

Technical Specifications

Principle Photography: *HD, HDV, or SD*

Aspect Ratio	16:9 HD (<i>High Definition</i>) 4:3 SD (<i>Standard Definition</i>)
Resolution	1920 x 1080 HD 1440 x 1080 HDV 720 x 480 SD
Frame Rate	24 fps (frames per second) 29.97 fps 60 fps
Audio Sample Rate	48.0 kHz
Video Bit Rate	5000 kbps HD 2000 kbps SD

Format

TUTV - Temple University Television accepts High Definition and Standard Definition footage. Make sure you capture your footage in the appropriate aspect ratio with the corresponding resolution.

However, since TUTV is an SD channel and does not broadcast as 4:3-safe, you will need to downgrade your HD content to an anamorphic sequence in Final Cut Pro or export it in 4:3 letterbox format for TV broadcast; otherwise your 16:9 content will be subject to the display settings of the end viewer's television.

Non-down converted 16:9 Source



Down Converted 16:9 Source (4:3 Safe)



You do not have to down convert your HD content for Web.

TIPS

- Always shoot and capture footage at the highest quality capable by the camera.
- Down converting from a high quality source will give you the best picture quality.
- Up converting from a low quality source will always result in distortions and potential codec errors.

Frame Rates

The three acceptable frame rates are based on the presentation style you are trying to capture. 24 FPS is typical of Films and TV Shows shot on Film (i.e. 30 Rock, Community, CSI, etc.) while 29.97 FPS and 60 FPS are more appropriate for traditional television programs (i.e. Attack of the Show, Real World, All My

Children, etc.)

If you are shooting in Standard Definition the default frame rate will resolve to 29.97 FPS, which is equivalent to shooting at 60 FPS.

Audio

Sound is often an after thought to most people, but do not underestimate the power of a great audio source. It can often make or break your overall project.

TIPS

- Whether you are capturing audio using a boom or wireless belt packs with lavalier microphones you always want to make sure you are getting a clear signal at a good source volume. Aim to record at a level just below unity gain (0 dB) between -12 and -6 dB; the yellow section on a VU meter. This approach will render the best audio for mixing.
- A sample rate of 48 kHz will be more than sufficient to give your audio all the data it will need when you are mixing everything down in editing.

Import: Capture or Transfer

Capture Preset HDV-Apple ProRes 422 **HD**
DV NTSC 48 kHz **SD**

Sequence Preset Apple ProRes 422 1920x1080 60i 48 kHz **HD**
DV/DVCPRO NTSC 48 kHz **SD**

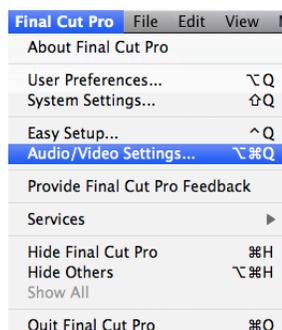
Audio Levels Between -6 and -12 dB (decibel)

When you are ready to import your raw footage (a.k.a. tape native) into Final Cut Pro it is recommended that you use a third party video capture card like Black Magic or another deck appliance to **Log and Capture** your project. However, if you are shooting on a digital medium you will want to use the **Log and Transfer** process to import your raw footage and transcode it into Apple Pro Res 422.

Capture and Sequence Settings

Before you start capturing footage into Final Cut Pro you will want to establish your predefined capture and sequence settings.

- 1.) Open Final Cut Pro and select *Final Cut Pro > Audio/Video Settings...*



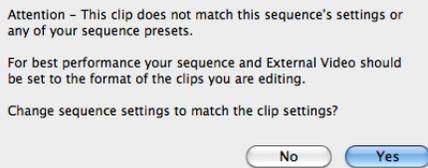
- 2.) Next select **Apple ProRes 422 1920x1080 60i 48 kHz** for your sequence preset and **HDV-Apple**

ProRes 422 as your Capture Preset for HD footage; or **DV/DVCPRO NTSC 48 kHz** and **DV NTSC 48 kHz** for SD footage. Your video capture card or deck appliance should automatically show up in your Device Control Preset drop down list.



Sequence Timeline

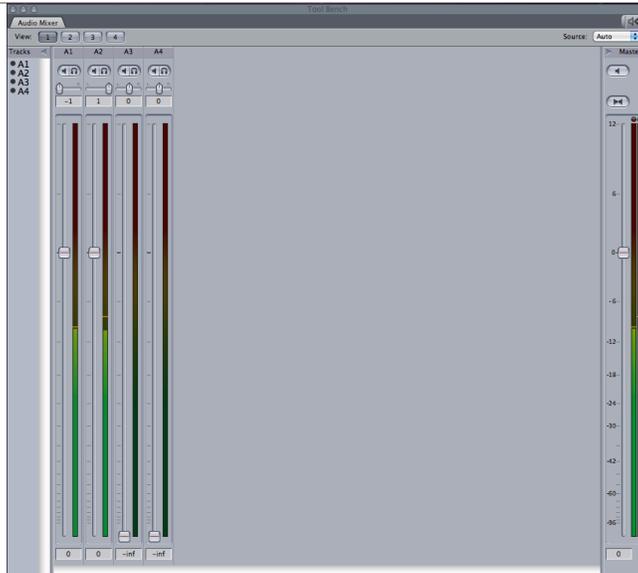
Once your footage is successfully imported to your Final Cut Pro project and you are ready to drag clips into a sequence timeline you may receive the following prompt if your sequence settings are not the “same as source.” This means your footage was not captured using the settings defined in your sequence time line.



In order to make sure you do not lose any frames and keep everything consistent, it is best to click **Yes**. However, setting your sequence timeline to your clip settings will require you to adjust your export settings later.

TIPS

- During the editing process you will want to name your clips with sequential logically identifiable names (i.e. Opening Sequence 01, Car Chase 05, Ending Credits 01, etc.) This will make the entire editing process a lot simpler and more efficient.
- Color temperature is another important facet to take into consideration. Using color bars as your standard temperature is typically a good gauge as well as using an external monitor for previewing your work.
- You will also want to make sure the clip and sequence audio is at a good level - not too low and not peaking. TUTV recommends that you try to keep your sound in the range of -6 to -12 dB; the yellow section on a VU meter. You can use the Audio Mixers Master Channel VU meter to check your levels.



If a track is coming in too hot you can always adjust the fader levels for that specific channel or adjust the master fader to bring all the levels down if everything seems to be a bit too loud.

- A good rule to keep in mind is that if the audio sounds too loud to you, it will sound too loud to your audience. It is also important to note that adjusting the fader levels in the Final Cut Pro Audio Mixer is really only good for lower volumes. If you need to boost your audio you will need to increase the gain levels using a preamp or third party application.

Export: Self Contained QuickTime Movie

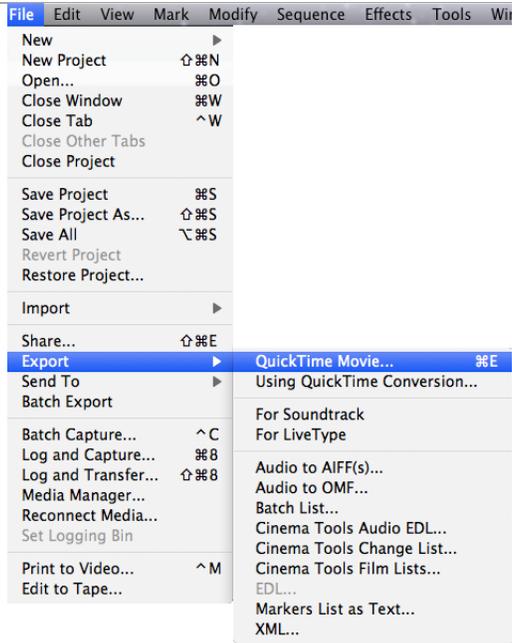
Export Format QuickTime Movie (self contained)

Export Settings Current Settings
 Apple ProRes 422 1920x1080 60i 48 kHz
 DV/DVCPRO NTSC 48 kHz

EXPORT FOR WEB

Once you are finished editing your project and are ready to export your master sequence you will want to choose QuickTime Movie and make it self contained. Afterward you can dub this to Mini DV or author it to a DVD, unless you need to down convert your 16:9 content to 4:3 letterbox first (see Export HD and 16:9 SD For TV).

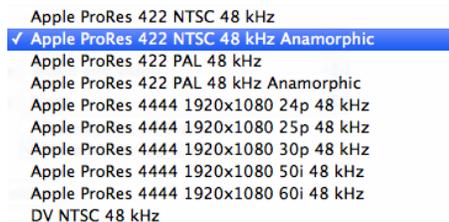
- 1.) Select *File > Export > QuickTime Movie...*



- 2.) Under Settings select **Current Settings** unless you received the previously mentioned sequence prompt when you imported your raw footage. If this is the case you will want to select **Apple ProRes 422 1920x1080 60i 48 kHz** for HD or **DV/DVCPRO NTSC 48 kHz** for SD.

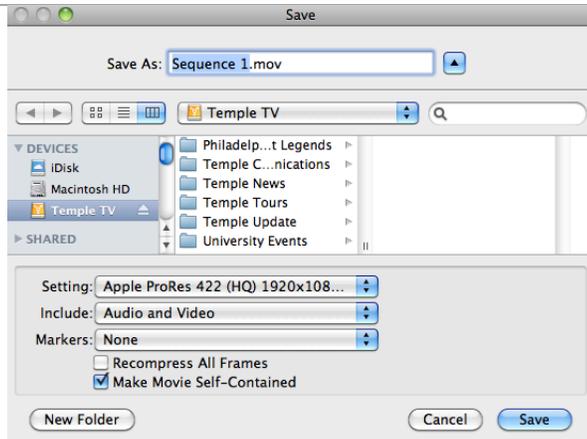
However if your video looks distorted you may need to export using a codec similar to the settings of your captured footage.

For example, if you used a camera like the Sony Z5U and captured you footage as 16:9 anamorphic you would need to export your sequence using the Apple ProRes 422 NTSC 48 kHz Anamorphic codec to maintain your aspect ratio.



If you have the option, HD footage that is down converted to 4:3 letterbox will always look better than anything shot as anamorphic or SD.

- 3.) The final step is to select a file location and click **Save**.

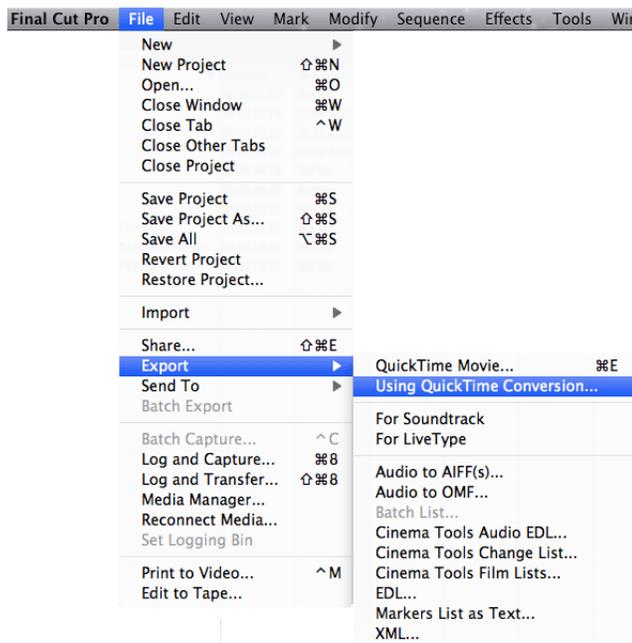


This export can be submitted for use on TempleTV.net.

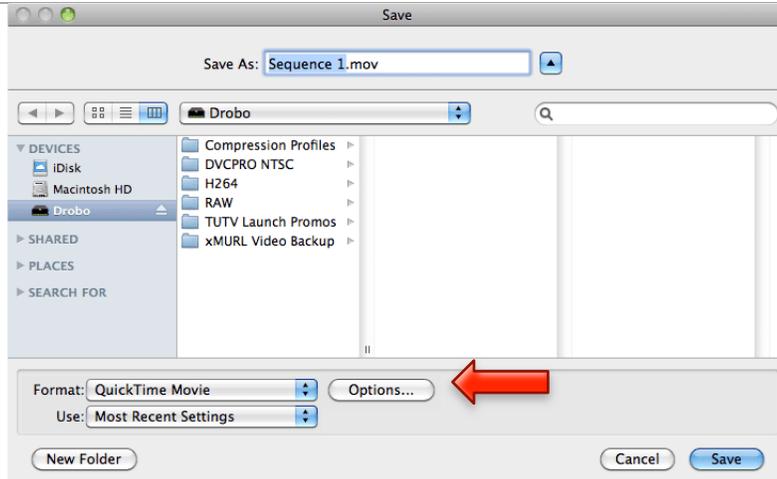
EXPORT HD CONTENT FOR SD TV

Once you are finished editing your project and are ready to export your master sequence that will be dubbed to Mini DV Tape or DVD for TV broadcast you will want to choose QuickTime Conversion and make it self contained.

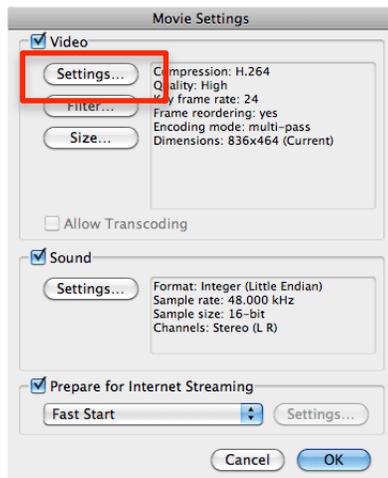
- 1.) Select *File > Export > Using QuickTime Conversion*.



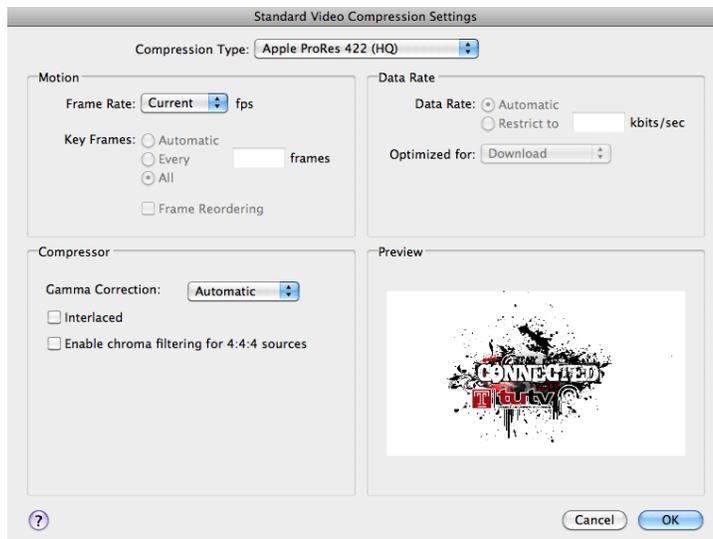
- 2.) Click the *Options...* button next to the Format drop down list.



3.) Under the Video group box click the *Settings* button.



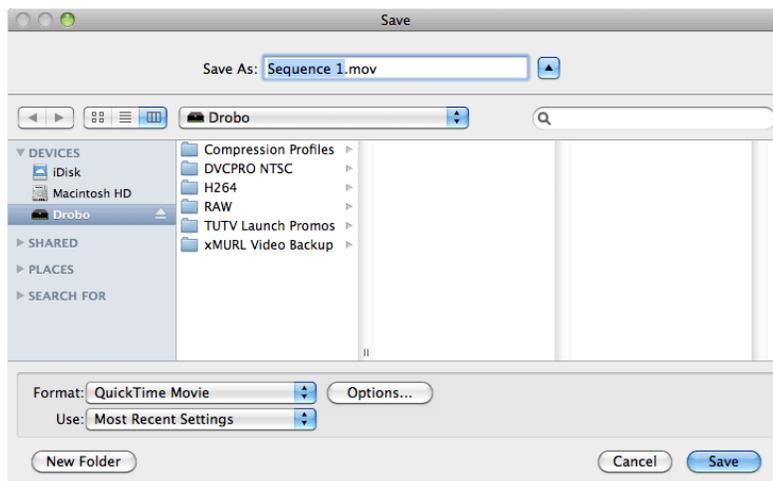
4.) For the Compression Type select **Apple ProRes 422 (HQ)** for HD or **Apple ProRes 422** for 16:9 Anamorphic SD and keep the Frame Rate as **Current**.



- 5.) Next click the *Size* button under the Video group box and set the Dimensions to **NTSC 720 x 480 4:3** and make sure to check the **Preserve aspect ratio using "Letterbox"**.



- 6.) The final step is to select a file location and click **Save**.



Now you can author this 4:3 letterboxed video to a DVD or dub it to MiniDV tape.

Alternatively you can export your HD content normally, then drop the video into a new sequence timeline using the codec DV/DVCPRO NTSC Anamorphic 48 kHz. You can then select *File > Edit to Tape...* to dub your video to MiniDV Tape and submit it to TUTV master control.

