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Master Final Cut Studio® and Digital Media *with* LarryJordan.biz

Larry Jordan's Monthly Newsletter

**Editor: Larry Jordan
Issue #66 -- March, 2010**

Welcome to the latest edition of my monthly Final Cut Studio newsletter for March, 2010.

The goal of this newsletter is to provide information helpful to the interested user of Final Cut Pro. This newsletter publishes each month, past issues are available in my store. All software references are to Final Cut Studio 3 unless otherwise noted.

Please invite your friends to visit my website -- **www.larryjordan.biz**. There you'll find daily tips, the latest industry news, and over 550 articles and tutorials to help you get the most out of Final Cut!

And, if you haven't already, please subsubcribe to this free monthly newsletter here.

We are getting our social media act together! Follow us online:

- **Larry on Facebook**
- **Larry on Twitter**
- **Latest Industry News**
- **Larry Jordan's Blog**

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WRAP-UP

WELCOME

As you are about to read, we are delighted to announce that the Digital Production Buzz has been appointed the **official podcast** for the 2010 NAB Show! This is our second year working with NAB and we are really excited.

More on that in a minute.

In addition to gearing up (literally) for NAB, we have wrapped our latest PowerUP seminar tour. I want to say thank you to the hundreds of editors that attended our seminars, as well as acknowledge the support of Red Giant Software and Smartsound. In talking with many of you, I am already sensing that 2010 is shaping up to be a better year than 2009. (Which is good, 'cause I

can't think of a year that was worse...)

We are already working on some new training ideas for the spring. I'll share those with you in the April newsletter.

Finally, to the hundreds of people that take the time to write and share their thoughts on this newsletter every month, I am truly thankful. Your contributions are what make this newsletter so exciting to read each month.

And, thinking about exciting...!

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DIGITAL PRODUCTION BUZZ NAMED OFFICIAL PODCAST FOR THE 2010 NAB SHOW

NAB made it official last week: they've named the **Digital Production Buzz their official podcast for the NAB SHOW 2010**! This is the second year in a row we've won this honor and this year, based on what we learned last year, we are planning to do even more.

Here's the press release from NAB (1.1 MB PDF).

Thanks go to our incredible producer for The Buzz- **Cirina Catania** - for her tireless work in making this possible!

WHAT WE ARE DOING

Starting **Saturday, April 10,** we will post a one-hour NAB Show Special Report every evening during NAB featuring interviews with industry leaders covering the latest news from NAB. News you need to know. At this point, we plan to create a new one-hour Special Report every day from Saturday till Friday.

Then, **starting Monday, April 12**, we will supplement our one-hour NAB reports with hourly newscasts. These NAB Show News Briefs are five minute reports providing hourly updates from the show floor covering what's new, what's hot, and what can't wait until the evening. These News Briefs start at 9 AM and run hourly until 5 PM.

WHERE YOU CAN GO TO HEAR ALL THIS

In addition to providing all The BuZZ Special Reports on iTunes and our website, you can visit **www.nabshowbuzz.com**. This provides a listing of all the latest newscasts, plus details on who is profiled in every NAB Show Special Report. Everything you need -- all in one place.

Plus, this year, we've put together a free Flash Player that you can add to your website. This is a cool way to build traffic to your site and stay current with NAB -- all at the same time. Click here for the simple installation instructions.

WHAT GEAR ARE WE USING?

I thought you might be interested in learning about the gear we are using to cover NAB, so I've written an article about this. Although it occurs later in this issue, you can view it here.

I also want to thank our sponsors:

- Adobe Systems -- Newscasts
- Data Robotics -- Special Reports
- Focal Press -- Special Reports
- Pond 5 -- Special Reports
- Carl Zeiss Photo Division -- Special Reports

Their support makes our coverage possible and I'm very grateful. Please take a moment to check out their websites.

WE CAN USE YOUR HELP

We are creating a team of reporters and editors, but we still need a few more. If you are coming to NAB and want to help out for a day, send Debbie Price, our event manager, an email. We'll provide all necessary gear, along with a free pass to the entire NAB Show floor.

This is one of those projects that the closer it gets, the bigger it looks. But we had a great time last year, and I'm looking forward to covering it again this year. I'd love to see you there -- **South Hall - Lower Level - Booth 8826**. (We're right next to the Post Pit!)

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CRISIS du JOUR: WHAT'S HAPPENING TO FINAL CUT?

You know the drill. Someone at Apple coughs and suddenly the rumor mill is filled with frenzied statements that the doom of Final Cut Studio is at hand. "The Death of Final Cut" rumors have gotten to be as regular as spring floods or a plague of locusts.

Recently two new variations on this theme have appeared: "Apple hasn't updated Final Cut in [*fill in number of hours / minutes / seconds since last release*] therefore Apple must be killing it!" -- and -- "Final Cut doesn't support all the new features in Snow Leopard, therefore Apple must be killing it!"

Whisper this loudly in a worried tone at a crowded user group meeting and panic ensues.

People, get a grip.

Apple is in the midst - like many other large developers that start with the letter "A"-- of a very thorny technical problem: in order for Final Cut Pro to take advantage of Snow Leopard features, it needs to be significantly rewritten. Not just a little; a lot.

I've been told that Adobe took several *years* to rewrite Photoshop to support the Intel chip. Years! Why? Because millions and millions and millions of lines of code needed to change.

The same problem exists with Final Cut Pro. It is a massive application, with tens of millions of lines of code needed to be changed. Apple needs to convert it from its old code (Carbon) to new code (Cocoa). And this doesn't happen overnight. Not even over a long weekend.

As **Philip Hodgetts** wrote in a recent blog:

> The rewrite [of Final Cut] to Cocoa, even assuming they don't make fundamental changes [to the features of the software] is very time consuming and a lot of hard work to rewrite and test. That there is evidence in the current release of work already complete strongly suggests that the team is hard at work doing what's necessary to bring Final Cut Pro into the modern Cocoa OS X code era. But don't expect to see a converted release any time soon. There's a lot of work that the QuickTime team [also] has to do to add functionality to the underlying QTKit API (The modern QuickTime API for programmers) that an updated Final Cut Pro needs. Right now there's no support for QuickTime metadata in QTKit, for example.

This means that even without adding new features, Apple has a massive, multi-year, multi-million dollar project on its hands.

However, it is my hope that in addition to bringing Final Cut up to modern day specs, Apple also will take the time to add long-needed features to the application. I hope for improved stability, especially for longer projects involving thousands of clips, faster and more stable rendering using fetures in Snow Leopard, and a totally redesigned media manager providing better archiving options for tapeless media. Along with dozens of smaller tweaks that we've talked about endlessly in this newsletter.

Apple probably won't add all the features that all of us want. In many cases, we don't agree among ourselves on which features qualify as "most important."

Personally, I have complete faith that Apple is currently working hard on improving Final Cut Pro (and Studio). I see NO evidence they are intending to let it die, or even lapse.

However, they are in the midst of a very large undertaking that will take a while longer to complete. For this reason, I don't expect any significant new versions of Final Cut Pro until late this year at the earliest. More likely, first quarter next year.

Things may be quiet now at Apple. However, that doesn't mean they are standing still. A delay is not the same as death. To me, silence means that Apple is working on it -- but they have a very large amount of work to do.

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COMMENTARY: A PLEA FOR BETTER METADATA SUPPORT

As I was writing this issue of the newsletter, I got an email from **John Bertram** in Toronto that included two different missives on why metadata support is crucial to the next generation of Final Cut Pro.

One is a tongue-in-cheek monolog, which can be seen **here**. But the second was more serious, and more thought-provoking. So, I asked John to edit his second, wider-ranging essay into something shorter that focuses on metadata, because I wanted to share his commentary with you here.

Here's what John wrote:

> As recently as mid-2008, if you'd asked me to write down my personal "wish list" for Final Cut Pro (you know, that pesky list we all have bouncing around in our brains), I doubt the following paragraph would have even occurred to me. But today, in early 2010, I know this one wish would certainly rank at or near the very top:
>
> Final Cut Pro urgently needs a vastly improved Metadata capability. Ideally this would be something very much akin to Aperture's ability to import, create, customize, display, and intuitively manipulate a wide range of metadata -- both camera-created and user-defined.
>
> And here's how my Conversion on the Road to Metadata came to pass...
>
> By the time of Final Cut Studio 3's release in the early Fall of 2009, it happened that I'd actually spent more of the preceding year working with Aperture than I had with FInal Cut -- and had become so accustomed to Aperture's powerful Metadata & Keyword-based sorting, searching, and organizational capabilities, that I began taking much of it for granted.
>
> So much for granted, in fact, that I probably unconsciously just assumed that any new version of Final Cut was bound to have incorporated the same functionality. How could it not? Especially since both of these Apple applications typically involve importing visual media from a host of different cameras, and both frequently require accessing, arranging, and referencing hundreds -- if not thousands -- of distinct "creative units" at any given time. (In Aperture, those units are of course individual image files, represented by Versions; and in Final Cut, individual media files, represented as Clips.)
>
> Most of my previous work in Final Cut had been on shorter, script-oriented projects, where all my meticulously-logged Scene, Shot and Take numbers (I've always had to be my own assistant editor) made Bin organization and Clip sorting relatively straightforward.
>
> But it also happens that my first major project using version 7 of FCP (really "6.5" -- but that's for another rant -- I mean, "article") is a long-form, no-budget indie doc, with absolutely no pre-determined scene order, and certainly no script or slates to use as a numbering or naming guide. It's just a few thousand clips worth of interviews and B-roll shot over several months (in both single and two-camera shoots; acquired on AVCHD but also HDV) -- all of which is creatively open to being intercut in a thousand different ways.
>
> No problem (I thought)! I'll just organize this project the way I do my images in Aperture: I'll use all that good metadata the cameras record (like the Date & Time info

for each shot, which will make displaying any group of Clips in simple chronological order a breeze), and I'll create new sets of custom Keywords (for location, interview subject, weather & light conditions, eyeline direction, which cameraperson, which interviewer, needs release form -- and dozens more), which I can then apply to my Clips either as I'm logging them, or at any point along the way as I'm editing.

Oh, and in the Browser -- just like with Aperture's Smart Albums -- I'll simply create some Smart Bins, which will automatically include any Clips whose metadata and Keyword tags match the criteria I've set. Plus I'll be able to do precise searches, simply by checking off the Keyword combination I want -- with whatever "AND", "OR", "BUT NOT" qualifiers I choose (plus any further metadata filters such as date range, clip length, rating level, camera model, etc.) -- and in a second or two see just the 7 or 8 clips out of my project's 2-3 thousand whose attributes exactly match the search terms I've set. And all with just a few mouse clicks in what I'm sure will be the search window's new, easy-to-navigate HUD -- no typing required.

Yeah -- it'll be great...

Now, even before bringing my FCS 3 Upgrade box home from the Apple Store, I knew that many a "wouldn't it be nice" Final Cut feature gets pulled over at the Carbon/Cocoa roadblock of Old Code vs. New Code, and that our dear old FCP is apparently still burdened by enormous and impenetrable sedimentary layers of the former, BUT...

I'd also been hearing about this glorious age of the "Tapeless Workflow" we've apparently entered -- a brave new world where METADATA is king, and where we're all supposed to be taking full advantage of it to organize our projects so much faster and with such greater ease. So you can imagine my disappointment that Final Cut Pro -- even at version 7 -- doesn't appear to have gotten that particular memo.

In fact, compared to a now well-established program like Aperture, Final Cut's abilities to ingest and retain, to augment and automate, to customize and configure, to easily access, selectively display and effectively utilize most kinds of Metadata -- whether directly from the camera; added, edited, or inserted during the Logging process; or created, defined and applied within its own Browser -- range from frustratingly limited to embarrassingly nonexistent.

But wouldn't the kind of flexible, intuitive and infinitely customizable sort-ability & search-ability described above be a temptingly powerful option for just about any editor on any large project? Of course like any feature, no matter how elegant or appropriate, it would not get used by every editor, or on every project. Still, if all of Aperture's metadata-based organizational power can be applied to individual image files (and has been for years now), why can't it also be applied to individual movie files (aka clips) in Final Cut Pro?

Recent insights and musings from technology insider Philip Hodgetts have helped me better understand some of the technical, business, and design factors at play here. But even though some of this NewCode-requiring functionality may still be as much as two long years away for Final Cut, that won't stop me beating the drum for the kind of metadata functionality I honestly think (however naively) any professional NLE should be able to do right now -- even in the confines of a more rigid, "OS-9 Lives!" interface like Final Cut's. Things like...

> 1) See, Retain, and MAKE ACCESSIBLE TO THE USER (in easy-to-customize Views) all camera metadata from ALL ingestible formats, whether SD or HD, tape-based or to-the-file born. For example, this would include the camera record Date & Time information from even Non-TimeCoded formats like HDV and AVCHD. No longer would we have the bizarre split-code personality disorder of Final Cut's Log & Transfer window being able to see and display the Date created information for each about-to-be-ingested-and-transcoded AVCHD clip, only to have that same -- and potentially quite valuable -- information

be invisible and completely inaccessible to the Final Cut Browser -- the Browser of the very same application!

2) Let the USER assign and configure any number of custom-named Logging fields (with lots of preset templates to get started) -- with more options for auto-repeating text fields, customized combinations of selected camera metadata merging with user-generated information, and a direct transfer of all that data into corresponding, easily searchable Columns in the Browser.

3) Let the USER create unlimited numbers of custom and always searchable Keywords. Keywords in families. Sets of keywords for different kinds of projects. Keywords visible in a floating Heads-Up Display, in a separate pane, or as buttons in their own visible-whenever-and-wherever-you-choose Control Bar. Keywords you can easily assign to a single clip (whether in the Browser or the Timeline; before ingesting or months into the editing); or to a non-contiguous group of selected clips; or to an entire Bin's worth of clips -- whatever's highlighted, and all in a single mouse click.

Apple's Aperture app (--and how much fun is that to say!--) does all this, and more, with relative ease. And it doesn't ask you to purchase, learn, and then constantly have to work with a whole 'nother, multi-user, high-end business program called "ApertureServer" to do so.

So if progress in software development is to be measured in terms of giving the USER more choice, more flexibility, and easier access to more information (so those choices can be made more intelligently) -- which is exactly how I think it should always be measured -- then surely bringing this kind of already-overdue Metadata muscle to Final Cut ASAP would be a huge step forward. It's all about giving power to the User, not just to the Program.

Oh dear -- I think I'm getting a little "verklempt".

Best to end with the paraphrased words of Coffee Talk's Linda Richman (aka Mike Myers' classic SNL character): "Talk amongst yourselves. I'll give you a topic: When it comes to Metadata, Final Cut Pro is neither final, nor cutting... (nor particularly pro). Discuss."

JOHN BERTRAM is a Toronto-based writer/director/editor who is currently busy resenting having to learn anything at all about Codecs and Conversions, Renders and Resolutions, Formats and Frame Sizes, Gradients and Gamma Curves. He began Non-Linear Editing with Final Cut 4, and since then has been struggling to understand anything he can about, well... (see list). The preceding article, together with his new blog you can **read here**, will illustrate the futility of that struggle.

John also sent his original article to **Philip Hodgetts** who added the following comments:

[First, I need to state that I have no insider information, nor am I passing on rumors. This is just my understanding from looking at the software with the eyes of a developer and connecting the dots.]

I guess you do know that FCP does retain all the metadata from non-tape workflows ingested via Log and Transfer. But the [Browser] bin code, as it currently is, is not flexible. Each column has to be added by Apple (and they have added a lot over the

years). Needless to say I expect that is "non-trivial" to change.

But every indication is that Apple have been working on a foundation for metadata management in QT Media (as of FCP 5.1.2) and that is exposed in the XML export. See our miniME app- in demo mode you can export to an Excel spreadsheet. http://assistedediting.com/miniME

These things are, I think, on the road map for FCP but will require large sections of the code to not only be ported to Cocoa but also completely rewritten. When you rewrite one component it often has unforeseen (or non-obvious to those outside the dev team) consequences and implications on other code. Fortunately a lot of FCP was written in modular form from the start, Browser included. Check inside the FCP package > MacOS > Plugins > Browser.bundle. .bundles usually indicate complied C code i.e. Carbon. In fact there were earlier versions of these in all versions of FCP. The .bundle version dates from around FCP 4.5 (or perhaps FCP 4.0) when they recompiled the Carbon code from CFM (Code Fragment Manager) to MachO (and thereby losing OS 9 compatibility).

All these bundles need to be rewritten. Most can probably just be ported as-is without significant change to functionality. (Really what improvements to the Transition Editor do we need?) In the earlier versions of FCP I experimented with removing specific plug-ins and found FCP still ran but the functionality disappeared.

Anything in the Frameworks folder is Cocoa.

Also, the new code is found in Resources > English.lproj. A .nib file indicates Cocoa, so I'm informed: at least created in Xcode's interface builder.

Overall, I'd say John is pretty much spot on as to what I'd like to see in the future version of FCP as far as metadata management, but it can't be shoveled into this code. It has to be new. I also *hope* that Apple takes this opportunity to rework Media Management but I have no data points to suggest whether or not they will, particularly now that media management is very much improved from the early days.

Remember too, that the FCP dev team believed up until July 2007 that there would be 64 bit Carbon (only because Apple said so at the WWDC in 2006 only to reverse it a year later). it was only then that the need to rewrite became essential. Ultimately I think this is a great thing although it will take time because I'm of the (optimistic) belief that Apple will be rewriting things like the browser to give exposure to the metadata they're already retaining and tracking. If they could have gone to 64 bit Carbon they may not have felt the need.

Which is why I think we'll not see a new version until 2012 as I said in my **recent blog post.**

The reality of code development is that it does not scale. 10 engineers won't be twice as fast as five. In fact evidence suggests that it would take longer with 10 than 5 (whatever the [actual] numbers are). There's an article floating about the "myth of the man month" related to software dev scaling. Software development takes the time it takes.

Even so, I'd say it's probably a very expensive rewrite, which FCP can definitely afford as the Pro Apps Suite (i.e. FCP really) is highly profitable based on my back-of-the-envelope calculations.

Good stuff, though, John. Keep the agitation going.

OTOH, Premiere Pro has awesome metadata tracking and handling and yet the users

seem to not care about it one iota! If you're at NAB catch my presentation on Wednesday at 1 PM in the PostPit at NAB on "The Mundane and Magic Future of Metadata".

The issue of how you find media files when there are tens of thousands to search from becomes increasingly important as we move into all tapeless workflows. Adobe has staked out a strong position in this area for all their media applications.

It is my hope that Apple is working to bring the metadata power of Final Cut Server down into all of its applications, then make it easy enough for mere mortals to use.

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EMBEDDING METADATA IN H.264 VIDEO

William Aleman writes:

> Artists and producers are starting to ask for the display of their information (artist's name, project details as extended description, "i" short for information, credits among others fields) in iTunes and Apple's devices. The problem is that the information locally entered in iTunes' tab is not embedded in the files, it's user's iTunes library display only. Moving the files to a different server or location will cause the lose of all metadata - information about the information- as described by some specialists in this field.
>
> I haven't found yet a way to add metadata from FCP 6.0 or Apple Compressor for iTunes and Apple's devices while exporting the files, except chapter markers. In addition, all locally created music videos automatically get placed by iTunes under Movies category. That was until I found the solution through some dedicated software, which does just that: to embed this type of metadata in the files wherever they go.
>
> I found three applications dedicated to embed metadata in video and audio file with the purpose of being displayed in applications that support the display of this type of data, including chapter markers, as iTunes, QuickTime, among others do.
>
> This applications are MetaX, Lostify, (shareware) and SimpleMovieX (buy). After several tries of all three, the best that worked for me is MetaX.
>
> A good feature of MetaX is that you can update the metadata in the files already in iTunes (music video, movie or audio) without re-importing them. In addition, we can change and embed a poster frame. To update the metadata, we just have to hold down 'Control' key in any iTunes' tab, at the bottom of the list of the open window where we will find a text line that says "Edit Tag in MetaX" That will load the file from iTunes into the MetaX and will update it without leaving iTunes. I haven't tried that feature in the other two applications. By the way, any QuickTime movie can be metadata embedded with this application, not just the H.264 Codec.
>
> Shareware
>
> - MetaX
> - Lostify

Trial & Buy

- SimpleMovieX

Larry replies: Thanks, William, for sharing this information.

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REVIEW: DATA ROBOTICS INC. DROBO S

NOTE: *For my policy on reviews and disclosure, click here.*

As I was talking with Data Robotics, who is one of our sponsors for our NAB coverage, about the gear I wanted to use in our booth for NAB, they offered to provide us a loaner unit of their new high-end product: DroboElite.

I thought this was a great idea, because this gave me a chance to test it under real-world, multi-user conditions. (I'll have a review of it next month, after NAB.)

Since they were already loaning us gear, I asked if they could also loan me their new Drobo S for me to review. It arrived earlier this week and I've spent some time playing with it.

DROBO BACKGROUND

I first really looked at Drobo in October, 2008, when I reviewed their initial FireWire unit. (They were shipping products before that, but since they connected via USB, they were way too slow for any editing application.) You can read that review here.

My big gripe was that the Drobo was too noisy and far too slow for any real-time work, though it would fit well into on-set capture of tapeless media.

About a year later, Data Robotics shipped the DroboPro, a much faster unit that connected via iSCSI and had a quieter fan. You can read my review of the DroboPro here.

Then, earlier this year, they shipped both the Drobo S and, at the high-end of their product line, the DroboElite.

While there are a number of features that distinguish Drobo from other products, the key ones, for me, are that you can mix and match different sized drives in the same box with no performance penalty, and that the storage it contains is easily expandable so it grows as you do. Unlike any other RAID, to add more storage you simply swap out a smaller drive for a larger drive and Drobo automatically rebuilds everything.

No copying data. No reformatting drives. No down-time. Very, very cool.

FIRST LOOK - DROBO S

The Drobo S fits between the Drobo and the DroboPro in the product line.

The Drobo S arrives nicely packaged, wrapped in a black cloth bag for protection. All shipping materials are recyclable. The installation instructions are clear and written with a friendly tone. They make you feel like you aren't buying a product, but adopting a friend.

The Drobo S comes with drives uninstalled, so you can add your own drives, or buy them from Drobo. The unit holds five drives (compared to four for the Drobo and eight for DroboPro and DroboElite).

Drobo recommends using Western Digital drives. If you need performance, they recommend the WD Black series. If you need reduced energy consumption with a variable spin rate, they suggestion WD Green. In this case, I was sent two 2-TB, and three 1-TB WD Black drives to use for the test. Notice that the drives were not all the same size!

Installing a drive is as easy as taking it out of its protective wrapper and sliding it into the Drobo. (Remember, these drives are very sensitive to static electricity. Be sure to ground yourself before handling a drive.) The drives are keyed, so you can't install them improperly. The front cover is magnetically attached, which makes accessing the drives very easy. Each drive is held in place by a spring clip, no additional hardware, like screws, is necessary.
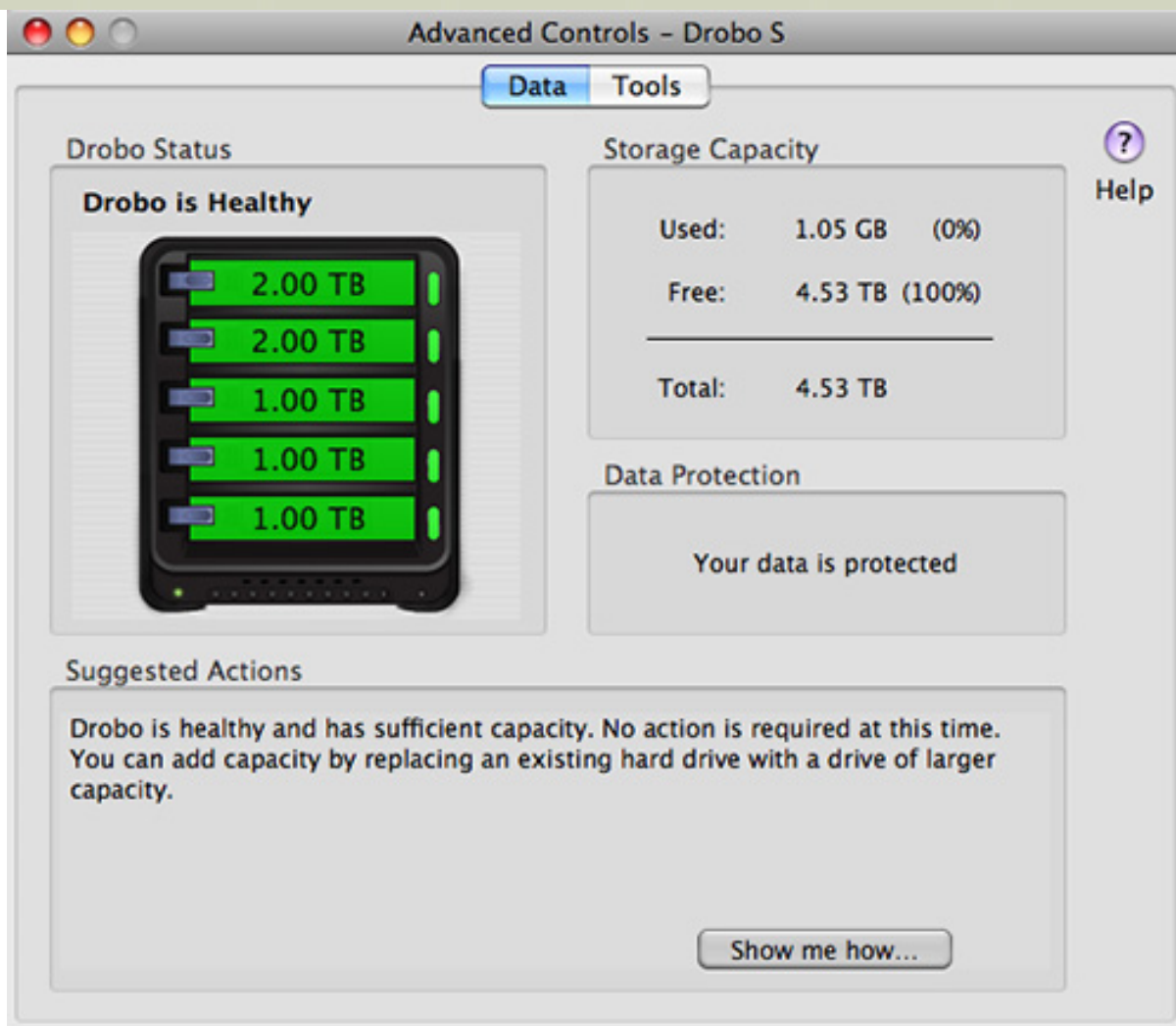
Here's how I loaded the drives into the unit, as displayed in the Drobo Dashboard.

CONNECTING AND SETTING UP THE UNIT

All connections are on the back:

* Power
* USB
* FireWire 800 (2 ports)
* eSATA

Plus, a rocker switch for power! (The Drobo could only be powered off by pulling the plug.)

As I've explained in other reviews, USB is far too slow for any reasonable video editing, so I concentrated on looking at the FireWire and eSATA connections.

> **NOTE**: Later in this issue is a discussion of the various ways of connecting hard drives. You can jump there now by clicking here.

For the purpose of this test I bought an eSATA card from LaCie and installed it in Slot 2. My Mac reported it had a Link Width of 1x. The test was done on a 2.93 GHz Quad-Core Intel Mac Pro with 8 GB of RAM. Speed was measured using the same settings on the AJA Speed Test utility. Speed varies as settings change, real-world results will vary somewhat from these numbers, but the general range should be the same.

Turning on the unit involves momentarily pushing the rocker switch at the back. (Turning off the unit requires forcefully holding the rocker switch down for 3-4 seconds, a nice protection again accidently turning off the unit.) Power-up took a bit longer than a minute, but there are lots of blinking lights to watch, so you won't get bored waiting.
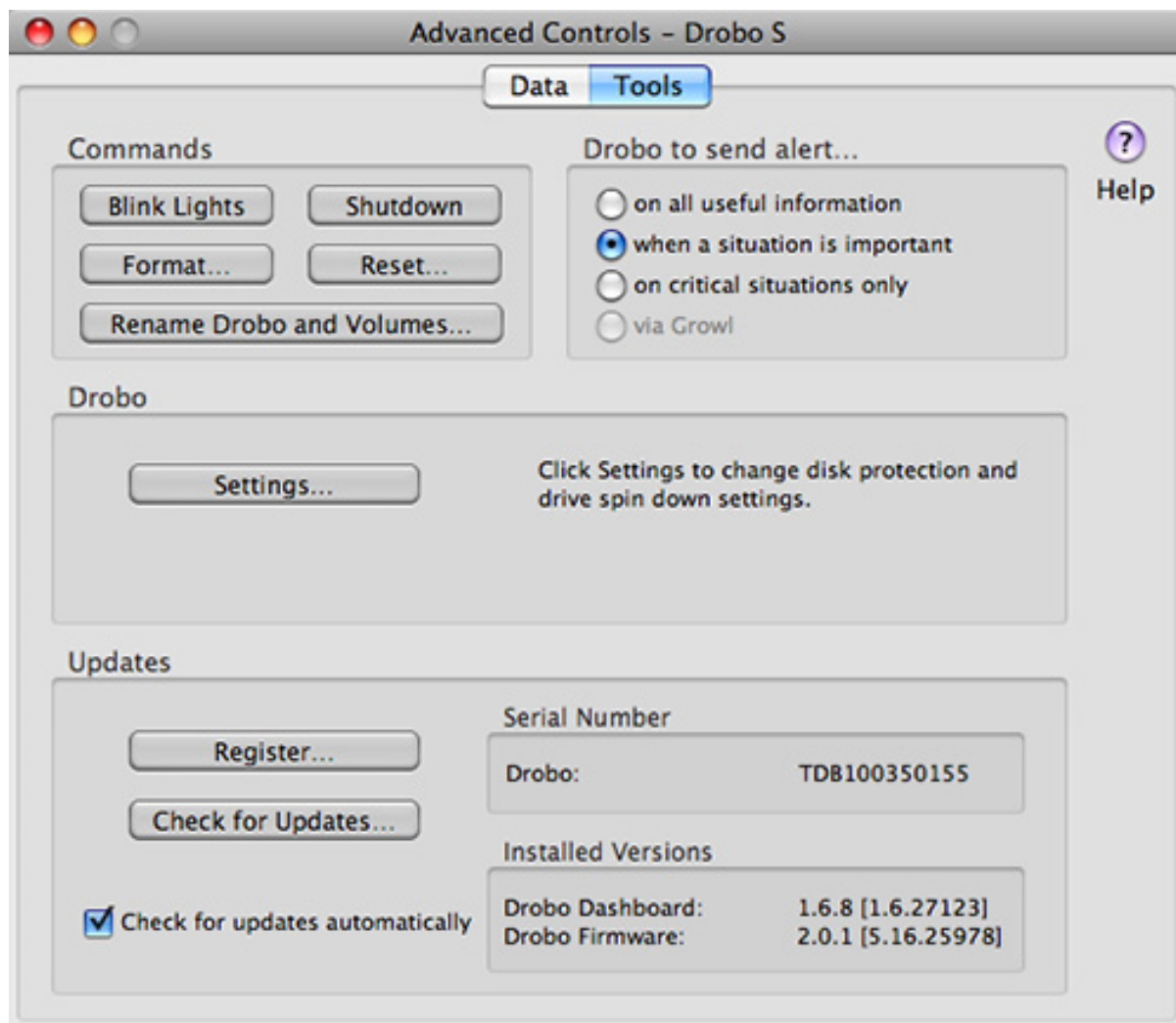
All Drobos are controlled from the Drobo Dashboard, a software utility that allows you to monitor usage, reformat drives, and provide other maintenance functions. Prior to starting the unit, I downloaded the latest version of Dashboard from the Drobo website (v.1.6.8) and installed it.

Once the Dashboard was installed, using a standard installer, and the unit was powered up, two messages appeared on my screen. The first was from the operating system saying it could not recognize the drives, did I want to reformat? The correct answer is **Ignore**.

The second message was from the Drobo Dashboard asking if I wanted to format the drives. The correct answer here is **Yes**. Be sure to format drives using the Drobo Dashboard, not the OS.
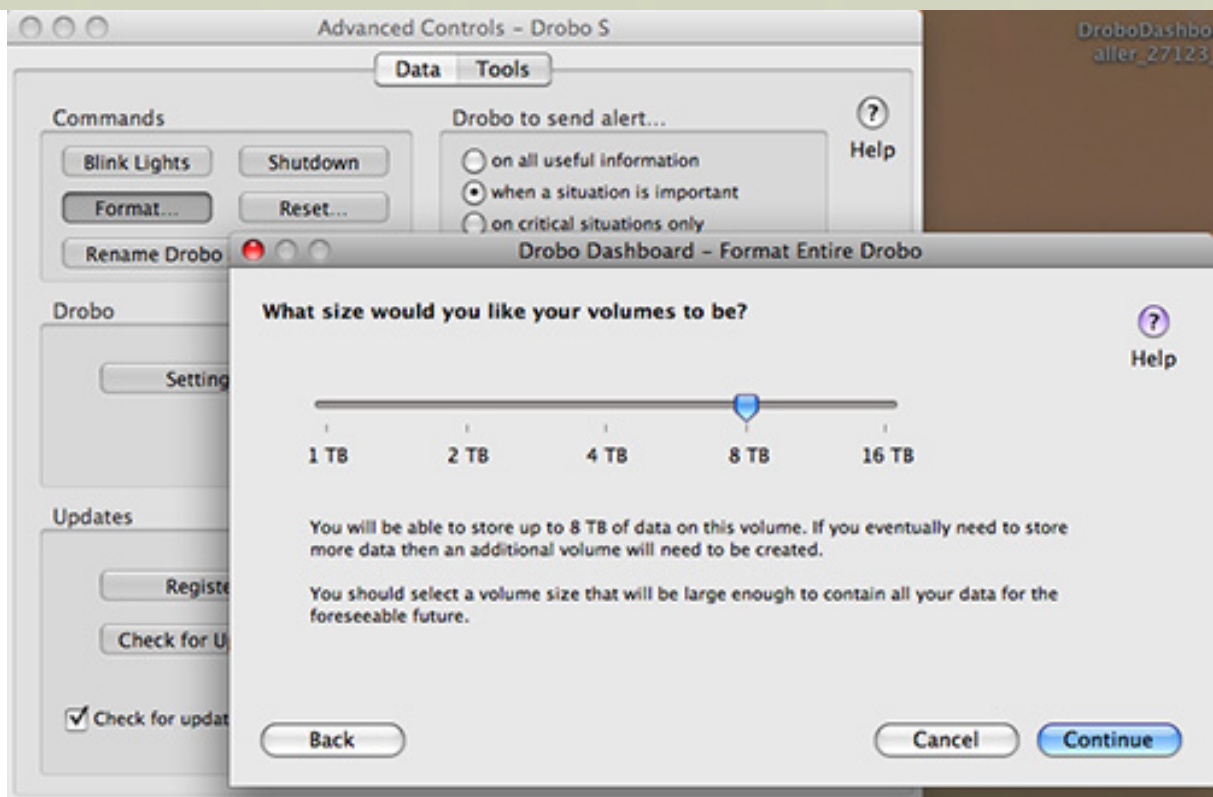
Upon starting the Dashboard, the first question it asks is how big do you want the Drobo to be. This is an important question, because it determines the ultimate maximum size of the Drobo when fully expanded. In my case, I set this to 8 TB, even though when I format the drives, my total storage space will be about half that. By setting the maximum size larger than the drives I have now, this allows me to expand my storage in the future by just adding larger drives, without having to transfer data back and forth.

> **NOTE**: Once you reach this maximum size, you can still add larger hard disks to the unit. At which point, it will create a second hard disk volume and display that on your desktop.

After setting the overall volume size to 8 TB, formatting took about three minutes, and the drive was ready to use. (Other RAIDS that I've used have been known to take several hours to format and be ready for use. This is why most RAIDS come with drives preinstalled and formatted.)
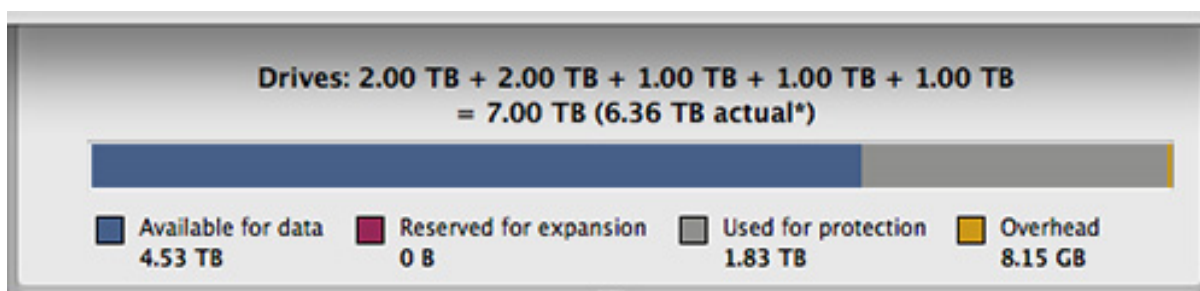
Here's how the drive space was allocated, once formatting was complete. Note that although I installed 7 TB of storage, only 4.53 TB was available. This is normal for RAIDs and I talk about it later in this issue - click here.
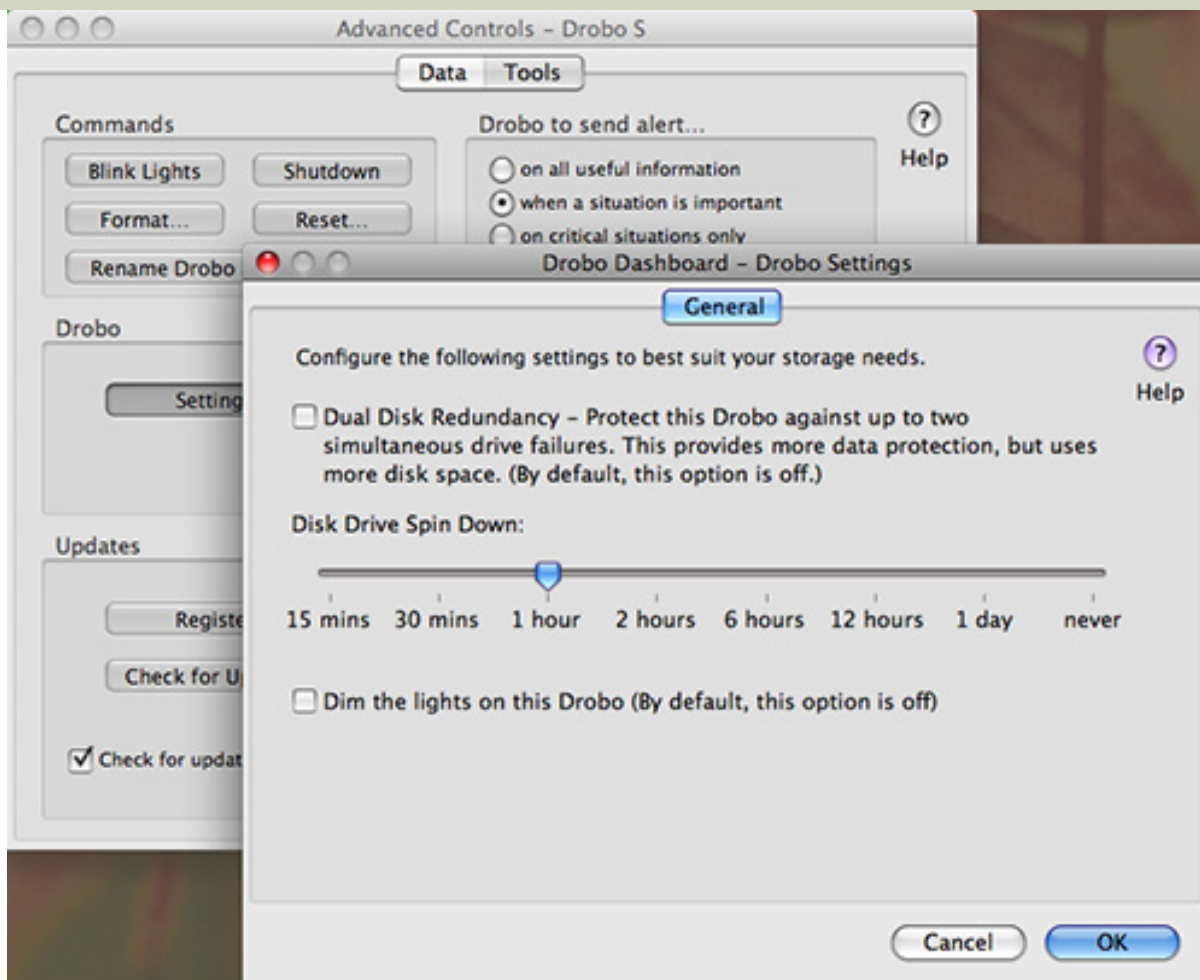
The Dashboard also allows you to set whether you want the drive configured as, essentially, RAID 5 or 6; how long until the drive spins down, and whether the front lights are too bright. For my tests, I left the drive formatted as single drive redundant (which means that it would recover if one drive failed.) This settiing maximizes speed and storage. I also set the spin down time to 2 hours.

> **NOTE**: You don't need to have the Dashboard open to use Drobo. The Dashboard is an administrative tool, not needed for normal operation. (However, it has a very cute graph, which is fun to look at, even if it doesn't change that often.)

HOW FAST IS IT?

The Drobo S is much, much faster than the Drobo and almost as fast as the DroboPro. It is definitely fast enough for editing most video formats, and, depending upon your video format, it is probably fast enough for multiclip editing of up to 8 streams.

First, let's measure how fast the unit is. For these initial tests, the Drobo S was totally empty.
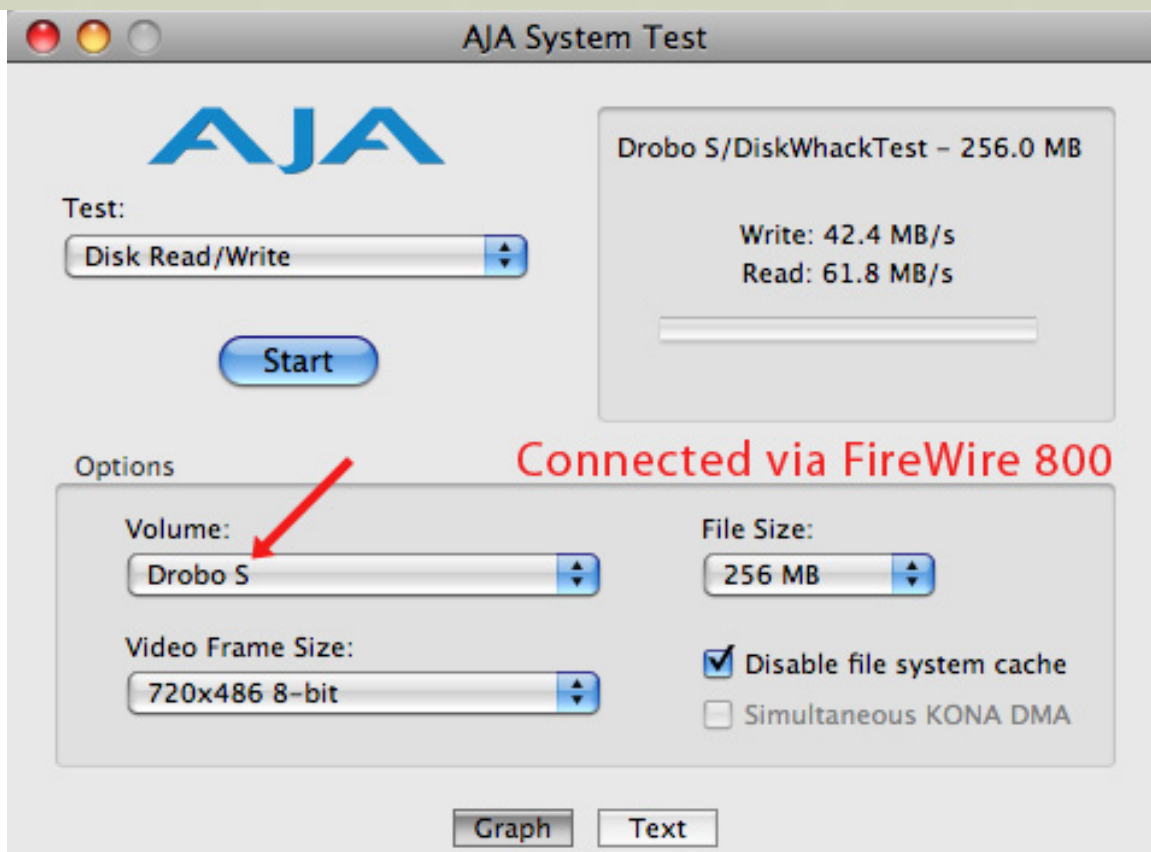
When connected via FireWire 800 and with only one other FireWire 800 device connected, write speeds averaged 42.4 MB/sec and read speeds averaged 61.8 MB/sec.
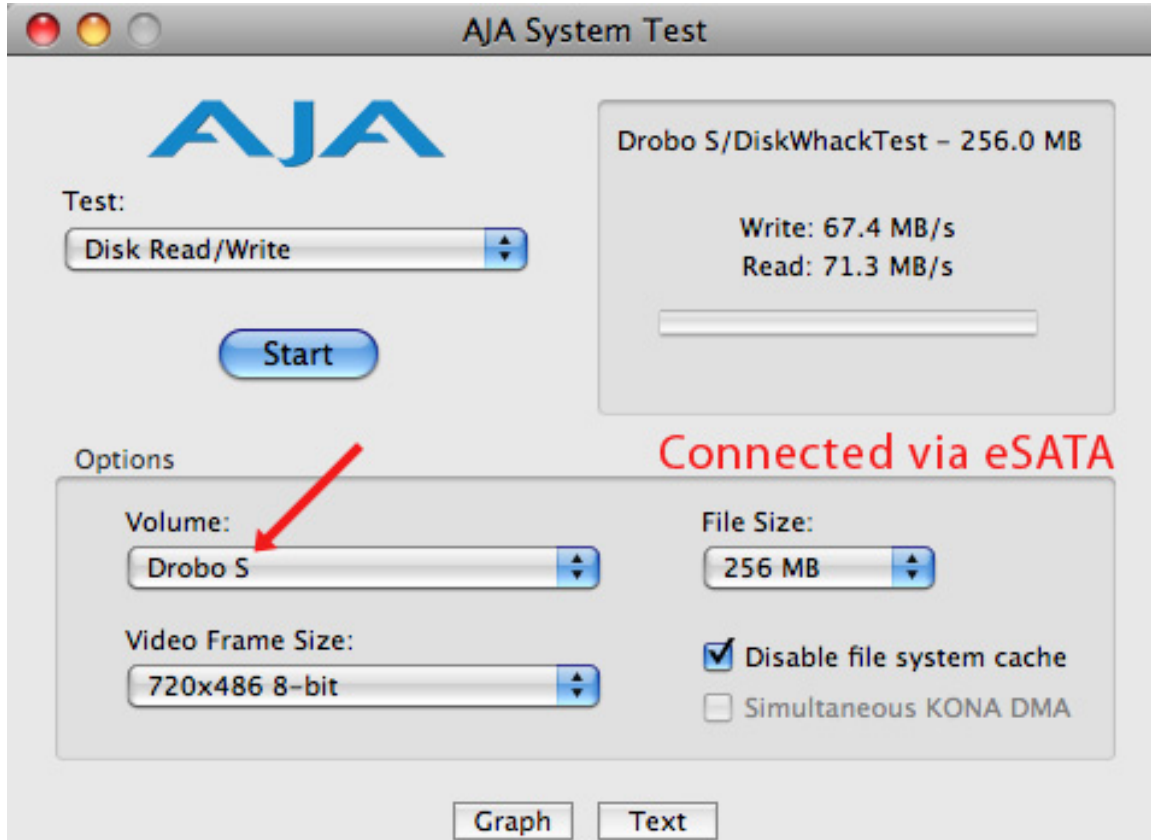
When connected via eSATA, and no other eSATA devices connected, write speeds averaged 67.4 MB/sec and read speeds averaged 71.3 MB/sec. This is 59% faster for writes and 15% faster for

reads. The benefit to connecting via eSATA are faster data transfer speeds and no slow-downs when other FireWire devices are attached to the computer. However, not all Mac laptops support eSATA -- only those that have an ExpressCard/34 slot.
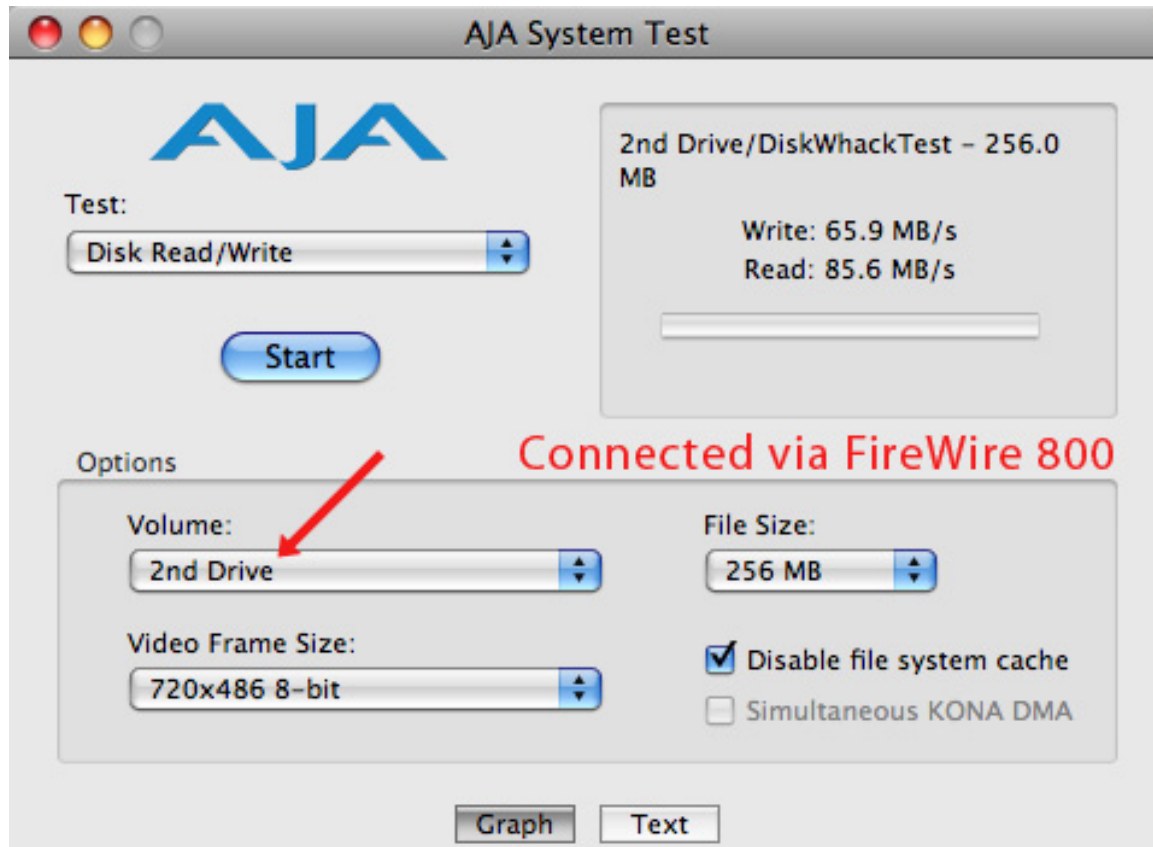
This eSATA speed compares favorably to a G-Technology RAID2 configured as RAID 0. RAID 0 is very fast, but provides no data redundancy. As we move more and more into tapeless video, protecting your data becomes increasingly crucial. In this test, the G-RAID was about 90% full.
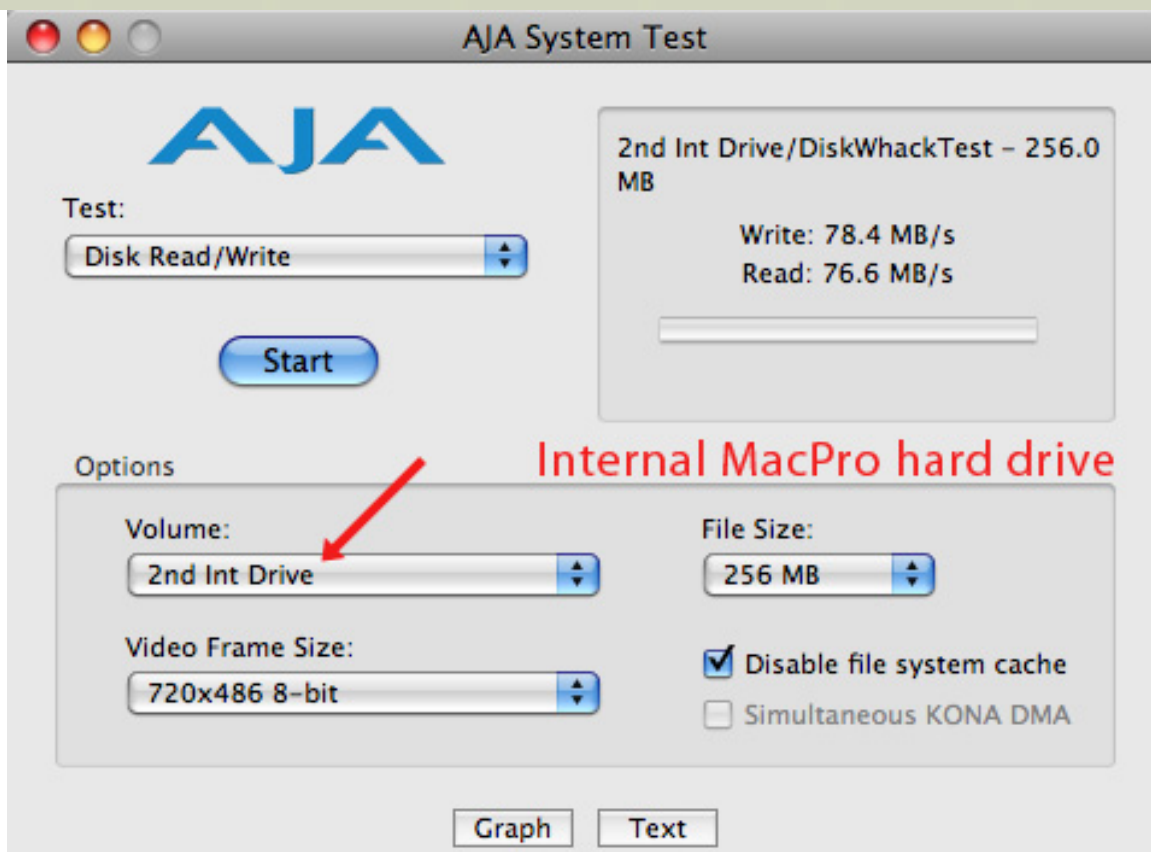
By the way, these speeds are about the same as an internal hard drive on a MacPro. However, with an internal drive there's no data redundancy or expandability because you are using a single drive.

TESTING IN THE REAL-WORLD

So, how does it work in the real-world of massive video files and editing?

To test this I copied 952 GB of Final Cut Pro project data to the Drobo - um, yeah, it took about three hours.
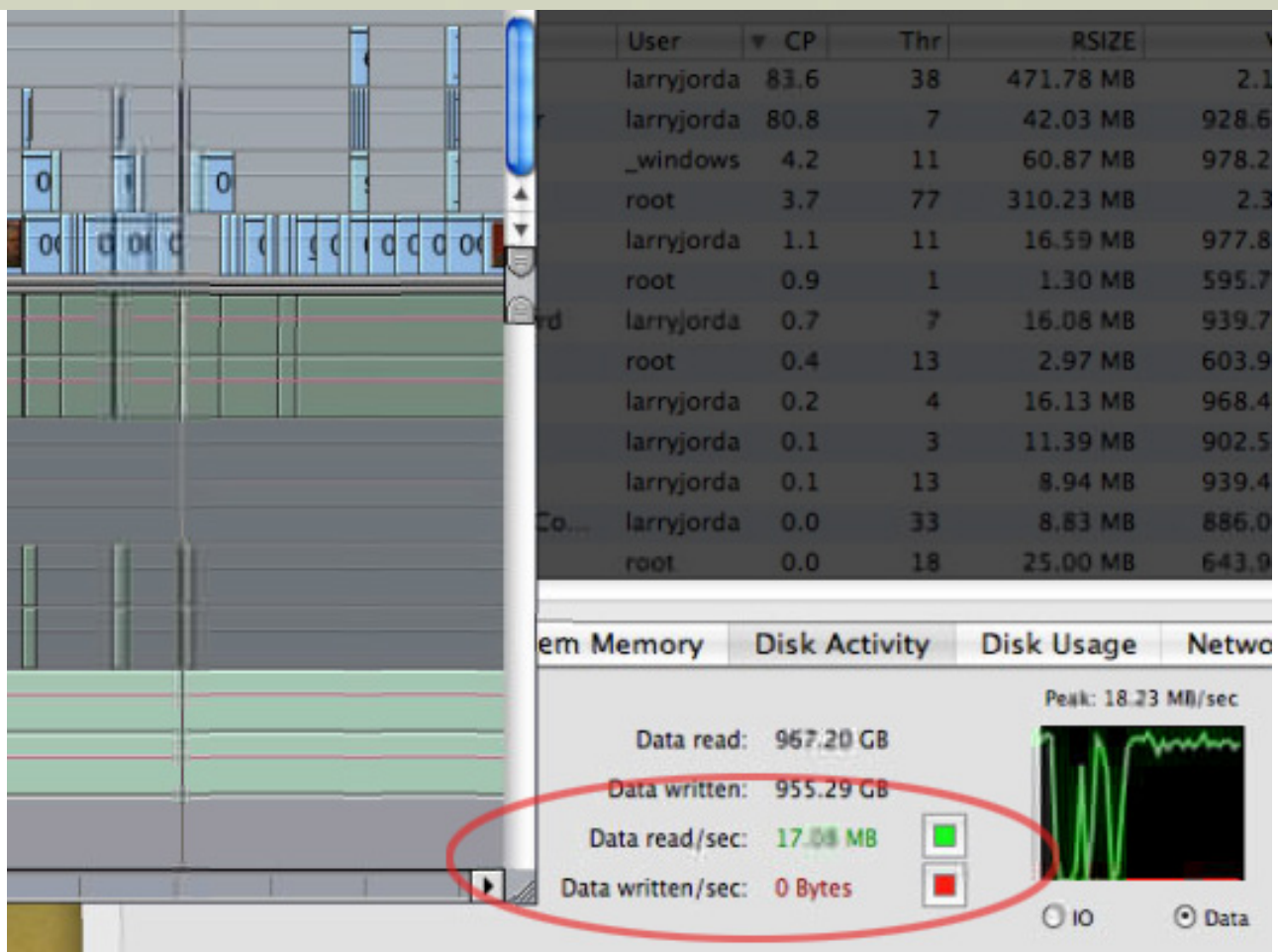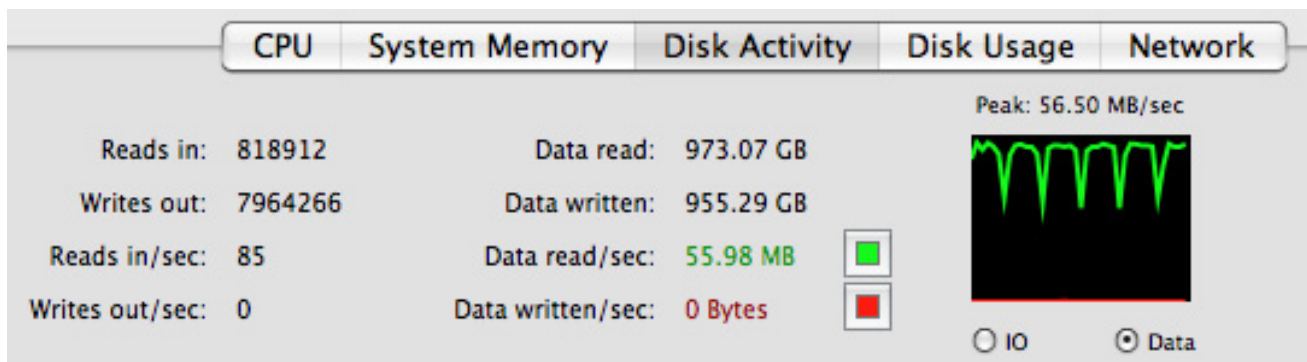

During the transfer, according to Activity Monitor, the average transfer speed from the G-RAID to the Drobo pretty much maxed out at the top end of both devices -- about 83 MB/second.

User	CP	Thr	RSIZE	
larryjorda	83.6	38	471.78 MB	2.1
larryjorda	80.8	7	42.03 MB	928.6
_windows	4.2	11	60.87 MB	978.2
root	3.7	77	310.23 MB	2.3
larryjorda	1.1	11	16.59 MB	977.8
root	0.9	1	1.30 MB	595.7
larryjorda	0.7	7	16.08 MB	939.7
root	0.4	13	2.97 MB	603.9
larryjorda	0.2	4	16.13 MB	968.4
larryjorda	0.1	3	11.39 MB	902.5
larryjorda	0.1	13	8.94 MB	939.4
larryjorda	0.0	33	8.83 MB	886.0
root	0.0	18	25.00 MB	643.9

em Memory | Disk Activity | Disk Usage | Netwo

Peak: 18.23 MB/sec

Data read: 967.20 GB
Data written: 955.29 GB
Data read/sec: 17.08 MB
Data written/sec: 0 Bytes

○ IO   ⊙ Data

I played back an existing sequence of XDCAM EX footage - in this example, three layers of video, effects, and live action.

CPU | System Memory | Disk Activity | Disk Usage | Network

Peak: 56.50 MB/sec

Reads in: 818912   Data read: 973.07 GB
Writes out: 7964266   Data written: 955.29 GB
Reads in/sec: 85   Data read/sec: 55.98 MB
Writes out/sec: 0   Data written/sec: 0 Bytes

○ IO   ⊙ Data

Then, I created a five camera multiclip of DVCPROHD (P2) footage just to see what the Drobo could handle. During playback, data rates hovered around 55 MB/sec, with no dropped frames reported by FCP.

Cool.

FINAL THOUGHTS

Drobo has made significant strides in improving speed and connectivity with their latest units. While they still need to work on their fan noise (it's louder than a MacPro, but softer than the first Drobo I tested), for those that need to protect their data, while providing expandability options, the Drobo S is a very nice complement to a video editing suite.

MORE FREE STUFF -- OVER 100 ARTICLES
POSTED THIS MONTH INTO MY EDITING LIBRARY

One of my goals in writing these newsletters each month is to take key articles from each issue and post them to my website. For many years we were able to do that.

Then, last year, that whole system broke down when my webmaster decided to go off and buy a bakery. (She was an excellent webmaster, but an even better baker, so I guess I can't complain... much.) So, for many months all those article languished...

Over the last two weeks, I found myself with some spare time, so I went through every newsletter issue for the last year, posting relevant articles to my website. Over the course of two weeks, I added more than 100 articles!

New releases are posted at the bottom of my home page, but the place you REALLY need to visit is the **Editing Library**. Hundreds and hundreds of articles. All free. All indexed. And all available now. Or use the **Search page** to find exactly what you need.

Take a look - there's sure to be something in there you will find useful.

THINKING ABOUT STORAGE --
WHY DON'T HARD DISKS HOLD AS MUCH AS THEY SAY?

Have you ever wondered why a 1 TB drive never has 1 TB of free space? Or why a 500 GB drive stores much less than 500 GB?

Well, it isn't your imagination, it's that engineers and marketers use two different numbers - but the same words - to measure the storage capacity of a hard drive.

A marketer wants to keep things clear and simple, and make their hard drives seem as big as possible. So they define:

- A Kilobyte = 1,000 bytes
- A Megabyte = 1,000 kilobytes
- A Gigabyte = 1,000 megabytes
- A Terabyte = 1,000 gigabytes
- A Petabyte = 1,000 terabytes

This is all well and good and simple... but wrong.

Because computers don't think using multiple of ten, like we do. Instead, they think using multiples of two. (Remember, computers store everything as 1's or 0's, called "bits.")

Surprisingly, 1,000 (which is a power of 10) is not a natural number for a computer. Instead, they work with powers of 2. See if this string of numbers looks familiar:

1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024...

Yup. Each number to the right is the number to its left multiplied by two. So, when a computer formats a hard drive, it does so using these power-of-two numbers, which results in storage sizes like this:

- A Kilobyte = 1,024 bytes
- A Megabyte = 1,024 kilobytes
- A Gigabyte = 1,024 megabytes
- A Terabyte = 1,024 gigabytes
- A Petabyte = 1,024 terabytes

So, when you take a drive and format it, about 1% of total storage capacity is used by the drive for file directories and other technical stuff. The operating system, as it structures the hard drive for use (the process of formatting) also reduces the total available size.

RAIDs also reserve a significant amount of storage for data protection -- roughly 25% of total storage capacity.

Finally, you lose storage due to the differences in defining the numbers between the simplicity of marketing and the technical realities of how computers actually work.

This is why a 1 TB drive formats to about 931 GB and a 500 GB drive formats to about 465 GB.

For the technically inclined, here's a very nice Wikipedia article discussing disk capacity and access speed you may find interesting.

UPDATE -- MARCH 23, 2010

Robin Harris provides some additional information:

> Saw your piece in the newsletter about disk size reporting. Right on - as far as it goes. In Snow Leopard Apple fixed the base2 reporting bug by going to base10.
>
> Now Snow Leopard reports the same size that your disk drive says it supports. See blogs.zdnet.com/storage/?p=589
>
> Another key point: the percentage difference between reported size and actual size keeps growing with capacity; i.e. the disconnect gets worse. [Robin then included a table, which I am summarizing here. For instance, using two different units of measurement -- 1024 vs. 1000, there was about a 2% difference in storage when total storage was measured in Kilobytes, but a 10% difference when storage increased to Terabytes.]
>
> The fact is that kilo, mega, giga, tera and peta are formal international standards that have been in use for over 200 years. Kilo=1,000 and so on.
>
> I think the confusion arose because DRAM is measured in the powers of 2 because that is how CPUs access it. Since RAM was very expensive and disks were small, computer folks didn't differentiate between kilo and kibi (the official power of 2 prefix for 1024).
>
> Apple did all Mac users a favor by fixing this error.

Larry replies: Thanks for this clarification, Robin.

LARRY'S BLOG: RESOLVING A PROBLEM
WITH THE LATEST PROAPS UPDATE

This note is taken from my blog. If you haven't read it recently, take a look here.

Recently, Apple released an update to its ProAps frameworks. These are behind-the-scenes utilities that provide shared resources used by all the applications. The new revisions are available via Software Update.

In Apple's announcement, they indicated that one of the things they fixed was a series of memory leaks, which is something that Soundtrack Pro has suffered from since its initial release.

However, my philosophy is to ALWAYS wait whenever Apple announces a new update - just in case the new version does more harm than good. (You can read an article I wrote about upgrading here.) So, I didn't install the upgrade until this weekend.

At which point, I immediately began having problems using Soundtrack Pro. After experiencing five or six crashes within ten minutes, and sending a crash report to Apple, I did the usual -- Safe Boot, Rebuild Permissions, creating new versions of the project file using Save As -- all of which did not solve the problem.

What DID solve the problem was trashing Soundtrack Pro's preferences -- something that we have not had to do before.

So, if you find that Soundtrack Pro is becoming unstable:

- Save your work and quit Soundtrack Pro
- Go to your **Home Directory > Library > Preferences** folder
- Delete **com.apple.soundtrackpro.plist**
- Empty the Trash

Reopen your project in Soundtrack Pro and you should be good to go.

Once I trashed this preference file, Soundtrack has been running reliably for hours.

HOW YOU CONNECT YOUR DRIVE DETERMINES ITS SPEED

In the past we obsessed about the rotational speed of a hard disk, how much cache it had, or even the controller chip it used. While these are important, they pale in significance when compared to the impact of how you connect your drive to your computer.

A few days ago, I had a lengthy conversation with three folks at Ci Design, who make the iStoragePro product line about their family of hard disks and RAIDs. **Zin**, **Cupid**, and **Katie Khor**

joined me for this discussion. (Thanks to Katie Khor for setting this meeting up!) Zin is their sales engineer, who did most of the explaining.

As a point of reference, CiDesign has over 27 years experience in storage design. Their latest product line is iStoragePro. According to Katie, they focus on creating a full-range of system solutions, offering the best in performance, with systems specifically designed for video and audio editing on the Mac.

We began our conversation talking about their FireWire drives. And, I must confess, that there's a point where one FireWire drive looks a lot like everyone else's drive - especially because they all use the same controller chip (Oxford) and same hard drive manufacturers (Hitachi, Seagate, Western Digital, Fujitsu). Differentiation is very hard in this industry.

However, our conversation veered into improving performance based upon how the drive is connected to your computer. And I found this much more interesting -- and helpful. So I summarized our discussion in the bullet points below.

Two starting points to keep in mind:
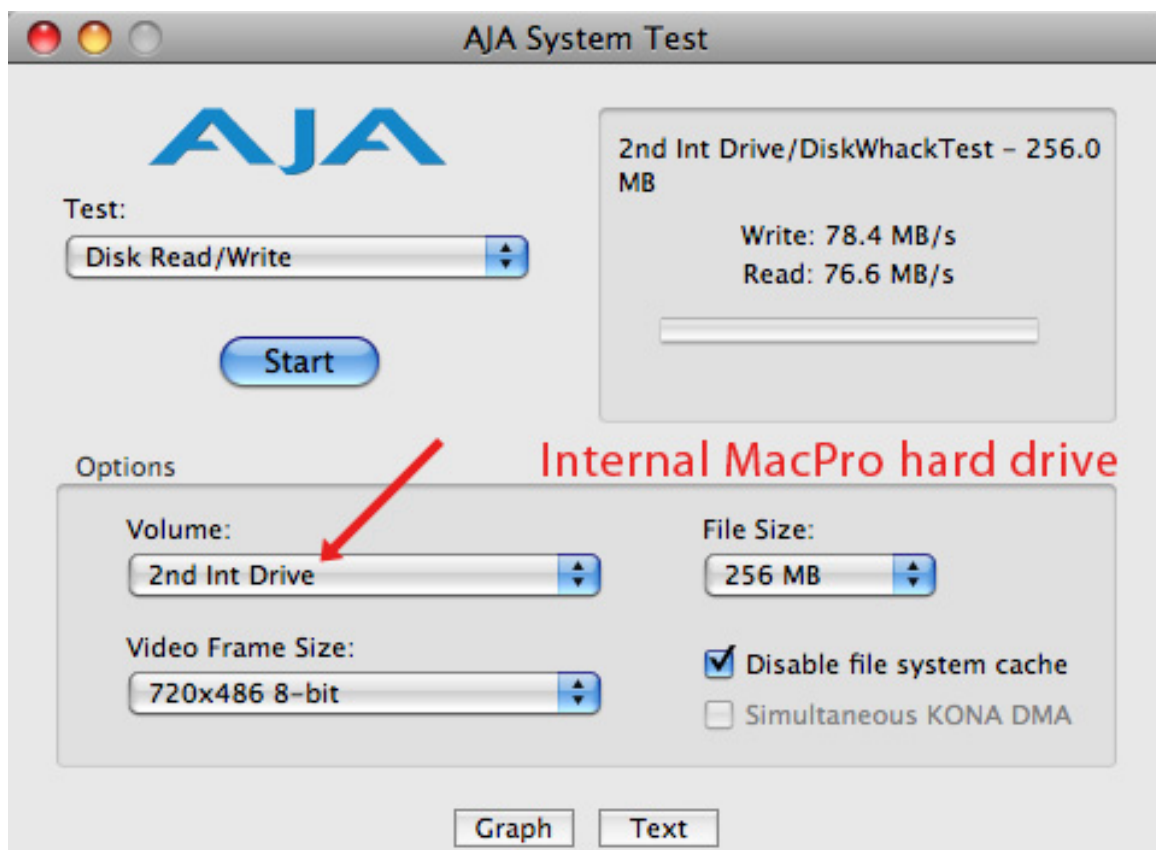
1. A single hard drive connected inside a recent model MacPro transfers data between 75-80 MB/second. If you need faster speeds, you need to harness multiple hard drives together into a RAID.

2. Different video formats require different data transfer rates. For example, DV requires 3.75 MB/second. P2 requires about 15 MB/second. RED requires about 38 MB/second.

NOTES
For a description of what RAID terms mean, click here.
For a description of data rates by video format, click here.

USB. Based on my tests, a single USB-connected drive transfers data between 10-15 MB/second. This puts it at the low-end of the speed equation. This protocol works great for slow devices like mice and keyboards, but is severely limiting for hard drives. I don't recommend using any USB devices for video editing.

FireWire 400. Based on my tests, a single FireWire 400-connected drive transfers data between 20-25 MB/second. This is because all FireWire drives use a "bridge chip" to convert from the format the drive uses, such as EIDE, to the FireWire format. This conversion takes time. Plus, the size of the "transfer pipe" provided by FireWire 400 is small. FireWire 400 RAIDS can achieve speeds of up to 40 MB/second.

FireWire 800. Based on my tests, a single FireWire 800-connected drive transfers data between 45-55 MB/second. This is fast enough for many video formats, though not enough for extensive multiclip work. Also, when you connect both FireWire 400 and 800 devices to the same computer at the same time, the FireWire 800 devices slow down to nearly FireWire 400 speeds. This is true of all Macs. The only way around this is to install a separate FireWire 800 card in your computer. FireWire 800 RAIDS can achieve speeds of up to 90 MB/second.

eSATA. Based on my tests, a single eSATA-connected drives transfer data between 70-90 MB/second. However, eSATA requires an interface card to be plugged into your computer. Many laptops and all iMacs don't support these cards. eSATA RAIDS can achieve speeds of up to 400 MB/second.

iSCSI. Based on my tests, iSCSI-connected drives transfer data up to a maximum speed of 100 MB/second (limited by the speed of your network switches). iSCSI is almost always used for multi-disk RAIDs, not single disks. iSCSI connects via an Ethernet cable, but requires a gigabit Ethernet connection to achieve these speeds. iSCSI also has the benefit of being able to connect thru a data switch, allowing the hard drive to be located in a different room.

FibreChannel. Based on what the iStoragePro engineers told me, 1 port FibreChannel transfers about 350 MB/second. 2 port FibreChannel supports transfers at about 700 MB/second. FibreChannel systems are always RAIDs, not single disks. The principle benefit to fiber, in addition to it's high speed, is the distance you can get between the edit suite and the storage. This can be up to hundreds of meters.

Mini-SAS. Based on what the iStoragePro engineers told me, Mini-SAS-connected RAIDS (and this, too, is a RAID-only protocol) can transfer data between 600 - 700 MB/second. The best interface card to use is from ATTO. This speed is sufficient for all multiclip work, as well as editing 2k and 4k images.

SAS-Extended. Based on what the iStoragePro engineers told me, SAS-Extended-connected RAIDs can transfer data between 700 - 800 MB/second. This, too, is fast enough for all current video editing. SAS-Extended is a good protocol to use when one RAID is supporting multiple edit suites.

I found this information very helpful in picking the right system for connecting storage systems, based upon the video formats I want to be editing.

If you want to learn more about the full product line that iStoragePro offers, please visit here.

Also, for laptop owners, they offer two expansion chassis, which allow you to add cards and storage to your laptop. (Currently, the expansion chassis only supports Red Rocket, not AJA or Blackmagic Design cards.)

iStoragePro has some very cool stuff.

UPDATE -- MARCH 23, 2009

Ben Balser writes:

Question, were you measuring "burst rate" or "sustained rate" for those drives?

Larry replies: Ben, the AJA tool reports average rate.

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CHECK-OUT MY LATEST VIDEO TUTORIALS AND BUNDLES!

I'm working on more tutorials for Final Cut Pro 7. In the meantime, take a look at almost 60 video tutorials and bundles. This short, focused video training can solve your technical questions and get you up and running faster than anything else.

I have four different bundles - **SAVE 30%** when compared to buying each tutorial separately!

- My Favorite Final Cut Pro Tutorials
- Video Compression
- Soundtrack Pro Bundle #1
- Soundtrack Pro Bundle #2

With more than 60 tutorials available, you can find the complete list of my video tutorials here.

You can find the complete list of my video bundles here -- **SAVE 30%**!

With all these titles to choose from, and priced at only $4.99 each, there's sure to be at least a couple that can help you solve the problems you're having. Each title runs 5-10 minutes and can be downloaded instantly.

More titles coming every month! Take a look and order today!

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AUDIO GEAR FOR THE DIGITAL PRODUCTION BUZZ AT NAB

As we gear up for our coverage of the NAB 2010 Show, I thought you'd be interested in the gear we are using.

This year, like last year, The BuZZ is all audio. Which means I get to leave my make-up kit at home. However, that doesn't mean we are just traveling with a single mic.

REMOTE RECORDING

Our traveling reporters and producers are using:

- Marantz PMD661 Professional Portable Field Recorder
- Shure SM58 microphones

Note: Thanks to **Carl Gustavson** and the people of <u>Marantz</u> for providing the field recorders. We used these same models last year and they worked great. We attach them to a MacBook Pro via USB to transfer the audio files.

STUDIO RECORDING

Our broadcast studio allows us to interview up to four people at a time. These interviews are recorded for our one-hour NAB Show Special Reports every evening.

- <u>BeyerDynamic DT190</u> headset microphones
- <u>Aphex 230 Master Voice Channel Processor</u>
- <u>Alesis Multimix 8 FireWire</u> mixer
- <u>Sennheiser HD202</u> monitoring headsets
- <u>Aphex Headpod 454</u> headset amp
- <u>Presonus</u> HD4 headset amp

   Note: Thanks to **Marvin Caesar** and the folks at <u>Aphex</u>for providing some of the Aphex gear. (I say some because each year I buy more of it. You need to listen to what your voice talent sounds like after the Voice Channel gets done beefing it up!)

All recordings are made on a MacBook Pro laptop running Soundtrack Pro.

STUDIO LIVE BROADCAST
For the hourly live News Briefs, we use all the gear in the recording studio and add the following:

- <u>Aphex 320D Compellor</u> to even out final audio levels
- <u>Alesis 3630 Compressor</u> (for audio fold-back to our phone lines)
- <u>Presonus Firebox</u> A/D converter
- iMac running QuickTime Broadcaster for the live feed to the streaming server

---

DATA BACKEND

We are running all our audio and data on a gigabit Ethernet wired network, through a NetGear 16-port switch, using a MacMini Snow Leopard Server, and recording to a DroboElite; partitioned into two volumes with 5 TB of protected storage.

   NOTE: Thanks to **Mark Fuccio** and <u>Drobo</u> for loaning us the DroboElite.

It is a fascinating collection of gear and I think it creates a great sound for our show. If you are going to NAB, stop by Booth SL8826 and take a look at all of it up close.

UPDATE -- MARCH 23, 2009

Mark Schultz writes:

Using a handheld cardioid dynamic such as the dependable SM58 for interviews in the field is not always the best choice. At a similar price point you could add the EV RE-50 to your kit, and move into the smoother sound and friendlier angle of acceptance of an omni pattern mic. You can use the 58 in a noisy environment for a bit more off-axis rejection, but with the 50, the subject of your interview can lift/lower and turn his or her chin and it won't ruin high-frequency response and require loads of EQ. Try it, you'll like it.

I see you are using the least expensive gear on the planet as a front end to your rig. I guess it makes sense -- lose it, break it, who cares, and it is super lightweight, with the minimal specs to spit out a wav file.

Still, It is disheartening to see you recommending an Aphex product that includes a "big bottom" knob as well as the dreaded "Aural Exciter." I think it is safe to assume that most folks can figure out what to do with a fixed ratio compressor, hard to screw that up, but I doubt that rank and file video editors have the ear to understand what the parametric EQ does. And, then we have the two huge pitfalls of Big Bottom and Aural Exciter waiting to completely change the sound on the way to hard disk. This is a disaster waiting to happen, and a terrible recommend for someone who doesn't know audio filtering and phase intuitively.

Throughout the world, in radio studios, in cars, in homes and in sales showrooms, excessive indistinct bass is invariably misinterpreted as a good thing. Not everybody is James Earl Jones, recorded on a U47 in a dead room. With few exceptions recorded voice contains clear evidence of the space it was captured in -- this goes for booth records in high-end studios as well as catch-as-catch can stuff from the field. I for one can guess the size of the room and the nature of the wall surfaces pretty quickly and accurately. In post, you can always sift through the low end and remove energy from problematic fundamentals and multiples, and find some intelligent place to start hi-passing. Or you can add "BIG BOTTOM"! Yeah baby.

PHASE, and Aural Exciters specifically, may be the only thing people understand even less. They are certainly the worst thing since cotton candy. The first bite is great and ten minutes later you puke.

Used incorrectly, the worst recordings since Edison are only a few knob turns away -- excessive sibilance, brutal over compression, bad EQ. You know bad color correct when you see it, right? It takes some experience to handle it and it's not for amateurs.

I am certainly not saying you don't know what you are doing. But please be careful not to recommend something (even something you get from a friend) to people who don't know what they are getting into. Field audio guys wearing headphones and Video editors, per se, do NOT hear their audio well enough to judge it, and they often fail to understand what to do with filtering tools. Video bays have many hard drives humming, speakers at odd angles, doors open to the hallway, producer(s) on the phone -- lots of noise to contend with.

A much smarter setup would be a clean preamp -- for example the John Hardy Twin Servo 990, the Millennia HV3C, The Frank Forsell preamps -- try any of them and YOU won't believe how good a clean signal with enormous dynamic range can sound. EQ it, Compress in post.

Larry replies: Thanks, Mark. One thing I've learned is that just as there is no one perfect camera, there is no one perfect audio setup. I appreciate your thoughts.

NAKED MICE NEED NICE RUGS

Yes, it's true. I've learned that some computer mice are being forced to slide around on hard, cold tables. Poor mice. However, a solution is close at hand.

I've created the latest in mouse-designer fashion -- a warm, toasty, mouse-pad covered with over 40 Final Cut Pro keyboard shortcuts.

So, now your mouse gets to keep its red laser nice and warm on these cool spring nights, and you get some of the most useful, yet little-known, keyboard shortcuts all assembled in one easy-to-find place.

This mouse-pad is currently warming the little feet of the mice of some of the most famous editors and filmmakers in the world. (No, I can't tell you who, but if I did, you'd be impressed.)

Newly redesigned for 2010, this mouse-pad had all the conveniences - a mouse-friendly top surface, a grip-the-table-to-death bottom surface, a thick-and-bendy middle, lots of interesting stuff to read, and a cute design that will make your mouse feel especially loved.

What's not to like? (You purchased some clothes for yourself recently... isn't it time to do the same thing for your mouse?)

Plus, it has a GREAT low price -- less than $10!
Support your mouse! Buy your copy today - click here!

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PASSING THOUGHTS

Short snippets of useful information

FAVORITE iPHONE APPS

I'm interested in learning what iPhone/iPod apps you use in production and post. Send me your favorites, along with a FEW lines explaining why and I'll add them to next month.

NEW WEBSITE FOR YOUNG FILMMAKERS

Bob Gillen sent me this:

> The website www.thefilmmakerlifestyle.com helps aspiring and experienced filmmakers create the movie they're passionate about. The site offers tips and ideas on writing the story, producing it, sharing it with others.

NEW ON KENSTONE.NET

New tutorials on KenStone.net:

* Formatting a Hard Drive for the Mac by Ken Stone

"You just purchased a new drive for your Mac, but you need to be sure that it has been formatted correctly, here's how."

* Reinstall OS X & Final Cut Studio The Right Way - Part 2, By David A. Saraceno

"This multi-part tutorial suggests a long term strategy designed to produce a problem-free install, and a quick reinstall if problems should arise again — with the proviso that you spend a one time spare afternoon preparing the necessary files and materials. The strategy is intended to produce long term results and far less down time."

* Footage Firms Time Lapse Collections, review by Steve Douglas

"Footage Firm's Time Lapse Collections desire to stand out from the pack of the many royalty free companies is to provide these collections virtually free of charge in the hopes that you will appreciate the quality of their clips and be further inspired to take a good look at their other collections of diverse footage."

GETTING QUICKTIME TO PLAY VIDEO AT 4X SPEED

Yariv Newman sent this in:

To get QuickTime to play a movie at 4x speed, without using Final Cut Pro:

1. Open your video in Quicktime Pro
2. Select all (**Edit > Select all**)
3. Copy (**Edit > Copy**)
4. Drag the "Out" marker to halfway along (for twice the playback speed)
5. Now the key trick. You paste the entire movie into this reduced selection by selecting **Edit > Add to Selection & Scale**
6. Trim to Selection **Edit > Trim to Selection**
7. Export your movie

FIXING SYNC DRIFT IN AUDIO-ONLY CLIPS

Bruce Sharpe has written two blogs about the problems of audio sync drift -- especially when using DSLR cameras.

Check them out here and here.

SHOOTING DSLR VIDEO

King Dexter sent me this <u>reference to shooting DSLR</u> video:

BAD FONTS

Jon Grimson sent this in:

> Larry, I had a real crash problem yesterday with FCP7 and had tried everything. Repaired permissions, trash prefs. reinstall FCP, all the typical steps and still no luck. I uninstalled 3rd party plug-ins too. Finally remembered many years ago the same thing happened and the culprit was...corrupted fonts. I ran verification on font library and trashed the 3-4 bad font libraries. That did the trick.
>
> Just wanted to point this out on troubleshooting checklist since I've not seen anybody mention this before. But it has been the cause for me twice.

2ND MONITOR PROBLEMS

Jon Grimson then followed up with this:

> Just wanted to report back that I believe there is definitely a bug in how FCP handles 2nd monitor display when it is disconnected and reconnected in a laptop setup. Those of you with 2nd monitor display running FCP workspace (not as broadcast reference via 3rd party hardware), would likely never notice in desktop setting.
>
> But people running FCP from laptops who then need to disconnect and go mobile will likely NOT be able to restart FCP at all, until they return to office, reconnect to 2nd display and manually move desk spaces around. I just tested this and now I can edit via laptop only, provided that I saved last in FCP when I had manual re-arranged desktop to single monitor, and saved.

UPDATE -- MARCH 23, 2009

Ben Balser writes:

> I and several of my clients run FCP on MacBook Pros, we use a second monitor in studio, and none on the road. In checking with them this morning, none of my clients experienced this problem, nor have I. I'm curious about his system specs, and how he's handling the OS/app. Putting the laptop to sleep, or shutting down? Exiting FCP, or leaving it launched? We find FCP very nicely and reliably resets to standard window arrangement (cntl+u) when we restart in single screen set up, after exiting from a dual screen set up. There's something more going on here.

Larry replies: Thanks for the update, Ben.

SENDING COMMENTS TO APPLE

Paul Demonte asks:

When there are little key problems like this, does Apple normally know about it and wait until enough people make a stink about it or is this something [we can tell them about].

Larry replies: Paul, thanks for writing!

In FCP is a link, under Final Cut Pro, called **Send Apple Feedback**. Apple tells me that they read these religiously. They don't respond, but they do pay attention.

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READER MAIL

GETTING ORGANIZED

Jonathan Hewlett writes:

> I have something that has irked me for the longest time (in my short amount of experience with FCP) when capturing media off tape. It is a simple thing to dismiss initially, but one that obviously can cause headaches later on. What 'best practice' measures would you use in logging your clips? I've heard from various people that an exotic array of codes for things like reel number and descriptions only using underscores and simple names is gospel.
>
> Additionally, should these conventions be carried over when transferring non tape-based media?
>
> Keep up the amazing work!

Larry replies: Truthfully? It doesn't really matter. Whatever helps you get and stay organized is fine.

For me, though, I like creating a system that spans across projects so that I'm not constantly reinventing the wheel.

I use a code for all my tapes - two letters (for the client) two numbers (for the job) and two numbers starting with "01" to count the number of tapes shot on a job - thus: "JM02_01" would be "Just-a-Moment Productions", Job number 2, first tape shot on the job. I've used this for years and it works great. Other people have their own system. And that's the key - to have your own system. Final Cut prefers Reel IDs that are short. I suggest less than 10 characters.

For shots, I start all B-roll shot names with the letter "B". For talking heads, I start all shot names with the last name of the person speaking. (As you may notice, this works great for documentaries and corporate videos, which is my main work, and terribly for scripted programs, which I rarely do.)

Figure out a shot naming system that works for you and stick with it. Final Cut doesn't care. It works however you want.

The key is to get organized before you start, because trying to get organized after the fact is really tough.

Here's an article I wrote that goes into more detail about this - but the ultimate choice is your own.

And here's an article that was contributed by readers of my newsletter:

Hope this helps. And thanks, Jonathan, for all the very kind words in your email, they are much appreciated!

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MIXING HARD DISKS

Gloria Messer writes:

> I currently have two 500-G and one 1-T internal hard drives in my MacPro and would like to max out the storage.
>
> 1. Can this computer's internal storage be bumped from a max of 4-T storage to 8-T storage.
>
> 2. Can this computer's internal storage be bumped to 64 cache from 32 cache internal storage drives?
>
> 3. Can 64 cache and 32 cache drives be mixed on the original 8 Core dual Mac Pro?

Larry replies: Yup, this can be confusing...! (And thanks for writing, it is good to hear from you again!)

Can you increase your internal hard drive storage? Yes, easily. Just change drives. Remember, though, to copy your data off your old drive first. And, if you are worried about security, do a secure erase to the drive you are going to replace to erase all data before trashing the drive.

The internal cache on a hard drive has no impact on your computer. It is memory the drive uses to help make itself faster. So you can easily mix and match drive caches with no problem. In fact, you can essentially ignore the internal cache of a drive, as this is something that is optimized by each drive maker. You have no control over it.

"64-bit," on the other hand, refers to how the operating system allocates RAM memory IN YOUR COMPUTER. Here, things are murkier because applications need to be written to take advantage of this increased memory.

Under the old 32-bit system, the most RAM that a single application could access was 4 GB. Under the new system the most memory that a single application can access is SO VAST that we don't yet have an acronym for it -- it's WAY past Petabytes!!

UPDATE -- MARCH 23, 2009

Ben Balser writes:

> Had two clients need to upgrade to 2TB internals for Mac Pros. I used to slap in one new drive, used Carbon Copy Cloner to "clone" the system drive. Then swapped it out with the original system drive. But I recently invested in the WeibeTech UltraDock, as I'm cleaning out old computers (as my father is, also) to bring to a local computer recycling facility. We want old data from those old drives, and to wipe them very clean (OS X's top security wipe function) of all our personal data. The UltraDock let me upgrade my client's drives really fast. CCC'ed the system drive to the new drive, and transfer all data to the new drives, all without having to open the Mac Pro. When we

did open it, quickly swap out drives, poof, done! This little gem has paid for itself in saved time already. But, it does cost, and folks like me who get a LOT of use out of it benefit. If it's a one time upgrade for an end user, swapping out drives physically and using CCC is the way to go.

Larry replies: Thanks, Ben.

CREATING A PAL DVD

Dennis writes:

> Enjoyed your PowerUp training in Miami. {I've converted NTSC video, with Graeme Nattress' help, to PAL.] Now I need to get all my segments ready for PAL DVD. I need to ship them to Switzerland so they can be duplicated. Can you tell me a simple way to get my segments into a form for DVD while maintaining high quality? My segments cover three days of a conference. Day one is approximately 3 + 1/3 hours, day two is 4 + 1/3 hours and day three is 3 hours. I assume I'll need to put each day on two separate DVDs.

Larry replies: Thanks for writing, Dennis.

It is impossible in an email to tell you everything you need to know to create a DVD using DVD Studio Pro. I have a 6-hour training video DVD that explains the whole process.

However, if all you need to know is the setting in Compressor to create a PAL MEG-2 file, that's easy.

Once your file has been converted to PAL, import it into Compressor.

In the Settings tab, twirl down **Apple**, twirl down **DVD**, and drag the ENTIRE FOLDER for the DVD Best Quality that best represents the duration of all the video on one disk of your project.

Given the length of your videos, I would suggest creating a dual-layer disk. This allows you to double the amount of storage on each DVD, without decreasing video quality. If you use the DVD Best Quality 120 minute setting, you can fit up to four hours of material on one DVD disc.

> **NOTE**: All DVDs are always SD. If you need to create a disc with HD video, you'll need to create a Blu-ray Disc, which DVD Studio Pro does not currently support.

However, now things get complex. Because you are delivering a DVD master to replication, and because it is not a single-layer disk, they will probably require a CMF-format disc (Cutting Master Format) for each layer of your DVD.

You need to verify with your replicators what format they need. Unlike a single-layer disc, you can't just send them a DVD or the VIDEO_TS folder. Replicating dual-layer disks require a master for each layer of the disc.

Or, as you suggest, you can split your movie into 2 two-hour segments, put each segment on its own disc, and package each seminar as a two-disc set. This would also work, and your compression settings would remain the same.

CREATING MPEG FILES FOR DVD

George Buttle asks:

> I was able to create an MPEG 2 file for my HDV movie by using Quicktime Conversion.
>
> To make a DVD, I read in one of your articles to go to QuickTime and import as an asset into DVD Studio Pro. However, when I try I get a warning that says "Import Assets, Incompatible Format. I've always used compressor in the past because by choosing Best Quality DVD 90 min. it give me two files, one video and one audio. I put them in my Movie folder and they import fine under assets in DVD studio pro, I just drag each one to its place on the timeline.
>
> What's wrong?

Larry replies: George, first you need to remember that DVD SP only works with SD video, not HD. So, if you are trying to create an HD DVD, you'll need to use FCP 7, or Roxio Toast, or Adobe Encore, but not DVD Studio Pro, and create a Blu-ray, or AVCHD, Disc.

Also, keep in mind that there are dozens of variations of MPEG-2. The files you need to create are called "MPEG-2 Elemental Streams" -- and the best way to create them is using Compressor, not QuickTime Conversion, because two separate files need to be created -- one for video and one for audio.

WHERE DO YOU DRAG WHAT?

Eko Nobel writes:

> I just found out from an editor friend of mine, that it's possible to drag file(s) from Finder directly to FCP Viewer window or even to the Timeline and that file(s) won't appear in the FCP Browser, thus making the project file size smaller and less time to open.
>
> Locating the file is still possible using the **View > Reveal in Finder** command.
>
> My questions are:
>
>> 1. Is it recommended to do this, because it's going to be difficult if we have to go back to data files/folder and captured footage.
>>
>> 2. If someday we have to reopen the project and all the clips in the timeline become offline, how we suppose to recapture, without the batch list ?
>>
>> 3. How can we export a batch list from this kind of project ?

FYI: I did the off-line cut myself and sent it to a post house to do the on-line. The editor open a new project and copied my off line sequence and continued to work by starting to drag files (stills, motion projects, audio etc) from Finder instead of importing to Browser

Larry replies: Thanks for writing, Eko.

Yes, you can drag files directly from the Finder into either the Viewer or the Timeline. The problem is that if you delete the timeline - or that clip - you loose all references to that clip. Plus, dragging to the Timeline does not make your project files significantly smaller.

Not putting a clip into the Browser does not save a lot of space. It is FAR better to drag a clip into the Browser, to properly track the clip in Final Cut.

For me the risk of losing a clip by deleting a sequence, or erasing a clip from the timeline is far greater than the time I would save by dragging directly into the Timeline.

You don't need a batch list to recapture, but you do need a list of clips. You can use the list of clips in the timeline to recapture, but if that timeline gets lost, so do your clips For all these reasons, I really don't recommend dragging clips directly into the Timeline.

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IMPORTING TEXT INTO MOTION

Vasan writes:

[In Motion 4] when you open the **Inspector > Library > Generator > Text generator > File > Import** you'll see 4 categories: File, Numbers, Time date, and time code.

Select **File** and click **Apply**.

This adds a text layer.

In the Inspector > Generator tab, you will see **Browse** to choose the file you want to import. However, when I click Browse and locate the text file (RTF), the subject file is grayed out.

Larry replies: Vasan, the key to using this is that you need to use a plain text file (TextEdit creates these). An RTF file won't work. The generator then displays each line, one after the other. The duration each line is displayed on the screen is determined by the length of the effect and the settings in the Inspector.

If you want to display one word or one letter at a time, each would need to be on its own line.

And, you are correct. This is a very fast way to get text to display on the screen.

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DISPLAYING 16:9 VIDEO AS 4:3

Karl Arndt writes:

We capture in HD (16x9) but need to output as SD thru DVD Studio Pro. Is there a way to have the video displayed as a 16x9 image inside the SD 4x3 screen. When I do the usual SD output it shows as only a 4x3 image.

Larry replies: Sure. I'm assuming you want the video displayed in its entirety, with black bars at the top and bottom (letter-boxing).

If you want to crop the image so that it displays full screen, <u>read this article</u>.

Otherwise, the easiest way to do this is in DVD Studio Pro.

- Edit your HD piece in Final Cut as 16:9 HD.
- Export using File > Export > QuickTime movie, and set settings to Current Setting.
- Compress as 16:9 SD using Compressor.
- Import the compressed file into DVD SP.
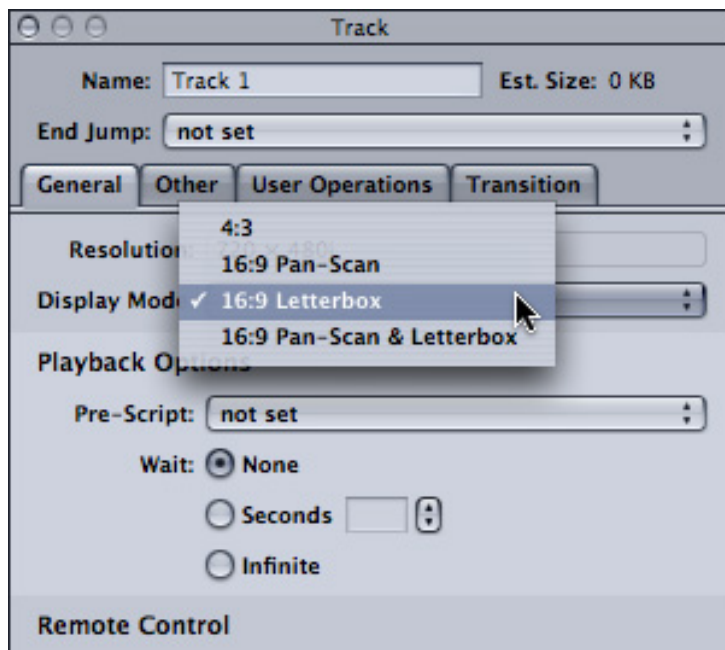
- Create a new track and, in the Inspector, change the Display mode of the track to **16:9 Widescreen**.
- Drag your video into that track.

Now, your video will automatically display as a full 16:9 image on widescreen TVs, and as letter-boxed video on 4:3 TVs. In both cases, you'll see the full picture, with nothing cropped.

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CANON DSLR QUESTIONS

Michael writes:

I was looking at getting an HD Pro/Prosumer video camera. I quickly figured out that interchangeable lenses on a 1920x1080p capable camera is about a jillion dollars. I was wondering what your experience was in using the Canon 5D Mark II as a main

video camera. The kind of work that I was looking at doing is things like wedding videography, which would require long (about an hour) shots.

I was wondering, not only about the practicality of the camera for this type of work, but also if there were options for storage of video that long. CF cards are not ideal for shots that long, so is there a rig that will off-load the video to some sort of Solid-State drive or something like that? Curious about your thoughts.

Larry replies: Michael, this is a great question.

Keep in mind that a DSLR camera was designed for capturing still image, not long video recording. It isn't designed to emulate what a traditional video camera can do, in terms of output gear or continuous recording.

- A DSLR camera is excellent, however, you can't shoot for long periods - 15-20 minutes at one time is the max. Then, you need to allow the sensor to cool down.
- You'll need to convert your footage to ProRes before editing, as the camera shoots an H.264 format which is very hard to edit.
- You'll need to spend money for camera accessories to allow you to focus or move the camera during shooting.
- All your existing lenses will be about 1.6 times closer (i.e. the image will be magnified slightly).
- Finally, keep in mind that the audio recorded by the camera is very poor. You'll need separate audio gear for recording, which can limit your mobility during a shoot.

Here's an article I wrote that goes into more detail.

Also, take a look at the DSLR blog in Passing Thoughts, earlier in this issue.

UPDATE -- MARCH 23, 2009

Adam Connell writes from Australia:

Great newsletter. One comment of the Canon 5/7d for video. I have not tested other SLRs for this: when the canon SLR cams take a still shot, they lift the mirror, and capture all pixels at the same time. In the case of video, the mirror is raised continuously, but for each frame, or 1/24th or 1/25th or 1/30th a second pixels are captures in scanning method of line 1,2,3,4....etc. Obviously your shutter speed for video is taken into account but the shutter in these for video is 100% electronic, and just affects the time the sensor is on. So, for fast moving objects you might have issues. Imagine a strait stick, held vertically moving very fast from one side of the frame to the next. The resulting image will look like the stick is horizontal. Similar effect as a 'rolling' or electronic simulated shutter. YouTube "hv20 jello effect" you'll se what I mean. Canon and Sony use this system on all slrs, and consumer video with CMOS/exmor sensors. One of the reasons why I still love my xha1s with a real shutter and 3ccds.

Larry replies: Thanks, Adam, for this additional information.

Bryce Bennet writes:

I thought you would be interested in this PDF file I created last week.

This schematic shows a few simple equipment configurations for using an external recorder (like the Marantz PMD661) with a HD-DSLR (like the Canon 5D Mark II). It's all based on my particular equipment, but should be fairly straightforward to adapt to

other brands/models.

Yes, the PDM661 is a great recorder - form factor and price point! The rebuilt preamps (from Oade.com) really increase its low signal level sensitivity. For my location recording I use it with a Rode NTG-3 (short shotgun) and Blimp windshield, an AKG C535EB (cardioid), and a lav for my Sony wireless system.

Larry replies: Thanks, Bryce, for the note and the PDF.

Matt Gottshalk writes:

The Canon 5d Mark II records for 12 minutes and then stops because of the 4 gig file system limit on the CF cards.

[While you do need to convert the video to ProRes] with the latest plugin from Canon, [which released yesterday] you can do this within FCPro by usinfg the Log and Transfer window, just like other tapeless workflows.

[However, lens "zoom-in"] is only true for the Canon 7D, which has a cropped sensor. The Canon 5d Mark II is a full frame camera, so an 85mm lens is 85mm.

Larry replies: Matt, thanks for adding this!

UPDATE -- MARCH 24, 2009

Tim Barksdale adds:

As [Matt mentioned,] the 5D mII is a full frame sensor. Lens are matched with the chip at 1:1.

Sensor overheating is not a big issue either. Although, I hesitate to "correct" you on this point, as I am an outdoor cameraman.

Larry replies: Thanks, Tim. I'm always happy to correct places where I'm wrong.

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DECONSTRUCTING SEQUENCES

David Bogard writes:

I want to take a portion of a sequence...say 30 clips... and make a second sequence. How do I do this and keep ALL the clips intact (separate video and audio tracts)? When I try and copy and paste to the new sequence, it works but I have one long clip of audio and video..not the individual items I had in the original sequence. In other words, I want the second sequence to appear exactly like the first, but just the included clips. Is it possible to do this?

Larry replies: Yes, drag the original sequence from the Browser into the Timeline of the new sequence.

When your cursor enters the Timeline window, hold down the **Command** key. The original sequence will automatically deconstruct into its individual clips.

If you just want to bring in a range of a sequence, drag the sequence into the Viewer, set an **In** and an **Out**, then drag the marked sequence from the Viewer to the Timeline, holding down the **Command** key as your cursor enters the Timeline window.

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WORKING WITH MULTICAM

Wren writes:

> I have tried out Multicam editing and its wonderful but this time i am doing a show where i want to edit live on the spot with three to five cameras using FCP. I have tried and failed, so I researched it on the net for online multicam editing on FCP but all I found was offline multicam editing.
>
> Is it possible to do the task on FCP, do i have to use other external hardwares, are there any other means to do online editing (multicam) on a mac platform.

Larry replies: QuickTime only supports one in-coming video feed at a time, so, FCP is not able to do live multicam switching. Once the video has been captured - i.e. not live - you can link up to 128 cameras and switch up to 16 video streams at once.

Blackmagic Design has a free utility that allows you to switch two live feeds, but not more.

However, a new product, introduced earlier this year, is worth investigating: Tools on Air. This may meet your needs.

UPDATE -- MARCH 24, 2009

At the request of readers, I did more research on the Blackmagic Design utility I mentioned. It's called "On-Air" and is a part of their Intensity cards. According to the Blackmagic site:

> Intensity installs the On-Air application which enables Mac Pro users to mix between two camera inputs, and capture the resulting video to disk, using two Intensity cards. On-Air can record to disk using Apple's uncompressed or compressed codecs. The On-Air interface requires a computer monitor with a resolution of 1600 x 1000 pixels.

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SETTING FIELD DOMINANCE

Tim Visterin asks:

> Another great feature I am all excited about is the Apple ProRes 4444 codec. I was making lower thirds inside After Effects, exported using this codec imported it into FCP and boom, no rendering on a DV PAL sequence… A lot of fun!

I have a small question concerning this. I am working with dv material and [set field dominance to] lower fields. My rendering of the lower thirds in After Effects with the Apple ProRes 4444 codec has no fields. I am a little bit confused by this. Should I [set] my rendered movie files also to lower fields (as my timeline is in DV PAL)?

Larry replies: Tim, ProRes 4444 has fields, but does not require field dominance. Setting the field dominance to **None** is the best choice for this codec. Let Final Cut create the field dominance it needs based upon your video codec.

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WHAT IS "ENOUGH" RAM?

Brett Botula asks:

I read in one of your older newsletters (I believe '08), that you recommend 4 GB RAM for FCP, because that is the maximum memory FCP will utilize. I read on the Apple site that that 4 GB RAM is especially recommended for use with uncompressed HD media. But I also read a moderator on 2-pop who suggested 8 GB RAM for running FCP, to leave room for the operating system, and any other open programs to access RAM.

Can you round out these views? What's your thought?

Larry replies: Brett, at this point, FCP only recognizes 4 GB of RAM. Adding more won't help FCP. However, adding more allows other applications to access RAM that FCP is not using. So, both the moderator and I are correct, but viewing the problem from different angles.

On the MacPro I recently purchased, I installed 8 GB of RAM. However, when FCP is running, it uses less than half of that.

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CREATING CLOSED-CAPTION VIDEO

John Stealey asks:

I've been asked to start delivering shows with captioning added on line 21. Our new shows start on May 17th with delivery of the first show on May 10th. I've seen article about captioning in FCP - they all mention 3rd party software - any suggestions for 3rd party software I should investigate?

Larry replies: There's only one worth considering: MacCaption.

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HOW DO YOU CAPTURE A GAME?

Connie Lantz asks:

> Have you ever captured anything from a VR game like Second Life (I use SnapZ) for editing into FCP 6? I'd love to hear what your best recommendations are!
>
> I would assume the animation codec would be best for capture, or maybe Apple pro res? Is there a way to smooth out the choppy movement that is inherent in Second Life in post production?

Larry replies: Connie, yes, the animation codec, in FCP 6 and earlier, or ProRes, in FCP 7, are the best codecs to use. For screen capture, I use both Telestream *ScreenFlow* and Ambrosia Software *SnapZ*.

However, I don't have a clue about what to use to emulate a game console on the Mac.

UPDATE -- MARCH 23, 2009

Ben Balser writes:

> I do films in Second Life. Mechinema I think the kids cal it these days. But I found ScreenFlow to be faster and much nicer to work with than SnapzPro X (which I am a long time user and fan of). I always save those movie files as DVCPRO-HD, because nothing will give you better quality from your computer screen, and it's a smaller file size than Pro Res. Animation codec is really overkill for this type of work. It has no advantages, the quality is computer screen quality, and that's it. It's been a really fun workflow, and a really fun experience. There are tools in Second Life made for in-world movie making. I can set up a camera tracking path, speed, etc, and have my SL actors (we work with live voice for accuracy and speed, "action!") start, well, "acting", and the results are amazingly easy animations. Well, easy once you learn the in-world tools. I've been just learning the tools and experimenting. But I hope to find a short script and do a short film all animated inside Second Life. But I will stand by my statement that ScreenFlow and DVCPRO-HD are what I've found to be the easiest, quickest workflows that maintain as much quality as I can realistically get. It makes editing in FCP a lot faster, too, with less rendering and faster exports. Finally, what you get off the screen is what you get off the screen, there's now way to smooth out the "lag" in SL in post. I would recommend tweaking the video settings inside your SL Viewer app preferences. But that's a long topic for a forum somewhere.

Larry replies: Thanks, Ben.

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WRAP-UP

Well, that's about it for this newsletter.

For current news and in-depth interviews on what's happening in our industry, be sure to listen to the Digital Production BuZZ every week. In fact, **put the free BuZZ player** on your website! It's fast, simple, and very cool.

- Visit our store and buy a mousepad - your mouse deserves the best.
- Or, check out all our current Final Cut Studio tutorials.

Also, please continue sending me your comments and questions. I love hearing from you and enjoy

the conversations that develop around your comments.

Until next month, take care, and edit well.

Larry

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