



# Sound Editing in Final Cut Studio

## *Creating a Sound Mix*

- ▶ **Part 1:** Smoothing Edits with Fades ◀
- Part 2:** Setting Audio Levels
- Part 3:** Using Keyframes to Automate a Mix
- Part 4:** Creating Perspective Effects
- Part 5:** Finishing Your Mix

## Part 1

# Smoothing Edits with Fades

**NOTE** ▶ This tutorial is excerpted from *Apple Pro Training Series: Sound Editing in Final Cut Studio*, by Jeff Sobel, 0-321-64748-3. For more information or to buy the book, go to [www.peachpit.com/aps](http://www.peachpit.com/aps).

**NOTE** ▶ You must install Final Cut Pro 7, Soundtrack Pro 3, and the Audio Content discs before proceeding with this lesson. Check the Final Cut Studio Installer disc for more information. Then follow these steps:

- 1 Download Online Tutorial Media 1.zip and Online Tutorial Media 2.zip.
- 2 Double-click both .zip files to unarchive the installers. (If you are using Safari, these files will be in your Downloads folder.)  
A package version (without .zip) will appear in the same location as Online Tutorial Media 1 and Online Tutorial Media 2.
- 3 Double-click the package Online Tutorial Media 1 and follow the onscreen instructions.  
You will need an administrator password for installation.
- 4 When the Installer reports Install Succeeded, click the Close button.  
If the Install Fails, repeat step 3.
- 5 Double-click the package Online Tutorial Media 2 and follow the onscreen instructions.
- 6 Click Close when the Installer reports Install Succeeded.  
You will now find a folder, Sound Editing Book Files, on your Macintosh HD (main hard disk.)
- 7 When you see the Lessons Files folder referenced in the PDF, find the folder by navigating to Macintosh HD > Sound Editing Book Files.

**TIP** ▶ If you hear any beeping sounds during playback, open Final Cut Pro > User Preferences and click the General tab. Increase the number of tracks for Real-time Audio Mixing in the left column.

**NOTE** ► You may notice degraded video quality for this tutorial due to compression for download. The actual files included with the book are of higher quality.

After sound is edited, the final task is creating the *mix* in which all the audio elements are combined and their volumes set to maximize the editor’s control over the point of focus. Your choice of which sound elements are in the foreground and which are in the background is another essential storytelling tool that enables you to precisely guide an audience through the story.

Final Cut Pro contains a wide array of robust audio mixing tools—including an audio mix window, dynamic mute and solo controls, and full automation—that allow you to animate audio levels on the fly. In addition, it seamlessly integrates with the dedicated audio tool, Soundtrack Pro.

In Soundtrack Pro, you can complete your mix with even more control: *bussing* tracks to streamline filtering workflow, customizing audio fades, and creating mixes in surround sound. After your mix is complete, you can export it back to Final Cut Pro for final output.

## Mixing in Final Cut Pro

Although most productions will benefit from the advanced audio capability of Soundtrack Pro, some projects may be well served by the tools within Final Cut Pro. The sophisticated audio mixing tools in Final Cut Pro—both in the Timeline and in the Audio Mixer window—may be all you need to speed your workflow and execute every mixing decision.

## Fading In and Out

A critical aspect of mixing is that every single audio clip in your sequence should begin with a fade-in and end with a fade-out, even if the fades are only a few frames long.

Hard-cutting an audio clip—any audio clip—can create unwanted audio interference, such as a pop or click. Often you may not hear anything wrong as you’re creating the final mix, but such hard cuts may still rear their ugly heads (and tails) when the audio is compressed for DVD, the web, or portable playback devices.

Fortunately, adding fades can be quick and easy, especially if done at just the right stage: after all editing is completed, but before you create your main mix.

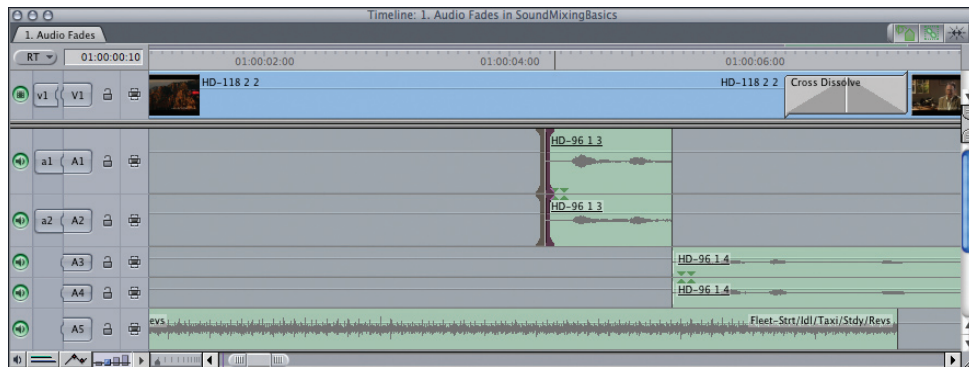
- 1 Open Lesson Files > Lesson 01 > **SoundMixingBasics.fcp**.

The *Audio Fades* sequence should already be open. This lesson uses footage from Brian J. Terwilliger's documentary, *One Six Right* ([www.onesixright.com](http://www.onesixright.com)).

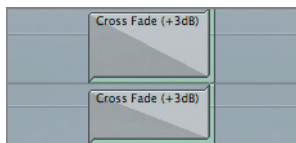
- 2 Play the sequence.

Although there are no obvious errors, it's still advisable to smooth the head and tail of each clip, just in case. Begin working on the dialogue tracks.

- 3 On tracks A1 and A2, select the incoming edit of the first dialogue clip **HD-96 1 3**.



- 4 Press Command-Option-T to add the default audio transition (a +3 dB cross fade).

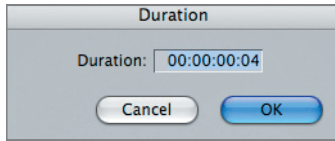


The cross fade transition is applied to the edit. In this case, the default duration is longer than the clip duration, so the transition covers the entire clip.

- 5 Double-click the transition.

The Duration dialog appears.

- 6 To change the length of the transition to 4 frames, type 4. Press Tab, and then click OK.



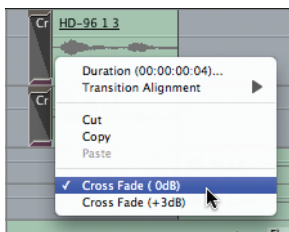
The default transition is the Cross Fade (+3dB), which is designed specifically for fading between two constant volume sources, such as music. This is sometimes referred to as a *constant power* cross fade because it slightly boosts the volume of both clips to prevent an audible dip in volume at the center point of the fade.

However, a constant power cross fade serves little benefit when fading to or from silence, and depending on the clip, can produce a more abrupt, less natural-sounding fade.

For fading to and from silence, Final Cut Pro offers an alternative: the Cross Fade (0dB), also known as a *constant gain* cross fade. This fades the two elements in a linear fashion.

**TIP** The enormous variety of sounds you'll encounter means that the 0 dB and +3 dB cross fades can both be used in a wide range of scenarios. If you're ever in doubt, try them both and listen to the results.

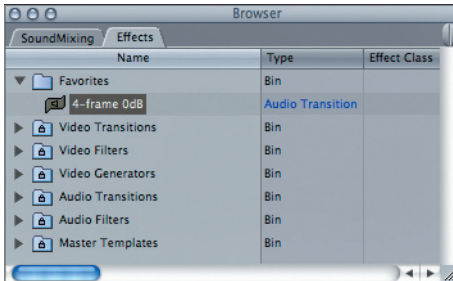
- 7 Control-click the transition and choose Cross Fade (0dB) from the shortcut menu.



The transition is updated.

This short, 0 dB transition is very handy, and you may use it quite a bit while mixing your projects. So why not save a copy of it for repeated use?

- 8 Drag the transition to the Browser, and place it in the Favorites bin of the Effects tab.



- 9 In the Browser, rename the transition *4-frame 0dB*.

You can make this new custom transition the default transition by Control-clicking it and choosing Make Default from the shortcut menu; but for this exercise, we'll leave the default transition as it is.

- 10 In the Timeline, Option-drag the 4-frame transition to copy it from the head of the first clip to the end of the clip.

**TIP** If you have difficulty copying the first transition, add a default transition to the second edit, change its duration to four frames, and then Option-drag it to each of the remaining edits.

- 11 Option-drag the transition again to add it to the beginning and end of each of the other clips on tracks A1 and A2 and on tracks A3 and A4.



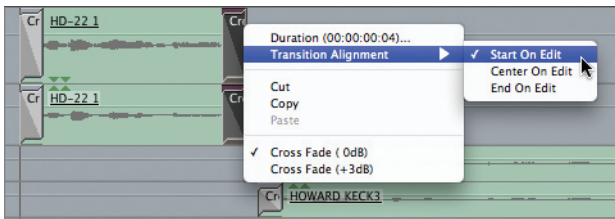
- 12** Play the sequence and listen for errors.

In some cases, even the 4-frame fade might cut off the beginning or end of the audio.

- 13** Navigate to around 8 seconds into the sequence and play around that edit.

The interview subject’s line “You don’t know when it’s gonna happen” is cut off, so all you hear is “when it’s gonna hap.”

- 14** Control-click the transition and choose Transition Alignment > Start on Edit from the shortcut menu.



Beginning the transition on the end of an edit ensures that you’ll retain all of the frames you were so careful to include during the trimming process. Similarly, if a sound is cut off at the head of a clip, you would set the transition alignment to End On Edit.

## Using Audio Keyframes to Fade

Another method for quickly applying a short fade-in and fade-out to each of your clips is to keyframe the audio level for a single clip, and then paste those attributes onto all the other clips. Many editors prefer this method because it allows more precise control over the shape of the fade than Final Cut Pro’s fade transition.

**NOTE** ▶ Final Cut Pro provides only two types of fades, but Soundtrack Pro offers sixteen different fade shapes.

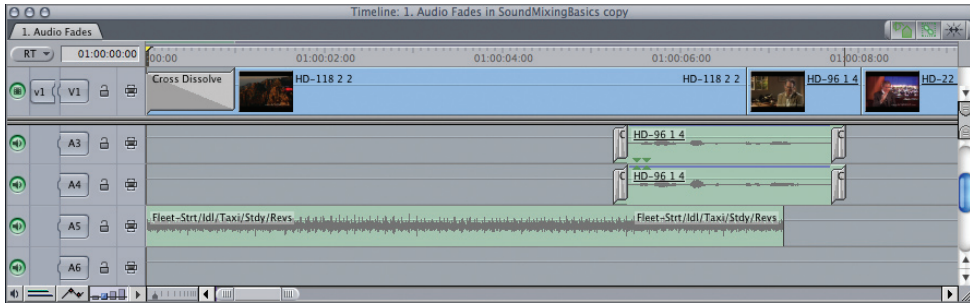
If you previously set specific audio levels on any of the clips, this method would obliterate those settings, so you should only paste attributes before independently finessing the levels.

**NOTE** ▶ Gain filter settings, such as those applied using the Normalize command, will not be affected.

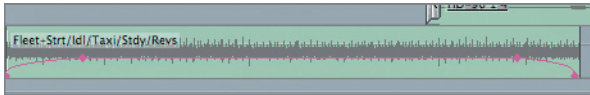
- 1 Play the sequence.

The sound effect used for the plane has been properly placed to match all of the shots, but the way it cuts in and out draws unneeded attention to the edits.

- 2 Zoom in to fill the screen with the first sound effect as seen in the figure below.

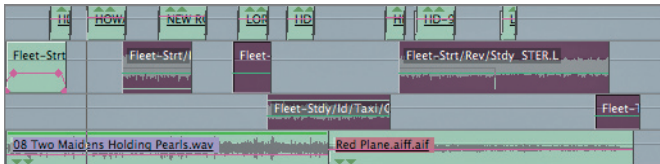


- 3 Press Option-W to turn on clip overlays.
- 4 Option-click the audio level overlay (the pink line) to add keyframes, and position the keyframes to create a short fade-in and fade-out for the clip.



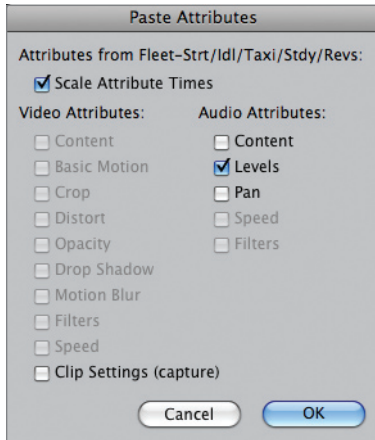
Be careful not to modify the overall level of the clip.

- 5 Select the clip and press Command-C to copy it to the clipboard.
- 6 Press Shift-Z to zoom the window to fit, and then select all of the sound effects on tracks A5 and A6.



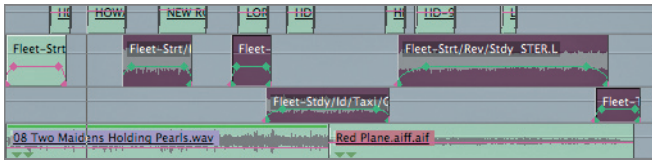


- 7 Press Option-V to Paste Attributes.



The Paste Attributes dialog appears.

- 8 Make sure Scale Attribute Times is selected, and then select the Audio Attributes Levels checkbox and click OK.



The fade-in and fade-out are applied to each of the remaining clips.

## Solo and Mute Controls

While playing this sequence, you've probably noticed that the music on tracks A7 and A8 was not audible. This might seem strange because the clips are enabled and the level settings are not turned all the way down.

It's very useful—often essential—to temporarily turn on and off individual components of the audio to focus on the rest of the mix. For this sequence, the music tracks were

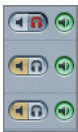
*muted* because adding the dialogue and effects fades would be much more difficult if the music were playing.

- 1 In the lower-left corner of the Timeline, click the Audio Controls button.



This adds two controls to the Timeline track header area. The first control is the mute button, which excludes that track from playback. When a track is muted, the speaker turns yellow. In this sequence, tracks A7 and A8 are muted.

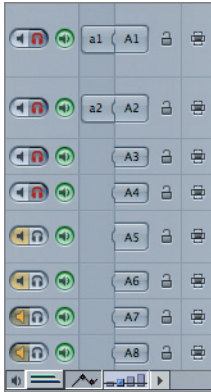
The second control is the solo button, which effectively mutes all of the other tracks. You can *solo* multiple tracks to hear more than one track at a time. When a track is soloed, the headphone icon turns red, and all the other tracks display a mute icon with a yellow background.



Muting a track is fundamentally different from turning off the Track Visibility control. When a track is muted, it will still be included when you export a file or lay it off to tape. Clicking the Track Visibility control to disable the track essentially removes that track from the sequence entirely.

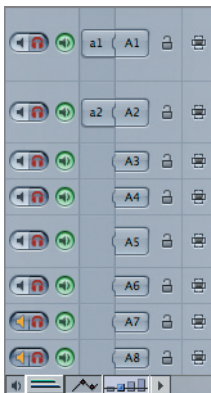
One of the most useful aspects of the mute and solo buttons is that they can be enabled while the sequence is playing—which reinforces their essential role in audio mixing. Often, you want to hear just the dialogue or just the effects tracks without the distraction of the other audio elements. Soloing those tracks is the perfect solution.

- 2 Play the sequence.
- 3 In the Timeline patch panel, click the solo button for tracks A1, A2, A3, and A4.



The music and sound effects are muted. The mute buttons for those tracks are inverted and turn yellow. Because tracks A7 and A8 are already manually muted, they appear a different color.

- 4 Click the solo buttons for tracks A5 and A6.  
Now those tracks are added to the mix.
- 5 Click the solo buttons for tracks A7 and A8.



It's possible for a track to be muted and soloed at the same time. The mute overrides the solo, and the mute button appears in a slightly different color. This can be very helpful if you have a large number of tracks and, while a number of them are soloed, you want to temporarily mute one or two without changing the solo set you're working with.

When every track is soloed, the effect is the same as soloing no tracks at all.

- 6 Option-click any of the solo buttons.

All of the tracks are unsoloed. This works only when either all of the tracks or none of the tracks are soloed. If none of the tracks are soloed, Option-clicking will solo all of them.

- 7 Click the mute buttons for tracks A7 and A8 to unmute the tracks.

## Engaging the Button Bar

Final Cut Pro provides three preset collections of buttons designed for common workflows. One of these is used specifically for audio editing.

- 1 Choose Tools > Button Bars > Audio Editing.



Audio editing buttons are added to the button bars in the Timeline, the Canvas, and the Browser. These buttons allow quick access to many common functions.

If you position your mouse pointer over the different buttons, a tooltip appears that identifies the button and displays any keyboard shortcuts associated with that command.

A group of buttons is located at the right edge of the Timeline button bar. These buttons control how many tracks Final Cut Pro attempts to play in real time. By default, Final Cut Pro attempts to play eight tracks. Playing any additional tracks will require rendering.

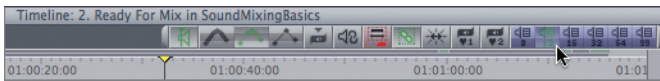
- 2 Open the 2. *Ready for Mix* sequence.

All of the fades are applied to this sequence.

At some places where cross fades occur, the audio render bar shows a red section. When playing across those sections, you'll hear a beeping sound.

Cross fades and some filters have an increased track processing “cost,” so to play this sequence without rendering you must increase the number of available real-time tracks.

- 3 Click the Real-Time Audio Mixing: 12 Tracks button.



The red area in the sequence render bar disappears.

**NOTE** ► If you're wondering why you shouldn't always leave the number of real-time tracks set to the maximum (99 tracks), it's because the more processor power you allocate to audio mixing, the less you'll have for real-time video effects. By leaving this setting at the lowest required value, you'll preserve as much processing power as possible for picture.