Larry's Final Cut Pro Newsletter

Editor: Larry Jordan
Issue #15 -- April, 2005

Welcome to the fifteenth edition of my Final Cut Pro newsletter!

The goal of this newsletter is to provide information helpful to the professional user of Final Cut Pro. This newsletter publishes around the middle of each month. Past issues are not archived, however, key articles are posted to my website for your future reference. Unless otherwise noted, all references are to Final Cut Pro HD, and may not work under any other version.

Also, please invite your friends to visit my web site -- www.larryjordan.biz. We are working to make it a great Final Cut resource!

Newsletter Contents

FCP 5 is Announced at NAB!

If the last five years have taught us anything, it's that NAB means new versions of Final Cut Pro. And this year was no exception.

Apple announced *Final Cut Pro 5, SoundTrack Pro, Motion 2, DVD Studio Pro 4* and a whole flock of related applications.

I have not had a chance to get my hands on them yet, but I have spent time in private briefings with Apple, as well as talking with anyone who could fog a mirror to learn more about what's in the new apps.

Apple says they will ship "in May," which means we've got time to plan when to upgrade. (See my Upgrade Caution, below.)

By now, you've probably read many of the various press releases about these new products, including the new *Production Suite*. If not, here's a representative sampling:

Apple: http://www.apple.com/finalcutstudio/

MacCentral: http://www.macworld.com/news/2005/04/17/studio/index.php

Apple Execs: http://www.macworld.com/news/2005/04/17/fcpexec/index.php

Instead of providing an exhaustive list of product specs, I want to focus more on what's behind the headlines. Keep in mind, I haven't been able to run the software, I've just been asking questions of people who know.

Also, as this report is based on briefings given at NAB, I don't have any screen shots to show you. So, you'll just have to use your imagination.

SUPPORTING PLAYERS

Shipping with FCP 5 are:

- LiveType
- Cinema Tools (it's more integrated with FCP)
- Compressor

Shipping with the *Final Cut Studio* are all the above, plus:

- SoundTrack Pro
- Motion 2
- DVD Studio Pro 4

Also available is a significant upgrade to Shake, however, as I am not an effects expert, I have no opinion on this upgrade.

FINAL CUT PRO 5

For me, the big features of FCP 5 are:

- Multi-channel audio in and out
- Synced multi-camera editing support
- Dynamic RT
- Native HDV editing

But, an even bigger feature of Final Cut 5 is something that didn't change -- the interface. Windows, menus and tools all seem to be exactly the same as FCP HD. This is great because it means we don't have to relearn how things work.

In order to run FCP 5, you will need either OS X 10.3.9 or 10.4 (Tiger). As well, you'll also need QuickTime 7. Any dual-processor Mac should run the software with no problem, as well as fast single processor systems.

Editing HDV, however, is complex and a fast system is necessary for smooth performance. Again, please refer to Apple's website for all the details: http://www.apple.com/finalcutstudio

Multi-channel audio requires QuickTime 7, and allows up to 24 channels of audio in or out, depending upon hardware support. At this point, support for more than two channels in or out will require a capture card, or some sort of external device -- such as the AJA IO or FireWire-enabled system.

SOUNDTRACK PRO 2

Boy, if Apple was excited by anything, it was SoundTrack Pro 2. Apple made a big

point of showing how you can create music and effects using SoundTrack Pro 2 (ST Pro). Which is great -- assuming you have a sense of how to create music that someone else wants to listen to.

But, for me, the much more exciting news is that you can use SoundTrack Pro to mix your Final Cut projects.

The mixer in SoundTrack Pro is light-years ahead of the mixer in FCP. You can:

- Load an FCP sequence into Final Cut Pro and mix it
- Create up to 24 output channels
- Send any audio track to any combination of outputs
- Group faders to provide submixes
- Easily move files between FCP and ST Pro using round-tripping
- Add filters to individual clips or entire tracks
- Design mixing Actions which make changes simple -- they are like a PhotoShop adjustment layer
- Use 50 supplied Logic audio plug-ins -- including, I've been told, some decent audio compressors and limiters
- Use control surfaces, which means you can buy a mixer which supports the Mackie Control Protocol, connect it to the computer via USB, or FireWire, and move mixers and turn pots which, in turn, controls the settings inside SoundTrack Pro to mix your project
- Repair audio problems with audio restoration tools -- especially useful for noise-reduction
- Export ST Pro files into OMF for use in ProTools

Even if I never use SoundTrack to create music, this is still great because I've finally got some decent mixing ability inside Final Cut. Whether this replaces my need to take complex projects to ProTools, I won't know until it ships.

By the way, Apple stresses that this version of SoundTrack is new from the ground up, rather than simply retooling version one.

Interesting Trivia

- Soundtrack ships with 5,000 loops, effects, and other stuff
- You can open multiple projects at once, cutting and pasting between projects
- You can display the In and Out from Final Cut in the SoundTrack timeline
- You can edit down to the individual sample level
- Actions are what make SoundTrack so powerful. All editing is non-destructive.
- The audio scrubbing feature is very nice and much better than FCP HD
- ST Pro can compress or expand audio in it's Timeline without affecting the pitch -- not just for loops, but for all imported audio.

Questions About SoundTrack Pro

- Can I record in SoundTrack? Yes.
- Does it have a "voice-over" tool? Yes.
- How many recording takes does it support? No limit.
- Can I shift the video in the timeline of ST Pro? No.
- Can I use AppleScript? Yes.
- Can I disguise a voice? Yes.
- What audio plug-ins are supported? Core Audio plug-ins only.
- Can it do surround sound? You can fake it, but, essentially, no.
- Is there overload/clipping protection? No.
- Can you do live mixing? No.

- Can I move a multi-track file from ST Pro to FCP? No, FCP supports mixed tracks only.
- Does it support MIDI? No. ST Pro is not for music creation -- for that you use Logic. ST Pro is for post and mixing.
- Can you mix multiple audio formats in the same project? Yes.

MOTION 2

The big additions to Motion in this version are:

- Support for 8-, 16-, and 32-bit video
- Replicator, which allows for quickly multiplying instances of an object
- Support for third-party filters, with Zaxwerks, Boris FX and DV Garage already releasing products
- MIDI-controlled object manipulation
- Drag-and-drop Motion projects into After Effects

The MIDI control opens up lots of possibilities for third-party control surfaces. Right now, the only options are keyboards, but there's lots of possibilities for the future.

There wasn't as much time spent demoing Motion or DVD SP, so my notes are fewer. On the other hand, both programs have features that makes the updates seem very appealing.

DVD STUDIO PRO 4

I really like DVD SP 3, so DVD SP 4 is, to my way of thinking, icing on the cake. However, there are three features that, if they work, will be REALLY significant:

- Built-in format conversion between NTSC and PAL
- HD downconversion to SD
- Distributed compression, to multiple computers, using QMaster

These features are all accomplished using Compressor, which is also new with this version. This is a **key** point. Compressor creates files for conversion to MPEG-2 for DVD -- **not** converting DV files for editing inside Final Cut Pro.

Apple is very impressed with the image quality of NTSC / PAL conversions. I did not see any examples, so I'm keeping my fingers crossed.

Other new features in DVD Studio Pro include:

- GPRM partitioning
- Support for H.264
- A.Pack is now integrated into Compressor

H.264 playback of HD requires a G-5. 720p HD can play on a dual G-4. 1080i HD requires a G-5. The H.264 codec is incredibly advanced and needs all the horsepower it can get.

QUICKTIME 7

New with this version of QuickTime are support for multiple audio channels in and out and H.264. That's the big news.

Smaller, but still important, news is that QuickTime now supports:

- Surround sound on playback
- Capturing video and audio directly into QT (though Apple told me

that Final Cut would be better to use for video capture than QT)
- Live resizing of video playback
- Direct image capture from digital cameras
- Support for Core Video and Core Image architectures
- Copying P2 files faster than real-time, though actual transfer rate depends upon file format

QuickTime does not support BMG audio files from audio recorders.

The benefits of Core Video and Core Image are pointed more toward the developer. By allowing the operating system to process video and images, these simplify the work programmers need to do to support images and video in their applications. Also, by moving video processing to the OS, Final Cut is able to reduce latency and improve performance -- which is why there is so much real-time effects and playback in the application.

MORE FACTOIDS

Here, in no particular order, are more factoids on Final Cut:

- Searching for markers in the Timeline is now supported. (Then, again, this is also supported in FCP HD -- I just never knew how to do it. Sigh…)
- The Log and Capture window is somewhat different -- it includes an Angle field to record camera angle
- Every audio track has it's own audio meter in Log & Capture
- You can toggle monitoring audio through your computer speakers during capture using a simply checkbox
- HDV is edited in native format - no intermediate codec is necessary
- HDV ingest is different from DV -- the log and capture window is different. When capturing HDV, Start/Stop detection actually captures to separate clips. This is "a glimpse of the future" of Final Cut Pro.
- RT engine was totally changed. Don't use Unlimited RT, it drops frames
- Dynamic RT controls both frame rate and video playback quality on the fly
- Once a multi-cam clip has been edited to the Timeline, you ripple, roll, slip and slide as though it was a regular clip
- The same audio control surfaces (i.e. mixers) work in FCP and ST Pro
- Audio now supports 8-, 16-, and 24-bit depths and up to 96KHz sample rates
- Preparing video for display is much, MUCH faster
- You can change the displayed size of text in the Browser and Timeline
- Scrolling and zooming in the Timeline is very fast
- New command: Reveal clip in Finder
- Timeline limit increased from 4 hours to 12 hours
- Reconnect dialog has changed, you can now select what folder you want to look in
- Better performance control for FireWire drives
- Timecode, keycode, and ink numbers now display in Viewer and Canvas
- Feet & frames, as well as timecode, now display in Viewer and Canvas
- Match frame works much more logically - no longer needs Auto-Select buttons
- Duplicate frame detection has been vastly improved
- Now natively supports JVC 24p cameras
- Scale and rotation quality of still images significantly improved

Things **NOT** changed:

- Audio waveform drawing in the Timeline
- FCP does not support more than 4 GB of RAM
- No improvements in keyframe smoothing
- Can not add markers while digitizing
- Variable speed time-remapping
- Preferences are system-wide, not attached to a project

There's a lot to look forward to in the new version. I hope to have a hands-on report for you soon after the product ships.

In the meantime, feel free to send in your questions. I'll try to get answers as quickly as possible.

New Poll: What New Features of Final Cut Pro 5 Appeal to You?

Time for a new poll -- and, as the name suggests, I'm interested in what new features of FCP most tweak your interest.

Click here to take the poll:

_____

And, as in incentive, I'll write about your most popular features first. So, take a minute and give me your opinion. Thanks!

[Go to top]

LAFCPUG to Host LA Debut of FCP 5 and SoundTrack Pro

Michael Horton, Head Cutter of the L.A. Final Cut Pro User Group, asked me to make the following announcement.

> On Tuesday, May 3, beginning at 6:45PM, at the Digital Cinema Lab (Pacific Theater) the Los Angeles Final Cut Pro User Group (lafcpug) will present "The LA Debut of Final Cut Pro 5 and Soundtrack Pro."
>
> Members of the FCP and Soundtrack Pro team including FCP product designer Brian Meaney will be down from Cupertino to demo as well as take questions and feedback. And there will be plenty of time for questions and feedback.
>
> This won't be your canned media demo you might have seen at NAB. Instead we intend to go deep inside both apps and show off the many features that didn't make it into the press releases.
>
> All details on this event including directions to the Digital Cinema Lab can be found here:
>
> http://www.lafcpug.org/user_schedule_etc.html

[Go to top]

Upgrade Caution

On April 29, Apple will release the latest version of OS X -- Tiger. Later, in May, the new versions of Final Cut will be released.

I've already got my order in for Tiger -- but, before we all rush headlong into this new version, I want to urge a bit of caution for all the professional editors out there.

If your business depends upon your editing system, hold off updating until we see what, if any, problems are in these new versions. There is NOTHING worse than updating only to discover your editing system is dead.

If you are doing all your work in DV, with external FireWire drives, you will probably be OK. (Then, again, remember that the initial release of OS 10.3 caused major problems with FireWire drives.)

If you are working in higher-quality formats, use a capture card, or depend upon RAIDs, I'd suggest waiting before upgrading.

Take the time to make sure ALL the elements of your editing system work with the new operating system and software. A bit of a delay is frustrating, but nowhere near as bad as an editing system that doesn't work.

I'll do what I can to keep you posted thru my website and newsletter.

Just a word of caution amidst all the enthusiasm.

Buy Larry's Stuff!

This is a reminder to help support this site by buying my book (*Hands-On Training for Final Cut Pro HD*) and DVD (*Learn Apple's DVD Studio Pro 3*).
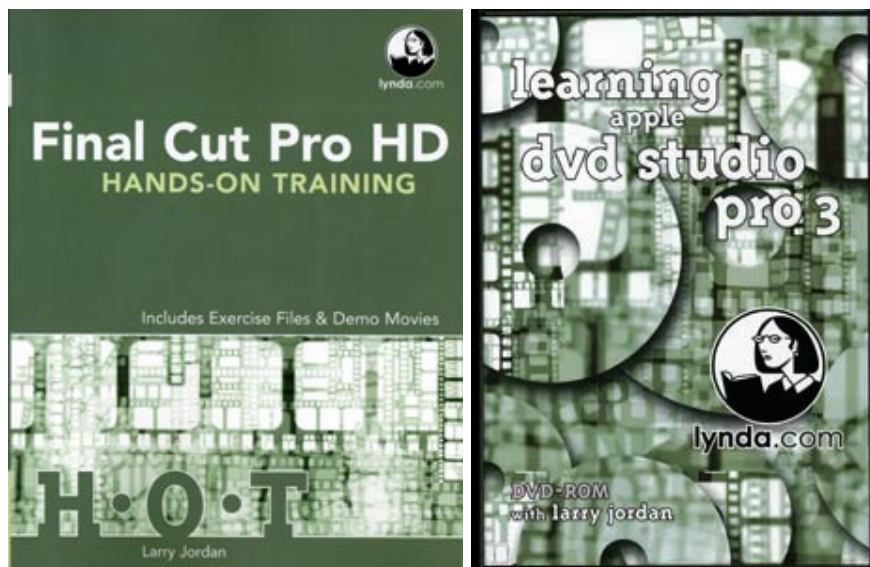
Yes, there's new software coming, however, if you need help in polishing your basic skills -- or know a friend who's just gettting started -- these titles can give you a significant productivity boost right now.

And, besides, you'll learn a lot and probably become more handsome as well -- though, um, that last comment is not guaranteed....

New Tools for FCP users

Andreas Kiel seems to spend most of his life writing useful utilities for FCP users. Here's the first program, described in Andreas' words:

> I was involved in a lot of subtitling projects at several customers the last weeks and something I found was that all of them love to do special typing errors like double/multiple spaces, extra ones at the start or the end of the line or some extra returns. This is a pain to clean up in FCP if you have to go thru hundreds or maybe even thousands of subtitles in FCP.
>
> So I created a little tool which searches the sequence XML for those errors and removes them. The tool additionally allows an automated renaming of the text generators, so they can be located much easier within FCP.
>
> You can download a version from my website:
>
> http://www.spherico.com/filmtools/TitleCleaner/index.html

Larry continues: The next day, I got a follow-up message from Andreas:

> Several people asked for spell checking, so I added it. Go to "Preferences" and enable "Check Spelling". Now each title will be displayed and can be checked/corrected.

Larry continues: Three weeks later, I got a third message from Andreas:

> After I got quite a lot of requests for an utility that converts FCP titles in DVD Studio Pro STLs a did a simple free app which does handle that.
>
> As said it's a simple fast app: transitions aren't handled, so any title with transitions is ignored. But at least it handles all generators that are handled by FCP's XML export - that means: no Boris, but all the other ones I know.
>
> TitleExchange Lite is a basic tool for easy and fast transfer of subtitles from FCP to DVD Studio Pro. Simply export your FCP timeline with the subtitles as XML and open this XML with TitleExchange.
>
> If the timeline contains more than 1 (title) track the app will ask you to select a track. After a very few seconds the conversion to STL is done.
>
> The official homepage for the product is:
>
> http://spherico.com/filmtools/TitleExchange

Issues with LiveType Round-tripping

I discussed round-tripping in last month's issue - Exporting an Final Cut Project to LiveType. Round-tripping is the very neat ability to control-click on a clip in the

Timeline or Browser and open it in it's creating application, such as LiveType or PhotoShop.

However, some of you wrote in saying you couldn't get Livetype to display in **System Preferences > External Editors** screen.

Arnold Farran wrote in with more information:

> Found the answer to this screwy issue on Apple's website.
>
> *Final Cut Pro HD: LiveType does not appear in the External Editors tab*
>
> Under some circumstances, the External Editors tab (choose Final Cut Pro HD > System Settings) in Final Cut Pro HD does not display a setting for "LiveType Movie Files."
>
> This can happen if you installed Final Cut Pro HD from a new Final Cut Pro HD disc, as opposed to installing it from an upgrade. If you upgraded from Final Cut Pro 4 to Final Cut Pro HD, you will not have this issue. If you upgraded from an earlier version of Final Cut Pro using an upgrade disc, you will not have this issue.
>
> You can still add LiveType files to the timeline even if LiveType does not appear in the External Editors tab. The behavior may be slightly different, depending on whether you add a LiveType project file or a LiveType movie file to the Timeline.
>
> If you add a LiveType project file (for example, MyProject.ipr) to the Timeline and then choose to open it in an External Editor, the file will open automatically in LiveType as a LiveType project.
>
> If you add a rendered LiveType movie file to the Timeline and then choose to open it in an External Editor, the file will open in the Editor you've selected for Video Files (in the External Editors tab) or in QuickTime Player if none is selected.

Larry adds: My recommendation is to never render a LiveType project, but add the project directly to the Timeline. (This feature requires FCP HD and doesn't work in earlier versions.) Adding LiveType projects to the Timeline, rather than rendered video files, is faster and much easier to change.

[<u>Go to top.</u>]
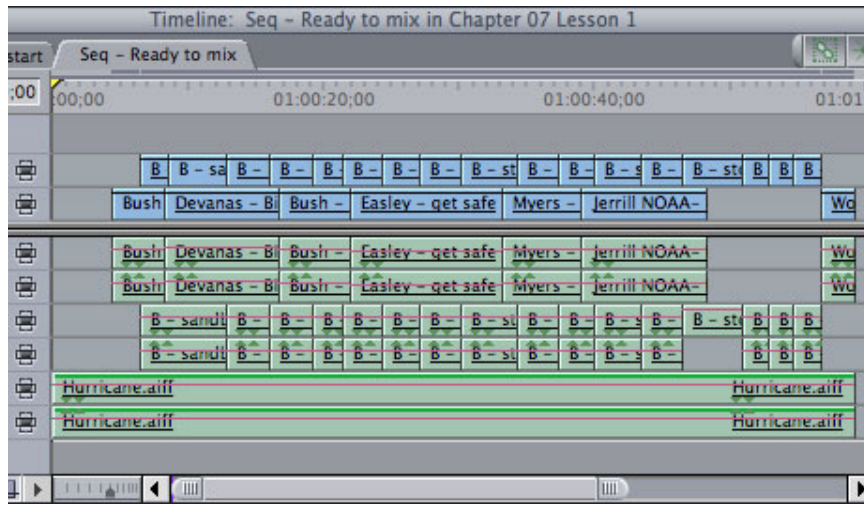

Exporting Project Files for DVD

I've had a number of requests for instructions on how to export a Final Cut project to a DVD.
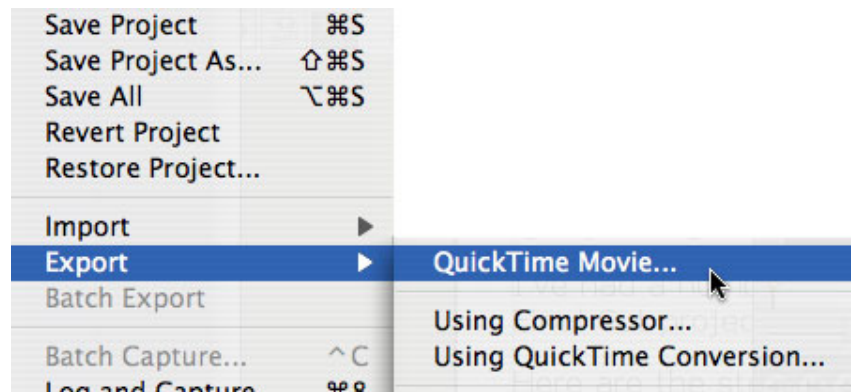
Here are the steps:

EXPORTING

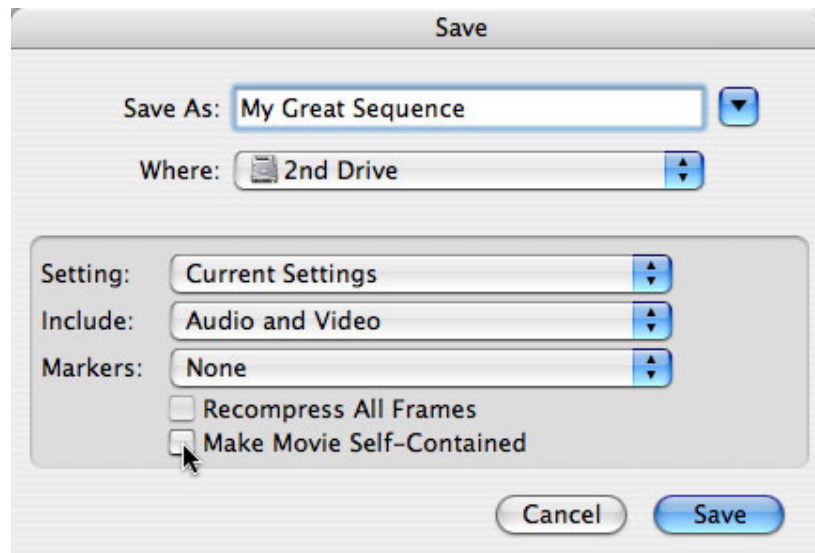The only format that DVD-Video supports is MPEG-2. Any other format won't work.

The best way to export your sequence is as follows:

1. Open your sequence in the Timeline.

2. Select **File > Export > QuickTime** movie

3. Make sure the top pop-up menu is set to "Current Settings"
4. Make sure "Audio and Video" are selected
5. If you didn't use Chapter markers in FCP, set Markers to "None"
6. If you are compressing this on your system, **UN**check "Make Movie Self-Contained."
7. Give the file a name and click OK to save it.

iDVD

Next, if you have a current version of iDVD, you can use it to create your DVD.

1. Open iDVD

2. Give your DVD Project a name and save it
3. Select a Theme -- a look for your DVD
4. Drag your QuickTime movie (exported above) into iDVD
5. Add any titles and images you wish to the main screen
6. Burn your disk.

Current versions of iDVD can burn between 90 and 120 minutes of material.

The quality will be quite good and should meet your needs for all non-commercial releases of a DVD.

DVD Studio Pro

If you want to create a DVD using DVD Studio Pro, you now have two additional choices:

1. Compress the file in DVD Studio Pro
2. Compress the file in Compressor.

Here is how you decide where to encode your video

1. If it is short and you don't need to compress or adjust the audio, compress it in DVD Studio Pro.
2. If it is longer than, say, 30 minutes, or you want to compress the audio into AC3, or you want to make some final audio level adjustments, compress it using compressor.

To compress the file in DVD Studio Pro, simply import your QuickTime movie as an Asset. DVD SP will compress it in the background automatically.

To compress the file in Compressor, DON'T use "Export to Compressor" in FCP -- it doesn't work. Instead, open Compressor, then drag the file into Compressor and adjust settings.

My DVD tutorial can help here, but the short answer is that for short clips, using the preset, "High Quality Encode" will be fine. For clips longer than 30 minutes, you should make some adjustments to this setting to improve file size and image quality.

Here's an additional article that will help explain what compression settings to use:

http://larryjordan.biz/articles/lj_bit_rate.html

[Go to top.]

More on Importing Scanned Images to Final Cut Pro HD

Ben Balser writes:

Two questions I'm trying to clarify. I'll probably sound like an idiot, but there are some FCP issues I see discussed a lot that I don't have. And I'd like to understand what is happening with these issues for other users.

First

One thing I've not seen mentioned on the whole PhotoShop issue that I wanted to share. Personally, I've never had problems with PS files in FCP. But I am aware others have.

According to the Apple Pro Training Series book on FCP-HD, the advanced one, if you do text in PhotoShop, ESPECIALLY if you do effects like drop shadow, etc, you have to rasterize the text layers. It has to do with the unique way PhotoShop handles text layers.

So this is Apple's official word on the subject. I just rasterize my text layers (NOT the same as flattening all the layers, just the effects with text), Save As with a "-r" at the end of the name of the original, import that into FCP, no problems.

Let me qualify this by saying I rarely get PS files from a PC, and when I do, I ALWAYS open in the Mac's PS and Save As according to Apple's specs FIRST. I haven't had problems. Bearing in mind all the text layers from PS-CS have been rasterized, as Apple suggests. Also, let me add that 90% of the text in our projects come from FCP's 3D text generator, or much more often from LiveType. It is rare I get PS files for text. So I may be missing something others work with much more often.

Second

I also get both TIFF and JPEG files from graphic artists to use in our video projects. These are almost always very high resolution in both TIFF and JPEG and I've never had a problem with any of them. I've done test by down-rez'ing some. Here's what I am trying to find out. Do high rez TIFF or JPEG make a difference? Does FCP-HD, as some swear by, convert them to 72dpi (thus lowering resolution anyway)?

What I've found is, at very high rez, FCP-HD on our systems has no problems. In fact, if I go into PhotoShop and down rez them to 72dpi first, they actually do not look as clear in our final output. Also, I found no difference between TIFF and JPEG. I know there's a technical difference, but on our final products, both are just as clear. Could that be due to the 800 plus dpi files I'm getting?

We have a jewlery client who has professional promo photos done. We have to zoom into these to show detail in the diamonds and settings on ear rings, necklaces, rings, etc. throughout the videos we produce. Maybe less than 10 or 15 at the extreame most. A 72 dpi photo will NOT give us the detail we need for that close of a zoom, period. Not an oppinion, what I do daily. A 300-600 dpi photo WILL give us extreame detail doing these same 200+% zooms. That is my only point.

So my question is, why recommend lower rez TIFFs for FCP? I'm sure there's a reason, but I haven't found it in my tests. And I'd like to not mislead anyone with advice on this issue. There is obviously something I'm missing.

Keep up the great work. Love the newsletter!

Larry replies: Ben, thanks for all your emails. I've only summarized them here.

Your key issue is zooming. And you are correct. If you plan to zoom into a picture, you need to bring it in at a larger size than if you simply want to display the image full-screen with no movement.

All video, always and everywhere, is fixed resolution. We most commonly call it 72 dpi. So, none of your high-res pictures are actually high res in video. They are ALWAYS down-sampled - however, that down-sampling occurs during rendering, not import.

Because all video is bitmapped and at a fixed-resolution, I've found it easier to tell my students to look at the total number of pixels across and down, rather than the dpi.

Also, if you want to zoom in, you need to import an image at a larger size than full-screen so that you have room to zoom without pixelization. For me, if the image is full-screen with no moves, I import it at 720 x 540 x 72. If I plan to pan or zoom, I import it at 1440 x 1080 x 72. This allows me to zoom to double the image size without problems. Image quality is good.

FCP has an internal resolution of 4,000 pixels across by 4,000 pixels down. So a truly large picture can't even be imported. I've seen many problems with pictures greater than 2,000 x 2,000; especially when you are building a lengthy photo-montage.

Update: Tom Wolsky reminds me that the 4,000 pixel limit was removed in version 4. However, using very large images is VERY RAM intensive, so be sure to adjust your memory allocation in System Settings to handle very large images.

Next, most JPEGs are heavily compressed causing compression artifacts. To prevent this, I've just adopted my workflow to always use TIFFs. Hi-rez JPEGs should work OK, because the amount of compression is minimized. However, for me personally, I prefer TIFFs.

Finally, at the NAB roll-out of FCP5, Brian Meaney made a big point of mentioning that scaling has been significantly improved in the new version. While I can't test this until the new version comes out, this may be a good reason to consider upgrading, if true.

[Go to top.]

Using Bins to Track Stock Footage

William Campbell writes:

> I'm starting a PBS project here in Montana using FCP HD. It's a natural history subject that will use material from my own DVCAM video library.
>
> A lot of the stock tape was logged and captured for my last two docs for Animal Planet. I'm able to go right to this material because of a way I organized the last two projects. I'd like to share that process with you and see what you think.
>
> 1. When I logged and captured material from my assembly stock tapes I assigned a tape number and corresponding bin for each tape. ex: YP01 (yellowstone park 01)
> 2. After logging YP01, I went to the capture scratch folder on my media drive and renamed the Project folder where the clips were stored to the roll number: YP01. Now I have a Bin YP01 and a folder in Capture Scratch named YP01 with all my QT clips.
> 3. For the next tape, YP02, I did the same thing.
>
> After finishing the two docs I ended up with about 50 tapes, logged and captured, from material that I shot, own and can use again.
>
> When I closed down the projects I created a new FCP Project called STOCK. I copied all the Bins into this project. I have a title for each bin on paper and I can also search the bins for clips. There's nothing in the

timeline of this project, just the bins.

All the tape folders with their QT clips are now on a couple 250 gig FireWire drives. I cleared my second 250 gig internal drive for the new project. After setting up for the new project I opened the STOCK project with the bins for all the archive tapes. Knowing that I would need some winter bison scenes I copied the YP28 and YP32 bins to my new project. I then went to the FireWire and copied the YP28 and YP32 tape folder into capture scratch of the new project. All clips came online instantly. I was adding the archive material to my new project within minutes.

Now I have about 50 x 32 min. DVCAM tapes with a corresponding folder with all captured QT clips and a bin with all logging info. If all goes well I will never have to re-log and capture material from any of those tapes. The QT clips are in their folders with the same tape number. When it comes time for an uncompressed online we pull the original and re-batch.

[When I'm done with a project,] I clear my project hard drive. All the archived material stays on FireWire drives. I bring it into the next project as needed. You can drag the whole tape/roll folder of QT files to the new project drive or individual files as needed. I keep a FCP Project file with all the bins on the firewire archive drive with the folders to keep the material self contained.

The system might be useful for those working on long term documentary projects or anyone wanting to build a tape library with corresponding OT files and bins.

It seems to be working fine. Any thoughts?

Larry replies: While I don't, in general, recommend renaming and moving folders once video has been captured, there's nothing wrong with your system. And, in fact, it seems like a nice way to provide a consistent way of tracking all your stock footage.

Thanks for sharing your system.

[<u>Go to top.</u>]

Graeme Nattress Comments on Digital Black

Last month, I wrote an article on working with digital black, and I invited comments on points where I may have been inaccurate. Well, while I was headed in the right direction, I missed by a fairly wide margin, so rising to the challenge, Graeme Nattress sent a detailed reply about where I went astray.

(For those of you who don't know, Graeme is the author of some seriously great filters for Final Cut, including one that converts NTSC video into PAL all in software. If you haven't visited his website, you owe yourself a look: <u>www. nattress.com</u>)

Here is his response.

Larry wrote:

First, though, a definition. Traditionally, the black level of a video signal is called "setup." In NTSC video, but not PAL or NTSC-J, the

setup level is set to 7.5 IRE units (7.5% on FCP scopes and 16 when measured on an 8-bit digital scale).

Graeme replies:

Setup only exists in Analogue video. FCP only works with digital video, or analogue video converted to digital. All digital video adheres to REC-601, which puts black at code 16, and white at code 235. FCP represents this as a 0% to 100% scale. Digital video in FCP should always have black at 0%. There are no IRE in digital video as IRE is a purely analogue voltage measurement. You cannot equate a digital value in FCP to a specific IRE level as you do not know, and FCP does not know the nature of the device that will finally convert the digital video to analogue.

Larry wrote:

DV video, on the other hand, sets black at 0 IRE / 0% / 0 digital units.

Graeme replies:

DV, as a digital format adheres to REC-601, so it's black is at code 16 and white a code 235, just like every other 8bit digital video format. Again, you cannot equate analogue IRE to digital units until you know which device will convert digital to analogue. It is wrong to say that DV has black at 0IRE, as DV being a digital format has black at code 16 which FCP represents as 0%, just like every other digital video format.

Larry wrote:

This is a darker black than broadcast allows,

Graeme replies:

In the digital realm DV is exactly on REC-601 specification and has black at 16 which is the worldwide broadcast standard. It is wrong to say that DV's blacks are darker than broadcast allows.

Larry wrote:

…so, it needs to be raised, using a device called a processing amplifier (proc amp). This proc amp is generally built into the capture card, or video deck or broadcast operation, so it's generally not an issue.

Graeme replies:

Now we're getting somewhere. Setup and black levels only ever become an issue on conversion of digital video to analogue or analogue to digital. All DV decks when used as digital devices, with video over FireWire or SDI have totally correct and broadcast standard black levels. Let there be no doubt in this.

However, most DV decks do not correctly (for North America) convert digital video to analogue correctly, and convert code 16 black to 0 IRE rather than the North American standard of 7.5 IRE. I see this being done for a number of reasons:

- Cost. Cheaper to use the same circuitry around the world. It's only North America that uses setup, everyone else doesn't.
- DV decks are primarily used in an all-digital workflow chain, and in these circumstances, setup is utterly irrelevant

- if they are used to dub to analogue, it's usually VHS which has such bad black level tracking that, even if the blacks on the DV deck's analogue outputs are correct, the chances are that the VHS deck won't record them correctly anyway.

This does leave one situation where setup is relevant, and that is dubbing BetaSP, 1", Quad, or any other legacy broadcast video format to DV, or dubbing a DV master to a broadcast analogue format. In this case, it is vital that on dubbing, say, BetaSP to DV that the setup is removed, so that black ends up at code 16, which is REC601 standard, and on dubbing DV to BetaSP, say, setup is added so that black ends up at 7.5IRE.

I have had professional BetaSP and Quad dubs made to DVCAM where the facility did an excellent job, and the blacks were at code 16, 0% in FCP, and all was well for turning them into DVDs, but I've also had BetaSP to DV dubs where black was not at code 16, or 0% in FCP and they had to be returned to be re-done, as I will not accept incorrect dubs being made.

If you need to do such a dub and your DV deck does not have the correct analogue black level output, you can use a proc amp to add or remove setup, or just do what I do and pay someone to do it for me on a deck that does have the correct black levels.

In the article, Larry quoted Mark Spencer who wrote:

It seems that most decks don't add setup out to your NTSC monitor so you aren't getting an accurate view of your black levels.

Graeme replies:

This is not necessarily the case. The brightness control on a monitor should be more accurately marked as "Black Level" and as long as your computer / deck / monitor system is correctly calibrated, especially black levels with the "brightness" control, you will be seeing a correct representation of the video. Remember, most of your NTSC monitors are made in Japan, so just pretend you're Japanese and ignore setup - just calibrate your monitor to the bars in FCP that you're sending over FireWire to your DV deck and all is well. The only time you have an issue is dubbing - which I covered above.

Larry further quoted Mark Spencer who wrote:

This happens in the typical DV setup with FCP through FireWire to a deck, and then out to the monitor. The solution is to install a TBC in-between the deck and monitor to add the setup, but I'm wondering if there is any other less expensive solution? I'm convinced that just about every DV-only editor has this issue.

Graeme replies:

It's a non-issue. As long as you're calibrated, you're seeing your blacks correctly. The only issue is on dubbing.

You only have an issue if you're using your production monitor for a number of sources, say DV, DVD and BetaSP, as the black levels out of your DVD player will be at 7.5IRE, as will those out of your BetaSP deck. In this case, putting a proc amp on the DV deck will make your levels consistent across the devices, allowing you to switch between them without further calibration.

Mark Spencer wrote:

> Ah, but when your program goes to broadcast, setup is added in the D/A conversion (either in the dub to an analog deck, or in the D/A converter in a DVD player), so when it airs, the black level is HIGHER than when you monitored it on your NTSC monitor - don't you think that is an issue?

Larry:

> No, because setup is also added on output from your DV deck to the monitor so you are seeing it correctly.

Graeme replies:

> Absolutely correct. As long as you're calibrated to the chain of devices you're using, you're seeing it right. These days, your DV master would get dubbed to Digital Betacam, which again, being a digital format does not have setup either, and then to an MPEG2 encoder, and delivered to your house digitally. In your set to box, it will get converted to analogue, and at that point only does setup get added. To add it before then would be disastrous, as then setup would have been added twice, and the blacks would appear grey.

Mark:

> Actually, it's not, that's my whole point! Most DV decks do not add setup to the monitor, that is my understanding, and the article I referenced reinforces this.

Graeme:

> Indeed, but it's irrelevant as long as you're calibrated.

Larry wrote:

> It seems we have two issues: first, do we need to add setup (i.e. increase the black level) when dubbing to tape,

Graeme:

> You could very well need to if you're dubbing from DV to an analogue tape format. One way people do this cheaply for VHS dubs (although it hardly matters as VHS mostly doesn't have a stable or accurate black level anyway) is to make a DVD, and dub from DVD as DVD players (in North America) generally add setup.

Larry wrote:

> …and the second is do we need to add setup when monitoring our DV signals.

Graeme replies:

> No. Just calibrate the chain.
>
> You should never record non-standard black levels onto a DV tape, as then, the chances are, setup will get added twice. Black should be at code 16 on a DV tape, which FCP represents as 0% (remember the FCP scale is not in IRE as IRE is an analogue measurement, not a digital

one). Do not be tempted to raise the black levels in FCP to 7.5% as this will create a non-REC-601 standard tape, and reduce picture quality by not using all the allowable digital codes for the picture information.

Also, if you're dubbing from DV to Digital Betacam over SDI then there is no need to worry about setup as you're not converting to analogue at any point. Remember all digital formats do not, never have, never will have setup.

[<u>Go to top.</u>]

More Thoughts on On-lining and Up-rezing

Chris Johnstone writes:

> I'm an on-line editor in L.A., working primarily on cable network shows for broadcast, and quick and painless up-rezzing is a must.
>
> Though I'm a Mac loyalist and bought FCP 1 the day it was introduced, I've been forced back to Avid time and time again by problems such as you've described in your article. There's simply no time for workarounds in on-lining a show that often must go to QC and air in less than a week. Where's Apple on this? Until there's a frame-accurate workflow that doesn't require tips and tricks, we'll never be able to use FCP as an on-line platform, as much as we'd like to.
>
> But I digress--my one small suggestion for a quicker workflow per Rick Lavon's dupe clip problem is this: In an Avid decomp session I simply copy the sequence (I add "decomp" to the duped sequence name and put it in its own bin to avoid confusion) and then delete the audio tracks entirely. You then proceed with the decomp of the new video-only sequence as usual. (I'm assuming I'm correct that "make clips indepedent" is the same as an Avid decomp.)
>
> As the new decomp sequence contains no audio, you shouldn't have to unlink the clips, and there would be no possibility of audio/video dupe names. When you've batch digitized the source tapes, simply lay back the new high-rez sequence to a copy of your master with audio. Would this work in FCP?
>
> I'm just speculating on this, but an Avid decomp and uprez is so simple and painless (It literally takes me under two minutes, less the digitizing) I wonder why Apple won't get on the ball.
>
> Also, for those not used to an NLE on-line environment the ganging tip should be underlined and highlighted!! It's the only way to go for checking sync.
>
> It's a shame these media management issues keep slowing down FCP as an on-line tool, as it's the worst-kept secret in post that FCP color correction and (most) FX are far superior to Media Composer, while Symphony's "real time" color correction must be based on the "real time" of some planet other than our own. Here's hoping for improvement in FCP 5!

Larry replies: I was told by Apple at NAB that Media Manager has been "significantly improved" for FCP 5. I'm looking forward to testing this to see if things have improved.

Reader Mail

Time now for my favorite section. Thanks for all your comments and questions. I love reading them. Here's this month's batch.

A Cutting Discovery

Scott Erickson (California) writes:

> This is Scott Erickson, editor extraordinaire over at the city of Calabasas (CA). I just wanted to share with you my elation at my new discovery.
>
> You remember that I am a discreet logic editor and love to do everything through keyboard shortcuts. [One] of my main dislikes about FCP were that while the tools are nice, i liked just hitting a key to cut where my cursor was rather than switching tools and then doing it with the mouse.
>
> The point is I tried to paste something in my timeline and in my PC-trained mind hit ctrl-v instead of command-v (I had just started editing for the day) and to my delight it cut the tracks where my cursor was. I blinked and then tried it again and it turns out it does this every time. Needless to say i am much more happy and i thought you should know. Maybe one day i'll get the hang of this thing called final cut but even though its a bit rocky right now, our relationship is definitely warming up.

Larry replies: Yup, the Control-v shortcut is very handy. It cuts all tracks at the position of the Playhead. The Razor Blade is more flexible, but Control-v is faster.

Update: Tom Wolsky writes that he likes to map the "/" key to this function.

Working with DigiBetacam

Cem Yildirim (Turkey) writes:

> I`m a follower of your newsletters from Turkey. Turkey is predominantly Avid, Inferno, Flame, and Flint country. Here, unfortunately, FCP is considered a DV-only toy for film students. I had my FCP and DV education in the states (NYU) and I edited stuff for PBS. When I got back here in Turkey, I have not seen any Pro use of FCP and, naturally, I`m unemployed.
>
> [Recently], a documentary which is going to compete in Cannes this year was being edited in FCP and I was called to finish the project. The format was DigiBetacam and I had lot's of problems. The computer often froze and anything I made in the Timeline, like some trims and moving clips, I got that message which stays about a minute or even more on the screen that says "preparing video for display." This situation drove me nuts and clients got angry.
>
> So could you please mention the conditions and nature of working with

DigiBetacam on FCP in your next issue? Thank you very much.

Larry replies: First, I work with DigiBeta on a daily basis and don't see this kind of problem. However, I have run into this before. This happens on very, very large projects with hundreds of clips, or one where the Project file is corrupt, or your disk directories are messed up. To fix this problem, try the following:

1. Do a "File > Save as" on your project. Give it a new name and save it. Save as fixes a lot of internal errors that may be creeping into your FCP project. I try to do a Save as on all my major projects every few days.
2. Read this article about trouble-shooting FCP (http://www. larryjordan.biz/articles/lj_trouble.html)
3. Then, do a Safe Boot and Repair Permissions.
4. From the same article, trash your Final Cut preferences
5. Apple made a point of illustrating that "Preparing Video for Display" is much faster in FCP 5. If all else fails, get the upgrade.

Project Slow-Downs

Renee Bergan writes:

I upgraded from FCP 4.0 to 4.5 midway through a rather large project (a mistake, I admit). After that the editing process on the timeline became extremely slow, particularly with trim edits and things that affected the time line itself. I was told that was because I did not capture the media in HD but 4.0 That project is wrapped and complete. Since then i have worked on smaller projects that i noticed that as they grow, similar slow editing qualities seem to arise as the project grows larger in size.

My question for you: does it take more RAM or something to run 4.5? And, if so, are there any real advantages to working with 4.5 over 4.0 if you're just using DV?

Larry replies: Renee, you sent me this question when I was at NAB and I read it while standing next to Philip Hodgetts and Tom Wolsky. So the three of us discussed this.

This is a known problem in FCP 4 & HD.

There are several causes:

1. Too many clips
2. Using clips with long durations
3. Using sub-clips created from very long duration clips

This MAY be fixed in FCP 5 -- but this is not known for sure at this point.

To solve this, try breaking your project into acts, and only load the clips for that act into that project.

Also, Philip suggests that capturing long tapes is a problem -- so capture in smaller blocks. For instance, break a one hour tape into fifteen minute blocks. It's a combination of clip counts and long-duration clips.

Also, if you have lots of FireWire drives daisy-chained together this can also be a problem.

[An interesting piece of trivia -- adding a camera or deck at the end of a chain of FireWire drives can often slow down the whole FireWire bus. This is because many early cameras and decks use FireWire 100, rather than the more current FireWire 400. The DSR-11 deck, by the way, uses FireWire 400.]

Converting NTSC to PAL and Back

Greg Poschman writes:

> I would be interested in reading about inter-format editing - from PAL to NTSC. I have 3 hours of PAL Mini DV that I want to capture and pick from, for a mostly NTSC project. Can I do this with FCP HD and my DSR-11 deck? Should my NTSC monitor work with the DSR-11 set on PAL?

Larry replies: Greg, this is not an easy problem. You can not combine NTSC and PAL footage on the same Timeline. You need to convert everything to the same format. Further, Final Cut does not currently support this conversion. An excellent conversion utility is available from Graeme Nattress (http://www.nattress.com) which can convert from one to the other.

Your DSR-11 deck can display both PAL and NTSC. Final Cut can edit both NTSC and PAL. However, FCP can not edit both video formats, and frame rates, and image sizes on the same Timeline at the same time.

And, for those of you who remembered that the next version of FCP supports NTSC / PAL conversion, keep in mind that this is using Compressor for output as MPEG-2 to DVD. This conversion does not support DV NTSC to DV PAL.

Different Dissolves

Gary Weimberg writes:

> Just a quick appreciation. Subscribed and read your newsletter for the first time.
>
> I'm a 20-year documentary editor/director, your newsletter is excellent.
>
> Thanks! Keep up the good info.
>
> Oh, an old question I've never had answered: What is the difference between additive and non-additive dissolves.

Larry replies: First, thanks for the kind words -- the newsletter is hard work and I'm glad you like it.

Second, a cross-dissolve blends two clips by adjusting their transparency. An additive dissolve blends two clips by adjusting their luminance values. An additive dissolve tends to look brighter and more washed out. As well, it can generate excessive white levels very easily. For this reason, I don't recommend using it.

[Go to top.]

Color Sampling Redux

Warren Heaton writes:

Alex Lindsay made a very interesting statement last night.

He stated, "If you are shooting digital, 90 percent of the time you will want to use green as there is more luma in green and keyers pull the matte based on the luminance channel."

Also, perhaps most interestingly, he fells very strongly that the AG DVX100A is not a good camera for green screen. He didn't get too into the detail of it, but he said it had to do with how the camcorder processes the blue. I'm not sure how much he's played with the CineLike settings in the camera, but he has done extensive work connecting his own DVX100A to Final Cut and adjusting the color adjustments while shooting a subject over both blue and green and then viewing the results on the vectorscope and waveform monitor.

All in all, it still came down to choosing the blue or green based on what you were shooting.

A very strong point he made had do to with how to choose a color based on the format that you are shooting: MiniDV, BETACAM, DIGITALBETACAM, HDV, HDCAM and Film… Basically, use green if the color sampling of your digital format is 4:2:2 or less and blue if your color sampling is 4:4:4. MiniDV is 4:1:1. The blue information suffers the most in digital formats in both color scaling (4:4:4, 4:2:2, 4:1:1 etc.) and compression (Photo-JPEG, MPEG, DV/DVCPro-NTSC, etc.).

In an earlier email, I had commented about skin tones and which color to use. Last night, I learned a good phrase to help remember which color is best for which skin tone: "Blue for blondes". Alex even went as far to say, "dark skin against blue can be almost impossible to key."

So, green is better based on this information. Two colors exist because neither is correct for every shooting circumstance.

Larry replies: Warren, I disagree with this on several levels. However, I agree with your conclusion that different colors exist because no one color is perfect.

First, Alex is correct that there is more luma in green. In fact, the green channel is what is viewed when watching a black and white TV.

However, this is not relevant. A chroma-key doesn't rely on the luma channel. Only a luma key relies on luminance information for it's key. Chroma-keyers rely on color information. And different keyers use different color models to determine what color to key out. The keyer in FCP is a very broad-based keyer; in that it can key on any color. The keyer in Motion is based on a Primatte keyer, which is tuned for certain color frequencies, which requires you to use very specific colors of blue or green in your background. The Ultimatte keyer positions color in a 3D color space, allowing for greater selectivity in removing a color, without removing the shadow that falls on the color.

There are Color-smoothing filters designed for DV video that use the luma channel to figure out where the edges of objects are, which helps improve the key, but these filters are an adjunct to the keying process; not a necessary step.

Regarding color sampling, blue is not treated any differently from green where color sampling is concerned. 4:1:1 simply means that the color values of four horizontal pixels are averaged into a single color value shared by all four pixels. There is no predominance given to green vs. blue.

While it is true that in YUV color space there are more green values than blue values, which is illustrated on a vectorscope, this is not meaningful. When doing a key, your goal is to create a highly-specific shade of blue or green that you can specifically identify and remove, using whatever keying filter you select.

As you mentioned, you select your background key colors based upon your talent, their eye color, costume and the color of the background you'll be inserting.

DV video does not have the same amount of color information as higher quality formats, which makes it much harder to pull a good key. Broadcast formats, DigiBeta, DVCPRO 50 and others, have at least double the color information, which is why it is easier to pull a good key using them.

Here's a good article that describes color sampling in more detail. It's from last month's newsletter.

[Go to top.]

FireWire Drives

Herb Isaacs writes:

> In regard to your most recent article on FireWire drives and cooling, I was having some problems with OWC drives and contacted them. They recommended standing the drives up, rather than laying flat. After I did that I had no further problems. Obviously, standing up maximizes the airflow around the drive. Just an additional note for you…

Larry replies: Cool.

Selecting Audio Edit Points

Dick Osso writes:

> Why, using FCP HD, is it that when I click on an edit and the edit high-lights and I apply a CROSS Audio DISSOLVE (2), it gives me the stereo dissolve.
>
> BUT, when I keyboard shortcut to the next edit, [using Up- or Down-arrow] and apply an audio cross over, WITHOUT high-lighting the clip edit, why does it only make a single channel cross audio cross over?

Larry replies: Which edit highlights depends upon whether your audio and video clips are linked. If the clip is linked, both audio and video highlight. If the audio clip is not linked to video, only the single track audio clip highlights. Stereo and Dual-mono settings have no effect.

So, if you want to quickly select and apply an audio-cross-fade to an edit point, be sure the audio and video are linked, then, using the Up and Down arrows keys move to the edit you

---

Converting AVI Files

Long-time reader, **Jim Perry** writes:

Great newsletter by the way.

I have a quick tip you might find publishable. I have some old AVI files that refuse to open in Quicktime or Windows Media Player on OS X. Turns out they use a very common older codec (a flavor of Indio) that has no OS X version. On a hunch I tried them in Quicktime under Classic and they played fine. I used one of my QT Pro keys and exported the movies to proper QT files with Sorenson codecs. [Now, I can read them in OS X.]

Hooray!

Larry replies: Neat!

[<u>Go to top.</u>]

SATA RAIDs

Jim Addie writes:

I read your story on the SCSI RAID problem in 10.3.5 and up. I have a RAID, but it's built with the new Sonnet Tempo X SATA 4+4 card, and an external SATA Hot swap case. Does this issue apply to RAIDs in general, or SCSI RAID specifically? So far, I've had no problems like this.

The only issue I've noticed with my Tempo card is that it won't wake sleeping drives, something I'm sure they'll update the firmware for soon. I've set mine to never sleep for now.

The one caution to people building raids with hot-swap drives is: don't remove one of the raid drives and not the other, and don't put them back in different slots. Either will break the RAID permanently, with compete loss of data. Other than that, they work well, and match or beat SCSI 160 speeds.

The RAID info I shared came from http://www.macgurus.com/forums/ index.php. I purchased my Sonnet SATA RAID card, and the external Hot Swap SATA case (I have a 3 deck) from Mac Gurus who hosts the forums above. There are also threads about FCP, DVDSP, and more.

Some of the data that influenced my choices of SATA RAID came from http://www.barefeats.com/, who does really hard-core hardware stuff, like test drive speeds, etc. Real nuts and volts stuff.

Larry replies: I recently bought an external SATA drive to use for a large project I'm working on. I've been impressed with the speed and reliability. I agree with your cautions on hot-swapping drives.

Avoiding Duplicate File Names

Rick Llewellyn writes:

I have a suggestion that seems to work to avoid the duplicate file names. First, since I work with DV, I use the FCP automatic sub-clip generation. As such, I select the "Use clip name" option in the MM. (Although I never renamed them, I guess it counts as renaming if FCP

generated sub-clips.)

After generating the full res offline project, I delete the entire master clips folder, leaving only the sequence. I then do a batch capture on the sequence from the Browser and like magic, no duplicate file name problems. I don't think this created any problems. If I need a copy of a clip, I just drag it out of the Timeline back to the Browser. This is the only way I have found that avoids the duplicate file name problem. I must say that it is a little frustrating that Apple has not fixed this problem in lots of updates, and in my case all the file/clip names are Apple generated.

I have used this system through several revisions and it seems to work.

Larry replies: Rick, if the system works for you, great. I have a problem with deleting the original clips. Far too many times, I need to go back to the source off-line to figure out what's missing in the on-line. They are a very useful reference in the event a clip gets lost during final recapture.

Here's the commercial that supports this newsletter.

I provide system design, consulting, editing, training and support for Final Cut Pro, DVD Studio Pro and Motion.

You can review my support and training services here.

If you need training, help or advice with Final Cut Pro, DVD Studio Pro, or Motion, I'd appreciate it if you would give me a call, (818) 879-5105, or send me an email -- larry@larryjordan.biz -- worldwide.

My client list speaks for itself.

Your support of my services keeps this newsletter free.

Thanks.

Oh, and please buy my book - and DVD! Thanks.

Last Month's Survey

Last month, I asked what your HDV plans were. Only 7% were working in HDV at that time. 61.5% had no sense of urgency to start work in HDV.

You can view the final poll results here.

Please take a minute to vote in this month's poll -- learning more about your interests helps me determine what to cover in this newsletter.

Wrap-Up

Well, that's it for this edition of the newsletter. Let me know what you think, and tell your friends to subscribe. I love reading your comments and sharing them with others.

Or, send in some ideas of what you'd like us to talk about.

Even better, send in some tips of your own. I'm happy to publish everyone's ideas. That way, we all learn!

Thanks -- and have fun editing!

Larry

[Go to top.]

Subscribe to **Larry's *FREE* Monthly Final Cut Pro Newsletter!**
Email:

Legal Notes