

Backup Strategies **for Users of *Final Cut Pro X***

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Data files used with Final Cut Pro X are valuable and can be difficult to reproduce. Media files may represent the efforts of hundreds of people or events that will never happen again. Events and Projects represent creative efforts that are most often irreproducible.

The reasons for needing a robust backup strategy are:

- disk hardware and file system failures
- software failures
- editing dead ends
- archiving finished work

Disk hardware and file systems tend to fail unexpectedly, at inopportune times and can destroy a lifetime of work. Other file damage might include accidental erasure or malicious destruction.

In addition, some FCP X files are particularly vulnerable. FCP X is a complex app and has been known to corrupt a project or event file from time to time.

Editors often attempt an editing strategy that may end up in a dead end. They need to rewind their work to try a different strategy. An example would be re-color balancing a bunch of clips, then deciding that the first color balance was the better choice. These often involve so many editing operations that they may exceed the FCP X undo chain, or may be undoable operations. A scheme that allows easily resetting one's work to a particular editing point can prove invaluable to efficient editing.

When through with editing a project, an editor would like to archive the media, project and event files, and perhaps other files related to a project. This is either for transmission to others, or to file away. You'd like to archive it in a way that you may restore the project easily. On top of that, because the *events*—the media record, and the *projects*—the sequences, are separate, FCP X is conducive to accumulating clutter.

So anyone who uses FCP X needs a backup strategy for their media and FCP X files to cover these situations. Because some files are extremely large and others need very frequent backup, being smart about backup defies a simple solution.

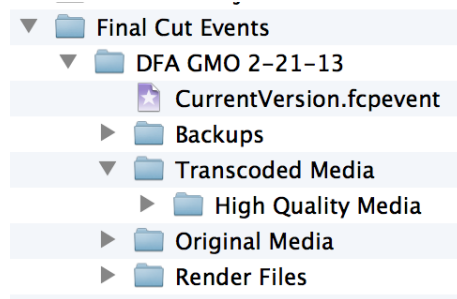
In this paper, we suggest two strategies for backing up FCP X files: The “officially approved” method—which works okay if you are just starting out or are a casual user, and a 2nd method—which offers a better solution for more advanced editors who have a growing number of projects they need to keep organized.

The paper illustrates the complications of backing up an editor's FCP X work. It described an array of tools that may be combined to provide a complete solution.

Issues

Let's start by looking at the various issues that need to be resolved in order to provide a comprehensive FCP X backup strategy:

1. There are many kinds of files used by FCP X, each of which require a different backup strategy:



- Media files. Media files tend to be gigantic but never change. These only need to be backed up once. But you'd like these cataloged for easy recovery.
 - Event (.fcpevent) and Project (.fcpproject) files are relatively small but change continuously. They represent the editor's work in progress or just browsing around. These files should be backed up very often, every few minutes or shorter, to insure editors minimize their work loss. (The old FCP 7 used to back these up nicely.)
 - Saved filters, transitions, generators, color corrections and other effects that you'd like to use over and over again in different projects need to be backed up. These don't have to be saved very often, though since they are small, it doesn't hurt. Frequent backup is handy while you are revising them.
 - FCP X generated output. These files can be large, but usually the effort to regenerate them is small. An editor may optionally back these up, or not. An example is the contents in the *Shared Files* folder, or Compressor output.
 - FCP X work files, such as render or thumbnail files or temporary work files. These can be large. These are automatically generated by FCP X as needed and it will regenerate them automatically if they disappear. These never need to be backed up.
 - FCP X *Transcoded Media* files. These are similar to render files, but are generated by FCP X for more efficient processing. To complicate matters, these may or may not be automatically generated. Backing these up is optional.
 - Other files you created that you associate with a project or event. Examples of these might be a `Chapter Marks.txt` file, Illustrator files, or any notes you may have taken. These should be backed up.
2. Confusing matters, FCP X mixes up these files with impunity—captured media, Project and Event files, Output files, Render files are all intermixed in subfolders. This makes it hard to use different strategies to back up the different kinds of files. You just can't copy one folder to copy everything. It makes an efficient backup strategy very difficult.

3. A fundamental rule when dealing with computer file systems is: Always have at least *two* copies of important files, preferably on different disk volumes. The author of this white paper stipulates that *you can never have too many backups!* Unless you can't figure out where they are or how they differ.
4. Backups for the different kinds of files need to be fine grained enough so that the amount of work lost by their loss is minimized. Media files need only be backed up once. Project and Event work as often as possible.
5. You need to distinguish between *backups* and *archives* as described in this paper. Backups are recordings of your file state over time, but which are not permanent. Older backups *outdate* and are deleted when backup media fills or backup depth becomes too great. Archives are permanent copies that represent one point in time, usually a completed set of work, but are meant to be saved away forever.

Tools

Time Machine®

Apple's *Time Machine*® provides a simple brute force approach to backing up FCP X files. Because of its *one size fits all* strategy, it suffers from several problems:

- Backing up media with Time Machine is not ideal. It fills up the Time Machine drive rapidly, causing old backups to outdate. It is slow. They are not catalogued by name but by backup date. Looking for deleted media can be difficult. You can't label snapshots. Old media may outdate and disappear completely from the Time Machine archive without warning.
- While Time Machine can also backup external drives, using it for that is usually not practical: The Time Machine drive and external drive have to be mounted simultaneously. Often external drives are larger than Time Machine drive.
- Time Machine's once-an-hour activation is too coarse to save a fine record of FCP X Project and Event files. Restoring work from an hour previously may mean you lose a lot of recent work. Time Machine also deletes intermediate backups after one day; meaning increments of work are lost.
- Time Machine backs up too much. Time Machine does let you exclude folders, but because FCP X intermixes the different kind of files, you can't really tell Time Machine to not back up Media and Transcoded files, but do back up Events and Projects. Time machine does know not to back up render and thumbnail files, however.
- Time Machine's backup algorithm is oriented towards a complicated, meaning *slow*, backup but provides a fast restore. This is the exact opposite strategy desired for maintaining a low profile. When Time Machine kicks off, its disk activity can interfere with your editing. When its archive levels become great, it can take minutes to do what should be a quick backup. It is also prunes backups out of the middle of its archive when it kicks off, which can take a long time ("Hourly backups for a day, daily backups for a month, weekly backups thereafter...").

- Time Machine is not meant for permanent *archiving*.

Time Machine can be useful despite its shortcomings, when used in conjunction with *Backups for Final Cut Pro* as discussed later.

Backups for Final Cut Pro

Backups for Final Cut Pro is a specialized backup program for FCP X that understands the different FCP X files. It knows how editors work, so its functions are oriented toward their needs:

- It provides frequent backups of Projects and Events—as often as every 2 minutes. Backing up may be automatic but you can make additional manual snapshots at milestones in your work, such as completing a rough cut, adding transitions or color balancing.
- Taking a manual snapshot at a milestone is great if you can remember when you did that. *Backups* lets you add descriptions to manual snapshots so you know why you made them. For example “Completed rough cut of John Doe interview.” “Final edit before export of Aqueous promo.” This is a unique feature of the product.
- Snapshots are incremental, so only changed files are backed up. Descriptions are always saved.
- *Backups* consolidates all your Final Cut Pro X data in one place, even if scattered across several drives, for easy secondary backup and archiving.
- If you need to restore something, it lets you restore exactly what you need—everything from a given time, or you may select a particular folder, project or event to restore, so you do not disturb other work.
- While primarily designed for backing up Projects, Events and templates, you may use *Backups* to back up media as well. You control the kinds of files to back up—just the project and event files themselves or you can add media, Shared Items, or FCP X’s own Backup folders as well.
- Preserving template work is important too. *Backups* backs up and restores saved Motion projects in your Motion Templates folder as well as Preset files, such as Color and Export presets.
- It knows what to ignore, such as render and thumbnail files. These are automatically regenerated by FCP X.
- It knows about *hidden* Projects and Events as defined by Apple and implemented in the program *Event Manager X*. These are backed up as well.
- Transcoded files are backed up if you use the program to back up your media.
- *Backups* lets you copy folders, projects or events across drives.
- It lets you see a list of all your backup snapshots and how much was backed up. You can delete old snapshots.

Backups for Final Cut Pro is a *backup* program. Like *Time Machine* it is designed to provide relatively short term backups of your work, not create a permanent archive for all time, though it may be used to do that if you are careful.

- It saves a set number of snapshots, defaulting to 500, in its `.fcpbackups` archive. If, by chance, you exceed that number the oldest snapshots are deleted. You could lose old work.
- The backup data is saved in a proprietary format as a series of incremental snapshots. When you restore to a given snapshot, it combines files from multiple snapshots—a complex process. This means you can't access the backup data directly in the Finder, or double click on it. You must set up a backup operation that references the data from within the program
- It backs up all Projects and Events and hidden Projects and Events. It provides control of what to restore rather than what to back up.

A future version of *Backups* will have permanent archiving features and backup filtering by Projects and Events.

Event Manager X

One of the problems of FCP X is *clutter* in the form of finished Projects and Events that are still listed in its panels. A strategy for dealing with this to “hide” FCP X Projects and Events by moving them into “hidden” folders with stereotyped names: `Final Cut Projects - Hidden` and `Final Cut Events - Hidden`. From there one could manually archive the projects and events or revive them by moving them back to the normal Event and Project folders.

A nice, inexpensive tool, *Event Manager X*, does this for you. It even lets you define sets of projects and events, so you can easily switch working environments.

3rd Party, 2nd Level Backup Software, ChronoSync, Retrospect 10

Providing 2nd level backups adds to Project and Event security. These tools may be used to backup *Backups for Final Cut Pro* archives. In addition to *Time Machine*, with its advantages and disadvantages, there are several third party utilities. The author of this paper is continually investigating them.

ChronoSync seems to be the leading simple folder synchronizer program. You can specify a synchronize operation which consists of two folders, preferably on different drives, and a synchronization strategy, such as “backup” left-to-right or two way synchronize. It only provides crude archiving of updated documents by creating renamed versions in a subfolder. A good use for ChronoSync would be to archive your captured media, since you don't need a history. ChronoSync can be triggered with its own flexible scheduler, giving you a lot of control on how often it should run.

Retrospect is one of the few backup programs other than *Time Machine* and *Backups for Final Cut Pro* that performs incremental backups. It used to be the standard for backup programs for Macintosh, but fell into disuse due to lack of support. It has been revived by new owners who are just focused on this one product. This is a relatively expensive and deep program, but it fills the bill if you are a large shop.

Retrospect will backup multiple computers—Macs, Windows and Unix—on your LAN from one machine. With some effort, you could actually set up filters in it to simulate the actions of *Backups for FCP*. It provides copying and archiving functions as well as straight backup. It does have a fairly stiff learning curve, however, and has more than its share of quirks, compensated for by excellent support. It is oriented toward daily backup on a small business or enterprise level.

A unique feature of *Retrospect* is that it knows not to backup duplicate or moved files. This provides a big efficiency gain as you move your project around, such as hiding and unhiding it with *Event Manager X*. Such changes will not increase the total backup size.

DiskCatalogMaker, NeoFinder

If you do a lot of work in FCP X, and you have completed projects archived over several external backup drives, these programs will index these drives so you can search them while they are offline. These have not been thoroughly investigated as part of this white paper.

BackupLoupe

BackupLoupe is a handy program to inspect Time Machine archives to confirm what it has really backed up. It helps you locate old files in Time Machine archives and lets you see the history of any file or folder.

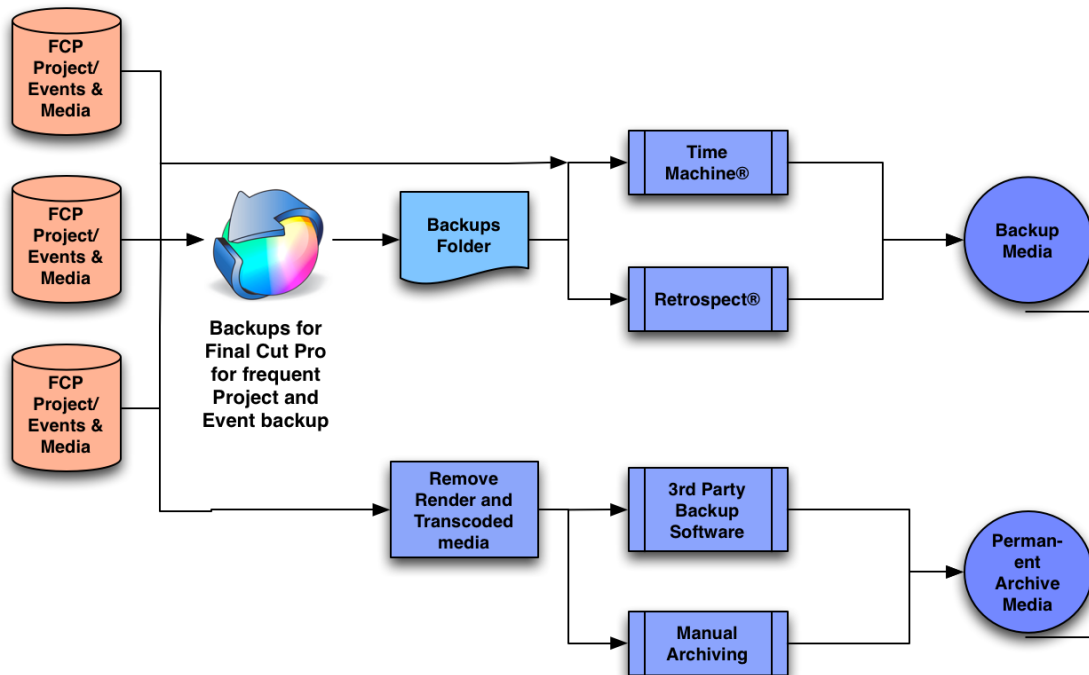
Tying it All Together

Strategies for backup

Here are the two strategies for maintaining and backing up your FCP X files:

The FCP X way (scheme 1): This is the simplest strategy if you use FCP X to capture your media for you, don't have many projects or are just starting out.

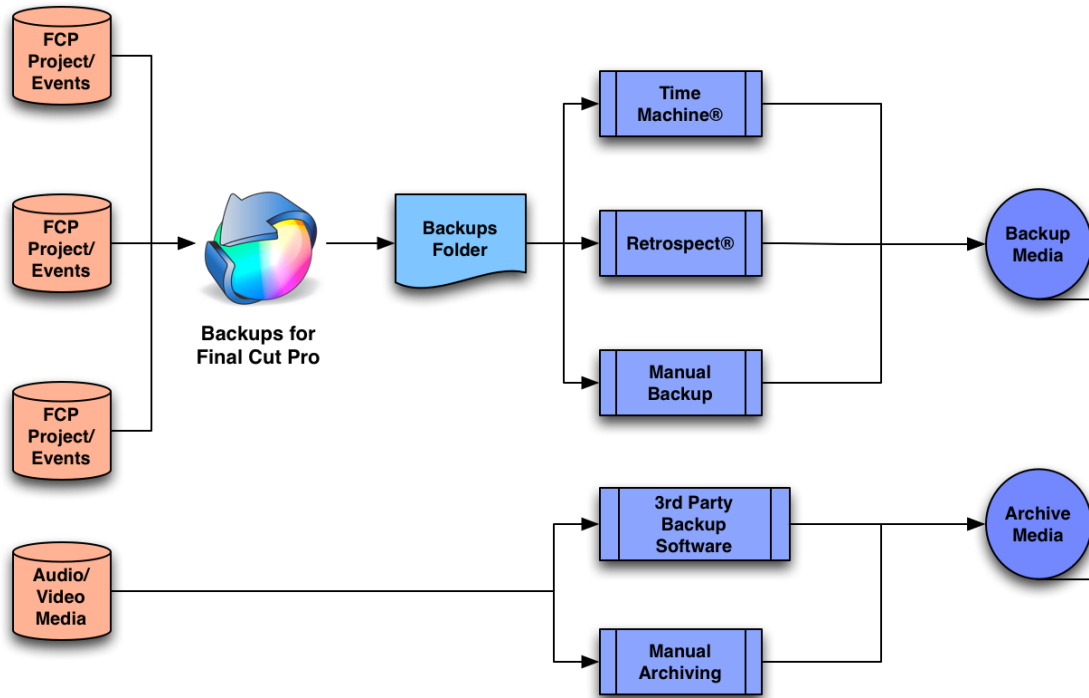
Keep all your media, Projects, Events and output together in the *Final Cut Projects* and *Final Cut Events* folders. Back them up together. Use *Backups for Final Cut Pro* to create an auxiliary fine backup of your Project and Event work.



When you are finished with a project, you can archive your specific Projects and Events by moving or copying them to your archive media. See *archiving* below.

Alternative (scheme 2): .This method is preferred if you use an external program or other means to capture your video. It is also useful if you use your media with other post-production software or keep it stored on a Local Area Network. It is often the best way to keep your data organized

Keep your media organized separately and just *reference* the media in your Events folder Use *Backups for Final Cut Pro* to back up your Projects and Events folders. Since it doesn't change once captured, do a manual backup or use another backup program to back up your media.



Keep all your media in its own folder structure, preferably on drives other than your system boot drive (“Macintosh HD”). Set this up using the option in *FCP X->Preferences->Import->Organizing* by unchecking: “Copy files to Final Cut Events folder”. Then it will create small file aliases in your Events folder instead of full copies of your media.

For either strategy: Use *Backups for Final Cut Pro* to perform frequent backups of your Projects and Events and to consolidate the backups from multiple drives.

In general

- 1) Upgrade to Final Cut Pro X version 10.0.4 or later. Final Cut Pro X version 10.0.4 onwards, has a *Relink Files...* command to reconnect moved media. Earlier versions do not handle moved media well or use of aliases to reference it.
- 2) If you are using scheme 2: you should set Final Cut Pro X to not copy media files to the Final Cut Events folder.
- 3) Media files are big. Use a separate backup methodology to back up your media, such as manually copying your data to drives you normally keep offline. If you are using scheme 1, it is easiest just to copy whole Project and Events though this copies a lot more than you need to. See *archiving* below.
- 4) Generally use *Backups for Final Cut Pro* to just back up your Event (`.fcpevent`) and Project (`.fcpproject`) files, and use other strategies for your media. But you can use *Backups for Final Cut Pro* to back up your media as well if you do not have large projects. If you are more than a casual FCP X user, backing up media this way may not work well.
- 5) Make sure all volumes being backed up have unique names. Otherwise, *Backups for Final Cut Pro* could possibly back up two drives into the same `.fcpBackups` archive.
- 6) Both the source volume and the *Backups for Final Cut Pro* archive destination should be Macintosh formatted drives, .i.e. formatted as HFS+ or HFS+ Journaled. Do not attempt to back up onto a thumb drive or other Windows formatted drive with *Backups for Final Cut Pro*. This is also true for video media. These drives do not have reliable modify dates and do not support files greater than two gigabytes. *Backups for Final Cut Pro* needs good dates for doing incremental backups and proper restores.

Note that you may use Apple's *Disk Utility* to reformat thumb drives to *HFS+ Journaled* so you may use them as part of you backup scheme. You loose the ability to mount them on a machine running Windows.
- 7) If using scheme 2, make sure Time Machine will back up the folder where you keep your *Backups for Final Cut Pro* archives. Explicitly exclude your media folders from Time Machine if you have alternate backups for your media.
- 8) We recommend the utility *BackupLoupe* to inspect Time Machine archives to confirm what it has really backed up.
- 9) No backup system is foolproof. Test any backup system, including Time Machine, by doing sample restores. Remember: You can never have too many backups.

Preparing a Finished Project for Archiving

When you have finished editing a project, exported your work in its final form and are through tweaking, you'd like to tuck a project away so it doesn't clutter your FCP X panels or fill up your online disk drives.

The first thing to do is delete the render and thumbnail files FCP X automatically generates. In FCP X, click on a finished project or event and select *File->Delete Project Render Files...* or *File->Delete Event Render Files...* as appropriate to clean out these large, automatically created, files. Unfortunately, FCP X does not offer a bulk delete, to delete all render files out of a folder or drive.

If you are using scheme 1: use the FCP X commands *File->Organizing Project Files...* or *File->Organizing Event Files...* to pull in any extraneous video or audio media into the Events folder, so all your media is together. Now copy or move your Project and corresponding Event to your archive media. You can also use *Event Manager X* to just *hide* your project, if you want to keep it available.

If you are using scheme 2: Back up your media if you have not already done so. If you have no media in your Project and Event files you just may want to just hide Project and Events using *Event Manager X*, so they are always handy. You may want to move or delete generated media out of the *Shared Items* folder.

For either scheme, *ChronoSync*, or another backup utility may be used to copy your files to your back up media. Be sure to leave “Synchronize Deletions” unchecked. *ChronoSync* does not have a *move* option.

Other tips

Use folders within FCP X to keep your projects organized: As you accumulate work over time, don’t just keep creating projects at the drive level. Use FCP X’s *New Folder* command to organize you work into related areas. Since Projects are just sequences, put all FCP Projects for a given editing project in their own subfolder. Use *Event Manager X* to reduce clutter.

To move projects and events around on the same drive, you may drag them around within the FCP X project and event lists. If you wish to move a project or event to a different drive, Use the FCP X commands *File->Move Project...* or *File->Move Event...* to move a project or event to the top level of a different drive. Once on a different drive, you may drag the project or event around as above.

FCP X does not like two projects or events with the same name, even if they are on different drives.

It is a good idea to keep a project and its corresponding event on the same drive. Since the two are so tightly connected, particularly now that compound clips are stored in the event, it is important that they are both backed up at the exact same time. This may not happen if they are on different drives. Use the move recommendations above to keep things organized.

One of the advantages of using *Backups for Final Cut Pro* is that it allows you to easily do “what if?” experiments when an editing sequence.

- 1) Run a manual backup with *Backups for Final Cut Pro* and give the snapshot a description.
- 2) Try your editing experiment such as using odd transitions, titles or color correction.

- 3) If your experiment “fails”, you can quickly recover by doing a restore to your labeled snapshot.
- 4) Try this idea out on a test sequence before integrating this into your regular workflow.

If you use Final Cut Pro X to import directly from your camera, it *always* imports media directly into your *Final Cut Events* folder. If you are using Scheme 2: After an import, you can move captured media to your own media folder structure by doing the following.

- 1) Right click on a clip you captured in FCP X and select *Reveal in Finder*. You should see your clips in an *Original Media* folder.
- 2) Quit FCP X.
- 3) Select and grab all your freshly captured media and move it to your own media folder structure. Hold the *command* key down to move your media, rather than copy it.
- 4) Now select the moved media.
- 5) Drag the moved media back to the *Original Media* folder where they came from, but hold down the *option* and *command* keys simultaneously while you drag. This will create *aliases* of the media in your events folder. You should see little *alias arrows* on the icons of files in *Original Media* folder.
- 6) Launch FCP X. You will still see your clips as if they were still in the Events folder.

In the future...

Watch this document for revisions with updated information.

Backups for Final Cut Pro development

While *Backups for Final Cut Pro* is very valuable now, future development efforts will focus on rounding it out to provide an even more polished solution to the backup and archiving problems. Among new features being developed and ideas being explored are:

- Being able to filter what Projects and Events it should back up.
- Be able to double-click on a `.fcpbackups` archive to initiate a restore.
- Specifying a different location for video and audio media vs. Project and Event data.
- Providing cleanup and archiving functions right within the product.
- Smart pruning of a `.fcpbackups` archive, rather than just deleting the oldest snapshot first.
- Support of Xsan networks. FCP X organizes its files differently on Xsan *locations* than it does for other disk media.

Credits

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