LARRYJORDAN.BIZ Newsletter

Larry's Final Cut Pro HD Newsletter

Editor: Larry Jordan
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Welcome to the twelfth 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 are not guaranteed to 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 Pro resource!

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Larry's "Hands-On Training for Final Cut Pro HD" Book is Now Available.

I announced my book in last month's newsletter -- and now the reviews are available. Sigh... this is so neat! Here's a review, written by King Dexter, and posted on Amazon.com:

> This book is a superlative "Must Read" for FCP users of all levels. I am Apple Certified in FCP 4.0 and have an insatiable appetite for new books on the subject. Larry Jordan's book is by far, one of the very, very best on the market. There are many good FCP books written by talented film editors and fine authors. Larry is both, to be sure. But, he is also one of the most gifted teachers on the subject as well.

> This may be what makes his book stand so far apart. The way the material is presented draws on his many years of practical editing experience and is personalized by his unique way of bringing the subject matter to his students. He presents you with easy to follow QuickTime movies which prep you for the full-bodied step-by-step versions set forth in the 500+ page book. The student lesson media which is included on the accompanying DVD is robust and exactly fits the needs of the tutorials. I might add that even if one skipped the lessons (which would be absurd!) what one would gain from the many tips and sidebars would be well worth the price of the book.
>
> This book boasts that it will take you from organization through editing to professional output using Final Cut Pro HD. And it does! The only thing that might top having this book would be to have Larry teach you the subject in person and, as I understand it, that too is possible.

It's my first book, so I only plan to mention this about another eleventy-billion times. Click here to buy the book on Amazon.com (come on... you can do it -- this newsletter is free, after all).

http://www.amazon.com/exec/obidos/tg/detail/-/0321293991/qid=1106183045/sr=1-1/ref=sr_1_1/102-7839378-5584945?v=glance&s=books

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Thoughts on MacWorld 2005

Much has already been written on the new products at MacWorld, but I want to focus on some trends that I see developing that will have an impact on our work as video professionals.

First, I was struck how MacWorld has evolved into a consumer-oriented show. In the "old days," everyone developing for the Mac was at the show. Now, the product focus is on consumers, especially the iPod. So, for me, the value of this show is in visiting with key vendors, even more than looking at specific products.

The result of this is that Apple is increasingly using industry-specific shows, like NAMM and NAB, to showcase their professional products.

So, while the iPod Shuffle and iMac Mini stole the stage at MacWorld, there were other announcements that I found more intriguing -- and they all revolve around the future of QuickTime 7, announced recently and scheduled to be released with OS X 10.4 (Tiger).

> **Disclaimer**: I am *not* privy to Apple's product plans. I have not seen any unreleased products. Therefore, please consider this thoughtful speculation, not a new product announcement.

I was speaking with an Apple engineer at MacWorld to learn more about what Apple announced about the future of QuickTime. For me, the latest version of QuickTime portends significant opportunities for Final Cut in two key areas: audio and video.

Audio

First, audio. Apple has developed modules in its' operating system called "Core Audio." In brief, Core Audio handles processes like recording, playing back, and manipulating audio elements at the operating system level. This means developers can pass audio processing to the OS, rather than reinvent the wheel. As well, because the audio is processed in the OS, latency and other bad things can be minimized. In general, Core Audio is a good thing.

Currently, Final Cut is limited to two channels of simultaneous audio capture. This restriction is due to a limitation in Quicktime. However, the next version of QuickTime will allow multiple tracks of audio to be captured simultaneously. (How many hasn't been announced, but any number greater than two is a good thing.) Because Final Cut relies on QuickTime, and Core Audio, for it's audio handling, this means that sometime in the not too distant future, FCP will allow multiple track audio capture as well.

Which brings to mind another thought. If QuickTime 7 only runs on OS X 10.4 (a statement which may or may not be true) that might indicate that the newest version of Final Cut may require OS X 10.4 in order to take advantage of these features.

Again, keep in mind these are musings, not announcements, still any improvements to QuickTime will benefit Final Cut.

Video

Second, is video. Core Audio was released with OS X 10.3. Core Video is coming in OS X 10.4. Core Video does to video what Core Audio does to audio. Moves video handling and manipulation into the operating system, so that developers can use the speed and reliability of the OS to handle their video elements, leaving them more time to concentrate on other parts of their application. One of the interesting features of Core Video is that it moves video rendering and screen drawing off the CPU and onto the graphics card.

This move began with Motion, where Motion uses the computer's RAM to store the frames it is working on (the workspace), the computer's CPU to calculate movement, positions and trajectories, and the graphics card to draw and texture the object. By sharing the load, Motion is able to achieve some truly revolutionary real-time effects.

Core Video takes this to the next step and moves all these operations into the operating system. This means that Final Cut, and other applications, can take advantage of these real-time video characteristics which is provided by the operating system. Using Core Video will make video handling faster, potentially more reliable, and much more consistent between applications.

The implication of this is that the speed and power of your graphics card will be more important than ever. It used to be that any graphics card could be used, because the CPU does all the work. Now, by off-loading much of the video rendering and imaging to the graphics card, the better graphics card you have, the more complex effects you can achieve in

real-time.

And real-time is the operative word. As always, any effect can be rendered. However, using the new system opens up tremendous possibilities in creating and editing effects in real-time.

SoundTrack

Third, is Soundtrack. SoundTrack, is suspect, is not long for this world in it's current form. Though bundled with the latest version of Final Cut Express HD, it is conspicuously absent in all of Apple's NAMM announcements, where Apple went to great lengths to discuss how GarageBand, Logic Express and Logic Pro form a seamless audio creative environment.

I enjoy teaching SoundTrack, so I'm curious to see what Apple has up its sleeve to take it's place.

HDV and H.264

> **Update**: In the initial version of this newsletter, I announced that Apple had included H.264 in iMovie and Final Cut Express. This was a mistake, for which I apologize. What Apple announced and included was the HDV codec, which I'll have more on next month. Sigh... I hate making mistakes.

Fourth, Apple announced that the latest a/v codec (HDV) is now shipping in iMovie and Final Cut Express HD. A couple of months ago, Apple said that HDV will be supported in a future version of FCP. This new codec, Apple said, allows us to create one version of our program that can be played on a multitude of different devices, from cell phones to broadcast television, without recoding.

As HDV is, essentially, a version of MPEG-2, what Apple is doing is transcoding it from a GOP-based MPEG stream into a frame-stream using the Apple Intermediate codec. I'll have more on this next month, as I learn more.

Yay, Phil!

Finally, I would be remiss if I didn't mention Phil Hodgett's excellent demonstration of Digital Heaven's Multi-cam Lite product at the Wednesday night Final Cut Pro User Group meeting. If you need to edit multiple cameras to the same timeline, click here to learn more about this excellent product.

All in all, I found MacWorld to be exciting -- not just for the products that were announced, but what they foretold about the future. As always, let me know your thoughts and I'll share them with everyone.

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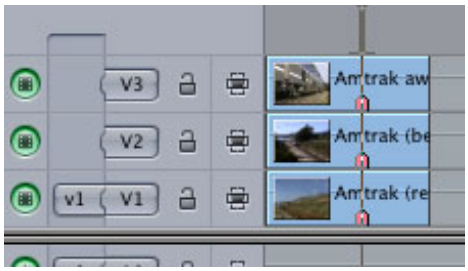
Tutorial: Creating a Charlie's Angel's wipe effect

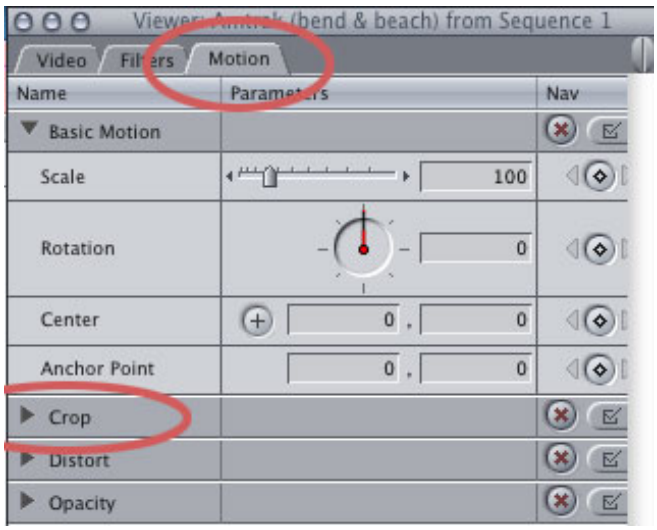
Recently, in one of my classes, I demoed this technique -- which recreates the opening title wipe from the movie "Charlie's Angels." It's simple to do and illustrates a variety of motion effect features in Final Cut. What surprised me was how interested my students were in learning it. So, because they found this so fascinating, I'm sharing it with you.

1. Select three shots, where one shot has it's principal action to the left of the frame (V1), the next is centered in the frame (V2) and the third is to the right of the frame (V3). There is no magic to track selection, I just do this to help keep it straight in my head. (And, in case you haven't learned by now, I'm a train buff.)

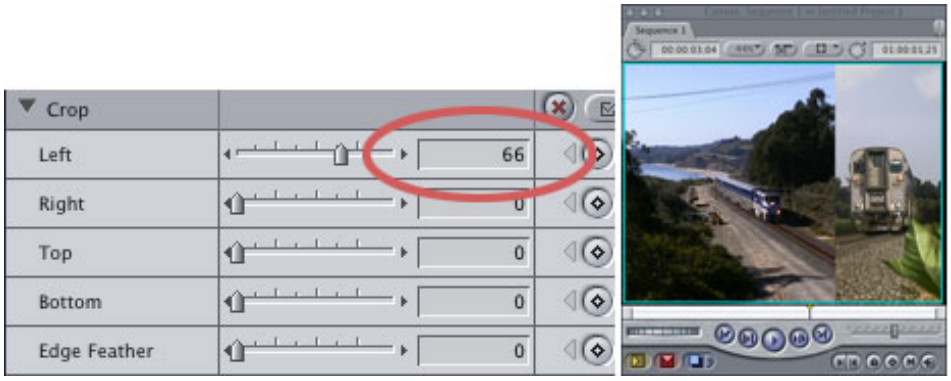


2. Stack the three clips atop each other in the timeline. In this case, I've trimmed them to all the same length and marked a frame in each clip so that all my screen shots in this tutorial will be consistent. Stacking clips is mandatory, the marker is not.

3. Double-click the top clip (V3) to load it into the Viewer and click the Motion tab at the top of the Viewer window.

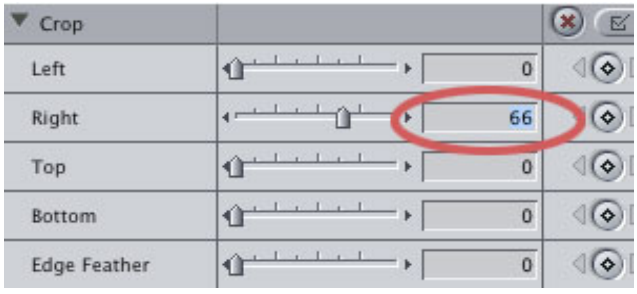


4. Twirl down the triangle next to Crop.



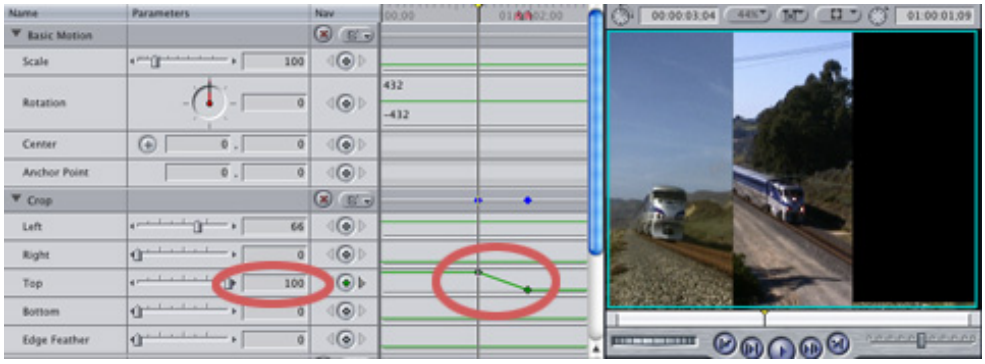
5. As with all effects, it is easiest if you build the final effect, then add keyframes to animate into it. So to build the finished effect, set the left crop to 66. This means that 66% of the left side of the picture will be hidden (cropped).

6. Now, double click the second clip (V2) to load it into the Viewer and set the left crop to 34 and the right crop to 34.



7. But the bottom clip is still full-screen, which needs to be fixed, so double-click the bottom clip (V1) to load it into the Viewer and set the right crop to 66. When you are done, the finished effect has each image occupying one-third of the screen.

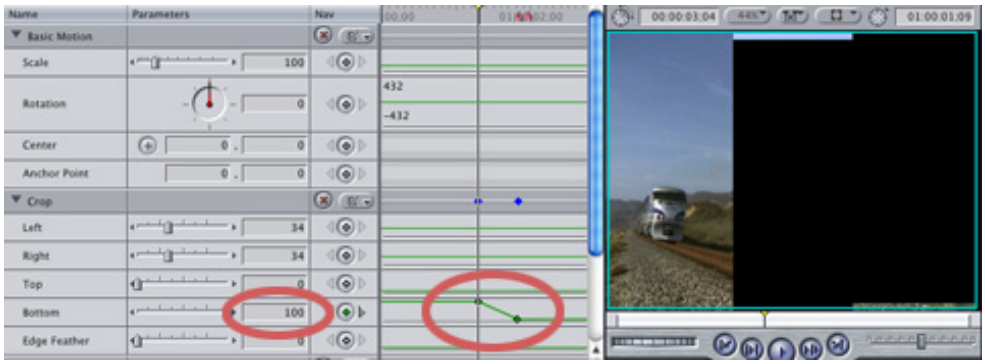
Now let's animate the effect. I've decided I want the effect to take 20 frames to wipe in, where the images on the edges wipe up from the bottom and the middle image wipes down from the top. Here's how.



8. Double-click the top clip, V3, and open up the Viewer window so you can see the keyframe section by dragging the thumb tab in the lower right corner of the Viewer window.

Set a keyframe at the position of your final shot. Then, type "- 20 " and press Enter to move the Playhead back 20 frames. (You don't type the quotes, by the way.) Set another keyframe at the new position of the playhead.

9. With the playhead sitting on top of the first keyframe, change the top crop to 100. This crops the entire picture out, from top to bottom, so that you see black on the right edge of your picture. And, because the second keyframe (20 frames later) is set to a top crop value of zero, this means that during the 20 frame transition, the image will go from fully cropped to full uncropped, moving from the bottom to the top.



10. Double-click the middle image and set matching keyframes to that of the clip on V3. Only this time, set the bottom crop to 100 so that the image reveals from the top to the bottom.

11. Finally, double-click the image on V1 (the left image) and create matching keyframes. Set the first keyframe to match the settings of the V3 clip -- where the Top crop is 100 for the first keyframe.

Play your effect and, voilá! Instant movie stardom.

Cool.

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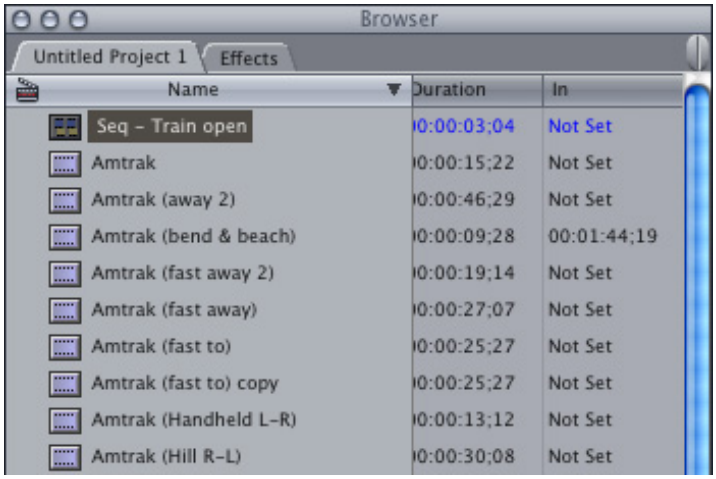
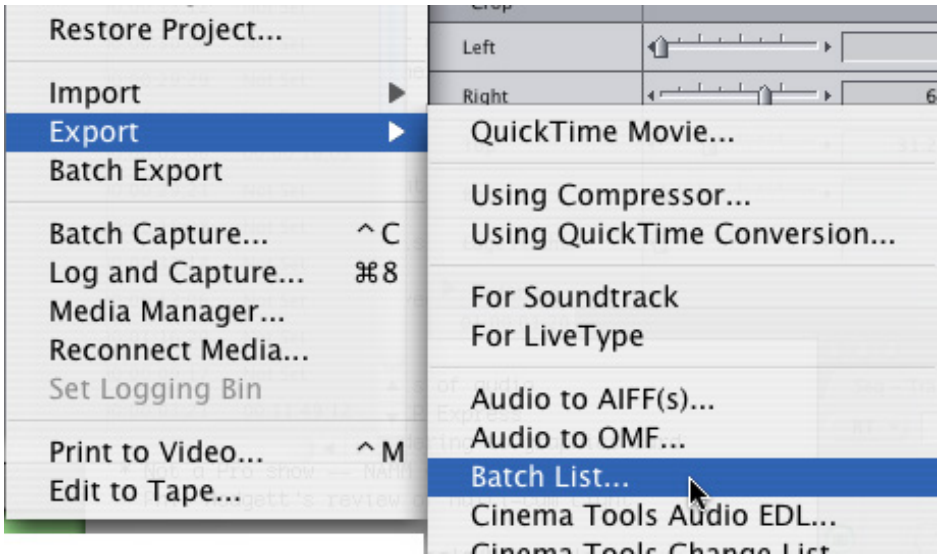
Client report: Exporting batch lists from FCP for Excel

I have a client who's beginning to edit to documentary that has over 100 hours of material to be edited into a 30-minute documentary. What he wants to do is log each clip, then copy that logging information out of Final Cut so he can load it into Excel. The advantage of exporting all this data is that he can think about his clips, and share this information between producers, without running Final Cut.

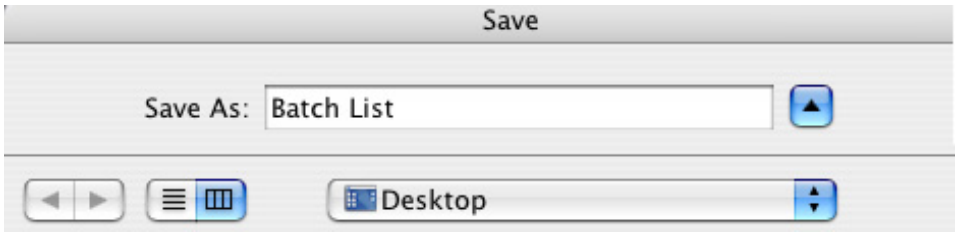
Fortunately, even though he has hundreds of clips, this process is easy. Here's how.



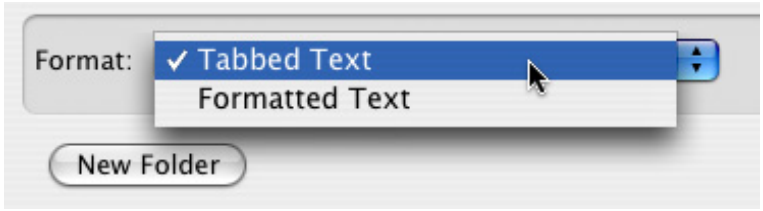
1. Open the project that has the clips with the information you want to export.



2. Select File > Export > Batch list



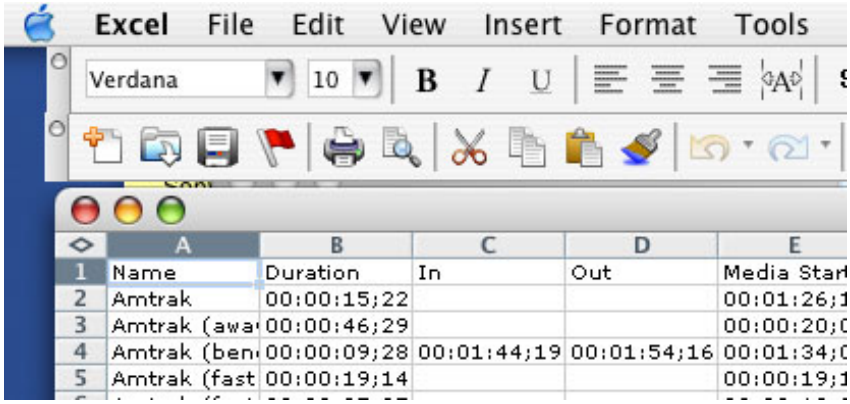
3. Give the file a name.



At the bottom, you can select between tabbed text and formatted text. I've found tabbed text to be the best to use on the Mac. Then, store it someplace you can find it again. I tend to use the Desktop for these kinds of temporary files.

4. Open Excel.

5. Drag the file from your Desktop onto the icon for Excel in your Dock.



6. Excel opens it, puts each clip on its own row and neatly duplicates all Browser columns in your the worksheet.

Ta-Dah! Trés cool.

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New Product - XML2Text

Thinking about Excel, reminds me of a new product you might want to look at.

Last month, **Michael Meis** wrote to ask:

> Is there a way to print to paper a list of markers in the timeline? I need the comments for producers and work-orders.

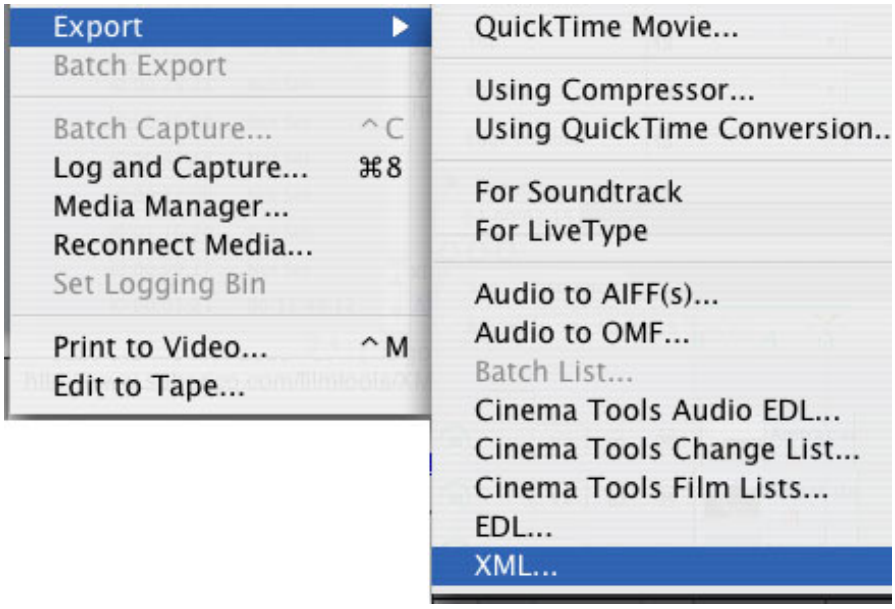
At the time, I said that I didn't know of a program, but hoped some readers might.

Well, that opened an avalanche of email that all pointed to the same product: XML2Text, written by Andreas Kiel. In fact, Andreas read the article and sent me a copy to play with. Thanks, Andreas!

XML2Text exports marker information out of Final Cut so that you can print it out, in Michael's case, or use the marker information in other ways.

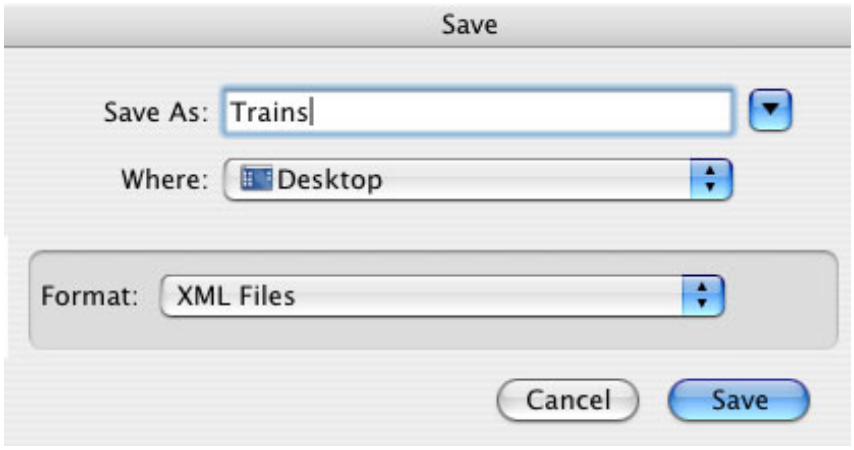
To use the product, download it (it costs 45 Euros and is worth it, especially when compared to retyping all your marker information). It is a stand-alone application -- the link is at the end of the this article.

1. Open the Final Cut project from which you want to extract the marker information.

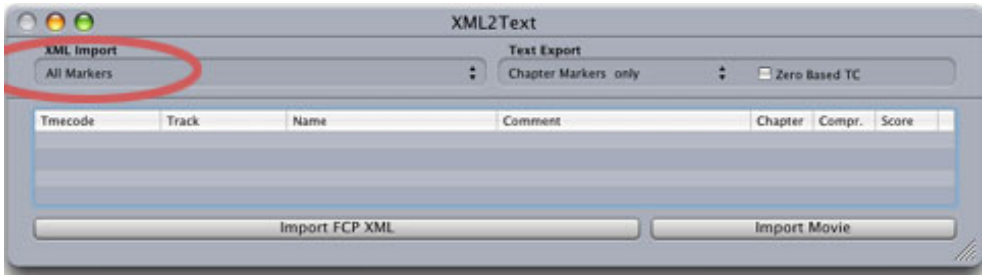


2. Select **File > Export > XML**

3. Select the default setting of: XML version 1



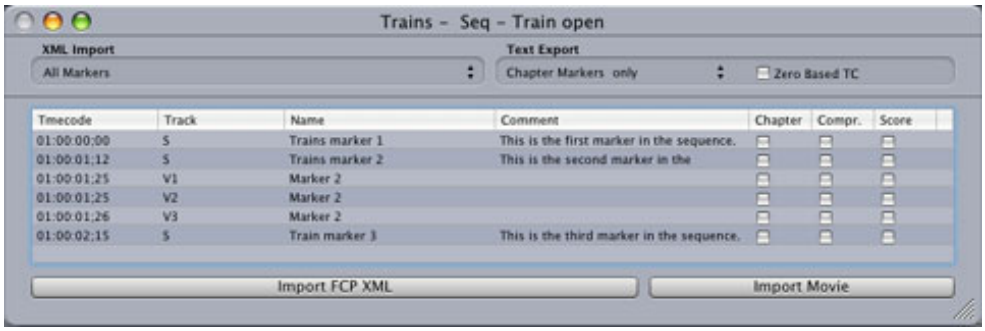
4. Give the file a name and save it.



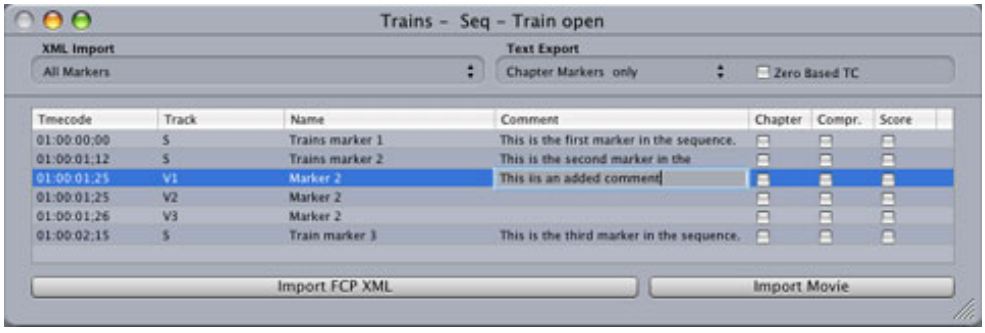
5. Open XML2Text

6. From the pop-up menu at the top left, select what kind of markers you want to extract. In this case, I selected All Markers.

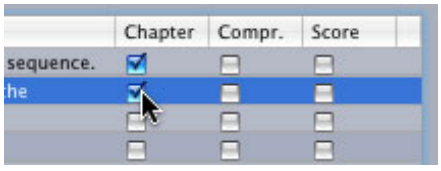
7. Next, click the bar at the bottom left to import your FCP XML file. Or, you can drag the file and drop it into the application. In either case, the file MUST have an XML extension -- I forgot this step, which prevented the file from loading. So, I simply renamed the file from "Trains" to "Trains.xml".



8. This is the same sequence I used for the Charlies' Angels wipe, with the addition of three Timeline markers. Notice in the window, each marker is listed along with any comments. Plus, track markers indicate which track the marker is on.

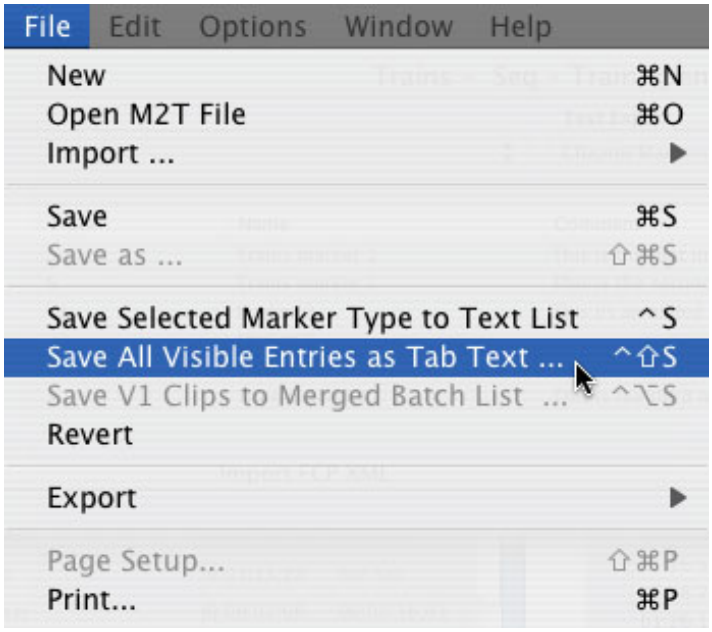


9. You can delete markers by selecting and deleting them. You can rename markers, or change the comment, by double-clicking on it and making your changes.

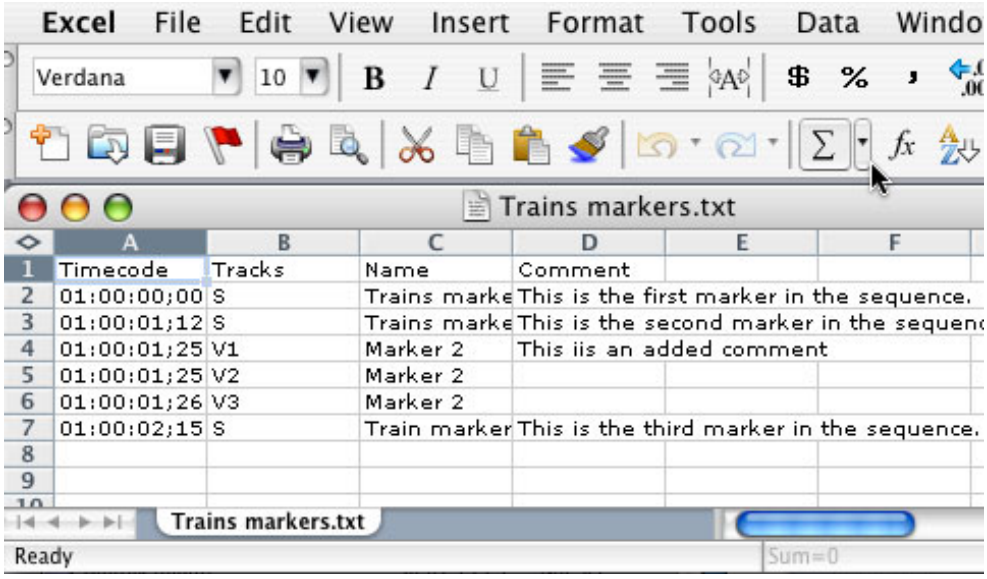


10. You can change the condition of the marker (into a Chapter marker,

for instance) by clicking the appropriate checkbox.



11. To export this list, choose **File > Save all visible entries as tab text**.



	A	B	C	D	E	F
1	Timecode	Tracks	Name	Comment		
2	01:00:00;00	S	Trains marke	This is the first marker in the sequence.		
3	01:00:01;12	S	Trains marke	This is the second marker in the sequen		
4	01:00:01;25	V1	Marker 2	This iis an added comment		
5	01:00:01;25	V2	Marker 2			
6	01:00:01;26	V3	Marker 2			
7	01:00:02;15	S	Train marker	This is the third marker in the sequence.		
8						
9						

12. You can then open the file in Excel, FileMaker, or any other software that knows how to deal with tab-delimited text.

While XML2Text is invaluable even if all you need is access to markers, it truly does a lot more. One thing that especially interested me was that it edits STL files, which are subtitle files used by DVD Studio Pro.

If you need a tool that gives you access to the wealth of information contained in an XML file, this is a definite buy.

Click here to learn more: http://www.spherico.com/filmtools/

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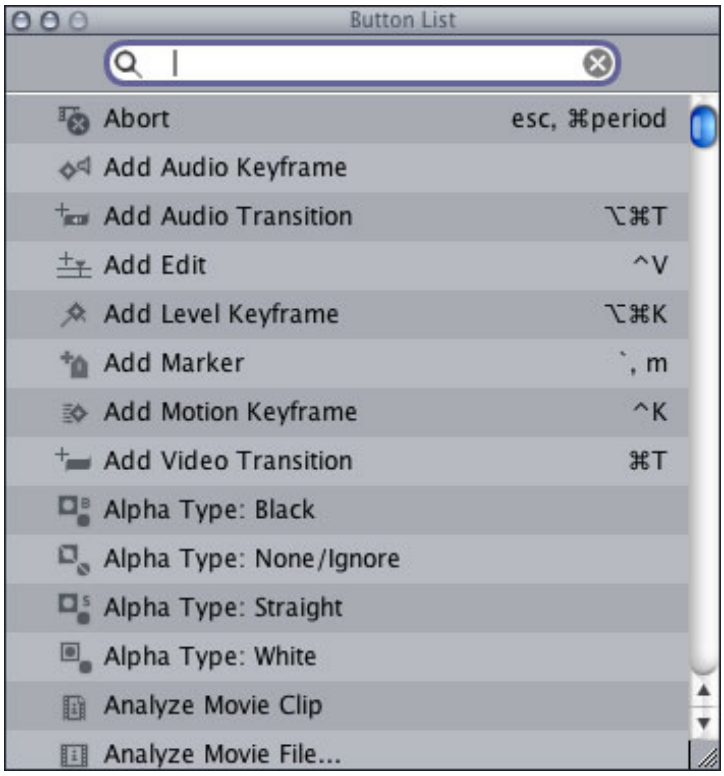
More Keyboard Shortcuts for Fun and Profit

Here are two new shortcuts that I've found helpful. The first was pointed out by Jason in one of my classes: **Cmd > A** selects everything, **Cmd > Shift > A** deselects everything. I knew about the Cmd > A part, but deselecting I didn't know.



Also, when I want to know if there's a keyboard shortcut for something, I always use Tools > Button list.

Just click in the white search box to see a list of all menu choices, or type the first few letters of what you want to do to see if there's a keyboard shortcut associated with it.

I've found the button list to be much faster than the on-line help for figuring out shortcuts.

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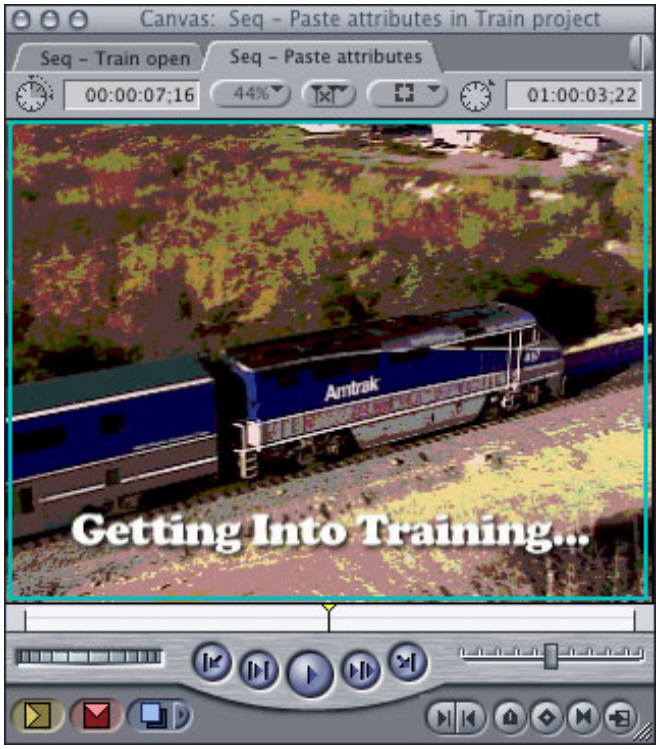
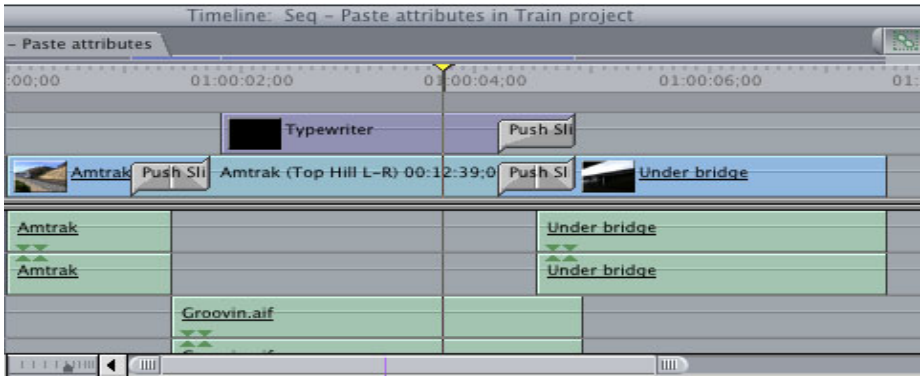
Technique: Using Paste Attributes

The Paste Attributes dialog has a lot of useful functions, but today I want to talk about only one: using it to paste content without affecting already applied effects and transitions.

This grew out of a problem had during an edit where I needed to replace the content of a shot, but not the effects associated with a shot. This became a perfect example of using a lesser known feature of Paste Attributes.



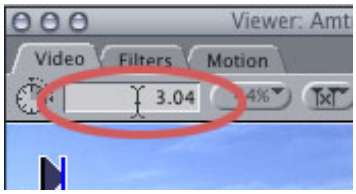
Here's the problem: I had a posterized shot to use as a bumper; similar to this.



I had a push wipe in from one direction at the start and a push wipe out from a different direction at the tail. There was text above that I was using for a bumper type-on. What I wanted was to change the content of the posterized shot, but not have to redo all the filters and effects.

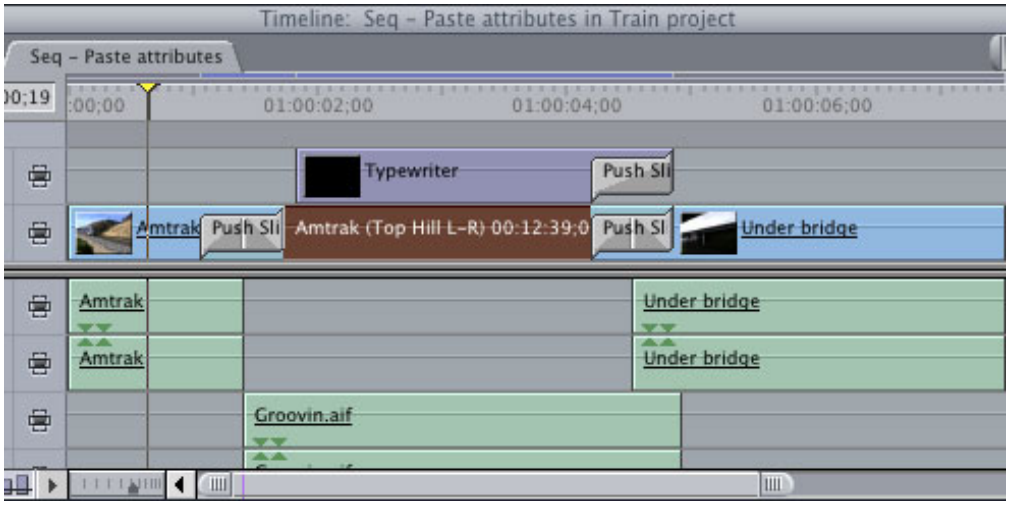
Here's how.

1. I located the shot I wanted to use for the new bumper. In this case, I wanted to use a still frame, so I typed **Shift > N** to create a still image in the Viewer.



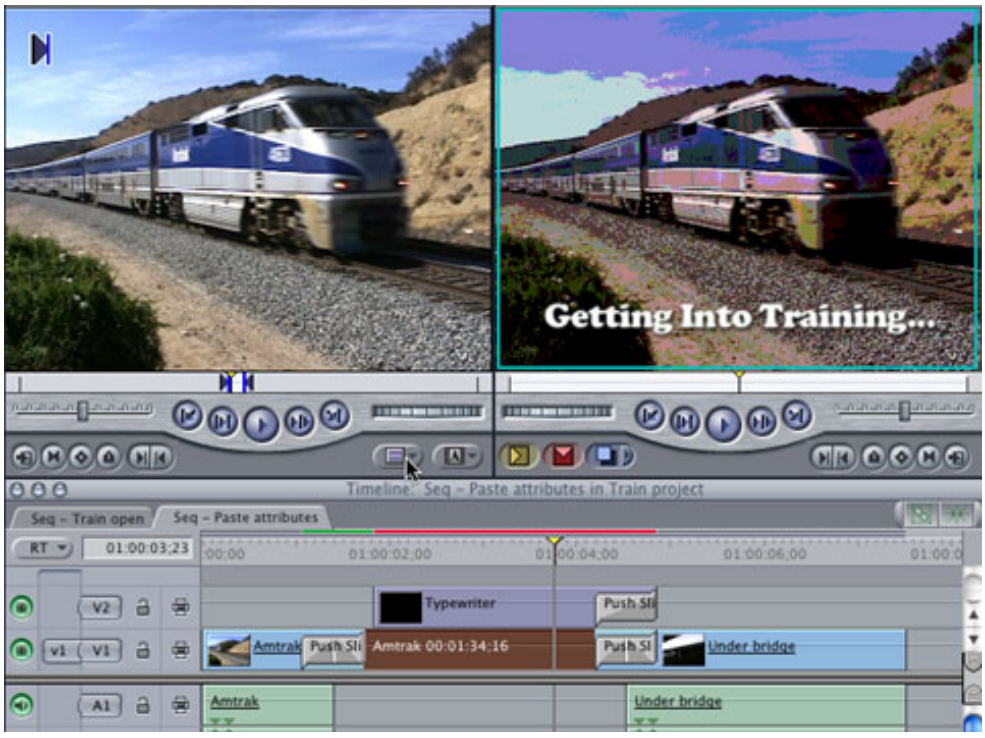
2. I changed the duration of the still to match the length of the clip it would replace (3:04 in this case).

3. I copied the still to the clipboard (**Edit > Copy**). Note that while I am using a still in this example, the technique works the same for moving video.



4. I selected the clip I wanted to replace by clicking on it

5. I chose **Edit > Paste Attributes** and checked "Content" so that only the content of the selected shot would be replaced.



6. Ta-Da! The old shot is replaced, but everything else is intact.

What a time-saver!

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Technique: Connect a Video Monitor to Your Computer

This technique came from a request by **Alberto Hauffen**, who writes:

> For your upcoming newsletters, I have a request: [Can you present] a guide to use a Powerbook and an NTSC (or PAL) standard TV set to monitor FCP editing. I've tried to follow the instructions both of my PB and FCP but somehow the image that I get on the TV is cut off at the bottom (and with noticeable distortion).

This technique works for video monitors and TV sets that have video inputs. It won't work on a TV set that requires all video signals to be on Channel 3; that is, a TV that only has an RF, or antenna, input. This technique also assumes that you don't have a camera or deck you can attach to your computer to feed the monitor. Monitors attached via a camera or deck will display video more accurately than feeding video using your graphics card.

And, as an editorial note. I don't like using TV sets as monitors. The colors of a TV set are very often over-saturated and emphasize certain colors, like flesh tones or reds. For this reason, it is always preferable to use a video monitor, rather than a TV set. Also, the resolution of a monitor is better than a TV set, making it easier to see what you are adjusting. On the other hand, TV sets are cheap and if you are creating your production for the price of a used shoestring, using a TV set for a monitor is better than not using a monitor at all.

The process of hooking up a monitor is simple -- IF you have the right cable to attach to the back of your computer. In this example, I'm connecting a G-5 computer, but this technique works with PowerBooks and G-4s.

You'll need one or two cables:

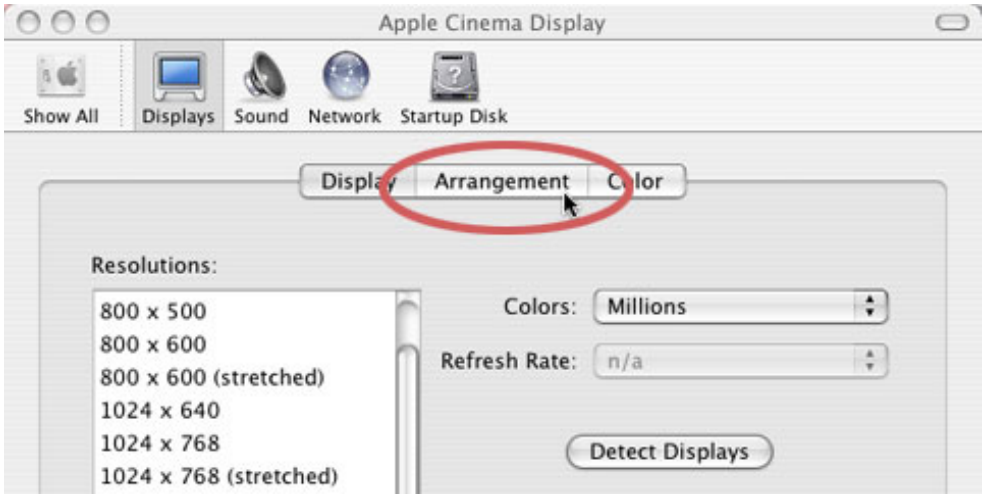
1. A video cable to connect to the monitor. S-video is preferable, because the quality is higher, however, a composite cable, using an RCA connector, will do.

2. For G-4's and G-5's, use a DVI to Video adapter to connect the S-video cable to your computer. PowerBooks, and some other Macs, have an S-video connection built-in. If your computer has a built-in connector, use it.

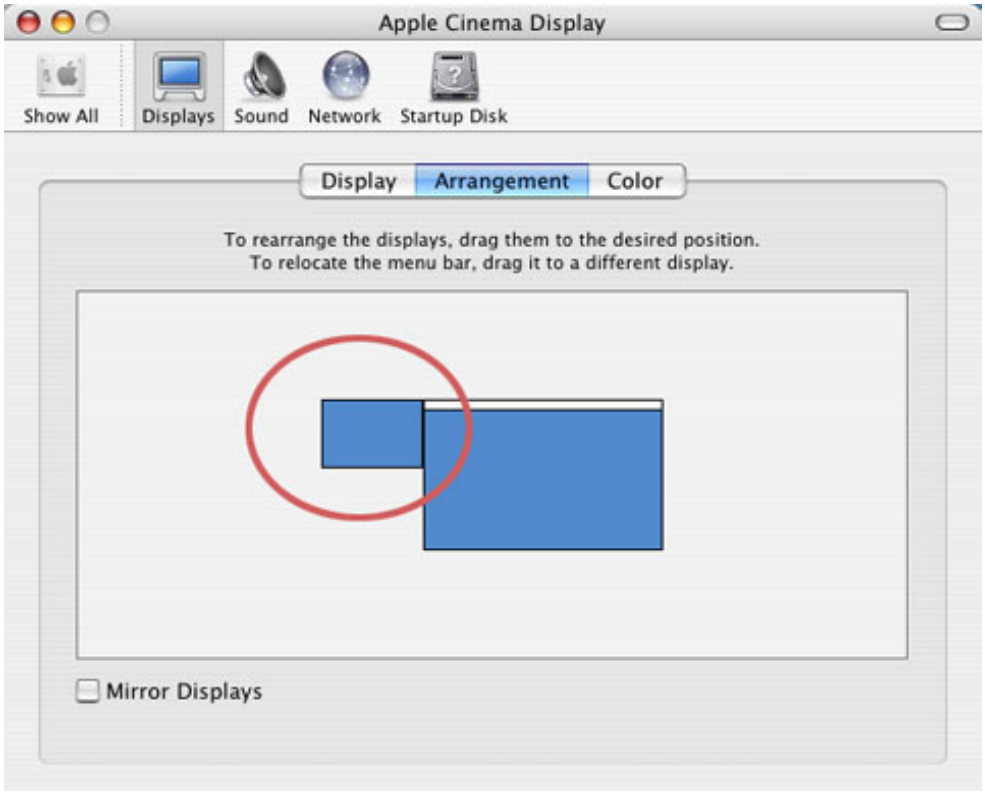
3. While it isn't required, it's always a good idea to connect monitor cables when the power is off. So, turn the power off both the monitor and your computer and connect the DVI adapter to the computer's second port on the graphics card (the Apple part number for a G-5 adapter is M9267G/A). (If you have a PowerBook, most recent PowerBooks have an S-Video connector built-in.)

4. Connect one end of the S-video (or RCA) cable to the DVI adapter and the other to your video monitor.

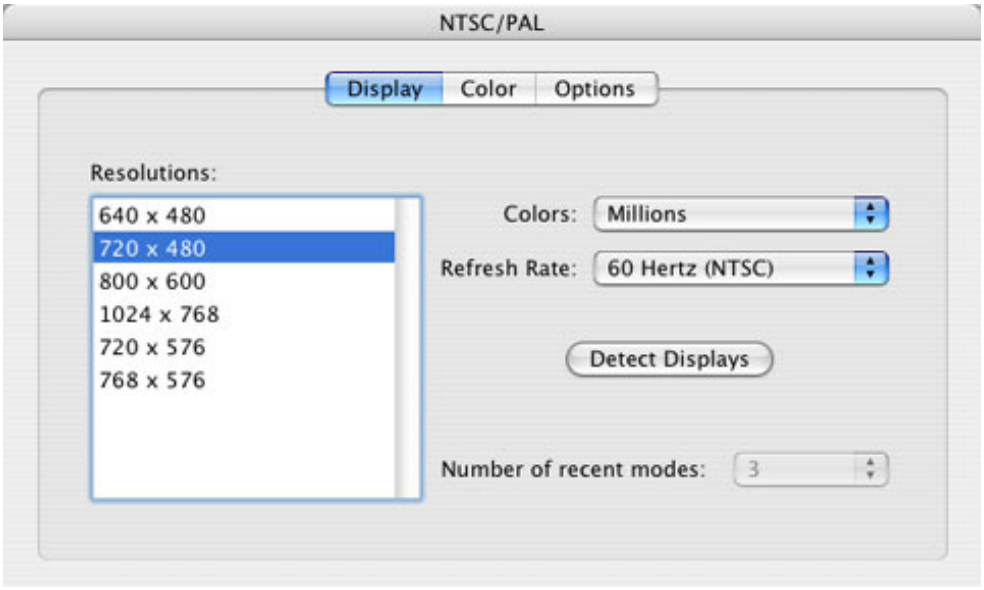
5. Go to the Blue Apple > System Preferences



6. Select Displays



7. Click Arrangements and move the small monitor to whichever side of your computer monitor is correct.



8. The video monitor will display a dialog that allows you to set screen size and refresh rate. In this case, since I'm in the U.S., I set the Refresh Rate to 60 Hertz for NTSC, (50 Hertz for you PAL users) and the resolution to 720 x 480, (720 x 576 for PAL).

(As a side note, if you are setting a PAL monitor, set the Refresh Rate before setting screen resolution.)

9. Click the Options tab. If you want this to accurately represent how your images will look on TV, be sure to check both "Best for Video" and "Overscan."

10. You can click the color tab and calibrate the monitor, however I've found the standard NTSC/PAL settings to be reasonably OK to work with. Then, again, if I'm doing serious color work, I'll connect the monitor to my camera or deck to get a more accurate video output, rather than using my computer's video card.

And that's it. The benefit of using a TV monitor is that you can check graphics and other images on the monitor in PhotoShop while you are working on them to make sure they look OK. This is especially useful in checking how the interlaced, low-resolution of video will effect your design.

Finally, if you are hooking up a recent-edition PowerBook, start with step 4.

[A side note. As I was writing this article, the monitor connections worked perfectly. When I went back later to get one more screen shot, the video monitor had lost sync and was rolling uncontrollably. In order to stabilize the signal, I needed to reboot my computer.]

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Tech Note: Using a Time-Base Corrector with VHS tape

The reason I was messing with connecting a video monitor to my G-5

was that I recently "inherited" a box full of family VHS tapes from my parents with their hopes I could convert them into something "useful."

My first thought was that this was a lot of great historical material. My second thought was that this was a great lot of work.

So, as this wasn't a paying project, I decided the best course was to save the material until a rainy day (which, since I live in Southern California, could be a long, LONG time from now) when I needed a project. On the other hand, VHS tapes degrade with age and as some of these are pushing into their third decade, I needed to do something to preserve the images they contain.

So, I decided to dub them to DVCAM tapes and archive the new dubs. However, my experience with VHS is that the image quality coming off the deck is not particularly pristine. What could I do to improve the quality of these tapes without spending a fortune?

What I did was buy a DataVideo TBC-1000 time-base corrector for about $350. (www.datavideo.us). What a TBC does is clean up the video signal so that the picture both looks better and is much more stable for recording.

I've done this in the past when I was dubbing some of my older resume reels from 3/4 to DVCAM, again for archiving.

And, since a lot of my students find themselves editing VHS tape, I thought I'd share with you a relatively inexpensive solution that will substantially improve the quality of playback from VHS.

As well, I use the TBC when I am capturing VHS tapes directly into Final Cut. The improvement in image quality and stability is striking. A TBC won't perform miracles, but it can make a big difference.

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New Product: Flip4Mac

I got a lot of great Christmas presents -- well, if you allow Christmas to spill over into the first couple weeks of January: my book, XML2Text, a time-base corrector and Flip4Mac. (Well, I also got a couple shirts and a tie, but I figured you weren't particularly interested in learning about them.)

However, Flip4Mac is a very cool new program that allows you to convert a Final Cut sequence into the latest version of Windows Media Player for all your PC friends. I first learned about them at the MacWorld Final Cut Pro users' group meeting.

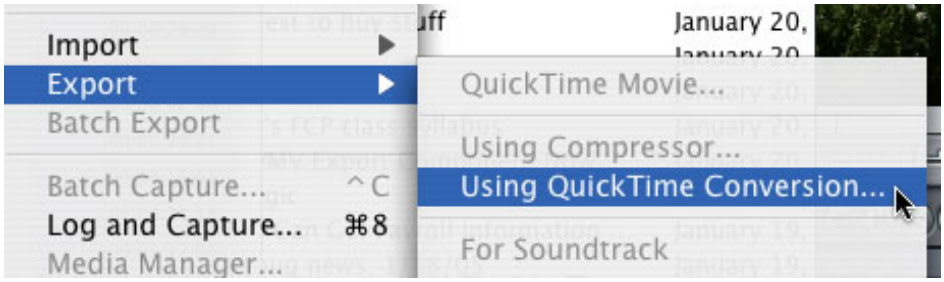
Barbara DeHart, of Flip4Mac, showed me how easy Flip4Mac was to use. In fact, creating a Windows Media file is as easy as creating a Quicktime movie. Here's how it works:

1. Download Flip4Mac from their website (www.flip4mac.com) and install

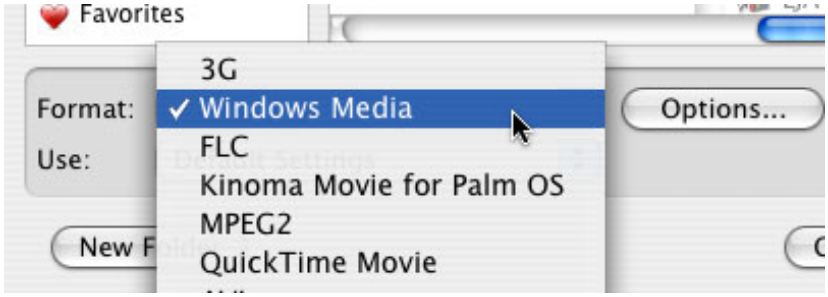
it on your computer.

2. Flip4Mac isn't a separate application. Instead, it lives inside QuickTime, where Final Cut can access it.

3. Open the Final Cut sequence you want to export into the Timeline, or select it in the Browser



4. Select **File > Export > QuickTime** conversion



5. Name your file, pick a place to save it and, at the bottom of the Save dialog, instead of saving it as a QuickTime movie, select **Windows Media**.

6. Click **Save**

It's that simple to create a Windows Media file inside Final Cut.

There are two versions of Flip4Mac: the first, which is available now, allows you to export sequences into WMV format. The second, which is announced but not released, allows you to import Windows Media files into QuickTime. I am especially interested in this second option, as I have several clients with a ton of Windows files they want to convert so Final Cut can edit them.

Click here to learn more: www.flip4mac.com. The standard version of Flip4Mac cost $99, and the pro version costs $179.

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Here's the commercial that supports this newsletter.

If you need training, help or advice with Final Cut Pro or DVD Studio Pro, 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!

Reader Mail

We have lots and lots of good stuff via the mailbox this month. I'm very grateful you take the time to write. So, let's get started.

Regarding Noah Kadner's comments on the best way to capture DVX100 footage, **Betsy Smith** writes:

> I have to say it is thoroughly confusing to read in one place and another to capture 24p in the 23.98 fps and then to read noah's correction to do it in 29. i've actually done it both ways. the footage i shot on my dvx-100 in 24p adv and captured 23.98 with the adv pulldown appears to look right when i play it back. unless i'm not seeing the playback correctly i don't see the problem.
>
> I guess the confusion across the board with most users will at one time be resolved as there is eventually going to be a proven reliable source of information out there.
>
> I read your letters as they seem to be more informative than say the dvxuser site. and there i see so many conflicting reports of the right way to do things.
>
> Are you sure that what Noah claims is the only way to capture 24p advanced?

Larry responds: Betsy, I appreciate your confusion. I trust Noah's information to be accurate regarding the DVX100A camera. However, not all 24 fps cameras record video the same way. The best way to determine how to capture the video from your camera is to talk to the manufacturer. All of us on the web try to be helpful, but only the manufacturer knows for sure.

The real trick is finding someone at the manufacturer to talk to that actually knows what they are talking about. And that, sadly, is often a VERY hard thing to do.

Chi-Ho Lee writes:

I'm a fellow FCP trainer and TV doc editor, and I love your newsletter, but how about putting a "back to newsletter" button after the user completes a poll?

Larry responds: Chi-Ho, I use a service called PollMonkey.com for my polls and I haven't discovered a way to put a Back button on a poll. The best way is to simply use the Back button on your Browser.

Phil Hodgetts writes:

Usual high standard and interesting information in the Newsletter, but [I had problems with] the "Choosing DV for Professional Video" under the Color heading this paragraph, particularly the last sentence:

"However, as Graeme Nattress points out, "There is no fully uncompressed 4:4:4 SD tape format. All broadcast tape formats, DVCpro50, Digital Betacam are 4:2:2." This means that DV contains half the color resolution of SD."

[This] is somewhat misleading or incomplete.

To clarify: the numbers 4:4:4 are the ratio of sample the YUV color channels within the datastream. Graeme is correct that there is no tape format that records 4 U and 4 V samples for every Y sample recorded.

What I think you meant to convey in that last sentence is that "...DV contains half the color resolution of professional standard definition formats". DV has only 1/4 the color resolution of the luminance resolution of any SD format. In 4:2:2 Y = 720 x 480 (or 486); U & V are 360 x 240 each; in 4:1:1 Y is still 720 x 480 but U & V are only 180 x 120 each but offset so that they "fill in" a bit for each other.

Not a big thing, and the general principle is right, it's just me being picky. :)

Unless you want to talk about BetaSP which is nowhere close to an analog equivalent of 4:2:2. As near as you can compare analog oranges with digital eggs, Beta SP is approximately 3: 1.5 : 1.5. IOW it's only got 3/4 of the luminance resolution of DV (DV is sharper) and somewhere between DV and Digibeta/DVCPRO50 in chroma resolution. Of course, it has a lot of chroma smear from analog processing which tends to work better with chroma keying than the very pixel-oriented nature of DV.

I don't think your summary under the "clarity" heading is correct, though. DV has significantly more resolution than BetaSP. It has *exactly* the same horizontal resolution (sharpness) as Digital Betacam and DVCPRO50 and 6 lines less vertical resolution than either of those formats, but

otherwise identical resolution.

> That's really a discussion on camera quality not recording format quality and while it might be relevant to choosing a professional camera, it's probably incorrect to discuss it under a heading of choosing DV per sé. A smaller chip can show higher resolution if the g chip is spatially offset. There are cameras that record to the DV format that are very superior to BetaSP cameras of 4 or 5 years ago (and some that are not).
>
> I'm mostly discomforted by the use of "SD" as a comparator for DV - DV is SD in every respect. For example under White Levels is "SD cameras, however, only record whites at 100%. " DV cameras are SD cameras and, as you've just explained, record at 109%, making the paragraph internally contradictory.
>
> I'm uncertain what you mean by "SD Cameras" in this and the earlier context. It's confusing IMHO and slightly mars an excellent discussion of the issues.

Larry responds: First of all, I added your initial comments regarding 4:1:1 et al to last month's newsletter as soon as you sent them, because I agree with your general comments. However, as many people had already read the newsletter, I've reprinted them here.

However, I want to clarify my point regarding resolution. While it is true that all video formats are, essentially, 720 x 480 x 72, to me, there are two kinds of resolution: the number of pixels down by the number of pixels across, and the ability to display clearly, or resolve, an element of the image -- strands of hair are a good example.

Here, SD cameras with their better lenses, larger chipsets and better electronics are superior to DV cameras. So, if the apparent clarity of an image is important to you, SD is a better choice. It can be argued that the specifications for DV are in most cases equal to that of SD. That may be true, however, if I buy an off-the-shelf DV camera and and off-the-shelf Betacam camera and have them shoot the same image under the same lighting and from the same position, the Betacam camera will look better.

That was the purpose of my point. DV cameras use less expensive components to keep the costs down, SD cameras use more expensive components to improve the quality of the image.

Ed Scott continues the DV / SD discussion:

> DV cameras don't have the ability to display a lot of detail in dark areas or light area. Dark areas, especially scenes supposed to be at night, tend to get muddy, with lots of subtle details lost. In very bright areas, say, curtains covering a window, the detail of the curtains gets lost because the light from the window is so bright.

> The newsletter contains many useful things. Thanks. The comments on DV vs. more professional formats were especially interesting. I look at the paragraph above in a slightly different way. First, you set camera exposure to show whatever highlight detail is needed. Second, you add fill light (bulbs or reflectors) to a level that lets you see the amount of detail you want in the shadows. This is easier to do this viewing a monitor. The fact that a professional camera has wider latitude or dynamic range does not prevent this technique from working with a less expensive camera, though as you say, the image cannot look quite as good.
>
> It is admittedly a small point, but it would often be possible to significantly improve the images recorded on DV cameras by adopting the exposure and lighting techniques used by professionals.

Larry responds: Absolutely correct. AND, if most DV shooters used professional lighting, many of these problems would go away.

However, my bigger point was not specifically stated, and that is, given the same conditions, professional cameras will pull out more detail than DV cameras.

Kit Laughlin continues the discussion between DV and SD:

> IMO, the most important consideration for an indie filmmaker choosing a DV camera is not the picture quality, important though that is. The emotional content of a program is carried on the sound track -- and you know how intolerant of poor sound all viewers are....
>
> So, you might care to add a comment about this in the next newsletter: which DV cameras can actually record really good sound? This has three corollaries: how do you get good sound into the camera, how do you hear that on location -- where you might have some capacity to re-record a poor take? There is no such thing as "We'll fix it in post" in this reality if the original sound is thin, has a poor signal to noise ratio, or intrusive b/g sound. Last, how do you edit the recorded material and do justice to it? Computer speakers cannot do this job!
>
> Jay Rose in his excellent book (Producing Great Sound for Digital Video) tested a number of cameras, and the Panasonic GY-500 was the best available then (2003). His recommendation was one of the reasons I bought mine -- the sound is nearly as good as a Tascam DA-P1 (the DAT recorder). I used to use the DAT to record double system sound when I was using the Sony PD-150.
>
> Another advantage is that the Panasonic is that it takes 1/2" mount broadcast lenses, and quite a variety of them, from Fujinon and Canon. The optical difference between these

lenses and prosumer ones has to be seen to be appreciated. The focusing is precise and the lenses are fast too (the Canon I use is *f*1.7 wide open, and is sharp wide open). With 1/2" CCDs (another reason to avoid prosumer cameras, which use 1/3" ones, mostly, is that you absolutely need this speed to be able to control depth of field (DOF), THE creative control tool for camera folks. I use two ND filters to assist me in this too. (For newbies, the Depth of Field is a function of the *f* stop being used and the focal length of the lens being used. The smaller the sensor, the greater the DOF for any focal length lens equivalent. By this I mean that if you know 35mm photography, and you are trying to reproduce the look of, say, an 85mm lens (typical portrait), the smaller sensor of the video camera will only need a much shorter (wider) lens to reproduce the same proportions. "Wide" (short focal length) means more depth of field. So, to be able to avoid almost everything being in focus—the typical "video" look on the early prosumer cameras, you need to be able to separate b/g from foreground—and to do this you need a fast lens. To cut the light down so you CAN open up the lens (the lower *f* number for any focal length, the correspondingly shallower DOF you see), you will need a range of Neutral Density, or ND, filters. The numbers refer to the number of stops of light cut by the filter: an ND 2 will cut the light down to a quarter (so, from *f*11, say, to *f*5.6, two stops. For real b/g separation, you need to be shooting at around *f*2 or *f*2.4.)

[In reference to] the corollaries: the indie film maker MUST use a high quality shotgun microphone, and it MUST be on the end of a boom swung by someone who: 1) can point it and keep it just out of shot, and 2) is wearing high quality headphones connected to either the camera or, better, the mixer he/she is wearing. I use a 2 channel Wendt X2 for this purpose, and it is an awesome performer. I recommend BeyerDynamic DT-250s as a rugged, on-location can (these are a sealed headphone, so no spill). Any of the Sennheiser or similar microphones recommended for ENG or film work will do a decent job, assuming they are shock-mounted to the boom. The combo of the mic, mixer and good recording capacity of the camera will blow the audience away compared to much of the sound you hear on indie films.

And last but certainly not least, what are you going to actually listen to all this good sound on in your editing suite? A proper set-up is essential; the interested reader can search LAFCPUG for "editing suite" as a start, but I recommend near-field speakers including sub-woofer, in a well-baffled room (near-field set-ups don's need quite as good acoustics as standard monitoring set-ups, as signal to background sound is higher as you are much closer to the speakers). Bigger rooms are way better than small ones for the same reason. I use and recommend KRKs from Huntington Beach; excellent and relatively inexpensive. These are powered speakers, so you need a small mixer (mixer runs out of the analogue outputs from the deck or camera at line level; speakers are plugged into one of the line pairs as one of the sources and the speakers are driven out of the "Main" outputs. Volume is

adjusted on the "Main" pot.

Larry responds: Kit, these are all excellent suggestions. I am a huge believer that the best thing an editor can do to improve their picture is to improve their sound. As another point-of-view, I'm a fan of mAudio's Studiophile speakers (I own their BX-8s). But agree whole-heartedly that good monitor speakers are just as essential to editing as a good video monitor.

Lindsay Cornick writes:

> I read in this newsletter that FCP has problems with audio sync with exporting to Compressor. This I can confirm after just finishing a wedding yesterday and pulling what little hair I have left, out, trying to identify this problem.
>
> In the end I did this. Used the vision from Compressor (in DVD Pro3 this package landed at 3GB in total, using Quicktime self contained, it came in at 2 GB in total. And I assure you the difference in vision quality was very noticeable !) I then used the audio from the Quicktime export, and by some magic stroke of luck it synced up beautifully.
>
> Now here is the question. Your article suggested exporting using Quicktime, then putting it into Compressor. Is that not 2 lots of compression?
>
> Final question. Is there anyone that you know of on the net, doing the same thing you are, with DVD Pro3 ?

Larry responds: Lindsay, my point is that you should not select **File > Export > Export using Compressor**, but instead, select **File > Export > QuickTime movie**. By doing so, you are not compressing your file at all, but simply matching your Sequence Settings (Selecting **Export > QuickTime Conversion**, WILL compress your file, but I am not advocating that option.)

And, for your second question, I don't know of any individual providing an informational website about DVD Studio Pro similar to mine for FCP. However, websites like www.creativecow.net, and www.2-pop.com, provide a wealth of general production knowledge.

If anyone has a favorite DVD Studio Pro website, please let me know and I'll share it with everyone.

I've already mentioned **Andreas Kiel**, who's the author of XML2Text. After reading last month's issue, Andreas had some additional comments, especially about archiving media.

> In connection with the 'Archiving Media' article, this utility [XML2Text] might be worth to mention.

> [Also,] I agree to the approach to leave or store video on tape - I also recommend it as the best and fastest way, even if sources came from different types (DV, DV50, SD etc).
>
> The way described in your article assumes that all material stays in your hands and are on one of the editors own tapes forever. In the environments I'm working, this is only partially true. Many times people get tapes from the news gathering, archives or costumers etc. These clips are now on their HD. The original tape go back or in case of the news it is deleted already.
>
> In former times I always put them back to tape and had some GUI scripting, which read the TCs. (That technique - though not elegant at all - worked fine for me and customers). With the nice XML features of FCP and XML2Text this can be done easier.
>
> Drop all clips you want to lay off to video into a sequence and record to tape. Make sure the timeline timecode matches the tape (first clip's TC in the sequence equals first clip's TC on tape), export as XML and convert this with XML2Text to a 'Batch List' which reflects the new clip IOs and reel and keeps all relevant column info from the original.
>
> This list can be archived with the project to retrieve clips later.
>
> Additionally I always recommend to use batch lists of projects as they allow to build up a small clip/project/ customer/tape database with FileMaker.

Larry responds: This is an excellent technique for backup up materials where you no longer have the master tape. The more I see about XML2Text, the more I like it.

Nestor Perera writes:

> Do you remember I asked you about [how to create] the frame look and field look in FCP?
>
> I have found the solution. You [capture] the images shot in fields and you add the De-interlace filter. We got it! You get the frame look!!

Larry responds: Cool.

Last issue, I asked people to speculate on what the next version of Final Cut will have in it. **Richard Randolph** rose to the challenge and suggests the following:

Next version of FCP will need Tiger to run as it will be using video and audio units.

Next version of FCP will be mostly 64 bit code.

Next version of FCP will be more tightly integrated with iTunes, Motion and DVDSP.

Next version of FCP will have better (smoother) working transitions.

John Ramsden continues this thread:

> One of our edit suites [at the BBC] was an oldish Avid MC Express and has been replaced with FCP HD. I mostly prefer FCP but finishing the first program has shown up a couple of minor things that Avid did better (or at least I did better on Avid).
>
> Audio at 2x normal speed was more intelligible on Avid.
>
> Pans smoothed better on Avid (using acceleration) on FCP I right click a key frame on the Canvas (with wire frame turned on) and select 'Ease-in Ease-out' but the effect is not as smooth as say zoom where you right click a key frame in the motion tab and select 'smooth'. Also moving a picture with both pan and zoom components, the accelerations are different.
>
> I couldn't generate a good roller for end credits with FCP or LiveType but found a cheap plug in from Christoph Vonrhein at http://www.chv-plugins.com/ which works for me.

Larry responds: The best part about all this projecting is that in a few months we get to find out if we were right.

Keith Hill writes, regarding the FCP Folder Creation tool written by Christian Fessel:

> I am trying to incorporate it into my workflow right away. I wanted to ask you if you import a newly created Project Folder (Using your tool structure) directly into FCP HD or do you use it to store assets of a project on one of your drives only.
>
> After creating a Folder for a Project (using your tool) from within FCP I tried to import 'it' as a file or folder into the Project Tab where the Bins and Assets are located and got: "File Error: 0 file(s) recognized, 0 access denied, 11 unknown". Am I doing something wrong or was it never intended to be imported directly into Final Cut Pro just to save into the Find Section of a chosen hard drive?

Larry responds: Keith, you'll get this message if there is nothing in the folders you are importing. If you put media, or other importable stuff, into a folder, Final Cut will import both the media and the folders containing it with no problems. Final Cut will not import an empty folder. To import a folder, select **File > Import > Folder.**

Tim Kepford wrote a lengthy personal vignette regarding the history of Storage Area Networks. While it only runs a couple of pages, it's too long to insert in this newsletter. You can read his entire comment here.

Gene Fozard writes:

> Is it possible to use FCP like the "Toaster" to record a live shoot using more than one camera? If it is, how about some info on how to do it?

Larry responds: At this time, Final Cut can only record one video stream and two audio streams at a time. So, FCP would not be a good tool to use in recording a live, multi-camera event.

Last Month's Surveys

Last month, I mentioned that I was working with Lynda.com on presenting a Final Cut Pro HD workshop on the road. This has, unfortunately, been delayed. Expect more information about this later in the year.

Also, my survey asked your interest in storage area networks, now that XSan has been released. I was surprised to find as many of you interested in this as there are. Almost 60% were interested in creating a storage area network.

That's far more than I would have expected.

You can view the results of all prior surveys here.

There's no survey for this month, because I couldn't think of anything to ask.

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. That way, we all learn!

Normally, in this space, I project what I'm going to talk about next month. Except, right now, I'm completely clueless. So, send in some ideas of what you'd like us to talk about.

In fact, send in some tips of your own. I'm happy to publish everyone's ideas.

Thanks -- and have fun editing!

Larry

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