

EditWell


THE RICH-MEDIA NEWSLETTER
FOR FINAL CUT STUDIO


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Color is very different from other applications in Final Cut Studio 2, and what you don't know can make even a simple color correction a very painful process. Alexis walks you through a simple workflow to keep your projects running smoothly.



Editor's Notes

As I write this, Final Cut Studio 2 has been out for a few weeks and a hot topic in my email has been questions on when to upgrade.

I really like what I see in the new Final Cut Studio 2. I've found Final Cut Pro 6, DVD Studio Pro and LiveType to be very stable. However, at their initial release, Motion 3, Soundtrack Pro 2, and Color needed a fair amount of work. Now that Apple has released an upgrade to all these applications, I'm looking forward to putting them to work.

In deciding whether to upgrade, a couple basic rules apply:

- 1) Never upgrade in the middle of a project.
- 2) Never upgrade if you are about to start a new project without sufficient time to learn the new software.

I have two editing systems here in the office: one I use for testing and one for serious projects. I always upgrade my testing system immediately so I can play with all the new toys. My "serious projects" system, though, generally gets upgraded about six months after a new release. That gives me time to make sure everything in the upgrade will work properly.

Although I haven't had time to play with all the software, our editorial team has. In this issue, we have a brilliant set of articles from Alexis Van Hurkman on what you need to know to run Color. Color is every bit as system-intensive as Motion was when it was released. What you don't know can totally prevent you from getting your work done. In this series of two articles, and continuing next month, Alexis gets you ready to run Color right.

Stephen Kanter contributes an article covering the new Soundtrack Pro interface. Apple has made a lot of changes to this program; Stephen provides us a new map so we can find our way around quickly.

I had a chance to play with the new SmoothCam filter in Final Cut Pro 6, and wrote both an article and a video tutorial to show you how it works.

Tom Meegan contributes a fascinating article on creating network-quality effects using composite modes in Final Cut. (It's beyond the reach of our budget to pay the licensing rights for some of his images, but [click here](#) to see an incredible demo reel.)

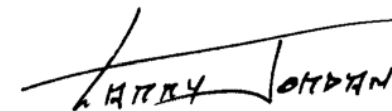
Our research has shown that you subscribed to *Edit Well* to stay current on Final Cut Studio. So, we will focus on making the most of all these new applications. We won't ignore the past, rather we want to help you build for the future.

Speaking of not ignoring the past, *Edit Well* has a new look this month. We are celebrating the start of our second year of publishing and decided to celebrate by sprucing ourselves up.

Finally, our monthly survey is back (I, um, forgot to include it in the last few issues). [Click here](#) to share your opinions. As always, we are grateful for your comments, and your emails.

Oh, and one last thing — the yak lives.

Take care, and edit well.





About Our Contributors

**Larry Jordan**

Larry Jordan is a consultant and Apple Certified Trainer in Digital Media with more than 25 years' experience as a television producer, director, and editor with national broadcast and corporate

credits. Based in Los Angeles, he's a member of both the Directors Guild of America and the Producers Guild of America. Larry has also been recognized as one of the Top 100 Corporate Producers in America. He has written two books on Final Cut: *Final Cut Pro HD Hands-On Training* (Peachpit, 2004) and *Final Cut Pro 5 Hands-On Training* (Peachpit, 2005). Visit his website at www.larryjordan.biz.

**Stephen Kanter**

Stephen Kanter is an Avid and Apple Certified editor who has worked in television, documentaries, and feature films as an editor, producer, and postproduction supervisor. An Apple Certified Trainer

since the program began, he is the technical editor for much of the Apple Pro Training Series, including Final Cut Pro, Final Cut Pro for Avid Editors, DVD Studio Pro, and Soundtrack Pro. Based in Los Angeles, Mr. Kanter currently works as a freelance editor and trainer for UCLA, Moviola, and Weynand Training. He is a member of the Editors Guild. Visit his website at web.mac.com/editdog.

**Tom Meegan**

Tom Meegan is the creative director of Woven Pixels Productions, a media production and consulting business in Central New Hampshire. He has been in broadcast television production for

20 years and has won 2 New England Emmy Awards for lighting design, and he was nominated for his work as a coordinating producer. He edits for the MLB World Series on Fox Network, the NBA Finals, the Olympics, and Wimbledon. He is an Apple Certified Trainer for Final Cut Pro. Visit his website at www.wovenpixels.com.

**Alexis Van Hurkman**

Alexis Van Hurkman is a writer, director, colorist, and effects artist. As a post-production artist, Alexis has created effects for the award-winning short subject *Artistic License*, and color-

corrected the feature *Souvenir* and the television pilot *FBI Guys*. As a filmmaker, Alexis' feature debut, *Four Weeks, Four Hours*, has screened at the 2006 San Fernando Valley, Portland Longbaugh, and Toronto ReelHeART film festivals. His written work includes several *Apple Pro Training Series* titles including the forthcoming *Apple Pro Training Series: Color* (Peachpit, 2007) and the Final Cut Pro and Shake User Manuals. Visit his website at www.alexisvanhurkman.com.



Coming Up in June

With the release of Final Cut Studio 2, there's LOTS of new stuff to look at and talk about, so July is shaping up to be a great issue, including:

- New features in Compressor 3
- New 3D features in Motion 3
- Stephen Kanter continues his series on Soundtrack Pro 2 with a tutorial on how to use the Mixer, along with submixes and multiple outputs.
- Alexis Van Hurkman continues his series on Color with a step-by-step workflow for Final Cut editors.

Plus: audio profiles, keyboard shortcuts, video tutorials, and all things Final Cut-related that we can squeeze into the issue. This one will be great!

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Back issues of *EditWell* are now available for \$9.99 each. Remember, **Volume 1, Issue 1**—our premiere issue—is available for **FREE**. For the most recent list of available issues, visit www.peachpit.com/editwell.



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My Story

“Film It Up” with Composite Modes and Filters

TOM MEEGAN

Tom has created effects for network telecasts of MLB, NFL, NBA, and NHL events. Here, he shares his secrets for creating world-class effects in Final Cut Pro.

Good, clean footage is a joy to work with, but producers and clients often ask for a look that is... well, less than clean. For instance: “Make it sweet, glowy, you know, satiny,” or maybe, “grungy and industrial,” or the ever popular, “Just film it up.”

I imagine responding with, “The colorist will take care of that. Let’s just get the content down for the online edit.” However, in real life, the effects are all up to me.

I work on events with a short turnaround time: The project that starts in the afternoon often airs at eight. I am logger, editor, audio mixer, graphic designer, edit maintenance, and colorist. Most of you know what I’m talking about. Fed Ex waits for no one. Tight deadlines and shrinking budgets are a fact of life.

Based on a broader technique Trish and Chris Meyers use to achieve “instant sex” in their After Effects book, *Creating Motion Graphics*, I employ several techniques to achieve “sweet and glowy” and other effects quickly by using composite modes, Gaussian Blur, and the Color Corrector 3-way filters.

Composite modes, sometimes called *blend modes* in other programs, are settings that control how the luma, chroma, and hue of one clip interact with those of the clip layered below it. When you composite a clip with these techniques, the results are immediate and interesting. Stir in some Gaussian Blur, color correct to taste, and you get wonderful visual soup.

So let’s get started with some recipes for good soup!



FIGURE 1: Here’s the original image

The Basics

Figures 1 through 4 show before-and-after samples using different composite modes.

Curious about how to achieve these looks? Here is a quick overview of the basic steps:

1. Find a clip and edit it into a sequence.
2. Duplicate the footage and move it to a second layer (**Shift+Option+drag**).
3. Add a Gaussian Blur filter to the top layer with a Blur Radius of 10. ▶



FIGURE 2: Here's the same image with a Soft Light composite mode applied.



FIGURE 3: Here's the image with an Overlay composite mode applied.



FIGURE 4: Here's the image with a Screen composite mode applied.

4. Set the Composite mode of the top layer to **Soft Light**.
5. If the footage is excessively bright or dark, add a Color Corrector 3-way filter to the top clip and adjust the mids and white levels to taste.

Dupe the Clip

1. In Final Cut Pro, create a new sequence and edit a clip to the Timeline.
2. Position the pointer over the video portion of the Timeline clip, and press and hold Shift-Option as you drag the clip up one layer to duplicate it.
3. Release the mouse before you let go of Shift+Option, which leaves you with the duplicate video on top of the original (see **FIGURE 5**).

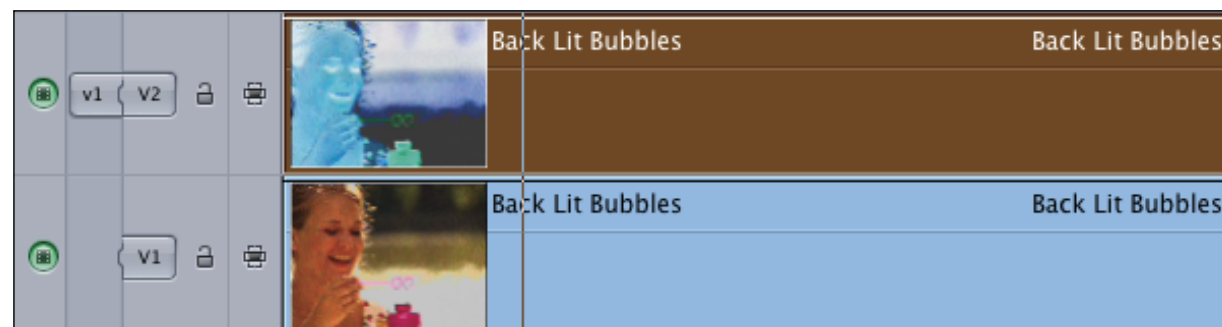


FIGURE 5: Here's what our sample clips look like when stacked.

Blur the Top! My Favorite!

You probably already know how to add a filter via the Effects menu or the Effects tab, so let's build a favorite so a specific blur setting will be available as a keyboard shortcut.

1. In the Browser, click the Effects tab.
2. Choose **Video Filters > Blur**, and then drag Gaussian Blur to the Favorites bin (see **FIGURE 6**). A copy is created because the master effects in the bins are locked. ▶

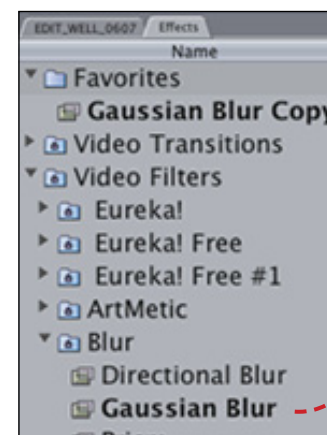
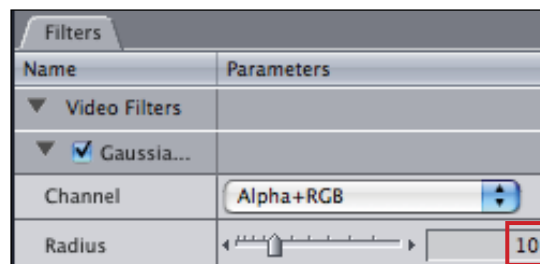


FIGURE 6: One way to make an effects favorite is to drag it from the Effects bin to the Favorites bin.



FIGURE 7:
Change the
Radius to 10.

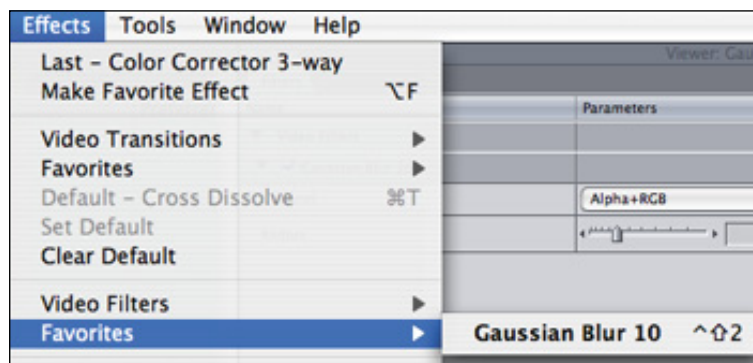


3. Rename your new filter **Gaussian Blur 10**.
4. Double-click the icon of Gaussian Blur 10 to load it into the Viewer. Adjust the Radius setting to 10 (see **FIGURE 7**).

Now here's the cool part:

5. Choose **Effects > Favorites** and, voilà, your new filter is listed with a keyboard shortcut – and its default Radius setting is 10! (See **FIGURE 8**.)

FIGURE 8: The Gaussian Blur filter is now stored in the Favorites folder, with the Radius set to 10.



There are keyboard shortcuts for the first four favorites, mapped to **Control-Shift-2**, **Control-Shift-W**, **Control-Shift-S**, and **Control-Shift-X**. This doesn't make much sense until you notice the location of the keys on the keyboard (see **FIGURE 9**).

For a list of all keyboard shortcuts used by your favorites, see the sidebar **"Picking Your Favorites."**



FIGURE 9: Note the pattern of keys assigned to the favorite filters.

Let's Take a Shortcut!

To test out the new filter favorite, follow these steps:

1. Click the top layer to select it.
2. Press **Control+Shift+2**.

That should do it; however, let's double-check.

3. Double-click the video on Track 2 to load it into the Viewer window. ▶



FIGURE 10: Here's the V2 clip with a Gaussian Blur (with a Radius of 10) applied.

4. Click the Filters tab to make sure the Gaussian Blur is applied with a radius of 10 (see **FIGURE 10**). OK, I know, it's blurry, but wait!

Soft Light Makes Everything Better

1. Right-click or Control+click the clip on the top layer to open a shortcut menu (see **FIGURE 11**).
2. Choose **Composite Mode > Soft Light** (**FIGURE 12**).

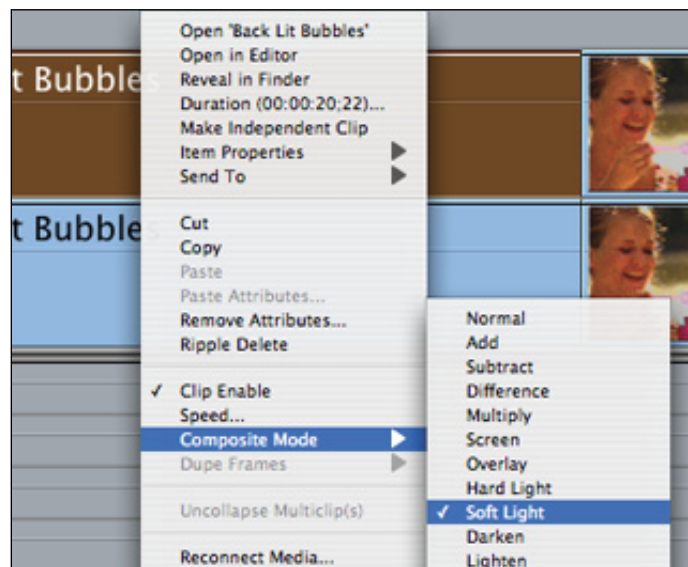


FIGURE 11: Control+click a clip to apply the Soft Light composite mode.



FIGURE 12: The image with both Gaussian Blur and Soft Light applied.

Use Color Correction to Adjust the Image

The image is better, but it's still a little dark. To fix that, you can add a Color Corrector 3-way filter.

1. Select the top clip and apply **Effects > Video Filters > Color Correction > Color Corrector 3-way**.
2. Adjust the mids and the white levels to taste to get an image like **FIGURE 13**.



FIGURE 13: Our finished image.

Using Composite Modes

There's a lot of room for experimentation. For instance, I changed the composite mode to Overlay and reduced the Opacity of the top layer to 73%. Then, I pulled the blacks and the whites toward warmer tones and reduced the saturation. (See **FIGURE 14**.) ▶



FIGURE 14: A different example, using the Overlay composite mode.



FIGURE 15: A different look, using Screen and adjustments to Gaussian Blur and the blacks.

Gaussian Blur 10 combined with Soft Light consistently produces pleasant results — it is a great place to start, and often is exactly what the producer means by, “silky and satiny,” or the slightly more technical, “deep blacks and glowing highlights.”

Playing with these techniques will yield rewards. Before long you will have recipes for a variety of moods.

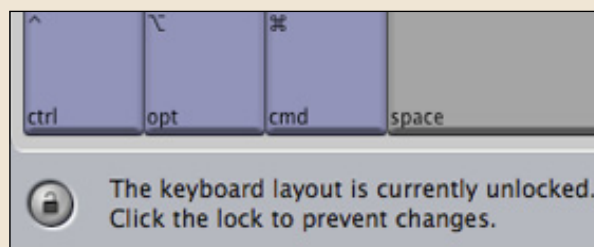
Here is one more: For weddings or romantic footage, try the composite mode Screen with the Gaussian Blur cranked up to 30 and the blacks pulled down a little bit. **FIGURE 15** shows how the footage looks after this treatment.

Let’s push this a little bit further by limiting where the composite mode is applied. ►

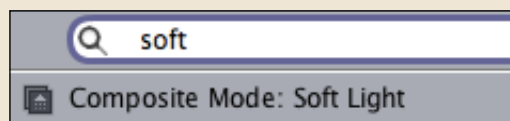
Creating a Keyboard Shortcut for a Composite Mode

If you find yourself needing a particular composite mode often enough, turn it into a keyboard shortcut.

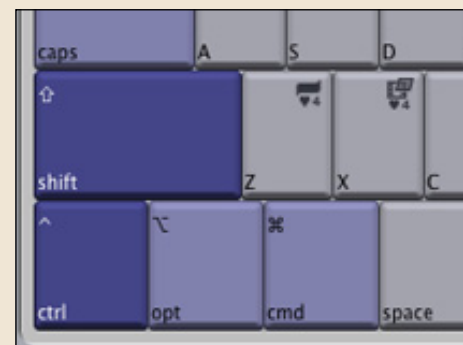
1. Choose **Tools > Keyboard Layout > Customize** (or press **Option+H**).
2. Click the padlock icon to allow changes.



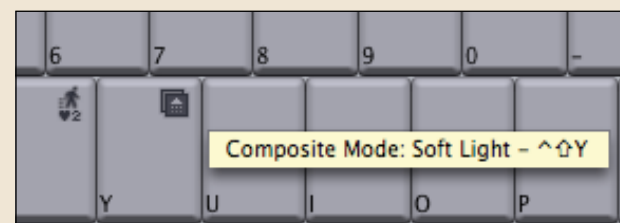
3. Type **soft** into the search window.



4. Using your mouse, click the **Shift** key, then the **Control** key on the virtual keyboard (or click the **Ctrl-Shift** tab).



5. Drag the **Soft Light** icon in the search window onto the **Y** key. (You can pick your own keyboard combo, but this is where I put it.)



Creating keyboard shortcuts for common filters can make your whole workflow flow much faster.



FIGURE 16: A vignette allows the viewer to focus on the brightest portion of the image.

Vignetting

Using vignetting – limiting your effect to the center of the frame and letting the edges fall off – tends to focus the viewer’s attention and lend a feeling of nostalgia.

Here’s the Cliff’s Notes version of the step-by-step:

1. Create a custom gradient using a radial effect.
2. Slide your two-track composite effect up to Tracks 3 and 4.
3. Duplicate Track 3 and place it on Track 1.
4. Place your gradient on Track 2.
5. Nest Tracks 3 and 4.
6. Apply the **Travel Matte - Luma** composite mode to Track 3.
7. Apply the **Color Corrector 3-way** filter to Track 1, and darken to taste.
8. Tweak everything until you and your client are happy.

FIGURE 16 illustrates the final effect.

Customize Your Gradient and Place It

This gradient will determine where the composited effect will be applied. White will be the full effect, and black will be none.

1. From the Generator menu (the menu with the letter A in the lower-right corner of the Viewer), choose **Render > Custom Gradient**.
2. Edit the gradient into the sequence, and then double-click the gradient from the Timeline to load it into the Viewer.
3. Park your playhead within the gradient and then click the Control tab in the Viewer. This allows you to make modifications in the Viewer while observing the effects in the Canvas.
4. Change the Shape field from **Linear** to **Radial** by choosing from the Shape pop-up menu.

5. Change the Start fields from 360, 0 to **0, 0** (see **FIGURE 17**).

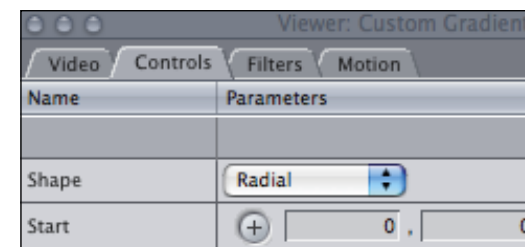


FIGURE 17: Configure the gradient’s settings to Radial, with a center at 0,0.

6. Reorganize your clips so that the two clips on Tracks 1 and 2 move up to V3 and V4.
7. Place the gradient on V2 and extend it so it runs the same length as the two clips on V3 and V4 (see **FIGURE 18**).
8. Copy the original clip from V3 and paste it into V1. ▶

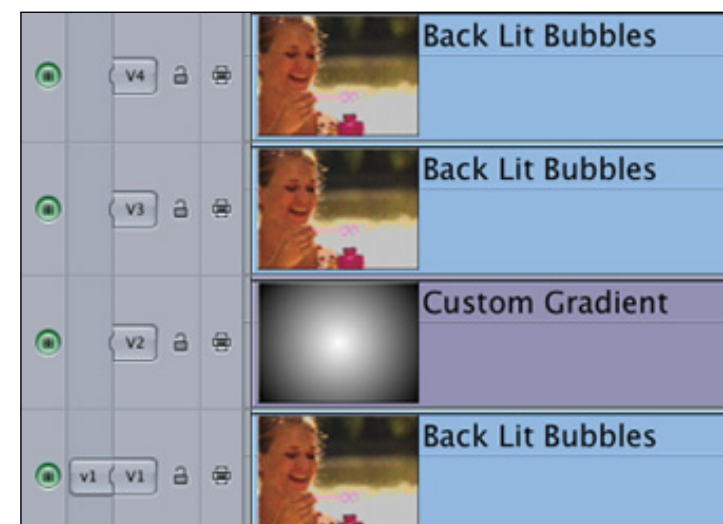


FIGURE 18: The final track configuration of your clips. V1 is a copy of V3.



FIGURE 20: A before-and-after comparison of the four-layer effect so far.

Build a Nest and Apply Travel Matte – Luma

1. Select Tracks 3 and 4.
2. Press **Option+C**
3. Name your nest *Nested Composite*, or something equally memorable.
4. Right-click your nest and choose **Composite > Travel Matte - Luma** from the shortcut menu.

Perhaps you are underwhelmed? I was, too. The vignette isn't working. Time to customize. I added a **Color Corrector 3-way** to the clip on V1 as well as the nest on V3, darkened V1, then

lightened V3. Then, I played with the size, shape, and width of the gradient on Track 2. ►

Here's the final result:

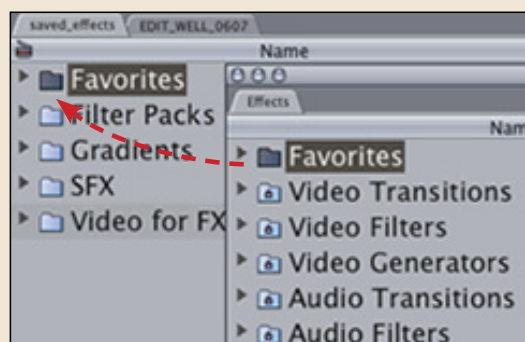


FIGURE 21: The final effect.

Favorites-To-Go

Because I work on many different systems, I carry some of my settings on a USB thumb drive. I also carry a project that contains my favorites, called *Saved_Effects*.

In Final Cut Pro, drag the Effects tab out of the Browser, and then drag the Favorites bin from the Effects tab into your project. This will save your favorites to a project.



DRAG THE Favorites folder from the Effects tab into your project to make a backup copy of all your favorite effects.

When you use Final Cut on a different system, insert your thumb drive and open your *Saved_Effects* project. Then drag the Effects tab off into its own window.

Check to see if there are favorites already in the Favorites bin in the Effects window of the new system. If there are, be courteous. Create a bin in your *Saved_Effects* project to hold the favorites for the editor who normally works the system. Name it *edit_friend_favorites*. After those older favorites are safe, replace the favorites in the Favorites bin in the Effects window with your own.

Just like a location shoot, always try to leave things the way you found them when you arrive. Don't forget to return the regular editor's favorites to the Effects window when you are finished.

Storing your favorites in a *Saved_Effects* project will also come in handy when you have to trash your FCP preferences. Trashing preferences trashes favorites as well — but if you follow this procedure, you will be backed up!



Try This at Home!

I love the digital nature of composite modes because they are either on or off. There is no initial tweaking to get started. The unexpected looks I see as I turn composite modes on and off opens my mind to the possibilities, leading me to try new things with the filters and the parameters I can tweak. Here are some ideas:

- Animate parameters on Radial Blur or apply a Wind Blur to the top layer.
- Apply anything selected in Effects > Video Filters > Stylize to either layer.
- Try the Strobe and Blink filters.
- Nest, then duplicate the nest on top of itself. Add another composite mode and a different filter. Repeat.

Don't be afraid to make the footage look terrible as you experiment. It won't be long before you have a sense of what the different composite modes do and how they interact with different footage and filter mixtures. ■

Exclusive Audio Profile

MIKE CARROLL, www.year-movie.com
President, The Garage FilmWorks



Mike Carroll is president of The Garage FilmWorks, in Sacramento, California. His daytime gig, however, is news cameraman for KCRA-Sacramento. In this interview with Larry Jordan, Mike talks about the benefits of shooting and editing your own work, along with the challenges in producing independent films. (TRT: 11:11 4.4 MB)

Picking Your Favorites

You can create favorites for video transitions, audio transitions, motion effects, video filter effects, and audio filter effects.

Here are the keyboard short cuts for:



VIDEO TRANSITION favorites



VIDEO FILTER favorites



AUDIO TRANSITION favorites



AUDIO FILTER favorites



MOTION EFFECT favorites



SmoothCam

Adding Stability in an Unsteady World

LARRY JORDAN

One of the exciting new features in Final Cut Pro 6 is SmoothCam — an image-stabilization filter that steadies otherwise shaky-looking shots. In this article, Larry Jordan shows you how to use it successfully.

You know the drill: There isn't enough time to set up a tripod, so you decide to shoot the scene handheld. Except, once you start editing, you discover the camera is moving so much your viewers are getting motion sickness.

In the past, because there was nothing you could do inside Final Cut to stabilize these shots, you had three choices: not use the shot, use it and hope for the best, or move the clip into another application (such as After Effects or Boris Red) to stabilize it.

With the release of Final Cut Studio 2 and Final Cut Pro 6, you can now stabilize your shots directly in Final Cut using the SmoothCam filter. And this filter is a beauty! Follow along to see how it works, and be sure to check out the accompanying video tutorial to see the SmoothCam filter in action.

Get Your Clip into Analysis

Before Final Cut can work its magic, it needs to analyze the clip to determine how the pixels are moving from one frame to the next. SmoothCam then uses this analysis to determine how to best smooth out the camera movement.

Let's take a look at an example using a clip with some shaky camera movement.

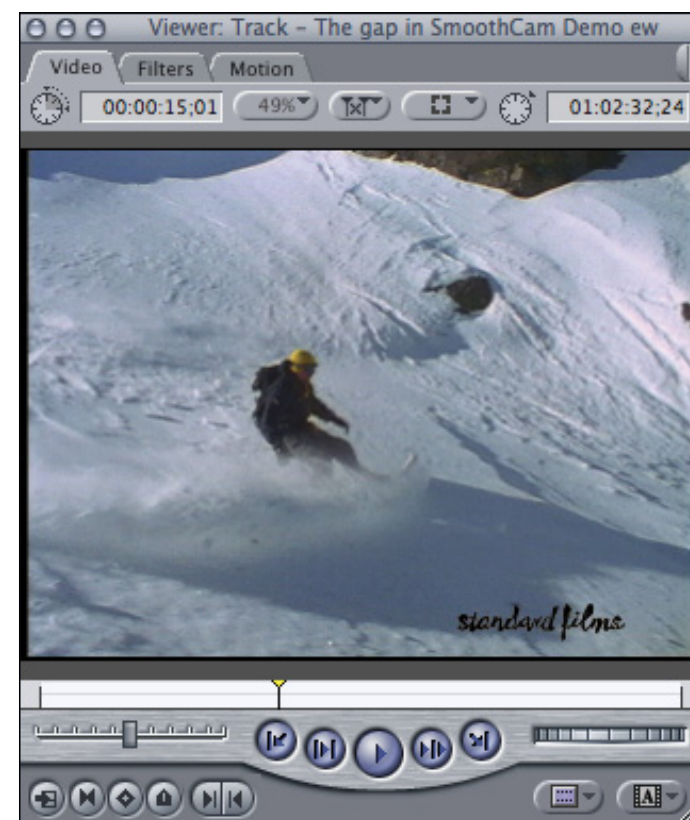


FIGURE 1: This 15-second handheld snowboard tracking shot is a perfect candidate for SmoothCam.

I've loaded a 15-second handheld tracking shot into the Viewer (see **FIGURE 1**). You can also edit it to the Timeline; the process is the same.

With the Viewer selected (or, if you are using the Timeline, with the clip selected), choose **Effects > Video Filters > Video > SmoothCam** (see **FIGURE 2**). ►



FIGURE 2: Applying the SmoothCam filter.



SmoothCam needs to analyze the entire clip, not just the portion from the In to the Out. For this reason, it doesn't make any difference if the filter is applied in the Viewer or the Timeline.

NOTE: This analysis needs to be done only once. Final Cut creates a data file that is stored in the same folder as the clip. So if you use the clip again, or change the In or Out points, the analysis does not need to be redone.

Keep in mind, this analysis can take a long, LONG time, depending on the length of the clip and the speed of your computer. For instance, on my MacBook Pro, this 15-second DV clip took more than 3 minutes to analyze. During the analysis, a special overlay warning appears over the clip in the Viewer (see **FIGURE 3**), or Timeline, and the Background Processes window appears, estimating how much time remains for the analysis (see **FIGURE 4**).

When the analysis is complete, simply play the clip and marvel at the changes. What used to be shaky is now amazingly smooth!

How It Works

SmoothCam calculates movement caused by the shakiness of the camera, rather than the subject of the frame, and shifts the picture by an equal yet opposite amount so that it cancels out the perceived camera shake.

The problem is that when this compensation occurs, black edges appear around your frame — sometimes *very big* black edges (see **FIGURE 5**). ►



FIGURE 3: A warning overlay in the Viewer showing that the clip is being analyzed for SmoothCam.

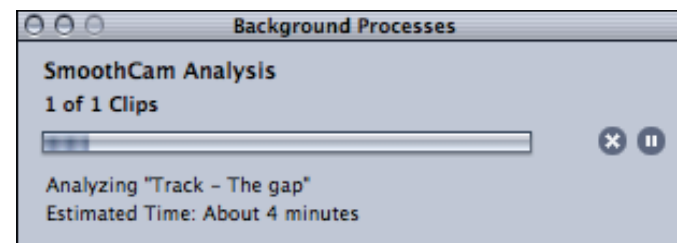


FIGURE 4: The Background Processes window.



FIGURE 5: Note how much the picture has been rotated and shifted up and to the right to compensate for the excess camera movement.



SmoothCam zooms into the image to enlarge it enough so that these black edges don't appear; however, if you are working with standard-def video, zooming in runs the risk of making your images blurry.

Later in this article, I show you one way to deal with this problem by using a compositing solution. For now, though, keep in mind that SmoothCam will work better with HD images than with SD, because HD has more pixels to work with, thus decreasing the apparent softening effect.

Tweaking the Results

Like all good filters, SmoothCam has settings you can tweak to improve the results. Let's take a look at what they are (see **FIGURE 6**).

Auto Scale lets you determine how much to zoom in your image. When *Auto Scale*

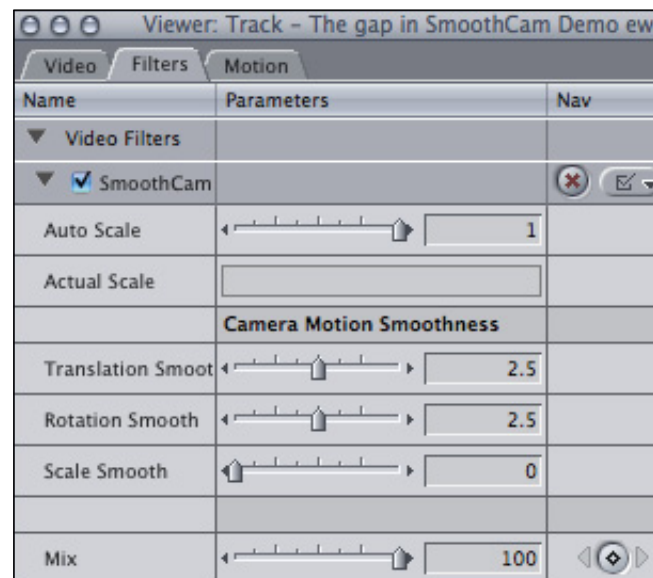


FIGURE 6: SmoothCam filter settings in their default state.

equals 0, all zooming is turned off. When it equals 1, the image is zoomed in such that no black edges appear. You can adjust this to suit your needs.

Actual Scale shows how much the image has been zoomed. You cannot edit this field. Generally, an SD image can be safely zoomed about 105% without showing too much softness. In our example, however, the image needed to be zoomed 122%, causing serious image degradation.

Translation Smooth controls smoothing movement horizontally and vertically; 2.5 is the default setting. The larger this number, the greater the smoothing effect.

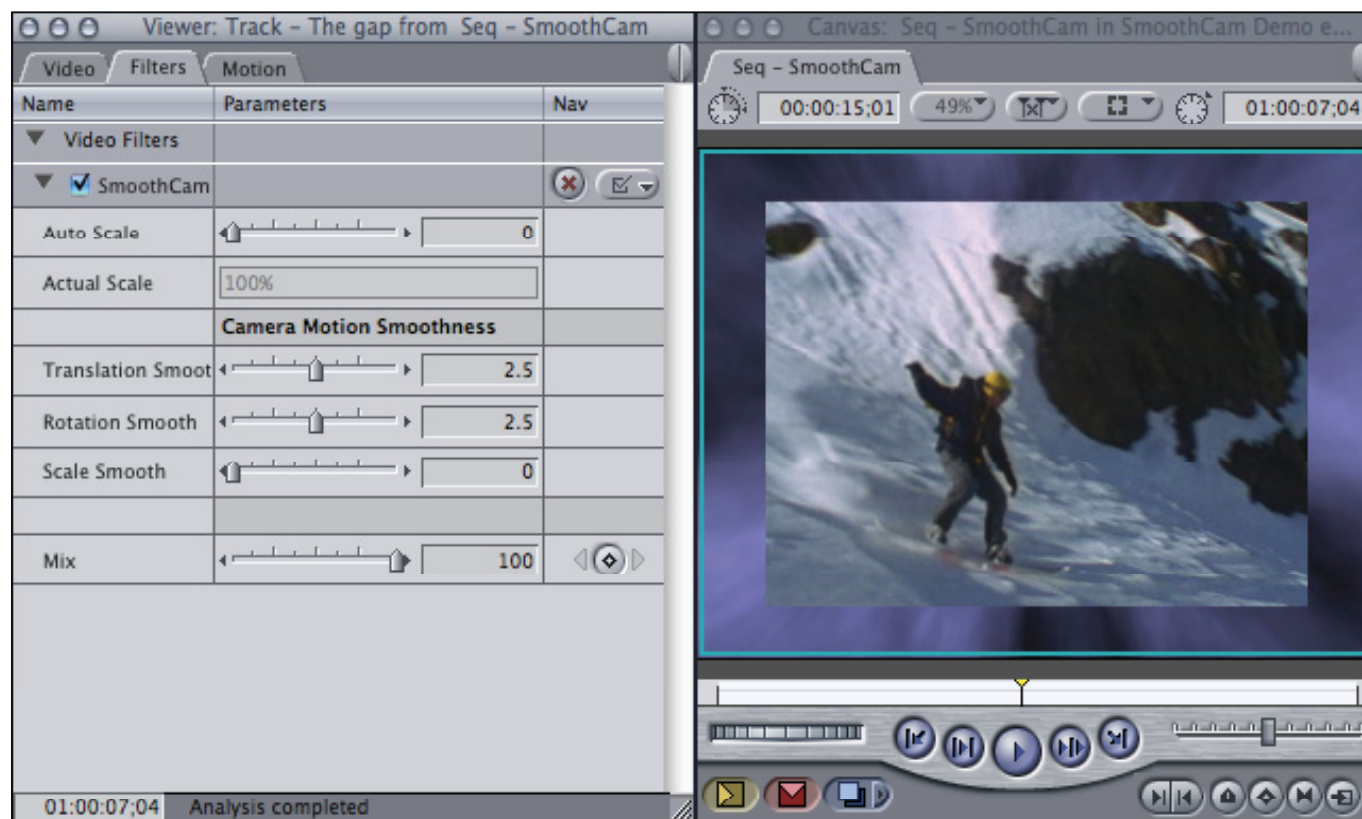
Rotation Smooth controls smoothing rotation around a center point; 2.5 is the default setting. The larger this number, the greater the smoothing effect.

Scale Smooth controls smoothing movement to and from the camera – the “z” axis – either from a shaky zoom or the camera moving to or from the subject; 0 is the default setting. The larger this number, the greater the smoothing effect.

Mix determines how much of the effect is applied; 0 applies none of the smoothing effect, 1 applies the full effect. (For some truly weird effects, set *Mix* to 0.5 to show how much compensation is really applied to your clip.) ▶



FIGURE 7: The snowboarding image composited into a background, with Auto Scale set to 0.



Using a Compositing Technique to Improve Sharpness

For SD images, the smaller the zoom, the better the images look. Not zooming in at all is ideal. However, that prevents SmoothCam from working.

Here's an alternative to zooming: composite your image into a stable background (see **FIGURE 7**).

In this example, I set Auto Scale to 0 to turn it off. Then I applied a Mask Shape filter, set it to a rectangular shape, and sized it to 80% of the full image. Because I'm cropping all the wildly gyrating black edges, my image looks stable, without any decrease in image quality.

However, the composite looks a bit stiff and geometric. So, in ►

Video Tutorial SmoothCam: The Closest Thing to Magic for Shaky Images



Larry Jordan

SmoothCam is a brand-new filter in Final Cut Pro 6 that can take truly shaky footage and make it look amazingly smooth. In this tutorial, Larry Jordan shows you how it works, some traps to avoid, and how to get the best out of this filter for either SD or HD video. (TRT: 10:13 14.7 MB)



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FIGURE 8: The same composite with a Mask Feather filter added with a Soft setting of 60 to maximize the blur around the edge of the composite and blend it with the background.

Figure 8, I added a Mask Feather filter and adjusted it to add a lot of blur to the edges of the matte by setting Soft to 60. Now, the snow from the snowboarder and the background all seem to blend to create a much more interesting, organic, and stable look. (If I wanted to blend this further, I'd color correct the background to remove the blue cast.)

If you give it time to analyze your clips, SmoothCam can do magic. Even shaky handheld zooms can be stabilized to look almost as though your camera was on a tripod.

Although there are many reasons to upgrade to Final Cut Studio 2, SmoothCam is one new feature I can use on an almost daily basis. ■

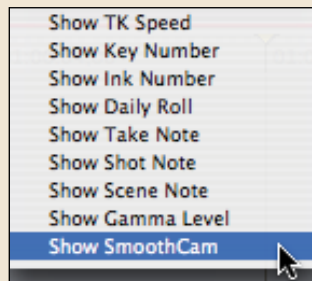


Getting Everyone into Analysis

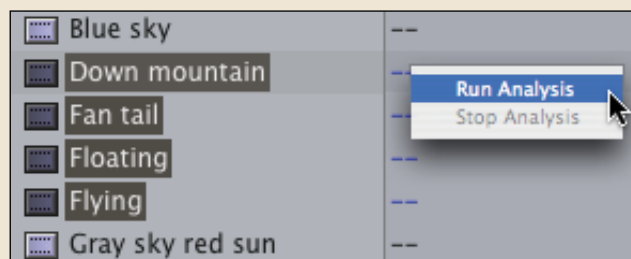
You don't need to analyze only one clip at a time. Here's a fast way to move multiple clips into analysis:

1. In the Browser, select all the clips you want to analyze.

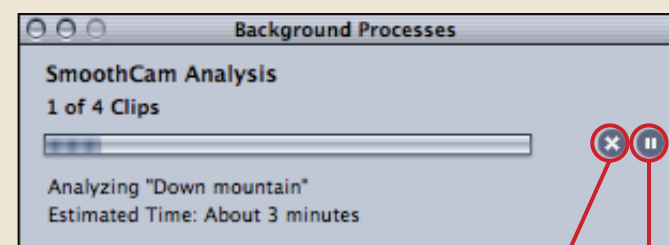
2. Control-click the Duration column header at the top of the Browser and choose **Show SmoothCam** from the shortcut menu (it will be way down at the bottom).



3. The dashed lines indicate that a clip has not been analyzed by SmoothCam. Control-click this dashed line in the SmoothCam column and choose **Run Analysis** from the shortcut menu.



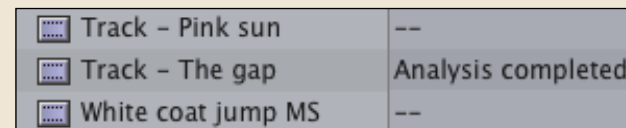
The Background Processes window opens up and shows the analysis status of your selected clips. Analysis takes a long time, but you are still able to edit inside Final Cut. If you need to capture, play back, or output, the Background Process will stop until your actions are complete.



Stop Pause

4. If you need to stop or pause the process, click one of the two icons to either stop or temporarily pause the process.

After each clip has been analyzed, the SmoothCam Browser column will display "Analysis completed."





Soundtrack Pro 2

It's Better to Be Seen *and* Heard

STEPHEN KANTER

Apple added major improvements to Soundtrack Pro for its latest release in Final Cut Studio 2. In this article, the first of several parts, Steven Kanter escorts you around the interface to show off what's new or different.

You may have heard that Soundtrack Pro 2 has many exciting new features; if you read the last issue of *Edit Well*, then you heard it from me. The new features and enhancements are all well and good, but unless you can find your way around the redesigned interface, they'll be about as useful to you as that knob on the toaster that supposedly controls how dark the toast gets. The streamlined interface is, in itself, one of the best enhancements; it will improve both the efficiency and ease with which you process sound inside Soundtrack Pro.

Working With the Interface

The previous version of Soundtrack Pro had multiple windows, each containing task-specific tabs for focusing on various aspects of your project. Now the tabs are distributed into four quadrants, or panes, of a one-window interface. The panes are simply named the Left pane, the Right pane, the Lower pane, and the aptly named Project pane (see **FIGURE 1**). As in Motion, panes can be hidden using keystrokes or interface buttons to maximize limited screen space, and tabs can be removed and made into stand-alone windows or docked in any of the four panes. You can customize and save your layouts, but I find that

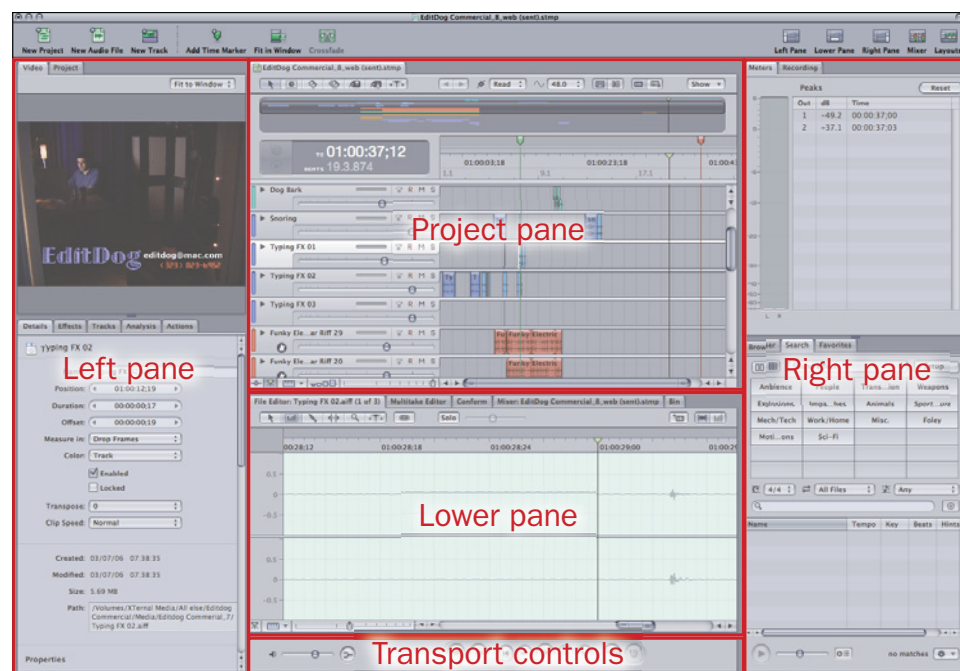


FIGURE 1: The five major sections of the new Soundtrack Pro 2 interface.

the standard layout intelligently groups the task-specific tabs into related groups, allowing you to focus on a particular pane during one part of the process, then hides it out of sight and mind when you want to focus on other parts of audio finishing.

The Project Pane: Where It All Comes Together

The main pane (which, I'm told, is where the rain in Spain habitually falls) is the Project pane. Apart from a few nifty new controls in the track headers that allow you to do things like change track color, route audio input channels, and pan in surround sound, the Project pane should be familiar to anyone who has worked with the previous version of Soundtrack Pro. As its name suggests, the Project pane holds tabs for projects, displaying the Timeline tracks and clip content for multi-track projects, and the waveforms of your individual audio file ►



projects. The Project pane is the only one that cannot be hidden, and that's because it's where you'll do the majority of your work in Soundtrack Pro. You import or modify audio files in other panes, but the Timeline in the Project pane is where you'll layer and arrange clips, adjust levels track by track, with or without automation, and add EQ effects to whole tracks or individual files. With the new Lift and Stamp tools, you can copy and paste EQ and analysis attributes from one file to another, and you can choose whether automation information stays attached to an audio file if you move it to another track or location in the Timeline.

The Lower Pane: A Closer Look at Your Files

The Lower pane offers an alternate place to view and process waveforms: within the new File Editor tab. Rather than double-clicking a clip to open it into a separate tab (blocking your view of the Timeline), you can now single-click a clip to load it

into the File Editor tab, so you can view, edit, and process the audio while observing the changes simultaneously in the Timeline (see **FIGURE 2**).

It's much easier to combine multiple takes into a single composite take, conform older multi-track projects, and perform multi-track mixing when you can simultaneously view the Timeline. Tabs for each function appear in the Lower pane. The last tab, the Bin tab, offers a convenient way to view and compare properties of all your project's media, much like the Browser in Final Cut Pro. As a group, the tabs in the Lower pane all offer a more detailed look at your individual clips, and in the case of the Conform tab, multiple timelines. ►

EDITOR'S NOTE: However, you can still load a clip into the Audio Editor by double-clicking it, as you could in Soundtrack Pro 1. For me, when I'm focusing on editing a clip, the larger waveform displayed in the Audio Editor is a big advantage.

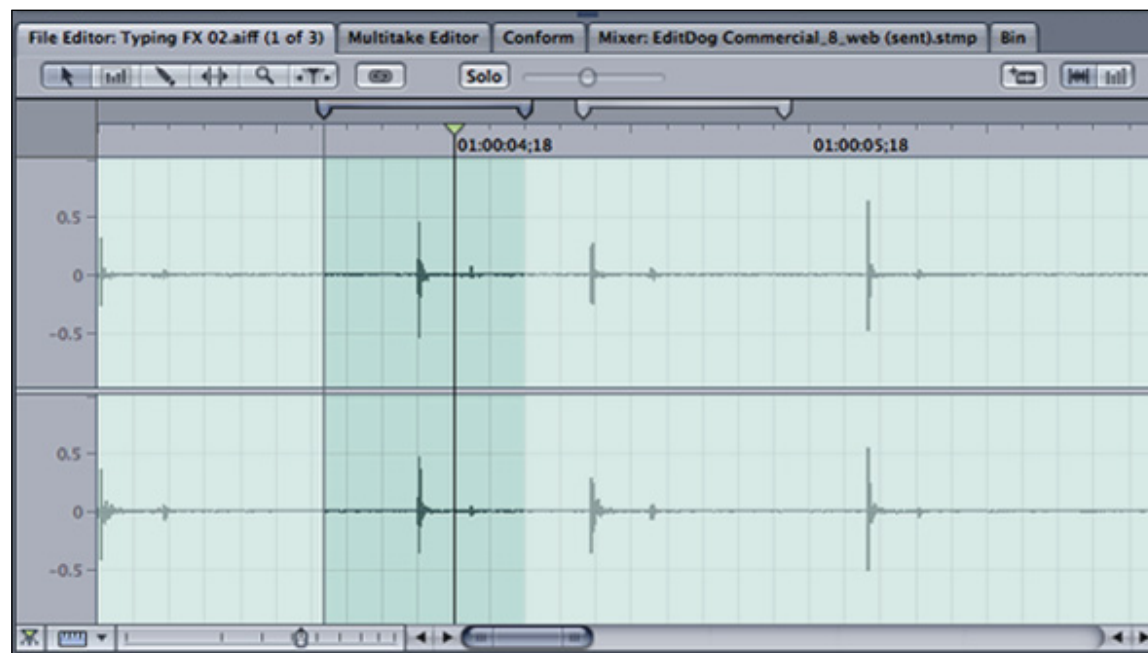


FIGURE 2: The Lower pane has five tabs, the first of which displays an enlarged waveform of whatever clip is selected in the Timeline.

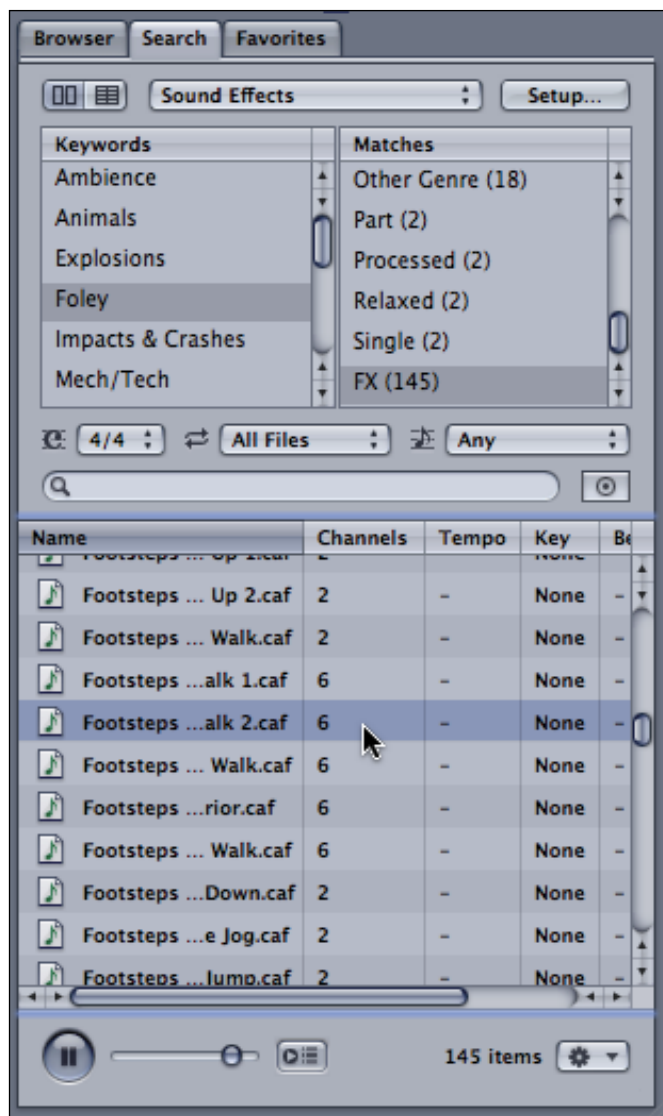


FIGURE 3: In the Right pane, you can browse the files on your hard disk, locate a loop of music or sound effect, or stroll through clips you've flagged as favorites.

The Right Pane: Searching for the Lost Chord

The Project and Lower panes offer the ability to arrange and modify media, but the Right pane is where you find the media. You can bring media into Soundtrack Pro as part of a Send To operation from Final Cut Pro, or you can create it in the Right pane. Located in the lower portion of the pane is the tab I use the least, the Browser tab, and the tab I use the most, the Search tab (see **FIGURE 3**). With its clunky icon-only view, the Browser offers a much less efficient way of searching for audio content than the Search tab. With both a Button and Column view with keywords to help focus your search for files, and a search text field to narrow down the search even further, the Search tab helps you find just the sound you're looking for among over 7,000 audio files that ship with Soundtrack Pro, as well as any other audio files you can index by clicking the Setup button. A new Channels column even helps you distinguish between stereo files and 6-channel surround files.

Once you find a file, you can audition it with your project to see if it works, then either drag it to a Timeline track, or Control+click a clip to open the Media pop-up menu to spot it to the playhead position or a specific timecode in your Timeline (see **FIGURE 4**). If it's not a perfect fit for this project, you can always add it to your Favorites tab from the same menu. Favorites are conveniently located next door to the Search tab, so you can easily find it again and use it in a future project. ►

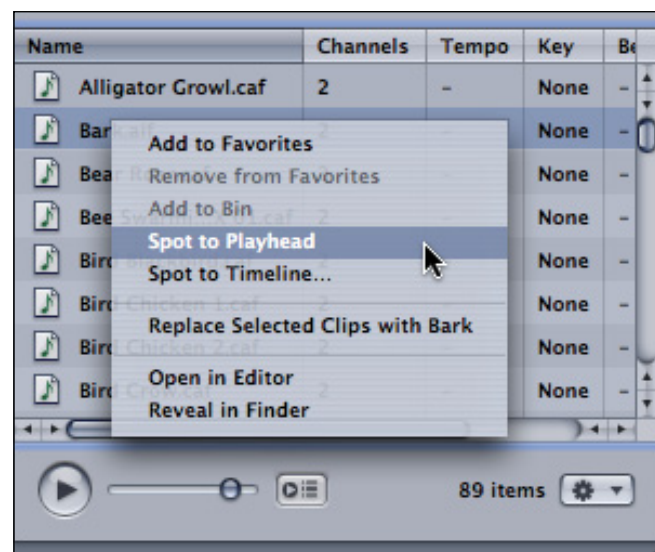


FIGURE 4: Using the Media pop-up menu, you can move the selected clip to the playhead or Timeline.



When you can't find the sound you're looking for, or when you want to initiate an ADR (Automated Dialog Replacement) session, the Recording tab in the upper section of the Right pane contains pop-up menus and buttons for configuring your input device, selecting and routing the input channels to record-enabled tracks on your Timeline, and monitoring audio through speakers or headphones. There's even built-in audio meters, with a dB scale, no less!

You can make single-take recordings or, if you create a cycle region (a selection in the Timeline that the playhead repeats until you stop) in the Timeline, multitake recordings that you can combine and edit in the Multitake Editor. Next to the Recording tab is the Meters tab. As in the previous version, it is used to monitor Master output levels and find audio peaks. Together, the tabs in the Right pane all relate to media input and output (see **FIGURE 5**). ►

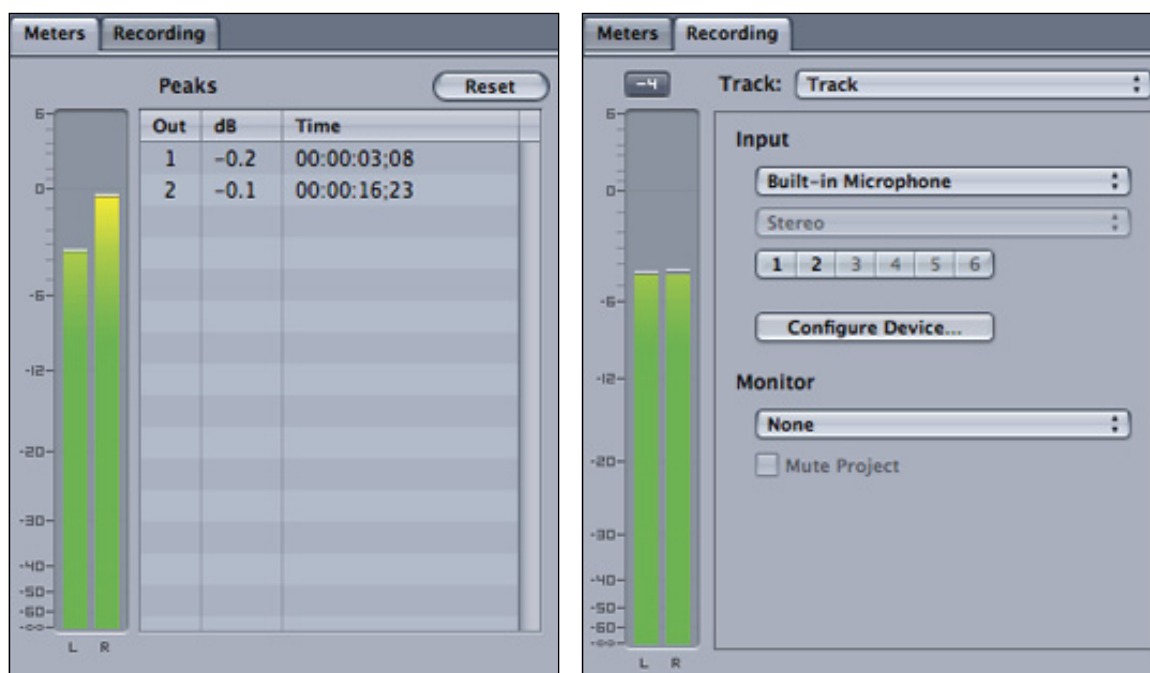


FIGURE 5: The Meters tab, on the left, shows playback levels. The Recording tab, on the right, shows recording levels and configuration.

Keyboard Shortcuts: Soundtrack Pro 2 Keyboard



ACTION	RESULT
J, K, L	Scrubs video and audio as in Final Cut Pro
Control+A	Opens and closes the Left pane
Control+S	Opens and closes the Bottom pane
Control+D	Opens and closes the Right pane
Control+Up arrow	Selects previous Mixer object (up)
Control+Down arrow	Selects next Mixer object (down)
Command+T	Adds track
M	Adds time marker
Option+B	Adds beat marker
Command+ + (plus)	Zooms in
Command+ - (minus)	Zooms out
Command+O	Zooms normal (fit to window + medium track height)
Shift+Z	Fits to window
Option+Z	Zooms to selection
Shift+Option+Z	Zooms to cycle region
Control+Z	Zooms to waveform
Control+V	Shows external video





The Left Pane: What's, um, Left

The Left pane is divided into two sections. The Video tab displays the video content of your multi-track project, although in its docked state it's probably too small for most editors. If you have a dual display setup, you can remove and resize the tab in your second monitor, or you can choose **Soundtrack Pro > Preferences > Video Out** and use Digital Cinema Desktop Preview or an external monitor to watch your video content.

The new Project tab (see **FIGURE 6**) is docked next to the Video tab, the only example of a misplaced tab, in my opinion. Many of the settings in the Project tab relate to media (such as adding Podcast metadata or specifying when and where to collect media upon saving the project) or specific details about music (project tempo, key, and time signature); therefore, the tab seems better suited for the lower portion of the Right pane. You could always decide to move the tab there and save your own custom window layout.

However, settings like Timeline ruler units (timecode or beats) and audio and video pullup or pulldown are often chosen at the beginning of the project, so perhaps the upper left is a more appropriate location if it's the first tab you might visit upon creating a new project.

The bottom portion of the Left pane contains the Effects tab (see **FIGURE 7**), as well as tabs for the Actions and Analysis options previously available only when you opened an Audio File project in the Waveform Editor.

With the new multipane design in Soundtrack Pro, it's no longer necessary to tab back and forth between the Timeline and the Waveform Editor when switching between audio restoration and EQ and mixing duties. Whether you're searching for clicks, pops, and hums in the Analysis tab; applying and rearranging processes like normalization or noise reduction in the Actions tab; or adding and adjusting Effects and EQ in the Effects tab, your File Editor and Timeline are always in view. To help you manage projects ►

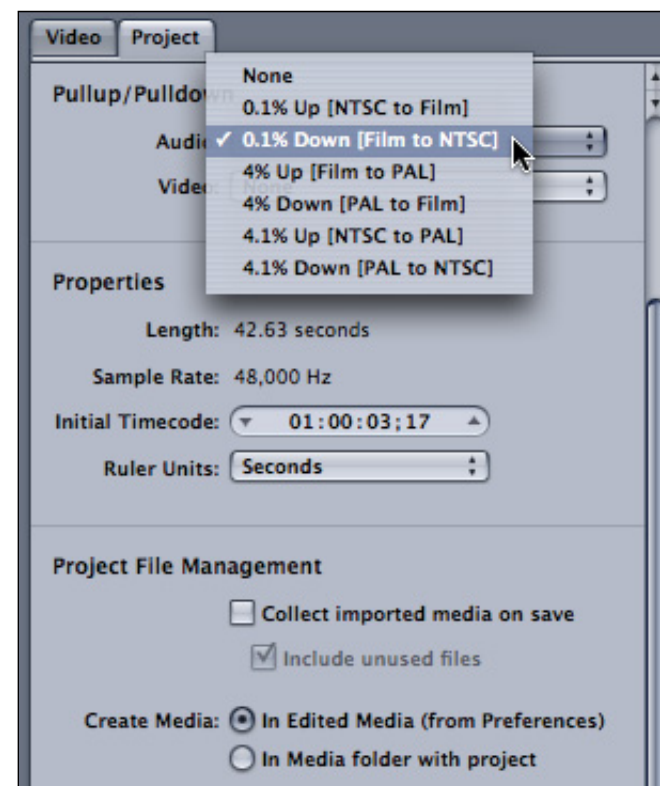


FIGURE 6: In the Project tab, you can customize project properties and metadata.

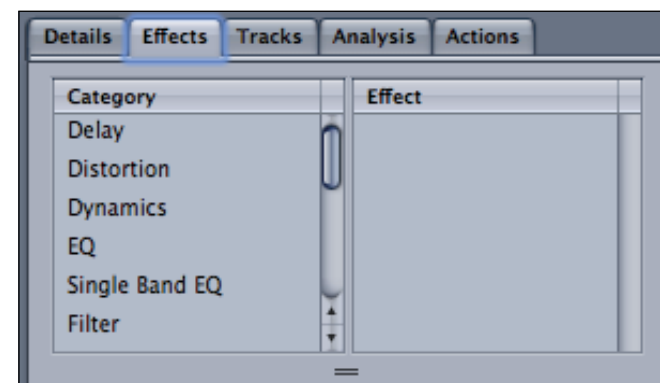


FIGURE 7: The Left pane contains tabs for Details, Effects (shown selected), Tracks, Analysis, and Actions.

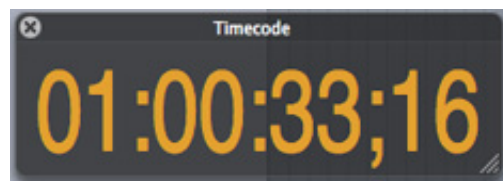
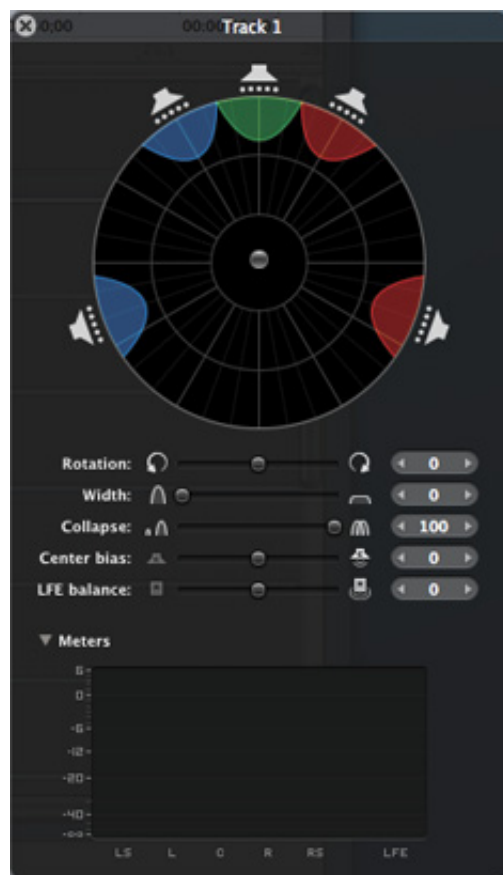
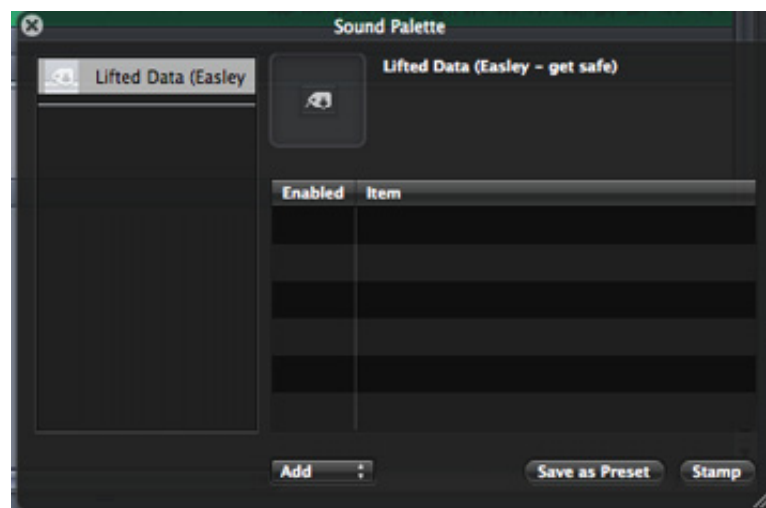


FIGURE 8: The four HUDs: Surround sound, Multipoint Video, Sound Placement, and Timecode (clockwise from top).



with many audio tracks, there is even a separate Tracks tab that makes it easy to select and access the track controls of any track, even if it isn't currently viewable in the Timeline. The Details tab is where you can not only view but also modify the attributes of any selected file (much like Item Properties in Final Cut Pro). You can change clip position, duration, color, and offset (similar to slipping a clip in FCP), as well as access options like clip speed and transpose, which were previously available via a clip's shortcut menu in the Timeline but are now exclusively the domain of the Details tab.

A Heads-Up Display for Both Hands, Plus One...

Augmenting the four panes are three heads-up displays or HUDs (see **FIGURE 8**). Like the HUD in Motion (formerly called the Dashboard), Soundtrack Pro's HUDs are semi-transparent windows that float above the main interface. The resizable

timecode HUD will allow your ADR talent to see timecode information from across the room, but you can also use it for click-and-drag navigation using, say, the value slider in the Transport controls. The Multipoint Video HUD, which aids in spotting sound effects by giving you a three-up display showing the frames immediately before and after the clip you are dragging, is probably the most useful. The Sound Palette is used in conjunction with the Lift and Stamp tools for copying and pasting attributes from one clip to another. As with the panes, when you aren't actively using one, it's probably best to hide the HUD. (When you hide a HUD, does it become a HID?)

And the Rest...

The customizable Toolbar, as shown at the bottom in Figure 1, is common to nearly all the Final Cut Studio applications, and an area I rarely use since I prefer to perform the same functions found there with keyboard shortcuts.

TIP: For common keyboard shortcuts for Soundtrack Pro, see the sidebar "[Soundtrack Pro 2 Keyboard Shortcuts](#)."

There are a few limitations with Soundtrack Pro 2 that I should point out. Depending on your screen resolution, which panes are open or closed, and the Timeline track height, some of the controls in the interface may be hidden. For example, on my ►



1280 x 1024 monitor, the value sliders for Playhead Location and Selection Length (or timeslice) both disappear from the transport controls area when all four panes are open. Also, when the timeline tracks are at their smallest height, the Input Device pop-up menu and routing buttons are not visible. By closing panes when you aren't actively working with them, however, you should be able to avoid these pitfalls.

I would say I'm mostly happy with the updated interface. I wish the panes could be resized horizontally as well as vertically, and that the Timeline tracks could be dynamically resized. The application sorely lacks a feature like Final Cut Pro's static tracks, which allows you to compare non-adjacent audio tracks side-by-side, but it's easy enough to rearrange tracks when I need to sync up waveforms. These are minor quibbles, however. My delights far outweigh my gripes. All in all, I think the new interface is a marked improvement over the previous one. Now that we're all more familiar with the interface, in the next issue we'll learn how to apply some of the new techniques in Soundtrack Pro 2. ■

When Is YUV Not YUV?

Since the dawn of color television, we have learned to think of YUV as the color space of video — the way RGB is the color space of computer images, and CMYK is used for printing.

After the move to digital video, however, two new terms cropped up. Here are some quick definitions:

YUV: The color space used in the processing of analog component video into composite video for broadcast. YUV is an analog signal only and is never used in digital video.

Y'PbPr: The color space used in analog component video, particularly in video electronics.

Y'CrCb: The color space used in digital video; it's the digital equivalent of analog component video.

Even though Apple uses the term YUV for the video color space inside Final Cut, it isn't the correct term; it's actually Y'CrCb.



Setting Up Your Color System

ALEXIS VAN HURKMAN

Color is a high-end application added to Final Cut Studio that benefits from high-end hardware. Alexis explains what the ideal setup for Color is and why.

Before you start using Color for serious work, you'll want to consider whether or not your current system is going to meet this software's unique demands. Is your computer fast enough? Do your graphics card and computer displays need updating? And what about your hard drive storage? These are all important questions.

What Is "Real Time" Anyway?

As you contemplate how much of an investment you want to make in your system, you need to understand what Apple means when they talk about real-time effects particular to Color. All adjustments that you make in Color update the image and the video scopes in real time (or, if you have a control surface, you can even use its controls to make adjustments during playback). However, the more rooms you enable in Color (in Color, using more "rooms" applies more effects to any given shot), the more processor intensive the shot becomes.

When making grading decisions, it's vital to see the full-resolution image as you work, and so Color has been designed to sacrifice frame rate, when necessary, to maintain high image quality as you make adjustments and play shots and sequences back in the application. When correcting standard definition video on a fast enough system, you have to do some serious color correction to experience a reduction in frame rate. However, high definition video exposes the outer boundaries of your system's performance much more quickly, especially once you start combining multiple effects on the same shot.

For example, I'm currently using an 8-core Mac Pro with an ATI X1900 card and a Kona LHe video capture and output card. My storage is a 10-drive array using a port-multiplied eSATA interface and enclosures. In a purely unscientific test of color correcting 1080p, 23.98 fps video encoded using the Uncompressed 10-bit 4:2:2 codec (setting Color's Internal Pixel Format to 12-bit), my system exhibited the following performance:

- 16 fps, using a single primary
- 14 fps, using a primary and two secondaries (one vignette, one HSL qualifier)
- 10 fps, adding Color FX on top of it all with blur and vignette

Now, this system is not the end-all, be-all. For example, anecdotal feedback on the message boards indicates that performance could be improved by upgrading the drive storage to a striped pair of Xserve RAIDs. But it serves to illustrate the kind of high definition performance you might expect from a reasonably equipped Mac Pro system.

The Need for Speed — Get a Fast Computer

Before you start going nuts with Color, it's important to consider the capabilities of your computer. Those of you who are upgrading your Final Cut Studio bundle on older machines may discover that, while perfectly adequate for many of the other applications in the Studio, your current setup lacks the horsepower to support Color's demands for real-time effects processing. ►



The good news is that if you've been waiting for an excuse to upgrade your old Power Mac G4 Quicksilver to a shiny new Intel-based Mac Pro, this is it. Although Color will run capably on PCIe-based G5 computers with suitable graphics cards, it runs much more efficiently on Apple's newer Intel-based Mac Pros. I've used Color on both a quad-core G5 and the newest 8-core Mac Pro, and although the G5 does nicely for standard definition projects, the Intel-based Mac Pro is clearly the better machine for working in high definition (as far as RAM goes, I always recommend at least 4 GB).

EDITOR'S NOTE: Currently, although no single application can address more than 4 GB of RAM, additional RAM can be useful when running concurrent applications. This frequently happens when you send a project to Color, since Final Cut Pro remains running in the background.

Get a Fast Graphics Card

The model of computer you're using is only part of the story. Like Motion, Color is a GPU-based (graphics processing unit) application. This means that all the effects you apply to your projects in Color are performed by your computer's graphics card, rather than the CPU (central processing unit). This doesn't mean that having a newer computer isn't important. The latest and greatest Mac Pro tower computers have faster overall PCIe and memory bus architectures than the G5 Power Macs, all of which translates into more data being moved from hard drive to graphics card to video card, which translates into more real-time performance. Apple's quad-core systems run Color just fine, though I think the 2.66 GHz model is the best bang for the buck. On the other hand, if you find yourself lusting over an 8-core Mac Pro, know that you'll be using those extra cores more with Compressor and Shake than you will with Color.

Because of Color's reliance on GPU processing, you'll absolutely want a high-end video card. The ATI X1900 is an excellent choice, due to its high price-to-perfor-

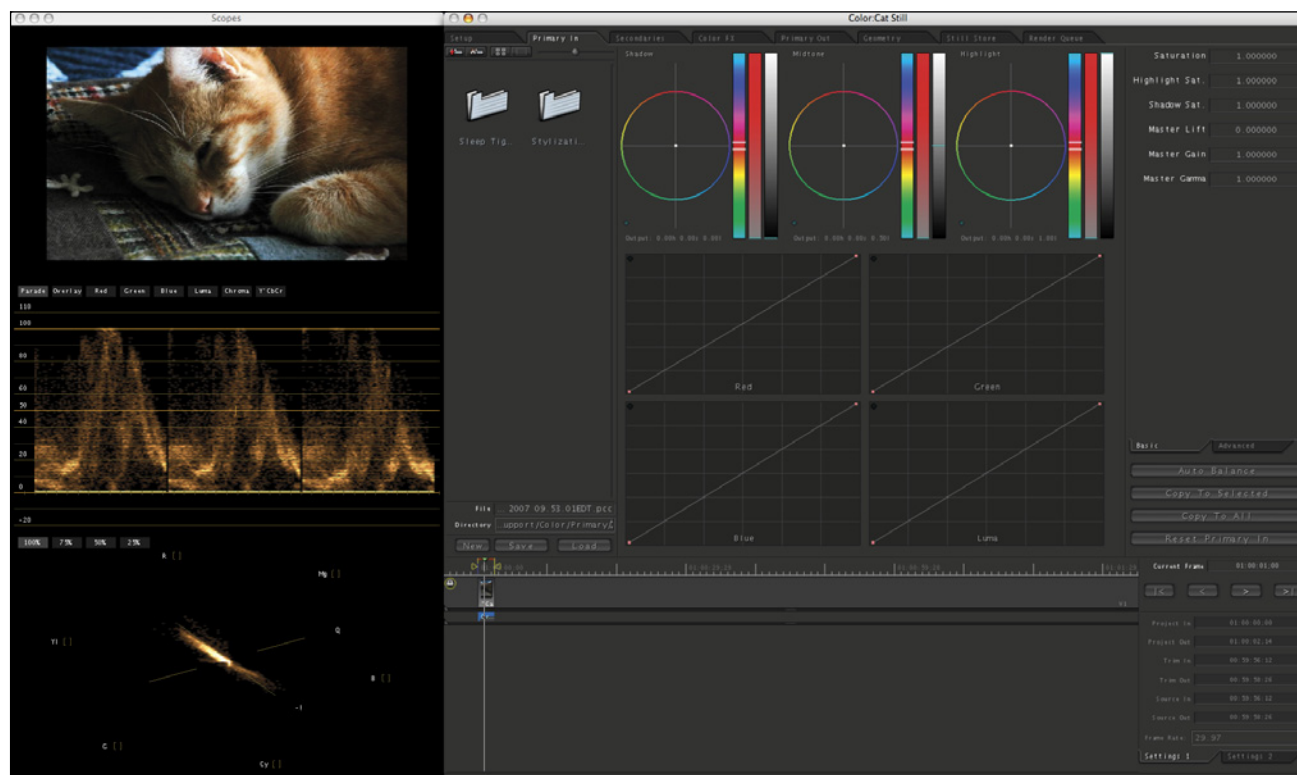


FIGURE 1: This illustrates the Color interface, with the Primary room selected.

mance ratio and support for all the Internal Pixel Format bit depths that are selectable in Color. You should note that Color does not support computers with more than one graphics card, so those of you desiring three or more computer displays connected to your machines all at once will have to settle for two if you want to use Color.

Displays and Monitoring

As far as displays go, Color has been designed to present its interface on two displays, with the majority of the correction controls on the main display, and an image preview and three video scopes on a second display. If necessary, you can also run Color in single-display mode, in which case a narrower scopes window with a smaller image preview and only two scopes sits to the left of a shrunk version of the interface (see **FIGURE 1**). Personally, I think two 23-inch Cinema HD monitors are the best way to present the Color interface, and they will also ▶



provide plenty of room for working with the other applications in the suite when you're not using Color.

To view your video on a broadcast monitor (and as I've said in many past columns, you *will* want to use a broadcast monitor), you'll also need an approved PCIe-based third-party video interface. These include AJA's Kona and Blackmagic's DeckLink line of cards. Unfortunately, FireWire interfaces are not supported for monitoring as it is with Final Cut Pro or Motion. Although this limitation is acceptable for professional users who really ought to be monitoring using Y'PbPr, SDI, or HD-SDI, one hopes that Apple will add this functionality for the low-end crowd in future versions.

Get a Fast Hard Drive Storage System

When putting together a system, there's one other issue you need to take into consideration. Color's real-time performance depends as much on the speed of your hard drive storage as it does on CPU and GPU performance. It doesn't matter how fast the rest of your computer is if your storage system can't feed it data fast enough. In general, you'll want at least 50 MB/second performance for good standard definition performance, and 320 MB/second for optimal uncompressed high definition and 2K performance.

EDITOR'S NOTE: For comparison purposes, a single FireWire 400 drive delivers 30 to 35 MB/second of data. A single FireWire 800 drive delivers 45 to 50 MB/second of data. And a single SATA drive delivers about 80 to 90 MB/second of data. All these numbers assume the drive is less than 50 percent full.

This means that for standard definition, you may find that a striped array of three internal hard drives in your Mac Pro is perfectly sufficient. However, many high-end users typically rely on one or more Fibre Channel-based Xserve RAIDs to obtain the performance they need to work with uncompressed HD and 2K media.

But What About My MacBook Pro?

Technically, Color will run on a current-generation 17-inch MacBook or on an Intel-based iMac. This can be a good way to practice with the application, or to use it in educational situations, but it's not a practical way to work. Since Color doesn't support monitoring via FireWire, there is no way you can evaluate an image for broadcast, and even a calibrated computer display will give you only an approximation of the image. Furthermore, the interface does become rather cramped at lower resolutions. Lastly, the lack of memory and the lower performance of the on-board graphics processors built into these systems relative to a desktop means your performance will be far less than that available to a desktop system.

Another possibility for those on a budget may be to investigate high-performance eSATA-based storage solutions. In particular, a variety of port-multiplying eSATA interface cards allow you to stripe drive arrays of 5, 10, and even 20 hard drives together in order to deliver high-speed throughput. There are many eSATA interface cards available, with varying performance and capability, and you should do your homework before going that route.

However, you should be aware that the more drives you use in a simple RAID 0 drive array, the greater risk you place on your media. All it takes is one drive failure in a RAID 0 array to lose all of the data that's been striped across all the drives. To minimize risk, many users set up Xserve RAID and eSATA drives as RAID 5 arrays. With RAID 5, one of a group of drives is used to store redundant information such that it is possible to restore an entire RAID volume in the event any single drive goes bad, simply by replacing it and setting the array to rebuild ►



itself. RAID 5 configurations are not typically as fast as RAID 0 configurations with the same number of hard drive mechanisms, but shops that are working on schedule-critical programs may require this kind of rapid-recovery insurance. Not all eSATA interface cards support RAID 5, so if this is something you require, you'll want to do some homework.

Control Surfaces — Are They Necessary?

Unlike Final Cut Pro, Color supports a variety of control surfaces available from Tangent Designs and JL Cooper that are dedicated to grading. These typically consist of a set of three track balls (sometimes called “joyballs”) that control the shadow, midtone, and highlight color balance controls. Three accompanying rings adjust the black point, midtone, and white point contrast controls, and additional knobs, buttons, and transport controls let you adjust other parameters in Color's interface (see **FIGURE 2**) using the JL Cooper MCS-Spectrum color correction control surface).



FIGURE 2: The JL Cooper MCS-Spectrum color correction control surface

The advantage of a control surface is that you can adjust multiple aspects of the video simultaneously. Once you've gotten used to it, the increase in productivity is significant, not only in terms of speed, but also in terms of the sophistication with which you can make corrections for parameters that interact with one another. If your business is doing paid work for clients, you owe it to yourself and their schedules to get a control surface. On the other hand, these control surfaces can be somewhat pricey. If you're working on your own projects, and speed is not an issue, then learn the keyboard shortcuts and modifiers that Color offers, and you can do perfectly well without a control surface.

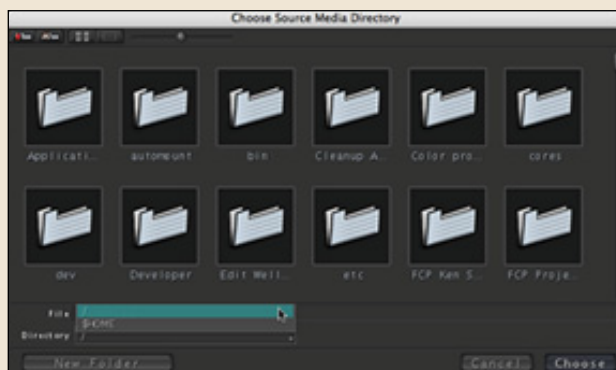
Conclusion

For the best experience in Color, you need to make sure that your system is up to the task. Although this excludes the cheapest systems that Apple offers from professional use, the cost of putting together a capable system is certainly far lower than it has been in the past, and it is quite accessible to the midrange user. ■



Setting Color's Scratch Disks

EDITOR'S NOTE: After reading Alexis' article I was excited to start using Color, only to be stymied at the very first screen asking me to set the scratch disks for Color.



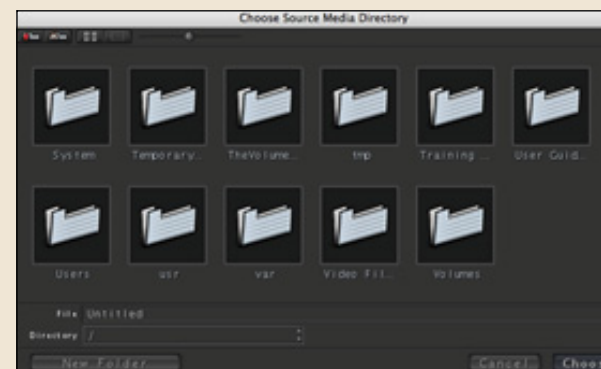
I clicked the Directory pop-up menu, but the top backslash only took me to the top level of my boot drive. I needed to set this to a different drive, but I had never seen a directory screen like this, nor was it described in the Color User Manual. Clueless, I wrote Alexis asking for help. He replied with the following:

I'm just so used to this in Shake that it never occurred to me to point this out specifically in the User Manual. Anyhow, do the following:

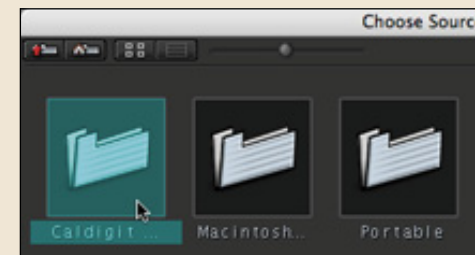


1. Click the Browse button in either the opening dialog or the Setup room.
2. In the Navigation dialog, click the **Up Directory Path** button in the upper-left corner (drive icon with red arrow up) until you're all the way at the top of your drive hierarchy.
3. Scroll down the list of folders until you find Volumes, then double-click it.

You should now see all the hard drive volumes that are currently mounted on your computer presented as individual folders (or items if you're in List view).



4. From the list of available drive volumes, double-click the drive you want to use to open it.
5. Create a new folder to store your media in, and double-click it to open it.
6. Click **Choose**.



Repeat this process to create a new folder to store render files.

Steps 4 through 6 are essential because, unlike other Mac OS X applications, the Choose button only sees the current directory path, which ends with the directory that's currently open. Directories that are selected but not open are not considered to be part of the current path. This isn't the way the file dialogs work in any of the other Final Cut Pro Studio applications. But the Volumes directory is in fact a standard bit of OS X-ness that's good to know about, especially for applications like Color and Shake, which treat the file browsing experience in a much more Unix-like fashion.

One other note: Color really likes big screens. Apple lists the minimum resolution for Color as 1680 x 1050, and they mean it. Color will run on a smaller monitor, but trying to use it on a 1280 x 768 monitor is an exercise in futility.



Roundtripping with Color

ALEXIS VAN HURKMAN

Color – the latest addition to Final Cut Studio – is unlike any other application in the suite. This article begins a four-part series designed to help you get started successfully with it.

As you no doubt already know, Color is a dedicated video color correction and film grading application that has been designed to fit into the finishing stage of your postproduction workflow. How seamless this workflow actually is depends on the attention you pay to the preparation and organization of your projects and sequences in Final Cut Pro, as well as the settings you choose in Color.

NOTE: Elsewhere in this issue, I provide a detailed outline of the system you should consider to make the most of this software. See “[Setting Up Your Color System](#).”

Now, let’s look at the basics of the Final Cut Pro-to-Color roundtrip. You’ll discover how to prepare your media and Final Cut Pro sequence to make this journey a success, learn some basic corrections, and finish the process by rendering your Color project and sending it back to Final Cut Pro.

Buy a Roundtrip Ticket to Color

Color has been designed to fit between the editing and output stages of your postproduction workflow (see **FIGURE 1**) and to maximize your program’s image quality before final output.

Color is used only for color correction, so Color and Final Cut Pro have a truly symbiotic relationship – you cannot capture video using Color, you do not typically edit your program within Color, and Color is incapable of either outputting to tape or rendering self-contained QuickTime movies. Instead, Final Cut Pro is relied upon to perform those functions.

Although Color supports many workflows for projects from a variety of different sources, I’ll focus on the most widely followed path—moving a program from Final Cut Pro to Color and back again. The Final Cut Pro-to-Color roundtrip goes like this:

1. Edit your program in Final Cut Pro.
2. Prep your media and edited sequence for working in Color.
3. Send your sequence to Color.
4. Color correct the sequence.
5. Render your Color project.
6. Send the Color project back to Final Cut Pro.

Now, let’s take a look at steps 2 through 6 in a little more detail. ►

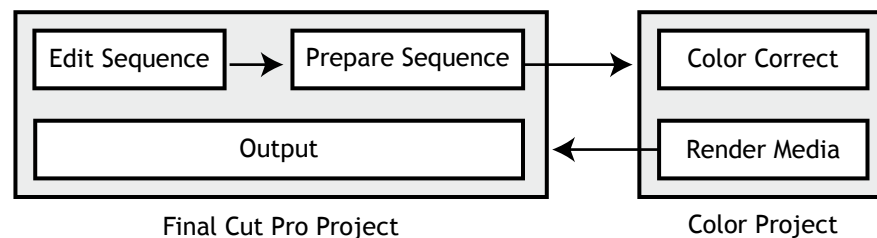


FIGURE 1: A block diagram summary of the Final Cut Pro-to-Color roundtrip.



Preparing Your Media for Finishing

As with any finishing workflow, it's essential to use media that has been captured in Final Cut Pro at the highest possible quality. If you're following an offline/online workflow where you captured the source media at low quality in order to save hard drive space, you'll need to recapture that media at its highest original quality. This is not to say that you need to recapture everything at 10-bit Uncompressed 4:2:2 if it was originally shot using a compressed format.

For example, if you're working on a program that was shot on NTSC DV tape but that was originally captured and edited with the Offline RT format, you need only recapture the source media at its original resolution and format using the DV/DVCPRO - NTSC codec. When working in Color, image data — whether compressed or uncompressed — is converted to an uncompressed format at the beginning of the image-processing pipeline, which means all image processing in Color is performed on uncompressed data. During rendering, the uncompressed graded image is written to disk using the mastering codec you specify in the QuickTime Export Codecs pop-up menu. In essence, Color upconverts your program at the same time it renders your color corrections, in order to preserve maximum image quality.

NOTE: It's always desirable, after color correcting, to master to a higher-quality codec, ProRes or Uncompressed, preferably at 10-bit/4:2:2 chroma subsampling. This is true even if your footage started as DV or HDV. This will preserve the high-quality color correction image data processed by Color (recompressing it to a highly compressed format needlessly double-compresses the data) and also preserve the quality of any gradient or feathered-edge effects you created such as sky ramps, vignette effects, and so on. Dropping down to 8-bit may introduce unwanted banding, especially if your footage is really clean with little image noise to naturally dither such effects.

On the other hand, if you're working with media that is already in an analog or digital mastering format, such as Betacam SP, Digital Betacam, or D-5, you'll want to capture it using either 10-bit Uncompressed 4:2:2 (if you want it to remain uncompressed) or using the new ProRes 422 (for standard definition) or the higher data-rate ProRes 422 HQ (appropriate for high definition) codecs. Apple's ProRes 422 is a new high-quality compressed codec that's suitable for mastering 10-bit, 4:2:2 chroma subsampled image data in an extremely space efficient manner.

Preparing Your Final Cut Pro Project File

Once you've made sure that your media is at its highest quality, it's a good idea to do some housecleaning to your edited sequence before you send it to Color. There are a variety of effects and media types that aren't supported in Color, and although these effects are generally ignored, preserved, and sent back to Final Cut Pro after you've finished your work in Color, a bit of Timeline reorganization will help you to keep track of things. In general, I would first recommend making a duplicate of your edited sequence as a precaution to make sure you can always go back to your original edit if necessary. Then, make the following organizational changes:

1. It's best to move all noncomposited clips to track V1 (see **FIGURE 2**). Many editors use superimposed series of clips not to create layered effects, but to edit a scene together. Although this works well within Final Cut Pro, color correcting a program in Color that has numerous clips spread across several video tracks can be a pain in the neck. It's much easier to manage grades across multiple shots when they're all on the same video track. ►



FIGURE 2: When sending to Color, collapse all clips to be color corrected from a multi-track layout (top) to a single layer (bottom). Move clips that don't need color correction to a different track from video clips.



On the other hand, if there are superimposed clips that are part of a compositing or transparency operation, leave them be. Color doesn't support transfer modes or opacity effects, but these effects will nonetheless be preserved and will reappear when the project has been sent back to Final Cut Pro. In the meantime, you can grade the top- and bottom-most superimposed clips as necessary in Color.

2. Move all unsupported clips to a superimposed video track. Color does not support long-duration still image files, Final Cut Pro freeze-frames, generators, LiveType projects, or Motion projects. When you send your project to Color, these types of clips will either not appear, or they will appear as disconnected media. However, all of these clips will be preserved internally, and when the project is sent back to Final Cut Pro, all of these clips will once again show up on the Timeline, exactly where they were.

If you have these types of clips in your project, and you don't need to grade them along with the rest of the shots in Color, you can simply ignore them. For example, you typically won't color correct clips such as titles, lower thirds, or other graphics that you've created specifically for the program.

NOTE: A handy trick is to put all your unsupported clips on one track, then disable them by choosing Hide Track from Color's Timeline shortcut menu.

On the other hand, if you have freeze-frames or composited effects that you need to grade in Color, here's a good workflow to follow:

- a. Move the unsupported clip to track V2.
- b. Render it as a self-contained QuickTime clip using either the 10-bit Uncompressed 4:2:2 or ProRes 422 codecs.
- c. Edit the QuickTime movie you rendered back into your sequence on track V1.

You can disable the original, superimposed clip in track V2, but leaving it there makes it easier to locate and rework should you decide you ever need to make a change to the effect. Now that the effect has been turned into a QuickTime movie, it can be graded in Color just like any other clip.

3. As mentioned in the Release Notes, Color does not support variable speed effects. However, linear speed effects, such as simple 50% or 200% speed changes, will play and render just fine. What may be a better plan is that variable and linear speed effects can be rendered at much higher quality using the new capability of Motion 3 to render adaptive speed effects — in effect generating new in-between frames to create extremely smooth slow-motion effects. Given this, you may also want to send any clips with variable and linear speed effects to Motion to perform higher-quality speed analysis, and then place rendered self-contained QuickTime versions of these clips into your Timeline as outlined in step 2, above.
4. Color does not support either FXScript or FxPlug filters from Final Cut Pro. Similarly to all other unsupported effects, these filters will be preserved and sent back to Final Cut Pro ▶

Exclusive Audio Profile

STERLING NOREN, www.wideworldhd.com

Senior Editor, Wide World HD Productions



Sterling Noren is senior editor and owner of Wide World HD Productions. Sterling is a documentary editor, specializing in shooting and editing programs shot in exotic locations around the world. In this audio profile, Sterling talks about his editing techniques and the power of letting his dreams shape his editing career. (TRT: 10:44 4.2 MB)



once you're finished in Color. However, if you've done any color correction or effects in Final Cut Pro that you want to redo in Color, it's probably best to eliminate these filters to prevent them from reappearing in your project after you've applied these corrections in Color.

On the other hand, it's often useful to refer to such offline corrections and effects as you work in Color. One useful tip is to render a self-contained version of the entire sequence using a compressed codec, and then superimpose this "reference copy" of the program in an unused video track of the sequence so that it lines up with the original edits. Now, when you send the sequence to Color, you can disable this superimposed reference movie track to work on the original shots, and enable it whenever you want to take a quick look at the offline effects that were previously created. After you send the project back to Final Cut Pro, you can easily delete the superimposed movie.

5. Lastly, if your sequence's Timeline options are set to drop frame timecode, you'll want to turn off the Drop Frame checkbox. Color doesn't support drop frame timecode, but turning off this checkbox eliminates any problems this might create.

Using Send to Color After the Project Is Prepped

You can only use the Send to Color command on sequences selected in the Browser (see **FIGURE 3**). Once used, the Send to Color command in Final Cut Pro works somewhat differently than the "Send to" commands for Motion, Soundtrack, or Shake. Instead of replacing the media that's been sent from your Final Cut Pro project with a new clip that serves as the receptacle for the output from the remote application, the Send to Color command simply sends the sequence data, with links to the original source media, to Color. This does not change the sequence that you send, and nothing new is added to your Final Cut Pro project at that time.

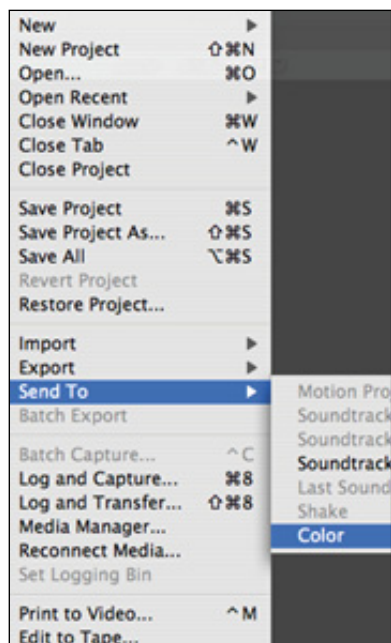


FIGURE 3: The Send to Color command.

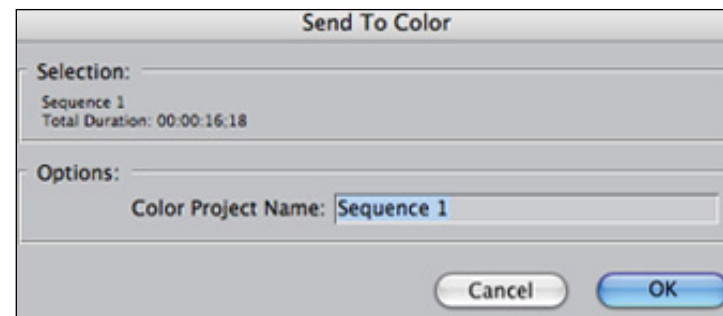


FIGURE 4: Choosing a name for the Color project file you're creating.

Once the Send to Color command has been used, you are asked to provide a name and location for the Color project file that's about to be created (see **FIGURE 4**). Upon clicking OK, Color automatically launches, and your sequence appears in the Color Timeline (see **FIGURE 5**). Now you're ready to work.



FIGURE 5: The shots in the Color Timeline after sending your Final Cut Pro sequence to Color.

After You've Graded Your Program, Render Before You Return

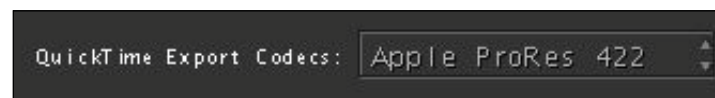
We'll save the actual process of color grading a sequence for future articles. Once you've finished grading your program in Color, it is necessary to *render a new set of media* files from within Color before you send the program back to Final Cut Pro. Color renders a new color corrected media file for each and every shot in your edited program that's been corrected, and it is this new media that the clips within the sequence you send back to Final Cut Pro will be linked to. ►



When you're ready to render your program, follow these steps:

1. In the **Prjct Settings** tab (that is, *Project* without the vowels), choose the codec you want to use to master the program in from the QuickTime Export Codecs pop-up menu (see **FIGURE 6**).

FIGURE 6: Select the render codec from this pop-up menu.

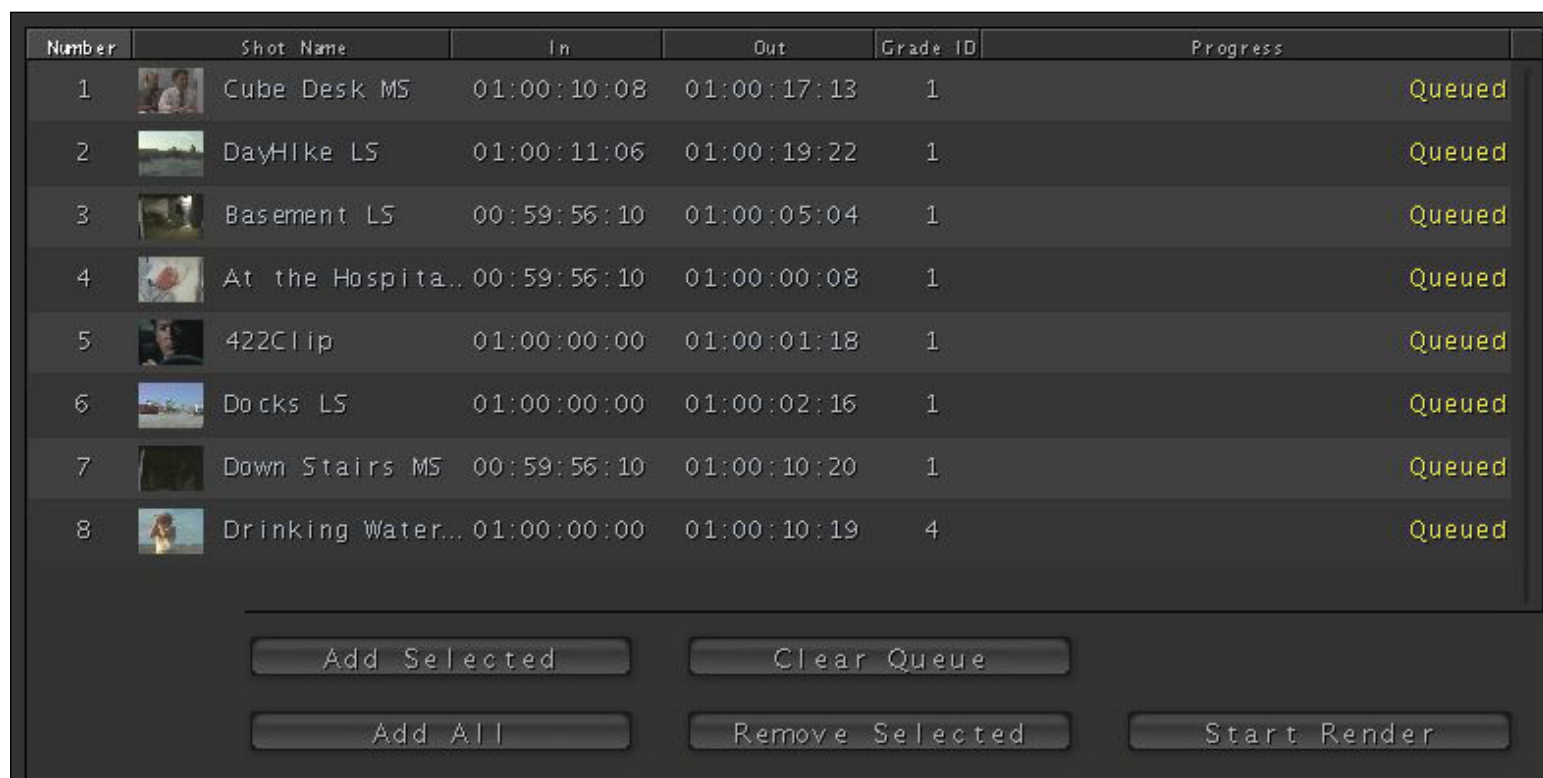


In general, you always want to master the program at the highest possible quality. Even if the source media was a compressed format (Color applies all its corrections to an uncompressed version of the image data), it's best to avoid recompressing the result to maintain this quality. If you have the hard drive space and you're an absolute stickler, use 10-bit

Uncompressed 4:2:2. Otherwise, you will obtain excellent results using the ProRes 422 codec for standard definition mastering, or the ProRes 422 (HQ) codec for high definition mastering.

2. Choose the grade you want to render for each shot. Each shot in Color can be switched among four grades by pressing Control-1 through Control-4, allowing you to try alternate looks and change your mind later. When you add shots to the Render Queue (see **FIGURE 7**), Color adds the currently selected grade for each shot to the queue, so be sure that you've selected the right one.
3. After steps 1 and 2, you're ready to open the Render Queue, and add all of the shots that need to be rendered. You add shots to the Queue by clicking one of these buttons: ►

FIGURE 7: This dialog allows you to add shots to the Render Queue.





Add Selected adds only the shots you select in the Timeline to the Render Queue. This is useful if you're working on a multiday project, and you want to render each day's work when you finish.

Add All automatically adds every single shot in the Timeline. You should note that Add All also adds shots that you haven't graded. Ungraded shots will be re-rendered using the currently selected output codec.

4. Once you've set up the list of shots to be rendered, click Begin Render.

A render bar displays for each shot in the shot list; as each shot is finished, its render bar in the Timeline turns green.

Sending Your Project Back to Final Cut Pro

After you've rendered every shot in the program, choose **File > Send To > Final Cut Pro** to send the Color sequence that references the corrected set of media files you rendered back to Final Cut Pro. Final Cut Pro opens, and the color corrected program appears within the Final Cut Pro project from which it came as an entirely new sequence, sitting alongside the original edited sequence.

At this point, you can make any remaining adjustments to the Final Cut Pro effects that remain in the project, render if necessary, and then output the sequence in the usual ways.

Changing Grades After You've Rendered

In a perfect world, you make your corrections, render your project, send it back to Final Cut Pro, output it, and be done. In the real world, there's always going to be something you need to tweak.

Because of the unique roundtrip workflow employed by Color, you need to be careful about how you make changes. If, after you've rendered the shots in Color and sent the project back to Final Cut Pro, you discover shots or scenes that you need to regrade, you should open the Color project, make your changes, and then re-render the shots that you re-graded. Once you've re-rendered the shots that you changed, then you can open the project.

This is important: Shots are rendered in Color with the grade number included in their name. If you change the grade used by a clip and then re-render, you'll need to resend the Color project to Final Cut Pro in order to make sure the clips are linked properly. However, if you simply updated the same grades, then the

sequence that you previously sent to Final Cut Pro should automatically pick up the new media.

Conclusion

As you can see, a bit of preparation can go a long way in preventing small issues from derailing your roundtrip experience. With the right preparation, however, the trip from Final Cut Pro to Color and back again is a fairly straightforward procedure, and the added capabilities that Color provides make it well worth the visit.

Next Month

The Color and Contrast controls bear much similarity to those same controls found in the Color Corrector 3-way filter in Final Cut Pro, but Color provides you with many more tools for your creative arsenal. Next month, we'll take a look at Curves (see **FIGURE 8**), and how you can use them to expand your creative arsenal. ■

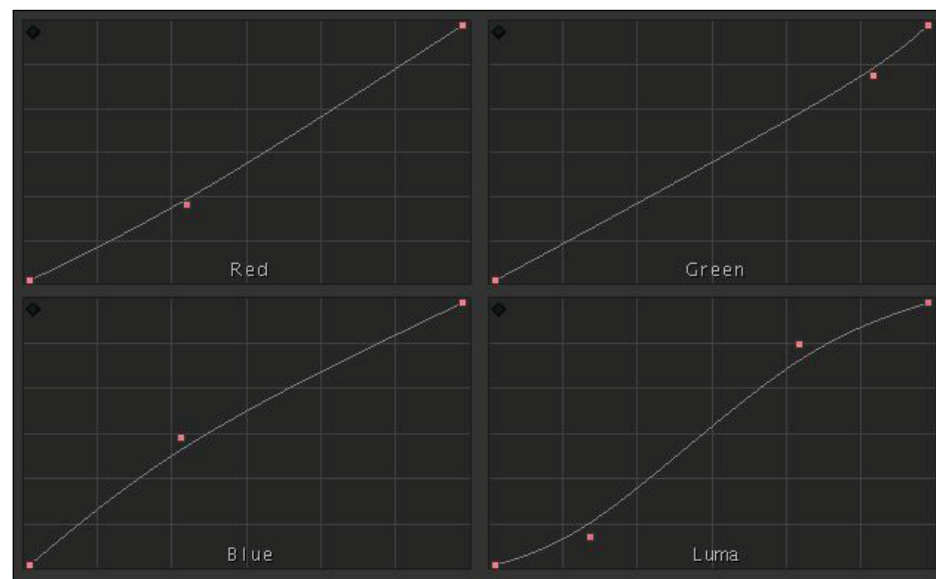
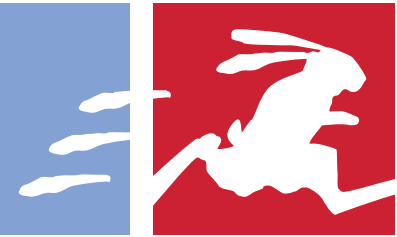
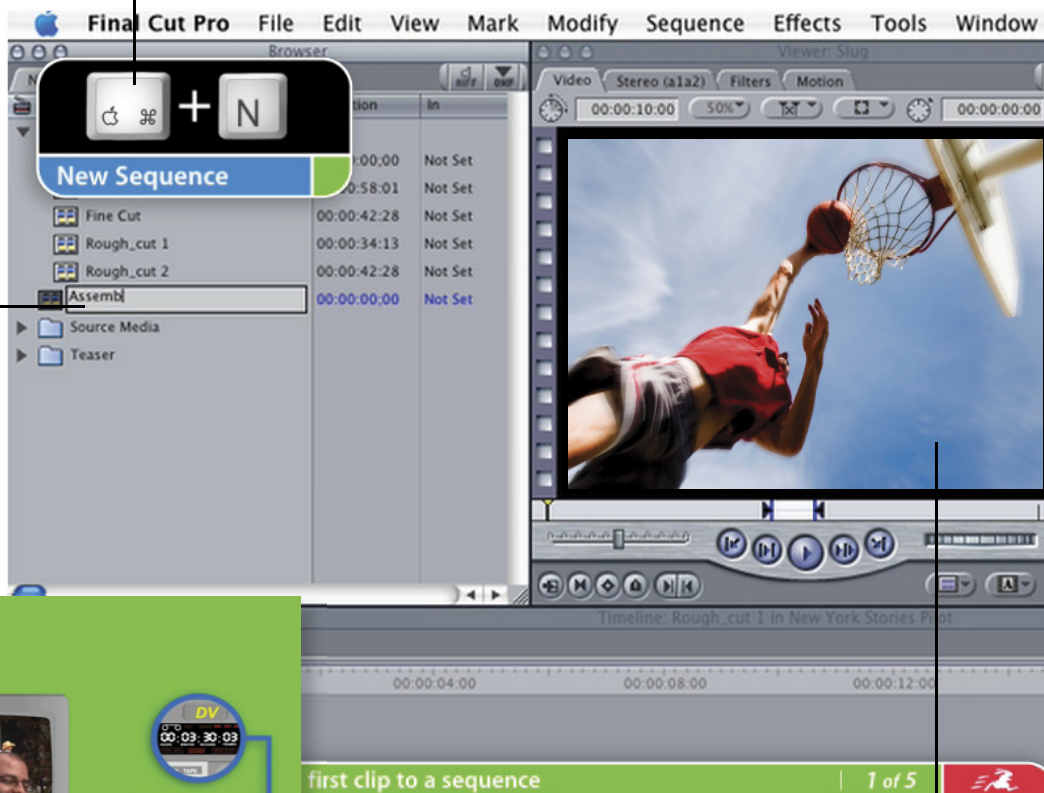


FIGURE 8: Curves are unique to Color and will be discussed in next month's issue.

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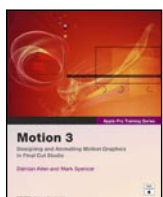
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—Ric Getter, MacDirectory Magazine



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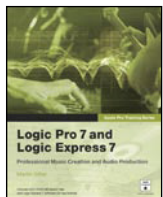
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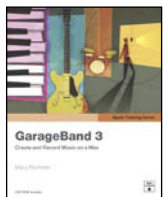
—Alex Alexander, CreativeCOW.net



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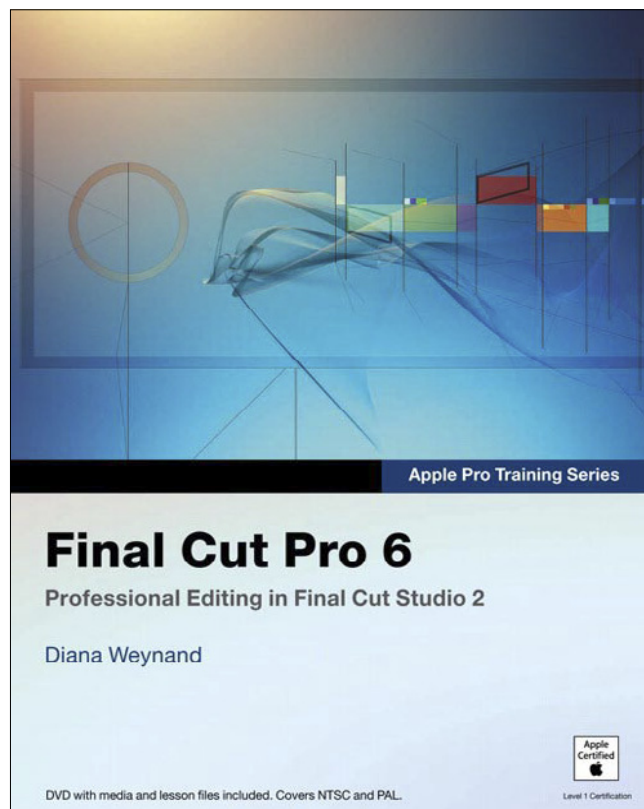
—Manuel Fernandez, www.macompanion.com



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