct recording into the Multitake Editor and existing multiclip files
You can now record directly into the Multitake Editor, so you don't have to waste precious time with separate recording setups in the Timeline.

Additional commands for trimming and extending clips
Fly through editing using new commands for trimming and extending clips and for adding fades.

Selectable Peak/RMS normalize
The enhanced Normalize function lets you select Peak or RMS algorithms when making level adjustments.

Waveform Zoom in the Timeline
Use the new Waveform Zoom function to closely inspect low-amplitude audio clips
right in the Timeline.

**Faster navigation**
Now you can speed through editing sessions using new, special-purpose commands.
Work efficiently with new options for playhead scrolling, multiple concurrent snap
levels for playhead and clips, user-definable nudge, and additional playback options
for auditioning changes. Support for Multi-Touch trackpad gestures lets you zoom,
toggle windows, and control playback without reaching for a mouse.

Related-file access
Previously when you wanted to evaluate an alternate take or mic placement, you
had to root through the Bin or file system to find the files. Now Soundtrack Pro puts
related audio files at your fingertips. Just Control-click any clip in the Timeline to call
up a menu of related files. Soundtrack Pro instantly inserts any file you select while
maintaining existing clip boundaries.
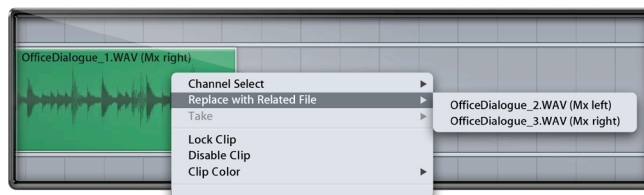
iXML support
Soundtrack Pro now reads iXML metadata, which is used in audio field recording to
capture details such as project name, scene number, take number, and notes. You can
view the iXML metadata in the Bin, in the Details pane in the Multitrack Editor, and in
the Project pane in the standalone File Editor. In addition, Soundtrack Pro uses iXML
tags behind the scenes to help identify related files and display channel information
in the "Replace with Related File" pop-up menu.

Deep integration with Euphonix control surfaces
With new support for the EuCon protocol, Soundtrack Pro lets you experience tactile
control through an attached Euphonix control surface, from fully equipped Pro Series
consoles to portable Artist Series units (sold separately). Choose the Euphonix MC Mix
for desktop mixing or select the MC Control, which now features a high-resolution
touchscreen interface designed specifically for surround panning in Soundtrack Pro 3.

Improved application performance
Soundtrack Pro 3 has a vastly reduced memory footprint and a redesigned architecture
for faster performance. Automatic Audio Unit validation on launch helps ensure that
your third-party plug-ins function smoothly.

Improved DC offset detection and repair
DC offset can significantly impair audio quality through reduced headroom and related
artifacts. Soundtrack Pro now detects and repairs audio with variable DC offset as well
as fixed DC offset.

Streamlined cycle region control
It's now especially easy to create and modify cycle regions. Create a cycle region by dragging in the lower ruler. To remove the region, simply double-click the lower ruler or drag the cycle region to zero duration.

Control gridline mapping
Gridlines in the Timeline intelligently adjust to your zoom level, so you always maintain a clear view of frame boundaries and clip locations.

Spot Timeline clips to playhead/timecode
Easily shift clips across the Timeline by spotting to the playhead location or timecode value.

Record, Mute, Solo shortcuts
Instantly access commonly used track controls using new menu items and keyboard shortcuts. Just type R for Record Arm, T for Mute, and Y for Solo.

Improved notification when exporting large files
Soundtrack Pro now notifies you when you attempt to export AIFF, WAV, and SDII files that are larger than the 4GB maximum allowed by these three audio file specifications.

Quick Look support
New Quick Look support lets you instantly audition Soundtrack Pro Audio File Project (STAP) files from anywhere in the Finder. Just tap the Space bar to play the STAP file without opening Soundtrack Pro.

Powerful Audio Editing

Soundtrack Pro 3 features a streamlined interface that allows video editors to work efficiently with familiar tools, while simultaneously providing the depth and control that audio professionals need to complete the most complex projects.

Customizable multitrack interface
The multitrack Timeline is combined with the File Editor in a single-window interface that lets you fly through audio editing and mixing. Start with a simple Timeline, then progressively disclose additional interface controls for sophisticated tasks. You can customize toolbars and screen layouts for single- and dual-display systems.

Nondestructive, multichannel File Editor
Use the integrated File Editor to perform quick edits on any clip in the Timeline, and open the standalone File Editor for advanced controls. Every operation you perform appears in the Actions list, which lets you modify, suspend, and reorder audio edits. The File Editor now allows you to use a simple drag-and-drop interface to add, remove, and reorder channels.
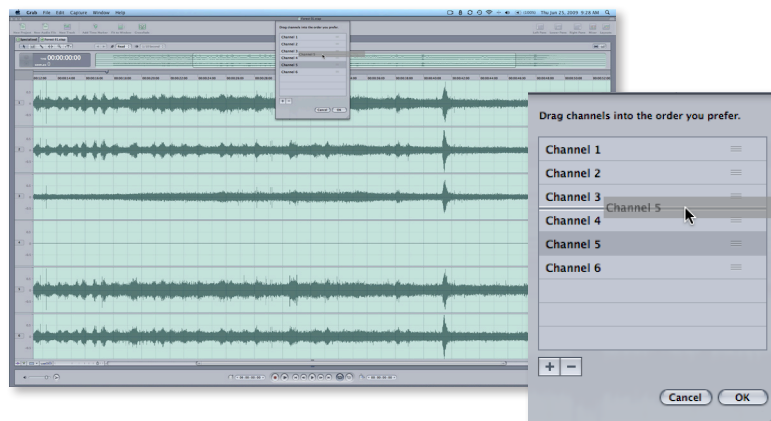
The Frequency Spectrum view displays audio frequency over time, with amplitude revealed through color intensity. Select portions of the audio frequency with pinpoint precision, then edit them without affecting other frequencies. In this view, you can now adjust the amplitude of frequency selections as well as cut, copy, and paste them.
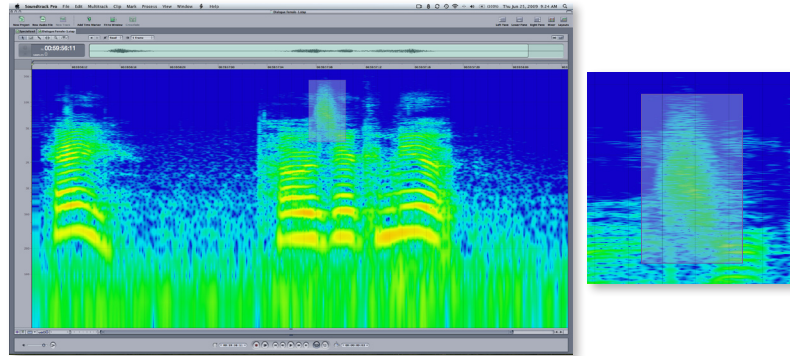
Tighter integration with Logic Pro makes it easier for musicians to nondestructively round-trip mono or multichannel audio files when they use the File Editor in Soundtrack Pro.

Faster navigation
Work faster than ever using new commands for trimming and extending clips and adding fades. Instantly access commonly used track controls through menu items and keyboard shortcuts.

Work efficiently with new options for playhead scrolling, multiple concurrent snap levels for playhead and clips, user-definable nudge, and shortcuts for auditioning changes. Use the new Waveform Zoom function to closely inspect low-amplitude audio clips right in the Timeline.

Advanced time stretch
Stretch and compress audio with unprecedented precision using three Apple time-stretch algorithms as well as popular third-party plug-ins (sold separately). Native support for Serato Pitch 'n Time, iZotope Radius, and SoundToys Speed lets you seamlessly switch algorithms as you work.
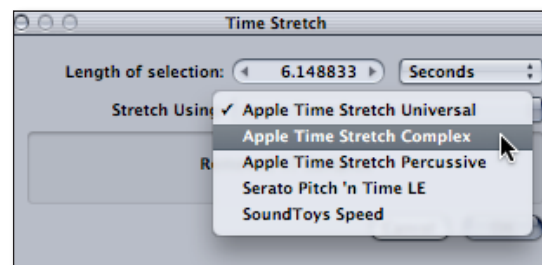

Use the Actions list to edit, suspend, and reorder time-stretch operations. A new option in the Time Stretch window lets you specify duration as a percentage with up to four decimal places. The window also displays the number of samples added or removed as you stretch or compress audio.

Innovative Dialogue Tools

Whether you're working with talent or editing an interview recorded in the field, it can be challenging to make voices sound consistent across your project. Soundtrack Pro makes it easy, with a range of tools designed specifically for dialogue.

Multitake Editor
Create the perfect performance by combining the best parts of multiple takes. You can record directly into the Multitake Editor or add clips manually, then view all the takes simultaneously in a single window. Just select the best words or phrases from each take. Soundtrack Pro combines them in a final composite, including adjustable cross-fades for seamless playback.
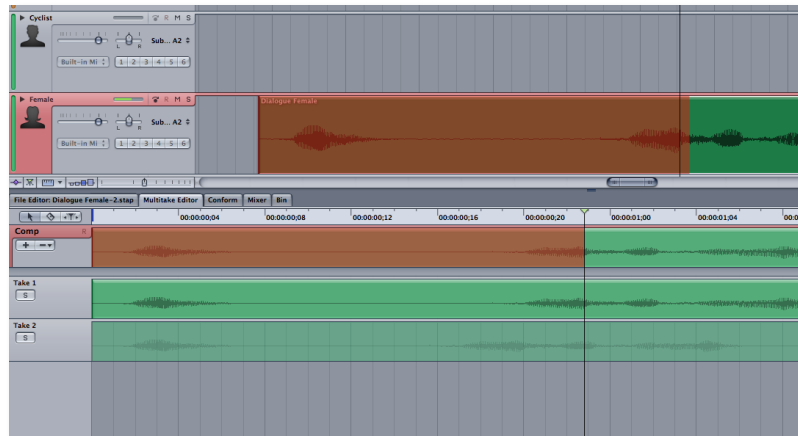

Lift and Stamp tools
Use the Lift tool to quickly copy voice level, process effects, or the equalization print from one clip, and then use the Stamp tool to apply them to another. You can even save a set of "lifted" clip properties as a preset for future use.

Voice-level match
Sometimes the dialogue in a take you want to use is much softer or louder than the dialogue in the rest of your project. Now you can use the new Voice Level option in the Lift and Stamp tools to seamlessly match dialogue volume across your project in just a few clicks.

Soundtrack Pro instantly identifies and analyzes vocal content in both the lifted clip and the clip you stamp, then adjusts the amplitude of the stamped clip to make the dialogue levels match.
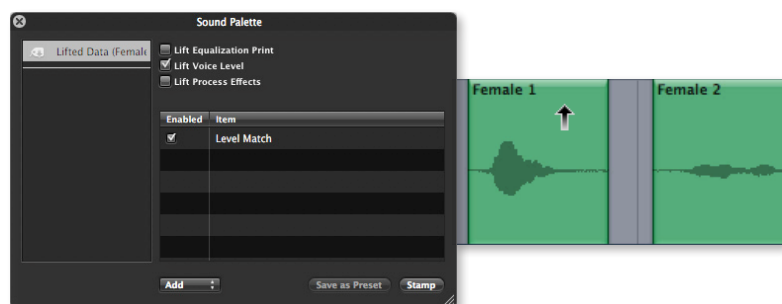
Equalization matching

The EQ matching feature lets you make dialogue from different sources sound as though it was recorded in the same place at the same time. You can mimic the overall feel of a piece of audio by selecting it and setting an equalization print. A single click lets you apply those frequency characteristics to other clips in your project.

Easy Audio Restoration

Problems with field or studio recordings can require hours of repair work with standard editing software. Intelligent tools in Soundtrack Pro 3 let you fix common problems—such as clicks, pops, and hum—in seconds.

Intelligent find-and-fix

Repair field-recorded dialogue or restore old or damaged recordings quickly and easily. Soundtrack Pro analyzes an audio file for common problems—including clicks and pops, hum, phase issues, and more—and automatically removes the objectionable sounds. Audition and fix one problem at a time, or repair all the problems at once by clicking Fix All.

Broadband noise reduction

The improved broadband noise reduction feature in Soundtrack Pro 3 uses a high-resolution noise print to reduce unwanted background audio with even greater precision. To save time when removing noise from multiple files, create an AppleScript droplet to automate the repair process.

Ambient noise print

Soundtrack Pro lets you replace unwanted sounds with ambient noise. The Set Ambient Noise Print command allows you to identify part of an audio file containing only ambient noise. The Replace With Ambient Noise command applies the ambient noise to the audio file or selection, automatically fitting it to the necessary length and adding crossfades for a natural sound.

Sophisticated Sound Design

Enhance a dialogue track, re-create the ambience of any space, or sculpt over-the-top sound effects using a collection of more than 50 effect plug-ins. Soundtrack Pro 3 also comes with more than 6000 royalty-free Foley effects, sound effects, and music beds. Quickly locate the sound you want, then spot it to picture with ease.

Professional effect plug-ins

Sculpt exactly the sound you want using more than 50 stereo and surround effect plug-ins, including Space Designer, Delay Designer, and Channel EQ. You can add to your collection by bringing in compatible third-party Audio Units plug-ins.
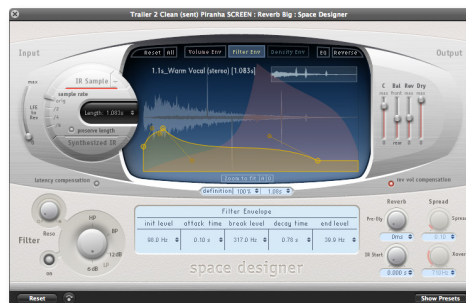
Foley and sound effects

Sweeten your soundtrack with a library of more than 6000 Foley effects, sound effects, and music beds, including more than 1000 sound effects and full music beds in surround—all royalty free. You can easily import and index third-party music and effects libraries when you want more options. Use the Search tab to quickly find and audition both Apple-designed and third-party items.

Spotting to picture

Easily synchronize sound effects to picture by spotting to the playhead or timecode value. For additional visual information, use the innovative Multipoint Video HUD, with a three-up display that shows video frames for a clip's start, sync, and end points. Scrub the audio cue back and forth and watch the video in all three frames dynamically update as you identify exactly where to position your sound effect.
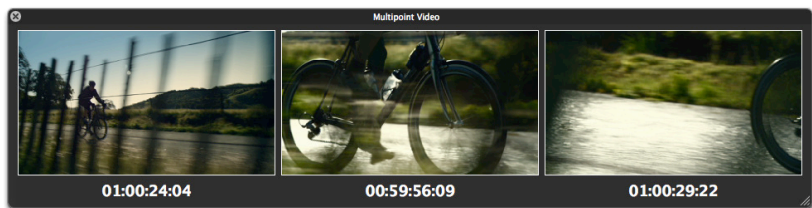

Automatic Audio Conform Process

Easily synchronize your soundtrack to match changes from your video edit, with the industry's first truly integrated audio conform process. Use a color-coded change map and confidence ratings to update your soundtrack in minutes.

Integrated conform process

The audio conform process takes advantage of seamless round-tripping between Soundtrack Pro and Final Cut Pro. Just send your project from Final Cut Pro to Soundtrack Pro. After you change the picture edit, send the project to Soundtrack Pro again. Then the Conform feature can analyze both versions to detect changes.

Viewing proposed changes

Instantly view the changed areas in an interface that combines a visual "map" and a worklist. The map consists of a mini-Timeline that highlights different parts of the edit. View the original project, the incoming changes, or the resulting project. In the worklist, changes are intelligently grouped by type. Soundtrack Pro analyzes the changes and provides confidence ratings to help you quickly identify and accept low-risk changes.
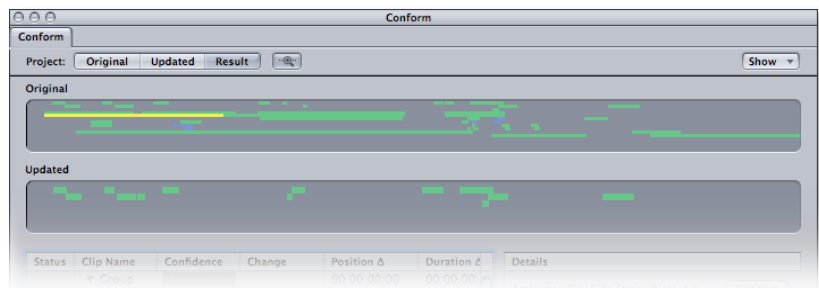
Accepting, rejecting, or modifying changes

Audition and choose which changes to accept, reject, or modify on an event-by-event basis or accept all changes at once. When you accept a change, Soundtrack Pro repositions the audio clip to synchronize with the picture change or removes the clip if it is no longer needed.
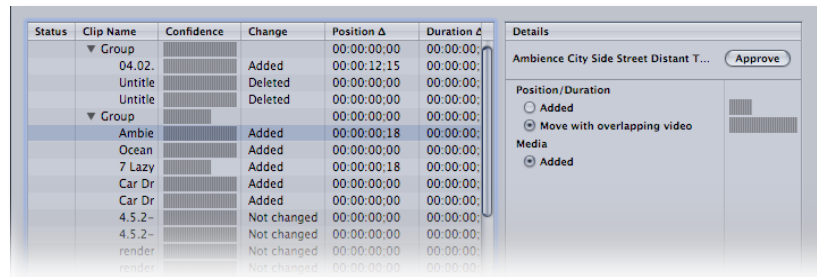

Comprehensive 5.1 Surround Support

Build a cinematic soundtrack for your theatrical film or make even a modest project sound as if it belongs in the theater. Soundtrack Pro 3 gives you everything you need to create immersive surround mixes.

Surround mixing

Soundtrack Pro 3 offers an intuitive and comprehensive set of tools for creating professional surround mixes. Build cinematic soundtracks with discrete 5.1 mixing, bussing, and routing.

An innovative surround panner dynamically represents the location of sound in the surround field as you make adjustments, greatly simplifying the task of creating immersive sound mixes.
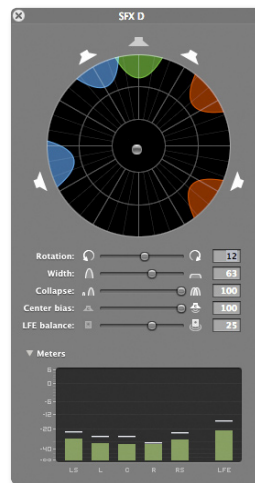
Surround effect plug-ins

Use fully surround-capable compressors, EQs, reverb, and modulation plug-ins to sculpt your sound for surround space. Soundtrack Pro 3 includes more than 50 audio effect plug-ins—many in true surround, including the Space Designer convolution reverb. Soundtrack Pro even gives you the ability to adapt any mono or stereo effect for use with surround tracks.

Surround music beds and sound effects
Create vivid soundtracks by choosing from more than 1000 professionally produced, royalty-free music beds and sound effects in true 5.1 surround.

Simultaneous mixes
Many productions require delivery in both stereo and surround. For example, you may want to stream video on the web with two-channel stereo and release it on DVD with 5.1 surround. Soundtrack Pro simplifies your workflow by allowing you to combine surround and stereo mixes in the same project. Save time by creating just the surround mix, then let Soundtrack Pro create the surround-to-stereo mixdown according to Dolby guidelines.

Flexible Workflows

Soundtrack Pro 3 is designed to work seamlessly with other Final Cut Studio applications and Logic Pro, and it supports industry-standard interchange formats for working with third-party software. Deep hardware integration means you can choose from a variety of audio interfaces and control surfaces.

Integration with Final Cut Studio applications
From Final Cut Pro, send a clip to the File Editor or send an entire sequence to the multitrack Timeline in Soundtrack Pro—all with a single click. Instantly return audio clips—or an entire mix—from Soundtrack Pro to Final Cut Pro.

Use the Conform feature in Soundtrack Pro for automatic updating of your audio project to match editorial changes made in Final Cut Pro. You can also round-trip files between Soundtrack Pro and Motion.

Software interchange
Support for software interchange lets you move complete multitrack projects between Soundtrack Pro 3 and other industry-standard audio applications. You can import OMF files and import and export AAF files.

Hardware integration
Record or output audio using any Mac OS X Core Audio–compatible I/O device. If you connect an Apogee Ensemble or Duet, you can use a software control panel in Soundtrack Pro to adjust the hardware remotely.

Control surfaces let you edit and mix your projects with greater speed and flexibility. Soundtrack Pro supports any surface that uses the Mackie Control or Logic Control protocols. New support for the EuCon protocol lets you connect any Euphonix control surface, with options ranging from fully equipped Pro Series consoles to portable Artist Series units.
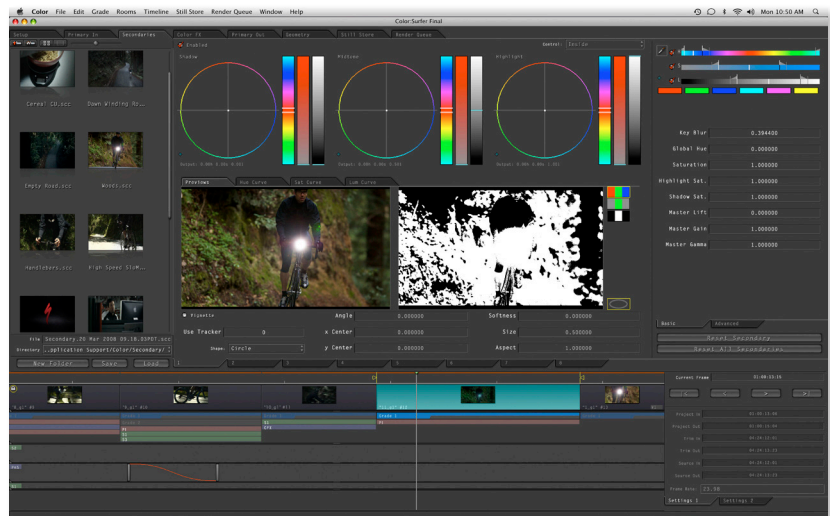
Color 1.5

A creative color grade can radically alter the tone and mood of a sequence. Quickly add visual interest to a clip or give your entire project a signature look with Color 1.5, Apple's professional color grading application. Freely experiment as you move through a series of special-purpose workspaces that include intuitive, familiar tools. Apply an Apple-designed look, customize it, or create entirely new looks from scratch. Whether you're adding polish to a short video piece or grading a full-length theatrical film, Color 1.5 lets you grade confidently and deliver at the highest quality.

Key features of Color 1.5 include:

• Intuitive task-based interface
• Accessible toolset
• Seamless integration with Final Cut Pro 7
• Customizable color effects and signature looks

New in Color 1.5

Now with expanded support for digital cinema workflows, Color 1.5 lets you confidently create unique color grading looks and deliver at the highest quality.

Seamless round-tripping with Final Cut Pro 7
You can now send most long, complex sequences—including scenes with still graphics, speed effects, multicam clips, and other advanced functions—directly to Color from Final Cut Pro, with no preparation required. Speed changes render faster when you send your graded sequence back to Final Cut Pro.

4K support
Color 1.5 allows you to grade and render at maximum quality, with a workflow that supports native 4K files from cameras such as the RED ONE. Output directly to ProRes 4444 for HD delivery or render DPX or Cineon files for digital cinema mastering or film outs.

Support for new high-quality formats
Whether you're grading a sequence in HD or creating a grade for a film out, Color 1.5 produces stunning quality. Work natively in new high-end formats such as Sony XDCAM HD 422 (50 Mbps) and Panasonic AVC-Intra, or use the new ProRes 4444 for grading with the maximum amount of color information.

Relink for digital cinema workflows
Color 1.5 can read a database created in Cinema Tools 4.5 to track your original film or digital files. This means you can edit quickly in Final Cut Pro using ProRes proxies, then use the industry-standard film tracking process in Cinema Tools to easily relink to the original DPX or RED files for color grading.

Affordable options for hardware control
Dedicated control surfaces help you work efficiently when you're grading hundreds of shots. In addition to support for high-end controllers from JLCooper and Tangent Devices, Color now supports a new generation of affordable control surfaces, including the Tangent Devices Wave and the Euphonix MC Color.

Direct import and grading of DPX files
Pregrading your dailies before editing lets you work with footage that looks more polished—especially important when a client or director is in the room. With Color 1.5, you can work directly with DPX files, which means you can import and grade your dailies before the creative editing begins.

Optimized rendering

Color 1.5 renders more efficiently by processing only the shots that have changed. The Add Unrendered feature automatically selects the shots you need to re-render when you make changes. The Add All Beauty Grades option ensures that you render only the grades you have flagged as the final, approved version. Open the Render Log to see at a glance a detailed record of your rendered jobs.

Copy and paste in the Color FX room

You can create new looks faster than ever by copying and pasting Color FX nodes. Modify an existing effect by quickly duplicating elements, or bring a set of nodes into an entirely new effect.

Disable grade status display

The new status display warns you when you have disabled all your grades to view original footage. This lets you compare the latest color grade and the original footage without confusion.

Copy grades to all selected clips

Now you can grade an entire scene in the time it takes to grade a single clip. Just grade the first shot, then select all of the clips in the scene. Drag and drop a "one-light" grade, and you're done.

Improved waveform display

You can now view the waveform display in either millivolt or IRE scales for PAL or NTSC formats. A zoom indicator lets you know whether you've enlarged the view to show greater detail in the signal.

Shift-Z shows entire sequence

When working with long sequences, it's essential to be able to quickly zoom out to re-establish your context. Now you can view all clips at once in the Timeline, using a single keyboard command that is identical to the one used in other Final Cut Studio applications.

New Apple-designed looks

In addition to more than 20 signature looks provided in Color, you can download more than 90 new Apple-designed color grades. The looks, reminiscent of your favorite films, include Glows, Sepias, Day for Night, Blues and Greens, and more. You can download the looks at www.apple.com/finalcutstudio/resources.
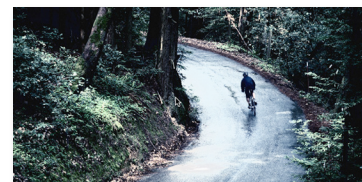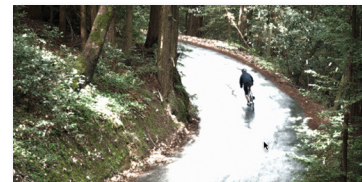
Intuitive Task-Based Interface

Easily move among eight "rooms," or workspaces, as you grade in Color 1.5. Start with the Primary In room for basic grading, then use any other room in any order for more advanced corrections. The Render Queue room lets you output at pristine quality—now with support for high-quality formats up to 4K.

Setup

Setup is automatic when you send a Final Cut Pro project to Color. Use the controls in the Setup room when you want to define special-purpose render settings. You can also apply broadcast-safe settings or group a set of shots to apply effects in a nonlinear color grading workflow.

Primary In

The Primary In room is used in every color grading project to perform global adjust-ments on an entire clip or sequence. The primary grade serves as the foundation for applying additional corrections and effects as needed.

Secondaries

Use secondary correction tools to isolate discrete parts of the image for further adjustment. You can track selection areas and custom shapes over time so that effects happen precisely where you want them.

Color FX

The Color FX room allows you to create a signature look for your project by layering and grouping dramatic effects in a flexible node tree. Or choose from an extensive collection of Apple-designed looks, including more than 90 new options.
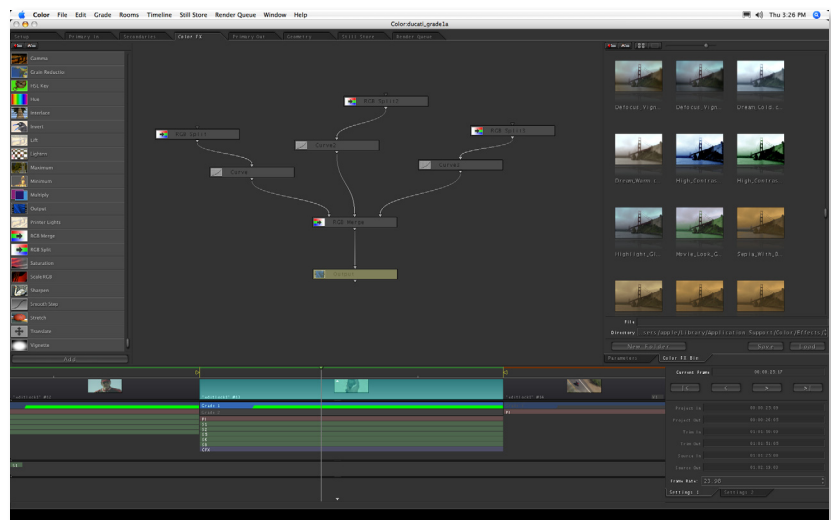
Geometry/Pan & Scan

Quickly adjust the composition of a scene or your entire project in the Geometry/Pan & Scan room. Prepare a 4:3 version of a 16:9 project using preset aspect ratios; or use custom settings for zooms, scaling, and rotation. You can change the composition of the shot over time using keyframes.

Primary Out

The Primary Out room allows you to make global adjustments on top of all your other grading choices, as a final step before rendering. Or use Primary Out to quickly show directors or clients a new grade they've requested at the last minute.

Still Store
Work in the Still Store room to capture stills for use as reference images. Use reference stills to compare footage with your ideal grade so that you can consistently match shots.

Render Queue
Enter the Render Queue room to set up and monitor rendering for your final color grade. Use a recommended graphics card to render in RGB with 32-bit float processing at up to 4K and 4:4:4 quality. You can render an entire sequence or efficiently render only the shots that have changed.

Accessible Toolset

Get started fast with the familiar primary and secondary tools in Color 1.5. Then use curve controls, a Keyframe Editor, and more to make additional adjustments. For even faster grading, use a control surface to adjust multiple parameters at the same time.

Timeline and Bins
Color lets you use familiar tools to manage your color grade. Your sequence in Color appears the same way you see it in Final Cut Pro, complete with a customizable multi-track Timeline. Bins are used to save settings for later reuse, including Corrections (made in a single room), Grades (all the corrections made in multiple rooms), Still Store images, and custom color effects.

Primary grading tools
Primary grading tools are used to make adjustments to the entire image in a still graphic, scene, or sequence. Use color wheels to adjust highlights, midtones, and shadows. Rapidly make adjustments for lift, gamma, gain, and saturation. You can make primary corrections to begin grading or add them on top of other color or geometry effects.

Curve controls
Quickly refine primary grades using highly responsive, interactive curve controls. Add control points and make adjustments to red, green, blue, and luma curves while seeing the results immediately. Automatic B-spline smoothing between control points helps you get to your final look faster.
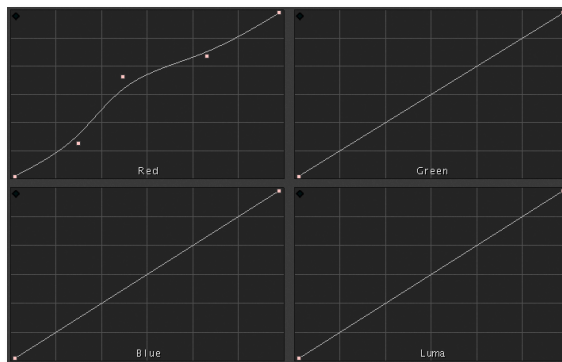
Secondary grading tools

Secondary grading tools let you adjust parameters that affect only specific objects, areas, or color ranges in the scene. Select areas using hue, saturation, or luminance values. Or create custom masks, called Vignettes—including freeform shapes with soft edges that offer complete control over edge falloff. Automatic motion tracking makes it easy to attach a Vignette to a moving object.
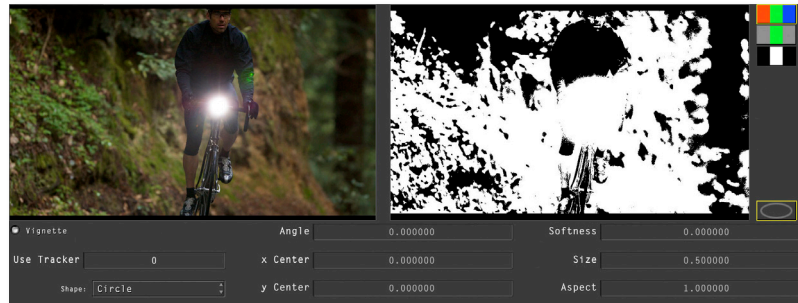
3D Color Space scope

An innovative scope displays chrominance and luminance in a single view that you can manipulate in 3D space—all with real-time response and precise control. Viewing in 3D space helps you to isolate a specific color. Use the 3D Color Space scope to monitor RGB, HSL, Y'CbCr, or IPT values as you make fine-grained color grading adjustments.
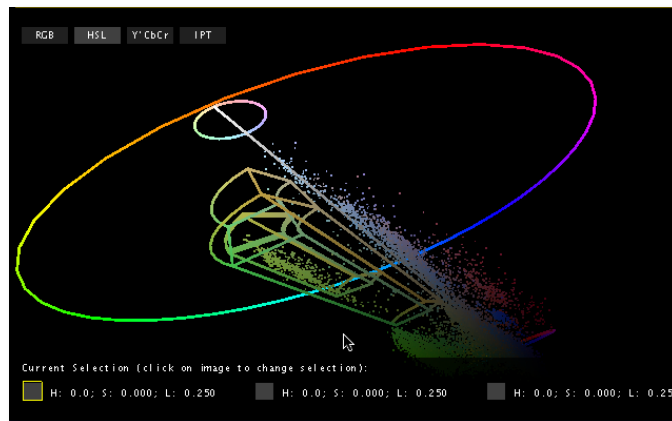
Interactive 2D scopes

Work quickly and accurately by instantly seeing changes in waveform monitors and vectorscopes as you make adjustments. Easily toggle between IRE and millivolt units, and zoom in to see critical details. For additional information, you can use scopes that show histogram and RGB parade views.

Keyframe Editor

Tune primary, secondary, and geometry parameters over the duration of your scene or sequence by using the Keyframe Editor. Add as many control points as you need; Color automatically creates the values for in-between frames.

Control surfaces

For even greater efficiency, add industry-standard control surfaces with trackballs and knobs that allow you to control multiple parameters at the same time. Choose a high-end controller from Tangent Devices or JLCooper, or use one of the new, affordable models from leading manufacturers, including the Tangent Devices Wave and the Euphonix MC Color.

3D lookup tables (LUTs)

Match your grading monitor to the color you'll see on the big screen. Import standard 3D lookup tables to represent the color space for common film stocks, projection systems, and digital video formats, or create your own color management system for specialized display or projection requirements.

Seamless Integration with Final Cut Pro 7

You've finished the edit. Now it's time to give your project a memorable look. Send your sequence to Color with a single click, perform sophisticated color grading, then send your graded files back to Final Cut Pro at top quality.

Start in Final Cut Pro, finish in Color

Send entire sequences from Final Cut Pro to Color with a click. Multiple layers of video stay separate, and you can view speed effects brought over from Final Cut Pro. When you've completed your grade, just send the project back to Final Cut Pro for output.

Nondestructive round-tripping

All of the Final Cut Pro XML metadata from your edit is preserved when you send your project between Final Cut Pro and Color. Color uses your original media; after you finish your color grade, render out, and send the project back to Final Cut Pro, the sequences automatically point to the new color-graded media, leaving your original files intact.

No preparation required for most sequences

Send almost any sequence—including scenes with still graphics, speed effects, multi-cam, and a variety of advanced functions—directly to Color from Final Cut Pro, with no preparation required.

Grade on location or on the set

Take the guesswork out of shooting when you need to create a specific look. Show the director exactly what the finished piece will look like by grading footage on a MacBook Pro. Rapid tests help ensure that the production design will support the final look.

Digital cinema workflows

Final Cut Studio is ideal for digital cinema workflows. Edit in Final Cut Pro using ProRes, then send your project to Color for color grading using the original 2K or 4K DPX media or RED RAW files. When you're done, use Color to render DPX files for film outs or for mastering to digital cinema—all with full 4:4:4 2K or 4K quality.

Customizable Color Effects and Signature Looks

Make your project unforgettable by using Color 1.5 to give it a distinctive look. Apply a single effect to a shot or scene, or create a signature look for the entire project to realize the director's vision. A complete system of color effects, advanced masking, motion tracking, and other tools makes it easy.

Color effects library
Choose from 40 color effects included in the application, such as Grain Reduction, Film Look, Bleach Bypass, and Printer Lights. You can customize any effect by adjusting its parameters, and expand your library by bringing in third-party effect plug-ins.
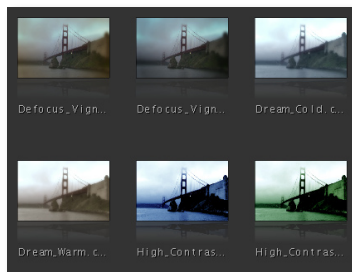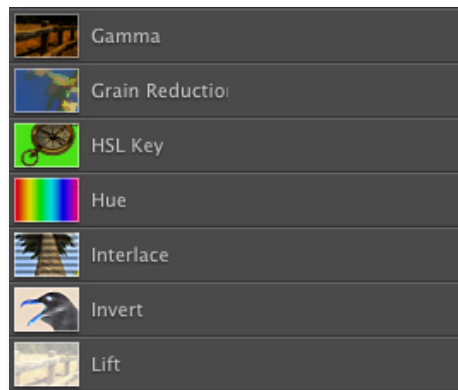
Built-in looks
Get started fast by choosing one of more than 20 looks provided as custom effects in the Color FX Bin. The looks, reminiscent of your favorite films, include Dream Warm, Day for Night, Warm Glow, and Movie Look Green for a science fiction feel.

In addition, you can expand your library by downloading more than 90 new Apple-designed looks. Because you can easily customize any look, you can save time by using an Apple-designed look as a point of departure as you create a unique effect.

Custom signature looks
Color also provides the tools you need to build a completely original signature look. Most looks include original color effects created in the Color FX room, as well as selective adjustments to specific areas of a shot or scene made with secondary tools such as mattes and masks.

• **Original color effects.** It's easy to create an original color effect in Color. Just drag and drop to combine and layer existing color effects in a flexible node tree. You can save your effects for later use and share them with others.

• **HSL-based mattes.** Select specific areas to work with based on hue, saturation, and luminance (HSL) values. Then use the Keyframe Editor to tweak parameters over the duration of your scene, so you get just the effect you want in every frame. Use the Key Blur parameter to soften the matte and reduce noise.

• **Shape masks and custom masks.** Precisely define an area for secondary color correction by creating a Vignette, or mask. Vignettes can be based on four-sided shapes; ovals or circles; or freeform B-spline shapes—all with complete control over size, location, and rotation. Vignettes also have fully adjustable edge qualities; manipulate inner and outer splines to make fine-grained adjustments to edge falloff.

- **Motion tracking.** Use motion tracking to match Vignettes to objects over time. Easily set up target and search areas for automatic tracking; Color calculates the series of points based on the target area you've identified. Save different sets of tracking points, then use the set you like best. You can adjust Tracking Curve Smoothness to even out any movement between the tracking points and improve the accuracy of the track. If you prefer to track a shot by hand, use the Manual Tracker.

Fluid experimentation
Color lets you try out different looks quickly and easily. Rapidly make changes using nondestructive tools and see your results in real time, with the option to switch among multiple "live" grades or to call up saved grades.

- **Live color grades.** A color grade gives a project its distinctive look by storing a set of adjustments made across multiple rooms. Work dynamically with up to four live grades that you can switch at will as you evaluate different looks.

- **Saved grades.** Apply a grade to an entire sequence, copy and paste grades, and save any grade for reuse or distribution. Editors can also use grades created by a professional colorist with Final Cut Studio on a separate workstation.

Compressor 3.5

Compressor 3.5 enables you to encode a single file to multiple formats—ranging from iPod resolutions to HD—at pristine quality. It now offers a range of features that minimize the time spent on encoding, so you can invest more time in editing. New batch templates include job actions that let you automate file delivery, and enhanced droplets are like miniature encoding applications that you can use on the desktop without having to open Final Cut Studio.

Key features of Compressor 3.5 include:

• Streamlined encoding and delivery
• Industry-standard encoding
• Pristine format conversions
• Distributed encoding
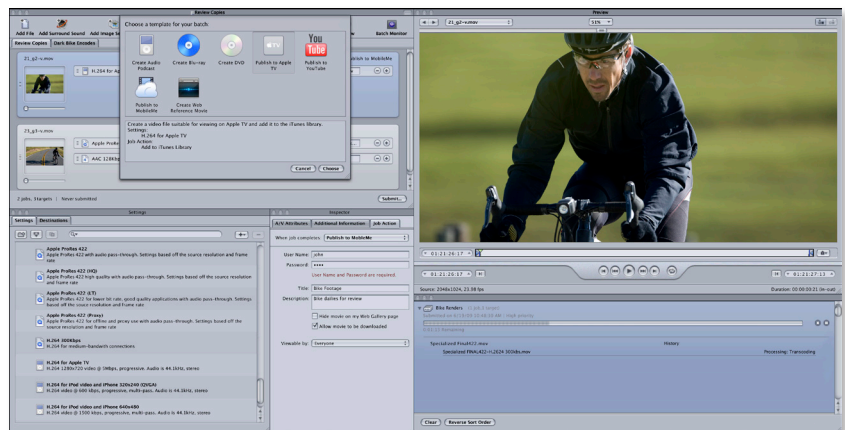
New in Compressor 3.5

Compressor 3.5 lets you work even more efficiently, with new batch templates, job actions, and enhanced droplets that are like miniature encoding applications.

Job actions
The new Job Action feature in Compressor 3.5 makes it easy to automate a variety of post-transcoding tasks. For more information, see page 54.

Batch templates
Compressor 3.5 introduces batch templates for automating end-to-end encoding workflows. For more information, see page 54.

Enhanced droplets
The new droplet architecture in Compressor 3.5 lets you create a self-contained miniature Compressor application that has just the options you need for a particular encoding task. For more information, see page 53.

Auto-detect settings
Compressor 3.5 lets you create a custom transcoding setting from an existing file with a simple drag and drop. Just drag any QuickTime file into the Settings pane to have Compressor analyze the file and instantly create a preset with matching characteristics.

Blu-ray disc and DVD burning
You can now easily burn a Blu-ray disc[3] or a DVD directly from Compressor. Quickly add a menu to your disc by choosing one of the beautiful Apple-designed HD or SD templates included in Compressor. For more information, see page 55.

Image sequence support
Compressor 3.5 imports image sequences in standard formats including TIFF, Targa, DPX, and OpenEXR. For more information, see page 56.

Blu-ray–compatible H.264 encoding
Compressor now includes a setting that allows you to create Blu-ray–compatible H.264 files that can be imported directly into third-party Blu-ray disc authoring software.

Cluster-based reference file encoding
The Apple Qmaster application for distributed encoding, included in Final Cut Studio, now greatly streamlines reference file encoding. It automatically transfers required source media to cluster nodes, eliminating the need for manual copying, and verifies that each node has the required applications and media before encoding begins.

Enhanced networking for distributed encoding
Apple Qmaster now allows you to expand a cluster beyond your local Bonjour network. You can set up a node on any visible IP address within your domain and use the Batch Monitor to view encoding status on all nodes across your cluster.

Faster frame controls rendering
Improved optical flow processing permits faster rendering of jobs that require advanced frame controls, such as de-interlacing and reverse telecine transcodes.

Streamlined Encoding and Delivery

Compressor 3 simplifies encoding tasks and makes multiformat delivery more efficient than ever. Set up encoding batches with drag-and-drop ease and save them as templates for future use. Create droplets that are like miniature Compressor applications or use convenient single-click batch presets.

Streamlined interface

Encode and output multiple formats from the same source file or even output multiple formats from multiple files. Use the dynamic Preview window to evaluate adjustments in real time as you prepare your footage for encoding. Scrub through your video with frame-accurate timecode controls, trim media, and see the results of effects and filters.

Encoding presets

You can choose from more than 100 intelligent encoding presets that analyze your files to provide the best default setting. Or customize settings, save them for reuse, and apply them to encoding jobs with drag-and-drop ease. Instantly create a custom setting from an existing file by dragging any QuickTime file into the Settings pane.

Enhanced droplets

Droplets allow you to create a standalone Compressor preset that you can use on your desktop. With the new droplet architecture in Compressor 3.5, you can create a self-contained miniature Compressor application that has just the options you need for a particular encoding task. Choose alternative settings at any time by double-clicking the droplet to reveal its interface. A set of Apple-designed droplets is available at no charge at www.apple.com/finalcutstudio/resources.
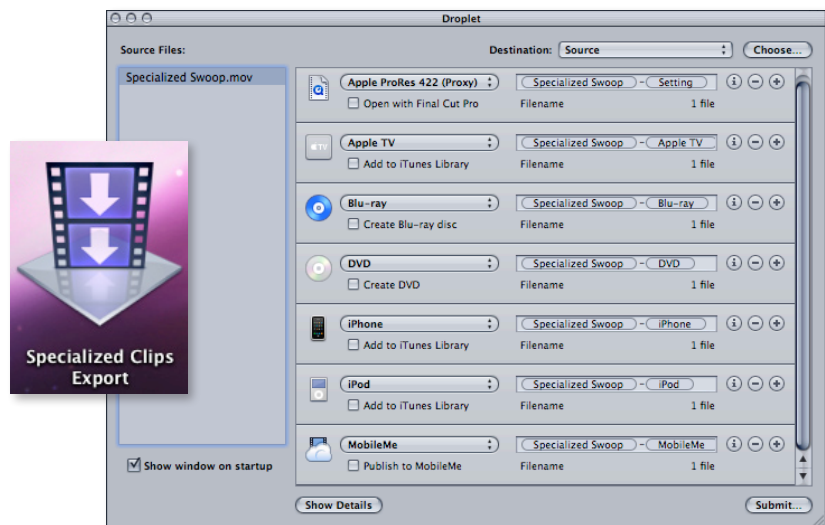
Job actions

The new Job Action feature in Compressor 3.5 makes it easy to automate a variety of post-transcoding tasks. Choose a job action to have Compressor open a file, publish it to the web, or send it to your iTunes library. You can also use job actions to burn a Blu-ray disc[3] or a DVD, or even trigger Automator workflows.
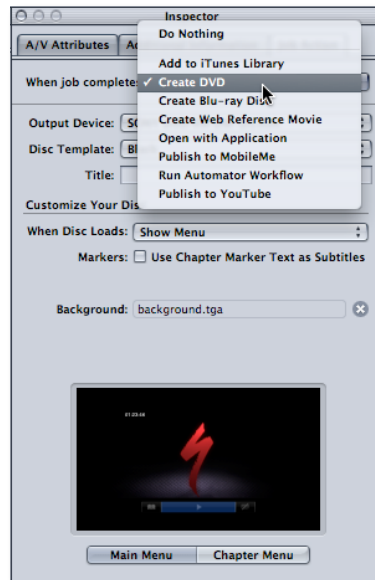
Batch templates

Compressor 3.5 introduces batch templates for automating end-to-end encoding workflows. For common encoding tasks, you can choose one of the preset batch templates that are similar to those in the Share window in Final Cut Pro 7 and Motion 4. For complete flexibility, create your own templates for use in Compressor, using any combination of settings and destinations, as well as a job action.

Job chaining

Sometimes the order in which you perform encoding steps is critical to maintaining quality. Job chaining allows you to use the output of one step as the source for the next step. Quickly set up job chaining in the batch window to arrange the sequence of processes that you need.

Video filters

Compressor includes video filters that offer additional flexibility as you prepare files for output. Preprocess your video with filters for color adjustment, noise reduction, brightness, and contrast. Easily produce footage with timecode burn-in windows or add text overlays. You can even place animated watermarks in your footage by bringing in an Alpha-channel Motion project or QuickTime movie.

Audio filters

Use audio filters to perform final adjustments on your audio before encoding it. Filters include Dynamic Range, Peak Limiter, Graphic Equalizer, and Fade In/Out.

Geometry

Compressor includes easy-to-use controls for reframing your video, including image padding, as well as tools that let you simultaneously crop and scale to adjust the aspect ratio of your video before output. Compressor can detect the requirements of common conversions and automatically crop and scale to avoid letterboxing.

Delivery options

Compressor 3.5 includes a range of convenient delivery options:

- **Blu-ray disc and DVD burning.** You can now easily burn a Blu-ray disc[3] or a DVD directly from Compressor. Quickly add a menu to your disc by choosing one of the beautiful Apple-designed HD or SD templates or, to achieve a specific look, import and use third-party or custom templates.
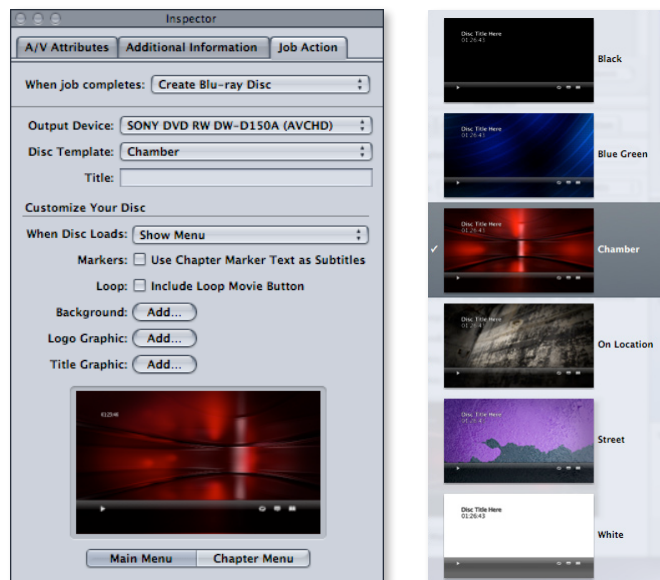
- **Single-click delivery.** Compressor includes a window with presets that are similar to those in the Share window in Final Cut Pro and Motion. Export your file to iTunes for syncing with Apple TV; publish to YouTube or MobileMe[4]; or burn a Blu-ray disc[3] or a DVD. You can also access custom Compressor presets with a single click.

- **Automated file transfers with Final Cut Server.** Use Final Cut Server to automate any combination of encoding and delivery steps in Compressor, including transfers to broadcast or other production servers.

Industry-Standard Encoding

Compressor 3.5 offers broad support for encoding to a wide range of industry-standard formats, including specialized broadcast server formats, MP3 audio, and media with advanced chaptering for podcasts and Apple TV.

Industry-standard video formats
Handle all your encoding needs without leaving Final Cut Studio. Compressor 3.5 encodes to the leading industry-standard video formats, including:

• **MPEG-2.** Output MPEG-2 files in SD and HD resolutions up to 40 Mbps for transport or program streams. You can also prepare encoded MPEG-2 files to create elementary streams for DVD formats.

• **H.264.** A scalable, state-of-the-art video codec, H.264 delivers stunning quality at remarkably low data rates. Use H.264 to deliver video for distribution on iPod, iPhone, Apple TV, the web, and mobile devices. A new setting lets you create H.264 files that are compatible with Blu-ray players.

• **QuickTime.** Access all QuickTime-supported codecs, including DVCPRO HD, uncompressed SD and HD, and all the versions of the ProRes codec, which let you edit faster and at higher quality across a wide variety of workflows.

Image sequence support
Used in graphics compositing and film workflows, image sequences treat each video or film source frame as a still image. Compressor 3.5 imports image sequences in standard formats including TIFF, Targa, DPX, and OpenEXR. You can specify an audio file to incorporate with the image sequence as you import it—for example, the original field-recorded audio for a clip that was converted to an image sequence.
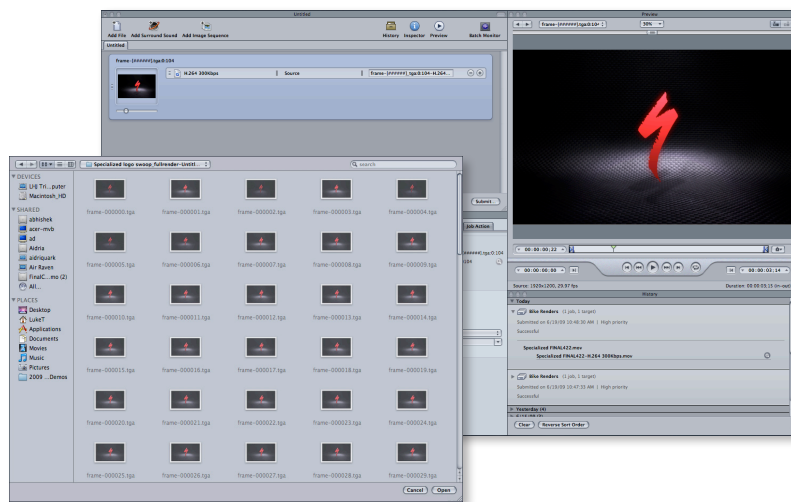
Support for Telestream Episode plug-in
The Telestream Episode Pro plug-in for Compressor (sold separately) lets you access the full range of output formats supported by Episode, including Flash 8, Windows Media, VC-1, WMV, GXF, High Profile H.264, and FLV formats. You can also output proprietary broadcast server formats such as Omneon, Quantel, Avid, Grass Valley, and Leitch. For more information, visit www.telestream.net/episode/overview.htm.

Audio encoding
Compressor outputs files to MP3 as well as to any QuickTime-compatible format, including AAC, AIFF, and QuickTime Surround 5.1. Easily convert surround sound stems into Dolby Digital Professional AC-3 files for your DVD projects. You can choose Dolby Digital Professional 2.0 or 5.1 audio, or let Compressor select the correct setting based on the number of channels in the source file.

Encoding for Apple devices
Choose H.264 encoding presets that are optimized for iPod, Apple TV, and other Apple devices. Add chapter markers for easy navigation of content on Apple TV or in podcasts. When you've finished preparing and encoding your material, upload your files directly to MobileMe,[4] YouTube, or an FTP site.

Advanced encoding options
Compressor 3.5 provides a comprehensive set of options for advanced encoding, including:

• **Metadata annotations.** Add keywords, copyright information, and other notes to your media. All the applications in Final Cut Studio can read metadata encoded by Compressor.

• **Closed captioning.** Include closed captioning information with the output of MPEG and QuickTime files.

• **Command-line access.** Use the command line to write shell scripts for large-scale automation of encoding tasks.

Pristine Format Conversions

Compressor 3.5 uses optical flow technology to perform format and standards conversions with beautiful results. Convert NTSC to PAL, SD to HD, or interlaced video to a progressive format. Create flawless retiming effects. Or use the reverse telecine feature to restore the original frame rate of a film by removing pulldown.
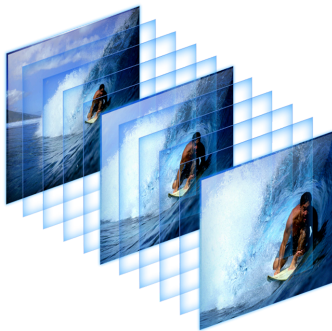
Optical flow technology
Optical flow is a sophisticated method of motion analysis that tracks an image pixel by pixel to create "new" frames with stunningly smooth results. Compressor uses optical flow analysis to scale video, perform interlace and deinterlace operations, and change the frame rate for format and standards conversions as well as retiming effects. Compressor 3.5 offers significantly reduced rendering time thanks to improved optical flow technology.

Standards conversions
Run international standards conversions in either direction between NTSC and PAL or between 50Hz and 60Hz HD formats. Thanks to optical flow technology, the video in the new format will have the same quality as the original source file while maintaining smooth playback.

Video retiming
Flexible retiming controls in Compressor let you speed up, slow down, or fit your video to a time duration. Compressor interpolates frames for pristine retiming effects. If you prefer to use all of the existing frames, you can use frame mapping to adjust the playback speed of your clip to fit exactly the frame rate you need. Both types of retiming include automatic pitch adjustment for audio. Preview retiming effects of either type and make adjustments in real time as you work.

Reverse telecine
Compressor gives you the ability to convert 29.97-fps material to 23.98 fps. This process is called 3:2 pulldown removal, or reverse telecine. In fact, there is a wide range of pull-down schemes, or cadences, in addition to 3:2, and a sequence may include footage with multiple cadences. Compressor uses an adaptive cadence approach to sample and ana-lyze the footage, then select the dominant cadence to use for conversion.

Distributed Encoding

Get encoding done faster—without interrupting other work—through the power of distributed encoding. Compressor can use the Apple Qmaster application to distribute encoding jobs among multiple computers and selected cores.

Apple Qmaster
Apple Qmaster uses the processing capacity of your network computers—and even multiple cores on a single computer—to perform a wide range of encoding and render-ing tasks. It lets you organize clusters of computers and cores for specific jobs, users, or applications.

Apple Qmaster now allows you to expand a cluster beyond your local Bonjour network. You can set up a node on any visible IP address within your domain and use the Batch Monitor to view encoding status on all nodes across your cluster.

Distributed encoding with Xsan
Distributed encoding with Apple Qmaster works over any standard network and can include an unlimited number of client nodes. To further accelerate the process, use Xsan, the SAN file system for Mac OS X, to connect encoding nodes on a Fibre Channel net-work. Because your media files are accessed over a high-speed network, large files never have to be copied to individual workstations.

QuickCluster
The QuickCluster feature in Apple Qmaster dynamically configures a cluster based on available resources. Each computer user makes processing resources available to Apple Qmaster on an opt-in basis. QuickCluster polls the network for available resources and dispatches encoding tasks to computers that have opted in. Users doing processor-intensive work can elect to make their computers unavailable for encoding, then release resources at the end of the task or workday.

Cluster-based reference file encoding
Apple Qmaster now greatly streamlines reference file encoding. It automatically transfers required source media to cluster nodes, eliminating the need for manual copying, and verifies that each node has the required applications and media before encoding begins.

DVD Studio Pro 4

DVD Studio Pro 4 makes it easy to extend your creative vision to every aspect of DVD authoring. Whether your project is simple or sophisticated, you'll enjoy using familiar, easy-to-use tools to produce the perfect presentation of your SD or HD content. A comprehensive set of advanced features is available whenever you want more control.

Key features of DVD Studio Pro 4 include:

- Intuitive design environment
- Professional authoring tools
- Versatile DVD mastering
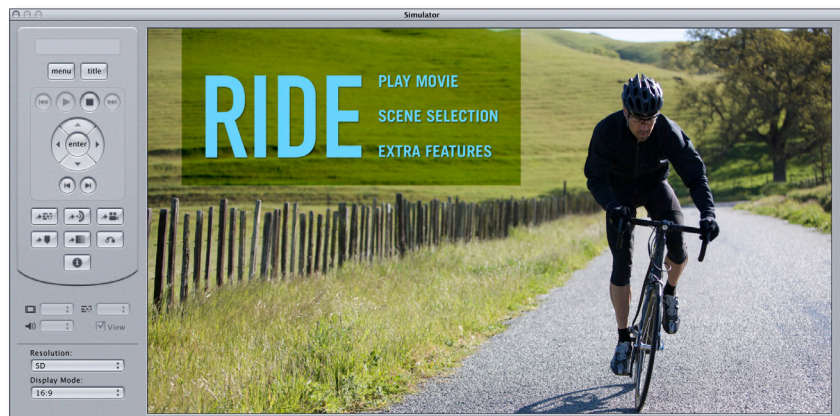
Intuitive Design Environment

Design a DVD as easily as you edit video, with intuitive, time-saving tools and customizable templates. DVD Studio Pro 4 works behind the scenes to create the code, allowing you to focus on creating the look you want.

Design-focused interface
Call up any of three interface configurations—basic, extended, or advanced—then customize your choice by adding, deleting, and arranging windows in any layout.

Dynamic menu creation
Get started fast by choosing from more than 30 Apple-designed templates, with options for 4:3 and 16:9 aspect ratios. Modify the templates or create your own.

Drag-and-drop connections
Link buttons to actions with a click, using context-sensitive drop palettes. The interactive Graphical view lets you see all your relationships at a glance. Evaluate the user experience as you work by using the built-in DVD simulator.
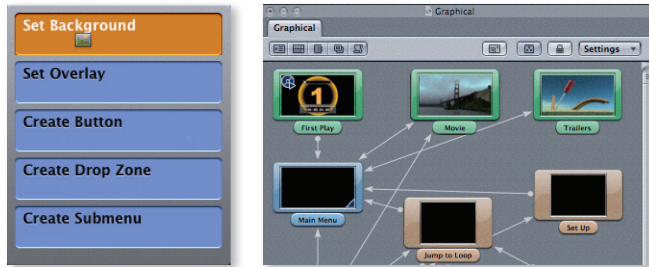
Dazzling transitions
Create dramatic effects in segues between menus and within slideshows with drag-and-drop ease. Choose from more than 30 stunning Apple-designed transitions, including Alpha transitions with transparent backgrounds.
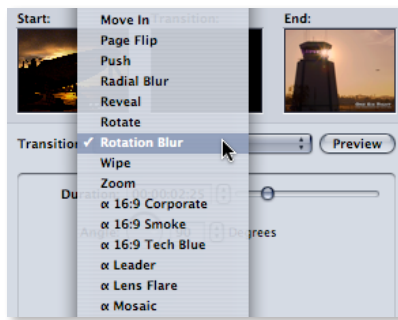
Engaging slideshows
DVD Studio Pro makes it easy to add stills to your project through slideshows:

• **Basic slideshows.** Let DVD Studio Pro create the slideshow for you—complete with navigation—or use the Slideshow Editor for complete control.

• **Self-advancing slideshows.** Set the duration for each image and select transitions to insert between slides.

• **Rich media productions.** Convert your slideshow to a DVD track with a single click; then mix in video clips, create alternative audio tracks, and add subtitle streams.

Professional Authoring Tools

Whether you want to create a wedding DVD or a sophisticated commercial title, DVD Studio Pro 4 makes it easy. Quickly arrange tracks in a timeline, and add advanced, interactive features to your project with point-and-click ease.

Advanced track editing
The timeline-based Track Editor includes tracks for video, audio, and subtitles, with support for the maximum DVD specification. Use the Track Editor to trim start and end times, merge multiple video or audio assets in a single track, and easily move and rename chapter markers.

Extensive audio support
DVD Studio Pro 4 supports PCM audio at 48kHz and 96kHz. Or you can work with cinematic surround sound using Dolby Digital 2.0 or 5.1 or DTS 6.1 formats.[5] Preview any audio source, including surround sound, right in DVD Studio Pro.

Multiple playlists
Use the Story feature to create multiple versions, or playlists, of your content without duplicating media assets. For example, you can create a DVD of a full-length movie and include a playlist that shows scenes only of a certain type.

Interactive DVD authoring
Use point-and-click scripting menus to create interactive games and quizzes, options for random playback, and conditional playback settings based on variables such as the type of DVD player. GPRM partitioning flexibly allocates up to seven of the eight memory registers, allowing you to use up to 112 partitions for your scripts.
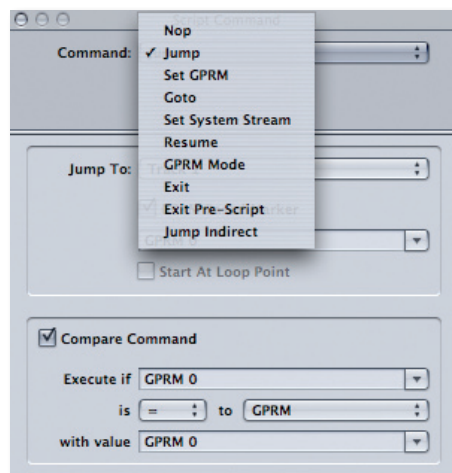
Other advanced authoring features
DVD Studio Pro allows you to selectively disable player operations during "must see" sections like the FBI warning. You can also control whether specific menus, tracks, or stories will appear based on player setup. Remote control settings let you program specific keys to call up certain locations on the disc.

Versatile DVD Mastering

DVD Studio Pro 4 makes it easy to burn your own discs using the SuperDrive in your Mac or an external burner. You can also create masters for commercial DVD replication that include a wide range of standard professional features.

Easy disc burning
Easily burn discs to use for dailies, demo reels, and more. Use the SuperDrive in your Mac to burn your content to discs in leading formats, including single- and double-layer DVD-R and DVD+R; DVD-RW; DVD+RW; and DVD-RAM.

Commercial replication
DVD Studio Pro 4 lets you create industry-standard images for DVD replication, including dual-layer (DVD-9) as well as single-layer discs.

Create a disc image in one of two industry-standard formats—Cutting Master Format (CMF) version 1.0 or 2.0; or Disc Description Protocol (DDP) version 2.1 or 3.0. You can write images to a hard drive, DVD, or digital linear tape (DLT) for transfer to the replication facility.

Copy protection flags
If you send a project to a commercial replicator, you can benefit from features added during replication for copy protection and encryption. DVD Studio Pro 4 sets flags used by replicators to generate codes for Macrovision copy protection (Types 1, 2, and 3) and CSS encryption.

Other replication features
Use DVD Studio Pro to add region coding, which enables your disc to be played in designated regions of the world or to be used as in-flight entertainment. Add jacket picture art to show a custom picture when the viewer stops playback.
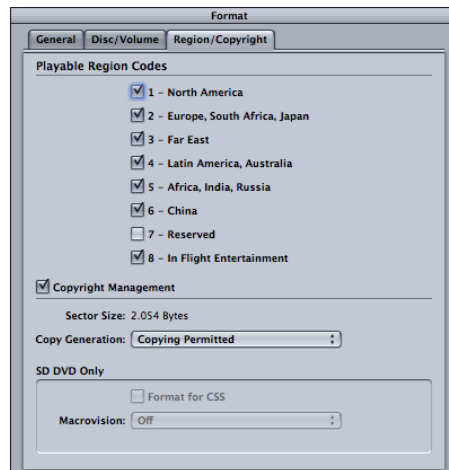
Post-Production Workgroups

Collaborate with a small team of editors in a boutique post-production facility. Or build a custom workflow for a global news network. Whether you're sharing a small number of media assets over a LAN or supporting hundreds of editors on a SAN, Final Cut Studio makes it easy for everyone to work together.
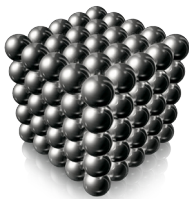
Shared Media Assets over a LAN or WAN

Small workgroups can share media over a LAN or WAN by copying assets from a shared volume to a local workstation. For a scalable high-performance shared storage solution, Final Cut Studio editors can collaborate over a Fibre Channel storage area network (SAN) powered by Xsan.

With Xsan, every editor on a project has concurrent access to source media files and never needs to transfer assets between workstations. Each Mac system accesses shared files on the SAN as if the storage were directly attached. Xsan can support hundreds of concurrent clients and can easily be expanded to provide more storage capacity and bandwidth as your needs grow.
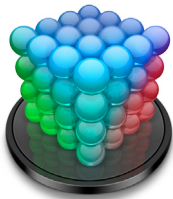
Final Cut Server 1.5

Final Cut Server 1.5 is Apple's media asset management and workflow automation software (sold separately). It can manage thousands of assets, execute dozens of routine production tasks, and keep every member of your team in sync—all while you continue working.

Final Cut Server now features deeper integration with Final Cut Pro, including support for the efficient new ProRes 422 (Proxy). Check out proxies, edit on a MacBook or MacBook Pro, and check the project back in for instant relinking to the original source. It also features image sequence support, new production hierarchies, and faster searches.

Final Cut Server combines server software designed to run on Mac OS X with a cross-platform client that runs on Mac and Windows-based computers. Collaborate over a LAN or WAN with a small number of users, or leverage the power of Xsan to share media across a large number of workstations.

Product Details

Pricing and Availability

The U.S. retail price of Final Cut Studio is $999.[6] Contact your authorized Apple representative for education pricing. Current Final Cut Studio owners can purchase an upgrade for $299. Upgrades are available only for retail versions.

Final Cut Studio is available worldwide in U.S. English, French, German, and Japanese, except Color, which is available only in U.S. English (documentation for Color is available in U.S. English, French, German, and Japanese).

The Final Cut Studio installer and Final Cut Pro are also available in Chinese; some documentation for Final Cut Pro is available in Chinese. Soundtrack Pro, Cinema Tools, Compressor, and the Apple Qmaster application are available in U.S. English, French, German, Spanish, Chinese, and Japanese; documentation for Apple Qmaster is available in U.S. English and French.

Final Cut Studio can be purchased from the Apple Online Store (www.apple.com/store), Apple Retail Stores, and Apple Authorized Resellers.

System Requirements

The following are the system requirements for Final Cut Studio:

Requirements to install all Final Cut Studio applications
- A Mac computer with an Intel processor
- 1GB of RAM (2GB of RAM recommended for working with compressed HD and uncompressed SD sources; 4GB of RAM recommended for working with uncompressed HD sources)
- An ATI or NVIDIA graphics processor (integrated Intel graphics processors not supported)
- 128MB of VRAM
- A display with 1280-by-800 resolution or higher
- Mac OS X v10.5.6 or later
- QuickTime 7.6 or later
- A DVD drive for installation
- 4GB of disk space required to install all applications (Final Cut Pro, Cinema Tools, Motion, Soundtrack Pro, Color, Compressor, Apple Qmaster, and DVD Studio Pro)
- 46GB of disk space required to install all optional templates and content:
  – 9GB for DVD Studio Pro content
  – 7GB for Motion templates
  – 22GB for audio content
  – 8GB for LiveFonts

Application-specific requirements
Soundtrack Pro
- For 5.1 surround monitoring of multichannel audio content: an audio interface with a minimum of six outputs
- For multitrack recording: an audio interface with multiple inputs

Color
- A display with 1680-by-1050 resolution or higher; dual displays are highly recommended
- For rendering of 4K files and DPX: a graphics card with at least 512MB of VRAM
- For 32-bit rendering: a graphics card with at least 256MB of VRAM
- A three-button mouse for full functionality

DVD Studio Pro
- For writing finished projects to disc: an Apple SuperDrive or other DVD recorder
- For writing finished projects to a double-layer disc: a double-layer–compatible recorder and double-layer media
- For transporting projects that contain copy-protection or dual-layer features to a replicator: a DLT drive, external drive, or Internet transfer of the project's disk image

Blu-ray–specific requirements
- For burning Blu-ray discs: a Blu-ray recorder

Support

Final Cut Studio comes with 90 days of telephone support for installation, launch, and basic troubleshooting. In addition, Apple offers a range of professional support options, including AppleCare Professional Video Support.

AppleCare Professional Video Support
AppleCare Professional Video Support can help you keep your project running smoothly, whether you are editing HD video, performing color grading, designing motion graphics, creating a soundtrack, encoding files for output, or authoring custom DVDs.[7] With this product, one authorized contact can call[8] or email[9] the Apple Professional Video Technical Support team for one full year. Apple's support team is on call 12 hours a day, 7 days a week. These experts provide one-stop support for the applications included in Final Cut Studio. Also included is troubleshooting for Apple hardware and for interconnectivity between your Mac or Xserve and an Xserve RAID,[10] as well as assistance with DV, SD, and HD video input/output over FireWire or Apple-qualified capture cards.[11] For more information or to purchase support, visit www.apple.com/support/products/provideo.

Tutorials

Whether you're new to Final Cut Studio or just looking to pick up some tips, you can get up to speed quickly by viewing online tutorials provided free of charge by leading video training developers.

View a selection of Getting Started tutorials at lynda.com; explore workflows at the Mac Pro Video site; learn about What's New at Ripple Training; and see demonstrations of time-saving Tips at Magnet Media. The tutorials include more than 120 topics covering all six Final Cut Studio applications—plus Tips for Final Cut Server—for a total of more than four hours of video instruction available for viewing wherever you go.

In addition, Peachpit Press provides free online access to selected chapters from its Final Cut Studio and Final Cut Server books. One chapter is available for each of the seven books in the series, which cover Final Cut Server as well as the applications in Final Cut Studio.

To access the tutorials and book chapters, visit www.apple.com/finalcutstudio/resources.

Training

The Apple Pro Training Program is designed to keep you at the forefront of Apple's digital media technology while giving you a competitive edge. Whether you are an editor, graphic designer, sound designer, web developer, special effects artist, or teacher, these training tools are meant to help you expand your skills.

Take instructor-led classes at an Apple Authorized Training Center
There are more than 200 Apple Authorized Training Centers worldwide. For more information, visit www.apple.com/software/pro/training.

Use self-study courses from the Apple Pro Training Series
The official Apple Pro Training Series courseware is published by Peachpit Press. For more information, visit www.apple.com/software/pro/training.

Become an Apple Certified Pro
On completion of the course material, you can become an Apple Certified Pro by taking the certification exam at an Apple Authorized Training Center. For details, visit www.apple.com/software/pro/training.

For More Information

For more information about Final Cut Studio, including detailed technical specifications for Final Cut Pro 7, Motion 4, Soundtrack Pro 3, Color 1.5, Compressor 3.5, and DVD Studio Pro 4, visit www.apple.com/finalcutstudio.

[1]From U.S. Broadcast and Professional Video Marketplace (BPVM)™ ©2009 SCRI International, Inc. [2]Video chatting requires a broadband Internet connection; fees may apply. To configure corporate Internet connections for iChat AV use, visit http://support.apple.com/kb/HT1507?viewlocale=en_US. [3]Blu-ray recorder required for burning Blu-ray discs. [4]The MobileMe service is available to persons age 13 and older. Annual subscription fee and Internet access required. Terms of service apply. [5]Decoder required. [6]Prices are Apple Store prices as of July 23, 2009, do not include taxes or shipping, are subject to change, and are listed in U.S. dollars. [7]Details of support coverage and eligible Apple technologies are described under the terms and conditions at www.apple.com/support/products/provideo. [8]Telephone numbers and hours of operation may vary and are subject to change; local telephone fees may apply. [9]Access to web-based resources requires the use of a compatible Internet service provider; fees may apply. [10]Hardware repairs that are not covered under warranty require an extended service contract, such as the AppleCare Protection Plan. [11]For a list of Apple-qualified capture cards, see www.apple.com/finalcutstudio/finalcutpro/specs.html.