

An Amateur's Guide to Handling p24 material in Final Cut Express

Prepared by Brian Wallace

<http://wallybarthman.wordpress.com>

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Introduction: As one who reads the Final Cut Express forums on Apple.com there seem to be questions each week how to handle p24 content in Final Cut Express. This paper aims to be brief introduction on how to do that.

Why use p24 in the first place?

1. You want to be able to author progressively encoded DVDs
2. You want to be able to author Blu-ray and AVCHD discs at 1080p
3. You want to be able to create 720p AppleTV content.
4. You want better low light performance than is available using either p30 or i60.
5. You want to give a "film look" to your video content.

First things: Final Cut Express 4 **does not** natively handle p24 content. That being said, neither do many cameras. Most cameras (in the amateur/prosumer realm) that offer p24 mode take advantage of something called "pulldown" or "telecine". What this allows them to do is to store p24 mode footage (that is comprised of 24 full frames) and put it in a format of 60 interlaced frames.¹ The equivalent of six frames are added merely duplicating existing parts of the 24 frames. While this might seem counterproductive, it actually is a huge benefit for those of us who want to work with Final Cut Express since Final Cut Express only supports frame rates of 25 and 29.97 frames per second.

- Note: If your camera has a "real 24 mode" "pure 24 mode", where the output content is actually 24 frames per second, you'll actually have to add pulldown to your file to work in FCE.

1. Importing your p24 footage.

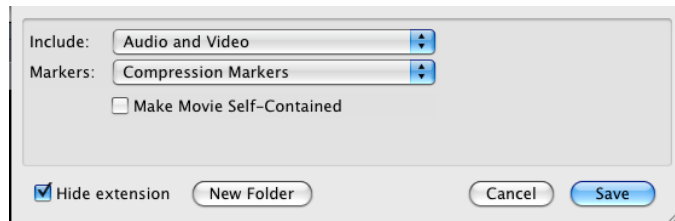
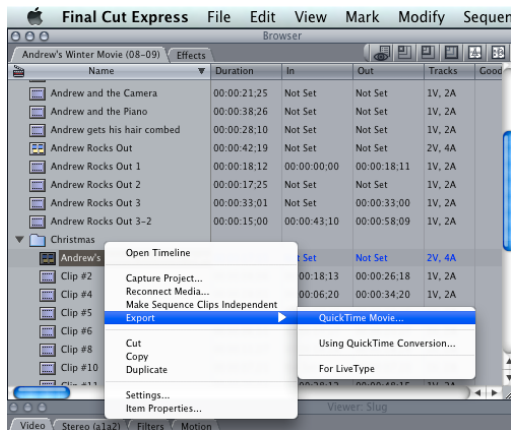
Begin by importing your p24 footage as you would normally using capture or log and transfer.

2. Edit as normal, but keep in mind a few things.

- Eventually you'll be removing from the sequence the equivalent of six frames per second, through a process called inverse telecine. So be careful what effects you add.
 - i. Fade in, fade out, and cross dissolves all seem to work fine even after removing the telecine
 - ii. Scrolling text needs to be very slow in order for the effects of telecine removal to not be noticed.
 - iii. Spins, slides, etc. exhibit some effects of telecine removal, but you'll need to judge for yourself whether they're acceptable.

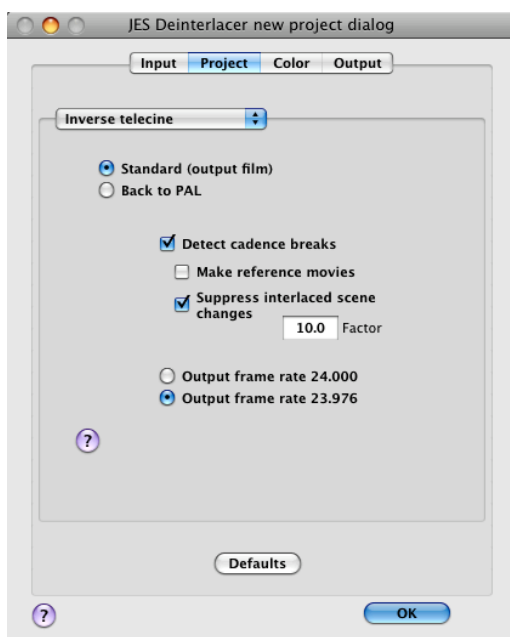
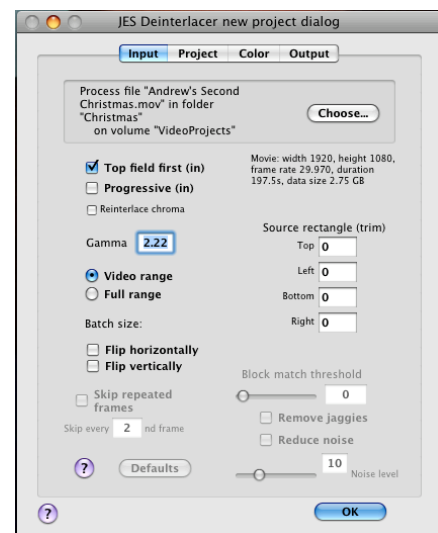
¹ An example of this is the Canon series cameras such as the HF, HG, and HV series.

- Once you're done editing, export your sequence as a QuickTime movie without conversion. There is no need to make the file self-contained as long as you'll be doing the next step on the same Mac.



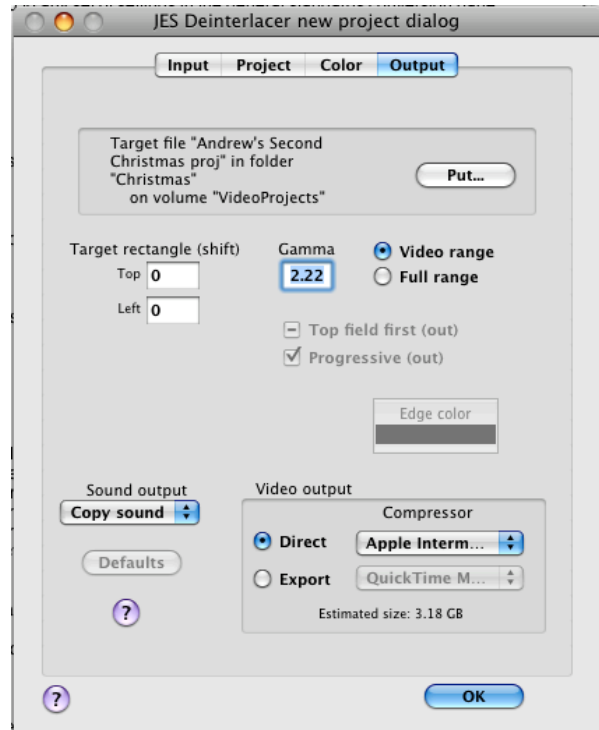
- Download and install JES Deinterlacer from <http://www.xs4all.nl/~jeschot/home.html#DEI>

- Open JES Deinterlacer. Take the file you exported from FCE and drag and drop it into the first screen of JES, or select it by using the "Choose" button. Once added, it will look like this.

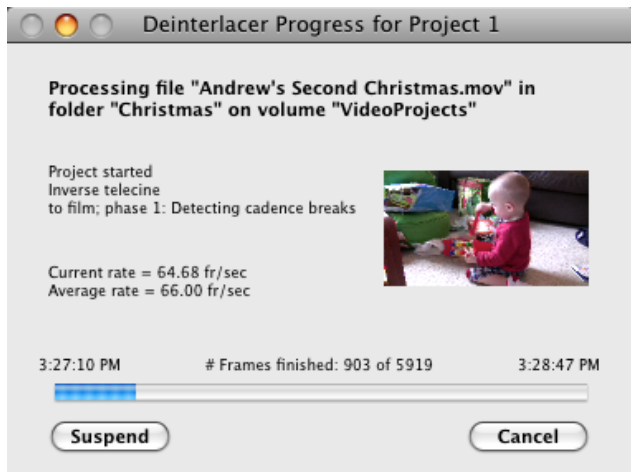


- Under the project tab select "Inverse Telecine" from the drop down menu and select the options shown.

7. Under the output tab select the following options.
 - By default JES outputs your new file to the same folder and adds “proj” to the end of it. You can change this by selecting “Put”
 - You actually can attempt to do the inverse telecine and export into a final format (like mp4) in one step, but I choose not to. I have had difficulty getting JES to use QuickTime conversion all in one step, so I recommend using Direct output to Apple Intermediate Codec and simply doing “Copy Sound”
8. Click Ok!



9. When you do, (if all goes well) the following screen will appear:
10. Once it's done you'll have your new QuickTime file with a frame rate of 23.98 frames per second.
11. You can then compress however you'd like for whatever you'd like, but be sure that when you do, the frame rate is either set as “same” or to 23.98 or everything you just did will be undone.



Questions, comments, or corrections can be e-mailed to brian.wallace@gmail.com