

Trouble-Shooting Your FCP System

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Final Cut is a reliable, high-performance editing system. However, there are things you can do to both fix and prevent problems. This article focuses on tips to keep your hardware, operating system and project files up, running and optimized. (If I've left out something you feel is important, let me know so I can update the article.)

There isn't enough space to provide the "why" behind all these recommendations. Where possible, links are provided so you can read more about it.

This article is divided into the following sections:

[Regular maintenance](#)

[Simple things to check](#)

[Simple ways to prevent problems](#)

[Optimizing your system](#)

[More advanced ways you can prevent problems](#)

[Upgrades](#)

[Helpful repair utilities](#)

REGULAR MAINTENANCE

Safe Boot & Rebuild Permissions

The biggest consistent problem I've seen with OS X is confused disk directories. Normally, directories get written to the disk when you shut down or restart. And, normally, everything works fine. However, if a crash, or some other accident, occurs these directories may not get properly updated. A good test as to whether you need to run this procedure is when your Mac takes longer than about 30 seconds to shut down.

Once a week, or whenever you upgrade an application, or whenever you upgrade your operating system, or whenever you have a crash, or when your Mac takes longer than about 30 seconds to shut down, do the following:

1. Restart your computer holding the SHIFT key down.
2. When the blue screen appears, let go of the Shift key (notice the words, "Safe Boot" that appear on the screen)
3. When your system boots, go to Applications -> Utilities -> Disk Utility
4. Open "Disk Utility"
5. Select your boot disk
6. Run "Repair Permissions"
7. When done, restart your computer

For more information, click here [\[File Journaling\]](#)

Trash Preferences

Preference files get corrupted during a crash, force quit, or some other natural disaster. When preference files get hosed, Final Cut loses a great deal of its stability. To regain it's equilibrium, do the following:

1. Go to: Users/[your user name]/Library/Preferences
2. Drag, "com.apple.FinalCutPro.plist" to the trash
3. Scroll down to the Final Cut Pro folder
4. Drag, "Final Cut Pro 4.0 Preferences" to the trash
5. Drag, "Final Cut Pro POA Cache" to the trash

When you trash preferences, you will lose all Favorite motions, transitions and effects; the list of your recent projects and any custom window and button arrangements that were not saved to disk. Note: you DON'T lose your project files, simply the list of them in the "Open Recent" menu.

Also, when you trash preferences, you need to trash all three as a group. Don't just trash one.

Click here for more info: [\[Trashing preferences\]](#)

Allow your Unix background utilities to run

The foundation for OS X is Unix and Unix was invented specifically to run servers; systems that needed to stay on for long periods of time.

Because of this, a variety of system utilities were developed to run in the background to keep the operating system running at peak efficiency. However, as these utilities should not interfere with the normal operation of the server, they were programmed to run in the wee small hours of the weekend night.

Which means that if you regularly shut your system down each night, these utilities don't get the opportunity to run.

To solve this, you have a number of options:

1. Let your system stay on over the weekend at least once a month.
2. Or, install a utility program that will run these programs for you automatically. I personally like Macaroni (www.atomicbird.com), but others also like Mac Janitor (http://personalpages.tds.net/~brian_hill/macjanitor.html). There are others to choose from, as well.

In any case, give your Mac a chance to stay healthy.

Setting Ownership Permissions on External Drives

Ownership permissions play an important role in helping OS X figure out who has permission to do what on your computer. However, when it comes to editing video, permissions can get in the way.

To keep things running smoothly,

1. In the Finder, select every hard drive EXCEPT your boot drive.
2. Go to File -> Get Info
3. Twirl down "Ownership and Permissions"
4. Select the checkbox next to "Ignore ownership on this volume."
5. Close the Get Info box.

This means that OS X will no longer worry about whether a user has the right to access the information contained on your media drives. This prevents problems where one user can record to, or playback from, a drive and other users can't.

Set all non-boot drives to "Not Journaled."

Journaling is a new feature in OS 10.3.x that helps your Mac to recover after a crash. (See: [OS X Journaling Explained.](#))

However, it can also decrease the performance of your media drives.

My recommendation is to leave journaling ON for your boot disk, which is the default, then go to Disk Utility and select all your media drives. Go to File -> Disable Journaling and turn Journaling OFF for all media drives.

Also, in the past, in OS 9, we worried a lot about file fragmentation. In OS X, with large hard disks, this is not something to worry about. So, don't.

[[Go to top of page](#)]

- - -

SIMPLE THINGS TO CHECK

This list could actually be hundreds of items long, but here are four favorites, based on how often I hear them.

1. You can't see video on your external NTSC monitor. Make sure BOTH the Viewer and Canvas windows are set to Fit to Window. Then, if you are using DV, make sure View -> External Video is set to "All."
2. You've imported a still image, but can't see it on the timeline. Make sure all imported images are RGB. CMYK images (frequently used in graphic design and printing) won't display in Final Cut.
3. You don't have any audio. Go to Final Cut Pro -> Audio/Video settings and make sure the Audio playback menu is sending audio out the right port for your monitor.
4. Audio and video are out of sync. If there are red flags at the start of your clip, control click on the red flag of your video and select "Move into sync." If there are no red flags at the start of your clip, go to Final Cut Pro -> Audio/Video settings and make sure the Video playback and Audio playback are both set to the same point. For instance, monitoring video via Firewire and audio via Built-in audio will automatically be out of sync by around 6 frames.

Click here for more "simple things" to check: [[FCP FAQ](#)]

[[Go to top of page](#)]

- - -

SIMPLE WAYS TO PREVENT PROBLEMS

There are a number of things you can do that will keep your system running smoothly.

1. Make sure your hard disks are never more than 85% full. Hard disks need lots of room to create temporary files. If a hard disk gets too full, it can lock up and prevent both writing and reading data. Go to Final Cut Pro -> System Settings -> Scratch disks and set the "Minimum Allowable Free Space On Scratch Disks" equal to 15% of your largest hard disk.
2. For larger projects that will take longer than a day or two to edit, make a point of doing a "Save as..." at the end of editing every day. Doing a "Save as..." will automatically clean up any potential problems in your project file, before they become serious. This also has the added benefit of giving you reliable back-ups every night for your project.

In naming my projects, I use version numbers ("My Project v1, v2, v3... and so on.) You can also use dates ("My Project 0315, 0316, 0317..."). Save as... is better than duplicating the project in the Finder because duplicating a project doesn't fix problems. Save as... does.

3. Avoid creating Browser nests which are too deep. Although the Browser allows you to put files up to eight levels deep, try to avoid going much more than 4 or 5 layers. Sometimes, the Browser can get too complex for it's own good.
4. Don't have too many sequences open in the Timeline at the same time. Sequences require memory when they are opened in the Timeline. Sequences in the Browser don't use memory. So, if you are

limited in the memory you have on your system, keep the number of Sequences open in the Timeline to a minimum.

5. If you have a sequence that is acting flakey:
 - a) Create a new sequence
 - b) Go back to the flakey sequence and Edit -> Select All
 - c) Copy the entire selected sequence to the clipboard (Edit -> Copy)
 - d) Go to the newly created sequence
 - e) Move your Playhead to the start of the new sequence
 - f) Paste (Edit -> Paste)

Often, moving clips from one sequence to another fixes problems.

[[Go to top of page](#)]

- - -

OPTIMIZING YOUR SYSTEM

Normally, on a reasonably fast computer, the default installation of OS X and Final Cut Pro works perfectly. If your system is working fine now, you can ignore these suggestions. If not, try these suggestions to see if things improve. (This list has been modeled on one supplied by Pinnacle Systems for it's Cinewave card.)

These are not necessarily listed in any particular order.

Optimize Your System Preferences

1. In the "Login Items" System Preference Pane, remove any items that automatically start when you log in.
2. In the "Screen Effects" System Preference Pane, set "Time until screen effects start" to "Never."
3. In the "Display" System Preference Pane, set the "Colors" to "Millions."
4. In the Energy Saver System Preference Pane, set "Put the computer to sleep when it has been inactive" to "Never;" and "Put the hard disk to sleep when possible" should not be checked.
5. In the Sound System Preference Pane, select the "Sound Effects" tab. Turn the "Output volume" all the way up, then back up one notch, and lower the "Alert volume" to the desired level.
6. In the QuickTime System Preference Pane, select the "Update" tab, and deselect "check for updates automatically."
7. In the "Sharing" System Preference Pane, disable all services. The Firewall should be off. Internet sharing should be off.
8. In the Date and Time System Preference Pane, the Menu Bar Clock should be disabled. The option to ""Use a Network Time Server"" should be deselected.
9. In the Software Update System Preference Pane, "Automatically check for updates when you have a network connection" should be unchecked.
10. **If you have OS X 10.3.x**, go to the Security Preference Pane and turn OFF File Vault. While having the extra security is nice, your Mac can't decrypt FCP Project, or other files, fast enough to ensure smooth playback.

Notice that our goal is to minimize processes that run in the background, or that call out to the network. You probably won't need to use all these settings. Experiment to see which ones work best for you.

Also, once you stop editing, you can turn on those features that you need (with the exception of File Vault). If you need to use File Vault be sure that NONE of the files used in your project are stored in it. Then, you can leave it on, just not access it during editing.

Finally, after making these changes, quit out of the System Preferences utility before launching any application -- especially Final Cut.

Optimize Your Final Cut System

Here are some additional steps you can take to improve the performance of your Final Cut system.

1. Turn off audio waveforms (Option-Command-W). If you aren't actually editing audio, displaying these will slow your system down.

2. **If you have FCP 4.x** and you have more than 512 MB of RAM and are using still images (say, to create a "Ken Burns" effect) go to Final Cut Pro -> System settings -> Memory and Cache tab and set the still image cache to between 100 MB and 120 MB.
3. **If you have FCP 4.x** and if you have more than a gigabyte of RAM on your system, also set the Memory allocation to 90%.

[[Go to top of page](#)]

- - -

MORE ADVANCED WAYS YOU CAN PREVENT PROBLEMS

1. Add more RAM to your system. Final Cut requires a minimum of 384 MB. However, I strongly suggest you have at least one gigabyte in your system. I have 2.5 GB in mine. Adding more RAM beyond 2 GB won't make a material difference, because FCP is disk-based, not RAM based. However, you will notice a significant performance increase by increasing your RAM from a base level of 512 MB to 1 GB.
2. If playback is stalling, try disconnecting some, or all, of your Firewire drives. Although the Firewire spec allows up to 63 devices to be connected to your computer, after about five or six drives, there's so much "talking" on the Firewire bus that performance really starts to degrade. Where possible, limit the number of Firewire drives you are using. Worst case, buy bigger drivers and copy data from smaller drives to bigger drives so you total storage remains the same, but the number of devices decreases.
3. If you are constantly getting dropped frames on playback, it may be easier to export the sequence than to try to fix it. In this case:
 - a) Export your timeline to a QuickTime movie (which happens at computer speeds as opposed to real-time). Be sure to set the export to "Current Settings."
 - b) Create a new project
 - c) Import your QuickTime movie into the new project
 - d) Play out the new movie
4. Sometimes errors creep into the User file. In this case, creating a New User will solve it.
 - a) Save your project file OUTSIDE of your User folder and NOT on the desktop
 - b) Go to System Preferences
 - c) Go to Accounts
 - d) Click the "+" key to add a new user
 - e) Fill out the rest of the screen
 - f) Log out as your current user and log in as the new user
 - g) Open your project and see if things are better
5. Reinstall the Final Cut application. Like I said, these last three suggestions require a fair amount of time. On the other hand, if you are still having problems, they are the next thing to check.
6. Reinstall all upgrades by downloading FIRST, then updating using the package. Don't use Software Update.
7. Do a clean install of the Operating System -- be sure to run all updates afterward. The best versions of OS X to use for Final Cut Pro are 10.2.8 and 10.3.2.

[[Go to top of page](#)]

- - -

UPGRADES

It used to be that when a new upgrade rolled out, all we needed to do was upgrade the affected application. With video editing this is absolutely the **WRONG** thing to do.

Video editing requires a complete system level approach to upgrading.

For instance, when 10.2.6 came out, there were so many "under-the-hood" changes that a very popular RAID vendor needed to upgrade its drivers. When 10.2.8 came out, the drivers needed to be updated again, for the same reason. When 10.3 came out, the drivers needed to be updated, again.

For this reason, you can no longer assume that the only thing needing to be upgraded is FCP itself.

Here is a list of what needs to be considered when upgrading.

If you are using DV (MiniDV, DVCAM, or DVCPRO-25 gear) upgrade in this order ONLY:

1. Upgrade the operating system
2. Upgrade QuickTime
3. Upgrade Final Cut Pro
4. Upgrade the other applications in the FCP suite

If you are working with SCSI cards, RAIDs, uncompressed video and a capture card, upgrade in THIS order:

1. Upgrade your SCSI card FLASH ROM (if necessary)
2. Upgrade your SCSI card driver (if necessary)
3. Upgrade your RAID driver (if necessary)
4. Upgrade your operating system
5. Use Software Update to install any operating system updates
6. Do a Safe Boot and Rebuild Permissions (see the beginning of this article)
7. Restart
8. Upgrade QuickTime
9. Upgrade Final Cut
10. Upgrade any additional applications
11. Upgrade any drivers you are using for machine control
12. Run Software Update to install any new versions of the applications
13. Do a Safe Boot and Rebuild Permissions
14. Run Software Update one more time. Frequently, one update needs to be installed before a second update can be installed. This process checks for both.

I got myself in a serious mess recently by not updating the SCSI drivers for a couple of my clients. I was at a complete loss to explain why, after I updated the system, performance slowed to a crawl. When I realized I had done an incomplete update, then installed the correct SCSI drivers, performance was restored and everything worked great. (Whew!)

If possible, doing a clean install of the operating system is the best. (That means erasing your hard disk and installing everything fresh.) However, that is not always possible. Nor is it always required. By following these steps, in this order, you can save yourself a lot of problems down the road.

[[Go to top of page](#)]

- - -

HELPFUL REPAIR UTILITIES

System utilities have always been a significant cottage industry for the Macintosh and today is no exception.

Here are three that I recommend:

1. Disk Warrior X (version 3.1) This utility is indispensable for restoring corrupted disk directories. It is a one trick pony, but nobody does it better. I carry this CD with me everywhere. Run it once a month on your system to keep things working the way you expect. (If you have OS X 10.3, be sure to get version 3.0.1.)
2. Tech Tool Pro (version 4.01). This system test and maintenance tool can help you spot trouble before it occurs. While I do have a quibble about how it's video display test works (it seems to find a great number of false positives) overall it has earned the right to be in my daily repair kit. Only run this when you need it. But keep it close at hand.
3. Macaroni. I use this for all my support clients to make sure key background Unix utilities run in a timely fashion. This is from the "install it once and forget it" school of thought, but I like it and use it on both my client and personal systems.

CONCLUSION

Two other quick thoughts. While religious wars continue to be fought on both these issues, I wanted to weigh in on both:

1. Partitioning
2. De-fragmenting

Based on talking with drive vendors, partitioning is not necessary. If it helps you stay organized -- use it. But there is, generally, no performance benefit to partitioning. If, on the other hand, you want to have two different boot disks using two different operating systems, partitioning is the way to go. However, partitioning is often wasteful of hard disk space. The short answer is, if you are looking for speed, you don't need to partition. If you are looking for organization, partitioning is OK.

However, NEVER store media files on a partitioned disk. Media should always be stored on a second drive.

De-fragmenting was necessary when hard disks were smaller and systems were slower. With today's technology, if it makes you feel better to de-frag, then by all means, go-ahead. However, you will not see a significant performance boost. Nor is it necessary. Nor does Final Cut particularly care. Because when FCP is playing video back, the hard drive heads are bouncing all over the place anyway. Decreasing the fragmentation won't help a whole lot.

Well, that's about it. These are procedures you can use to keep your system running at peak performance. If I've omitted one of your favorites, let me know so I can periodically update this article.

In the meantime, it's time to stop trouble-shooting and start editing.

This article is from the March issue of "[Larry's FCP Newsletter](#)," a very cool FREE monthly Final Cut Pro newsletter -- subscribe at Larry's web site: www.larryjordan.biz. Larry Jordan is a post-production consultant and an Apple-Certified Trainer in Digital Media with over 25 years experience as producer, director and editor with network, local and corporate credits. Based in Los Angeles, he's a member of both the Directors Guild and Producers Guild.

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Updated: July 21, 2004	Go to Top of Page	Return to Home Page	© 2004, Larry Jordan
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