

listen to the result.

14 Turn off Cycle mode.

You now have a flawless funk rhythm guitar performance during the break. The crossfades, automatically added between edit points during the comping, ensure smooth transitions between the regions. You will learn how to apply and adjust your own fades and crossfades in the following two exercises.

Adding Fades and Crossfades

When editing audio, you usually want to avoid abrupt transitions on edit points: the region boundaries and the junctions between regions. You can use nondestructive fades in the workspace to create smooth transitions.

Adding a Fade-Out

The very last region on the Guitar track ends abruptly, before the guitar chord has finished its natural decay. You will now add a fade-out to make that last chord end more naturally.

1 Solo the Guitar track (track 7).

2 At the end of the Guitar track (at bar 21), listen to the three regions containing guitar chords.

You can hear odd blip sounds at the edit points: the beginning of the first region, the junctions between regions, and the end of the last region. The clicks are exacerbated by the reverb in the Amp Designer plug-in on the channel strip. Let's turn off that plug-in.

3 In the inspector, on the Guitar channel strip, place the mouse pointer over the Amp Designer plug-in, and then click the power button that appears to the left of the plug-in slot.



The plug-in is dimmed to indicate that it's turned off.

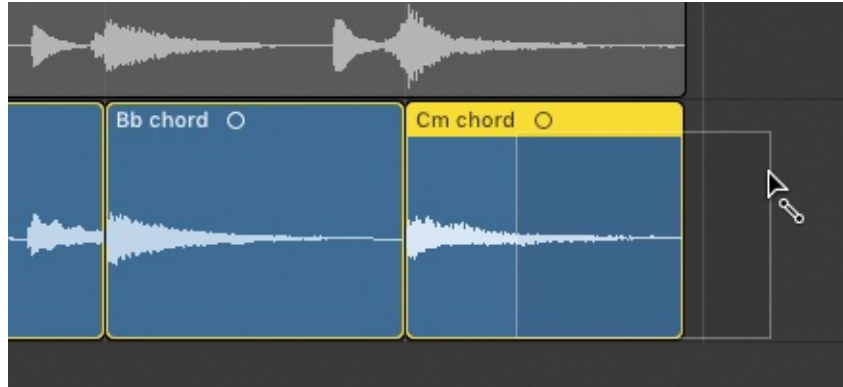
4 Just above the Amp Designer plug-in, turn off the Compressor plug-in.

5 Listen again to the three guitar regions at bar 21.

You can now clearly hear the clicks. The third region, a C minor chord

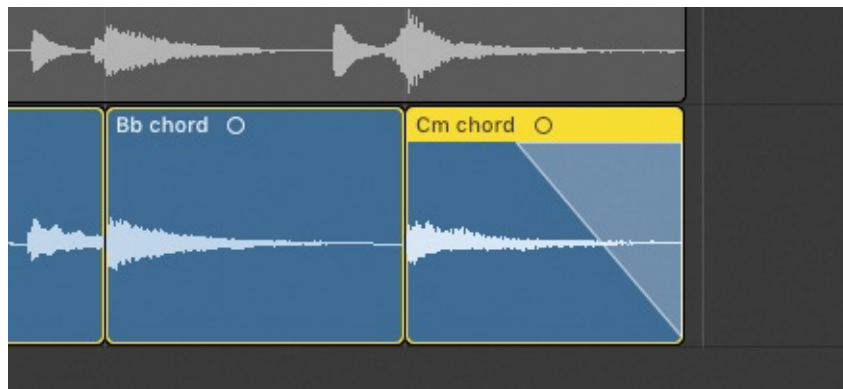
You can now clearly hear the click. The third region, a *C minor* chord, ends abruptly and the sustain tail of that chord does not sound natural.

- 6 Press T to open the Tool menu at the mouse pointer position.
- 7 Click the Fade tool, or press A, to assign it as the Left-click tool.
- 8 Drag the Fade tool over the end part of the *Cm chord* region, starting about halfway into the region.



To apply a fade, always ensure that you drag over a region's boundary, or nothing will happen. You can create fades only over region boundaries. Here, the rectangular frame should cover the end of the region.

A fade-out is created. The position where you started dragging determines the length of the fade-out.



- 9 Listen to the fade-out.

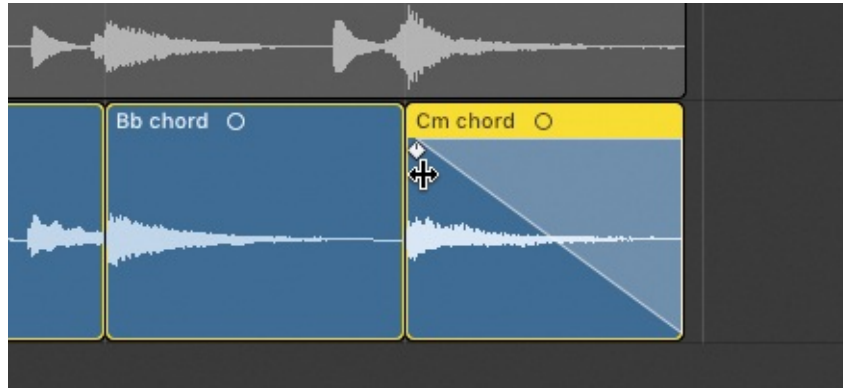
The level of the guitar chord progressively decreases until it's silent at the end, effectively removing the click at the end of the *Cm chord* region.

Tip

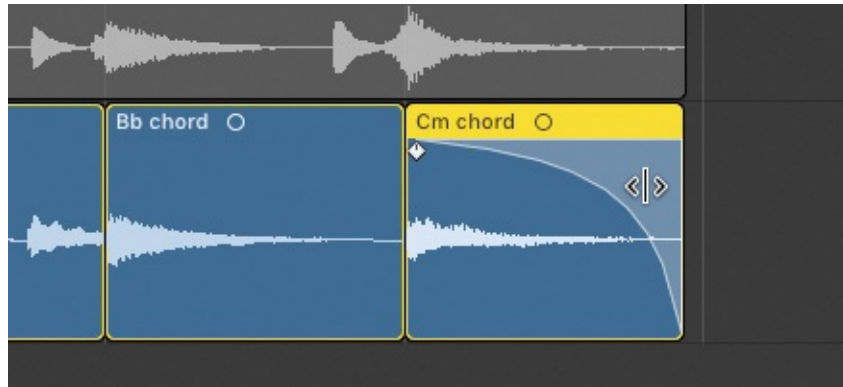
To remove a fade, Option-click the fade using the Fade tool.

You can now adjust the fade's length and curve to fine-tune its sound.

- 10** Place the Fade tool on the left side of the fade, and drag toward the left to start the fade-out at the beginning of the *Cm chord* region.



- 11** Place the Fade tool in the middle of the fade, and drag to the right to curve the fade.



The fade is curved in the direction you drag.

- 12** Unsolo the Guitar track, and in the inspector, turn on the Compressor and the Amp Designer.
- 13** Listen to the entire outro section starting at bar 21.
- The guitar and the piano fade out simultaneously at the end of the song, which now sounds cleaner and smoother.
- 14** Press T twice.

The Left-click tool is reassigned as the Pointer tool.

Adding Fades to Remove Clicks

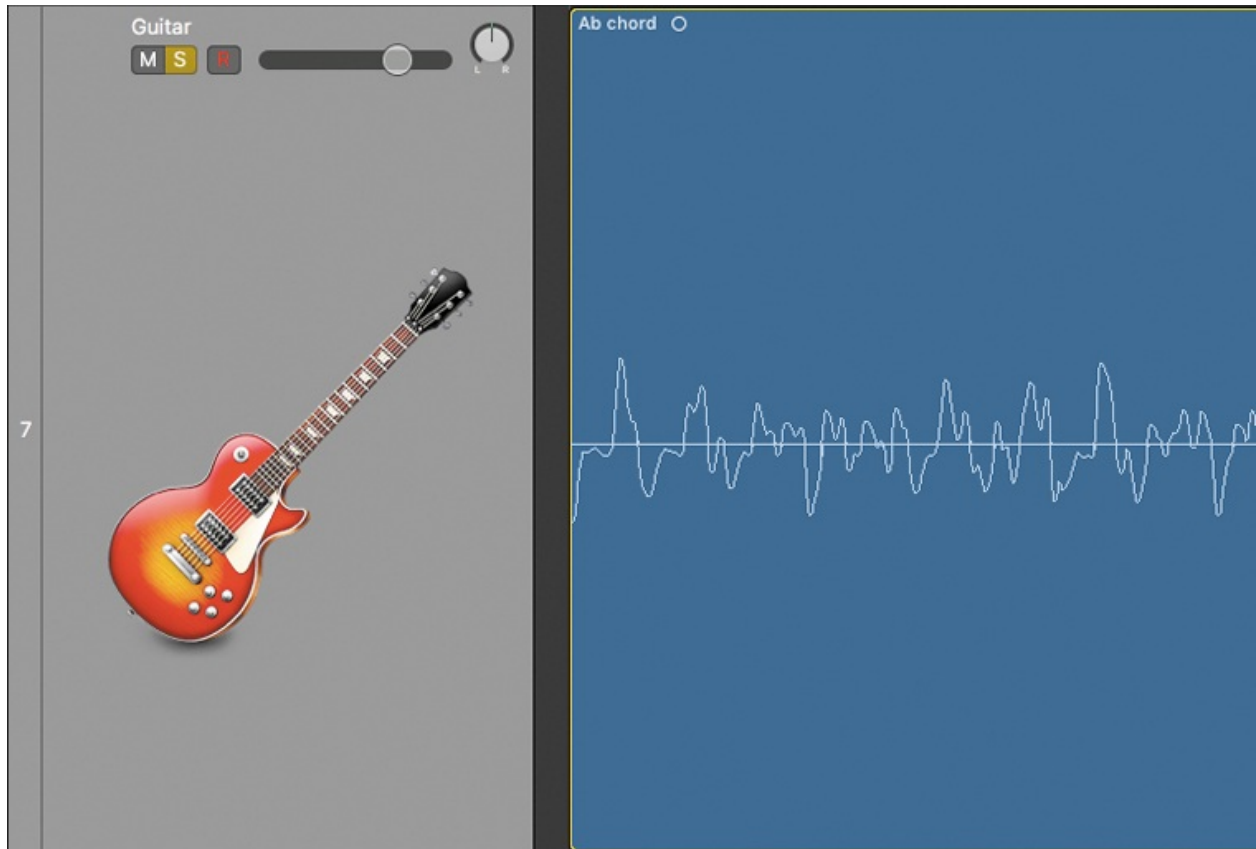
In this exercise, you will add very short fades and crossfades to eliminate click sounds that occur at edit points on the final three regions on the Guitar track.

- 1** Solo the Guitar track, and in the inspector, turn off the Compressor and Amp Designer.

2 Listen to the *Ab chord* region at bar 21, starting playback slightly before the beginning of that region.

You can hear a click at the beginning of the region. Let's zoom in to take a closer look at the waveform.

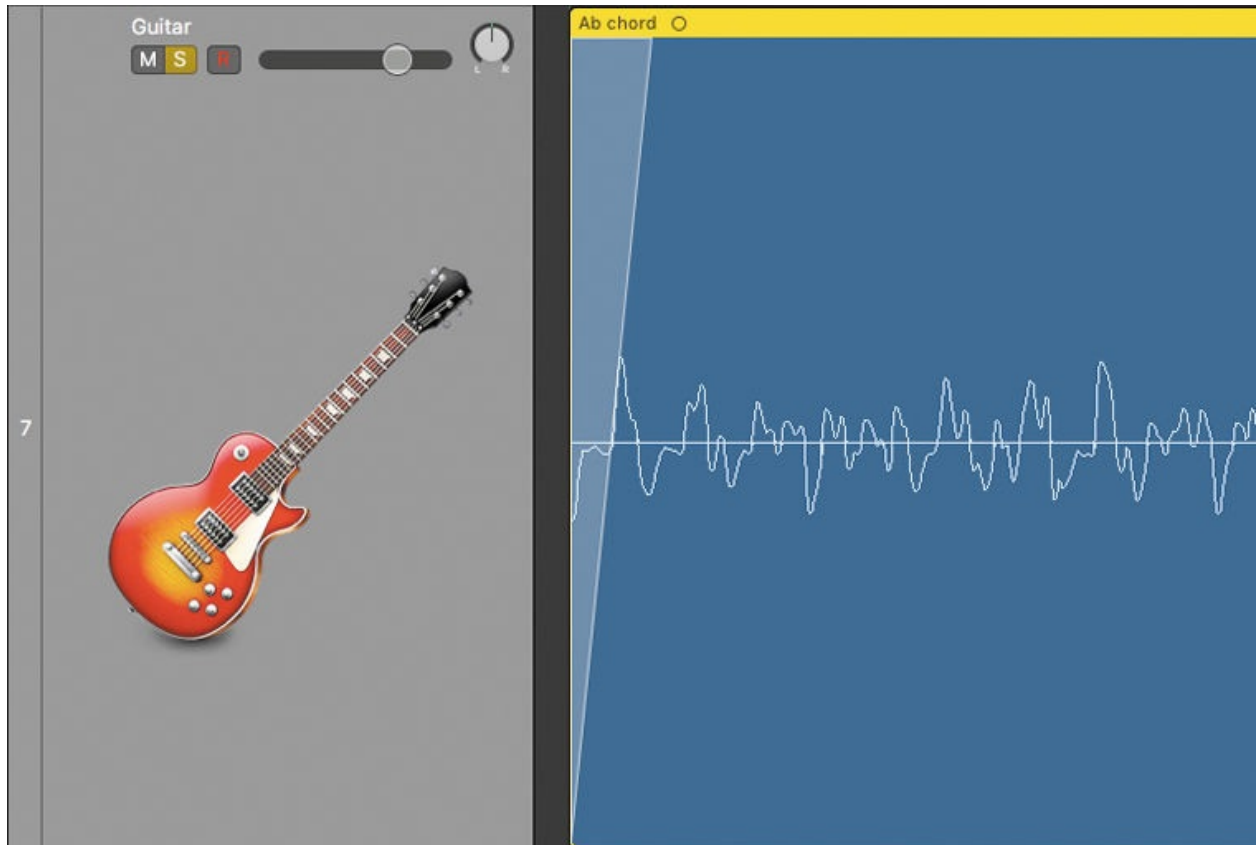
3 Control-Option-drag around the left edge of the *Ab chord* region.



You may need to zoom in a few more times to clearly see the shape of the waveform.

To add fades using the Pointer tool, you can Control-Shift-drag over the region boundary.

4 Control-Shift-click inside the region, and drag toward the left over the region start.



A fade-in is added.

5 Zoom out and listen to the fade-in.

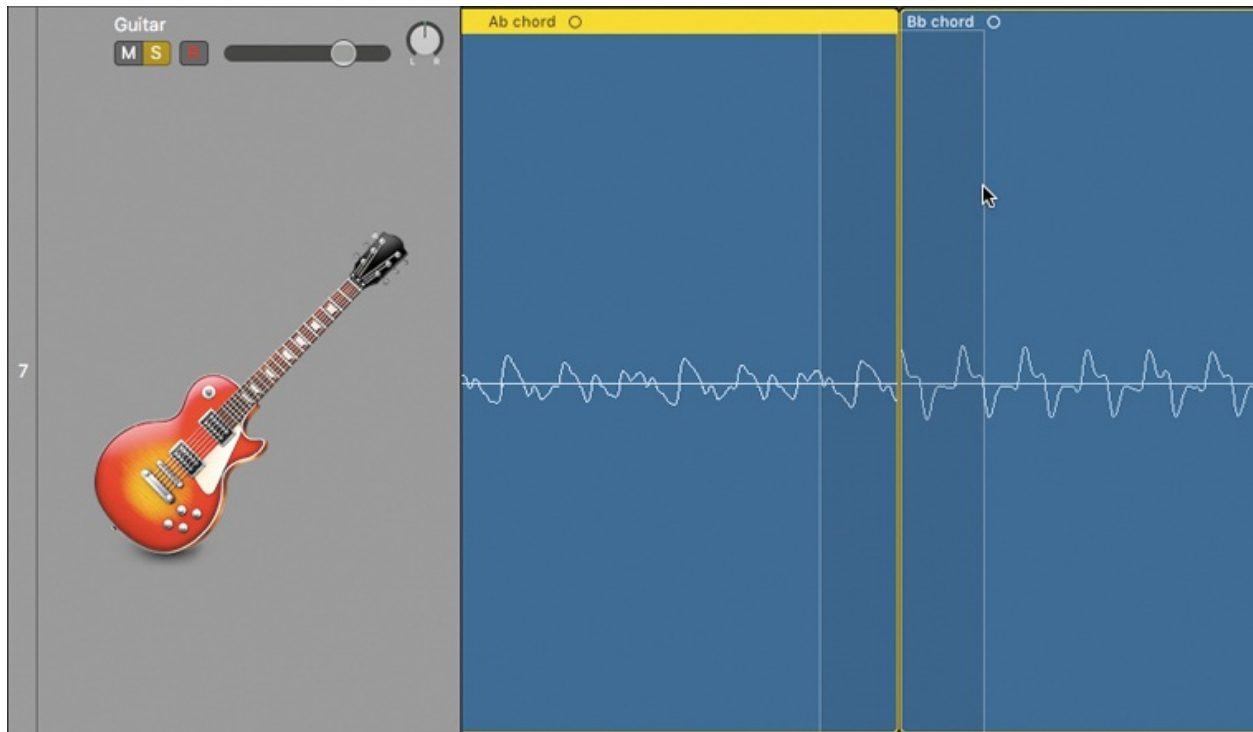
The click sound at the beginning of the *Ab chord* region disappeared.

Tip

To compare the sound before and after the edit, choose **Edit > Undo Crossfade Edit** (or press **Command-Z**) to undo the previous edit, and choose **Edit > Redo Crossfade Edit** (or press **Command-Shift-Z**) to reapply that edit.

6 Listen to the junction between the first two regions of the outro, *Ab chord* and *Bb chord*. You can hear a click sound at the edit point.

7 Zoom in closer to the junction between the two regions, and **Control-Shift-drag** over the junction.



A crossfade is added at the junction between the two regions.

Tip

You can change the curve of a crossfade by placing the mouse pointer in the middle of the crossfade and dragging toward the left or right.

8 Zoom out and listen to the crossfade.

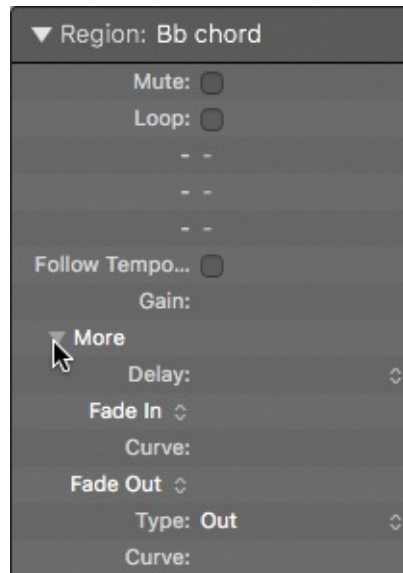
The click sound at the junction between the regions disappeared.

When adding short fades or crossfades to avoid clicks, you don't need to zoom in and look at the waveform. All you need is a very short fade at the edit point to smooth the transition.

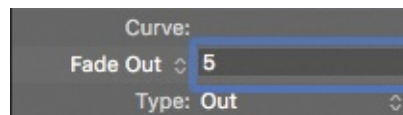
There's one click left to remove: at the junction between the two final regions on the track, *Bb chord* and *Cm chord*. This time you will add the crossfade using the parameters in the Region inspector to avoid zooming in and out.

9 Click the *Bb chord* region.

10 At the top of the inspector, in the Region inspector, select the More option to display the fade parameters.

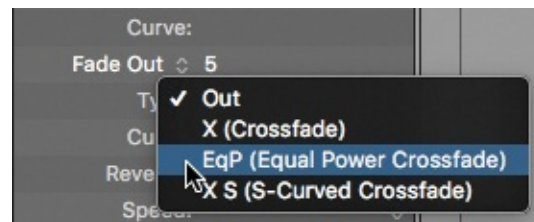


- 11 Double-click to the right of the Fade Out parameter to activate the data field, and enter 5.



A five-millisecond fade-out is added at the end of the selected region.

- 12 Click the Type parameter value, and choose EqP (Equal Power Crossfade).



In the workspace, you can see that the fade-out at the end of the selected region is replaced by a crossfade.

Note

While X, EqP, and X S crossfades have different shapes, the shape of EqP crossfades keeps the volume of the sound constant throughout the fade, which makes EqP the best choice for most situations.

- 13 Unsolo the Guitar track, turn the Compressor and Amp Designer back on, and listen to the outro.

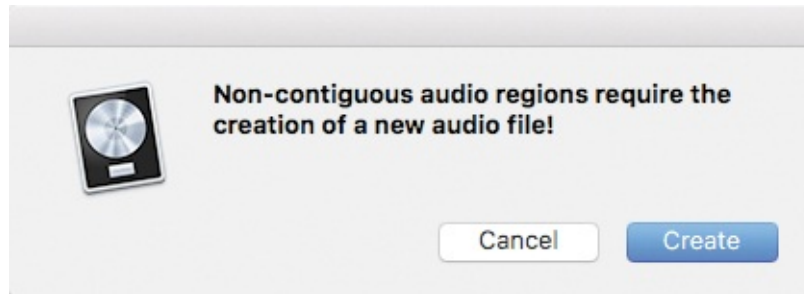
A five-millisecond fade-out is added at the end of the selected region.

After editing a section, you may have many small regions with fades between them. You can choose to keep those small regions with the fades so that you can readjust the edits later. However, if you are ready to commit and would rather deal with a single audio region for the entire section, you can join the regions to render your edits into a new audio file.

14 Select the *Ab*, *Bb*, and *Cm* chord regions.

15 Choose Edit > Join > Regions (or press Command-J).

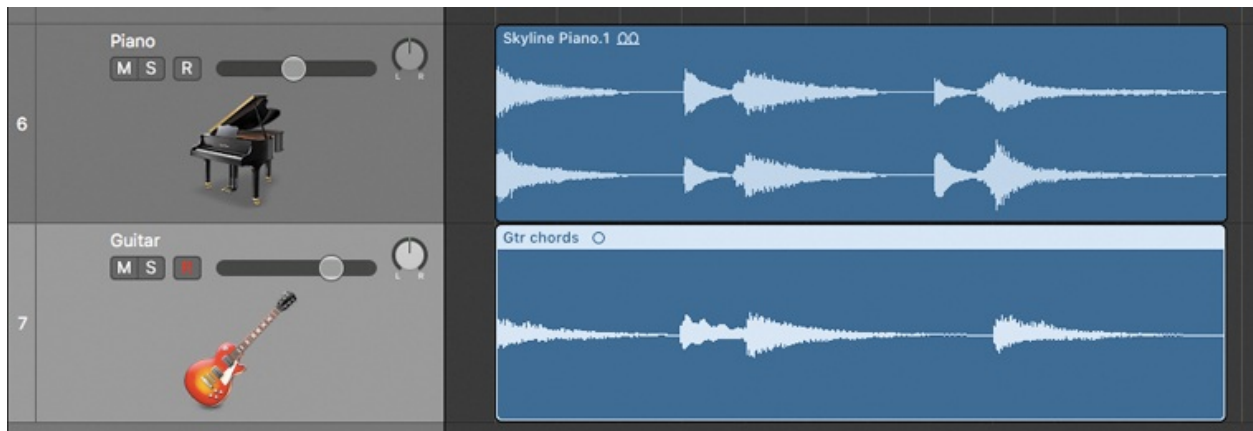
An alert asks you to confirm the creation of a new audio file.



16 Click Create, or press Return.

A new audio region is created in place of the selected regions and their fades.

17 Using the Text tool, rename the new region *Gtr chords*, and then revert to the Pointer tool.



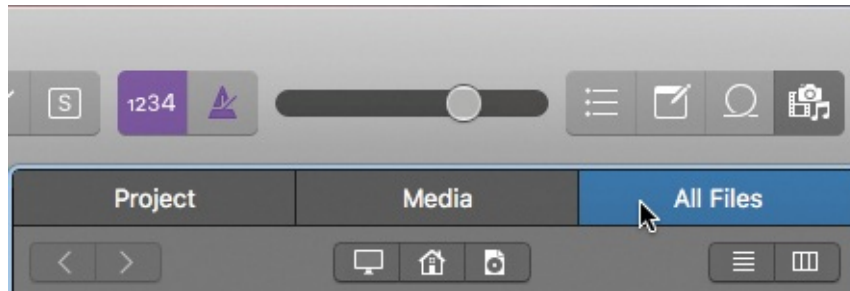
Editing Regions in the Audio Track Editor

For some editing, you need to clearly see the grid behind the regions or have the bar ruler displayed directly on top of the regions you're editing. Zooming and scrolling in the workspace can help to an extent; however, when you want to edit the regions of a single track, you can use the Audio Track Editor to focus on that track without changing the zoom level of the Tracks area.

Importing Audio Files Using the All Files Browser

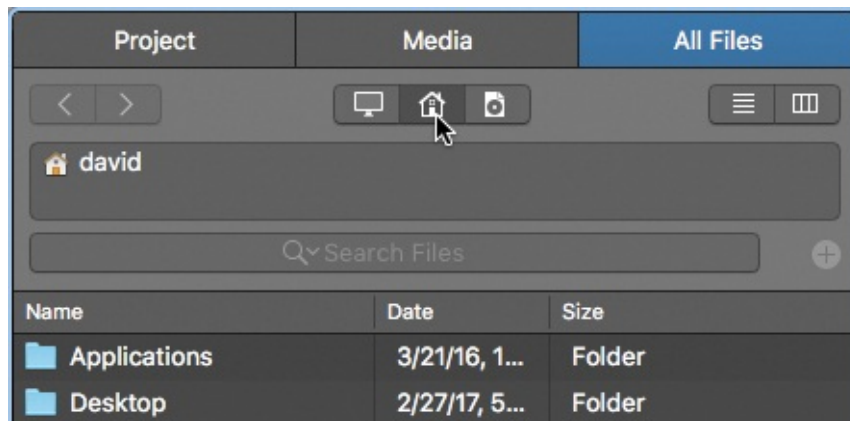
You will now import a new audio file to the project: a white noise sound effect you will use later to accentuate the transition between song sections at bar 17.

- 1 In the control bar, click the Browsers button (or press F).
- 2 At the top of the browsers, click the All Files tab.



The All Files Browser opens. At the top, three buttons allow you to access all the volumes connected to your computer, your home folder, or the current project folder.

- 3 Click the Home button.



The contents of your home folder appear in the browser.

- 4 Double-click Desktop, and continue double-clicking folders to navigate to Logic Pro X Files > Media > Additional Media.
- 5 In the All Files Browser, select **wave.aif**.
- 6 At the lower left of the All Files Browser, click the Play button (or press Control-Spacebar).



The **wave.aif** file plays. It's a sound effect of white noise rising and falling in level, similar to the sound of an ocean wave.

7 Drag **wave.aif** to the bottom of the workspace at bar 13.



A new track is created, and the *wave* audio region is added at bar 13. The audio file was recorded at a low level, and its waveform is rather flat. Depending on your zoom level, you may not even see a waveform at all. In the next exercise, you will zoom in to the waveform so you can see it clearly.

8 In the control bar, click the Browsers button (or press F) to close the browser.

9 Play the song from bar 13 to bar 18.

The white noise effect sounds like it will work in that section. However, for maximum effect, it must be positioned so that the climax of the wave sound occurs at bar 17.

Using the Audio Track Editor

You will now continue editing the *wave* region nondestructively, but this time in the Audio Track Editor, which allows you to clearly see the grid and the ruler above the regions without having to change the zoom level of the Tracks area.

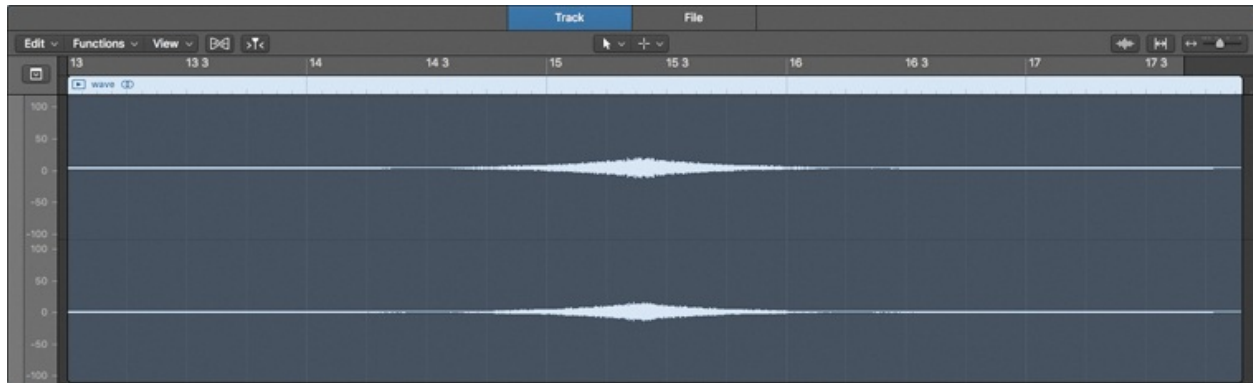
1 In the workspace, double-click the *wave* region to open the editors area.

2 At the top of the editors area, click Track.



The Audio Track Editor opens, displaying the wave track and its single region.

3 Press Z.



The *wave* region fills the Audio Track Editor. You can clearly see the ruler just above the waveform, with vertical grid lines displayed under the waveform.

You can see that the *wave* region is a stereo audio region because it has two interleaved circles next to its name, and two waveforms are displayed in the Audio Track Editor.

Note

In the workspace, when stereo audio regions zoomed out, they appear as a single waveform. As you reach a certain zoom level, two waveforms are displayed, one for each channel.

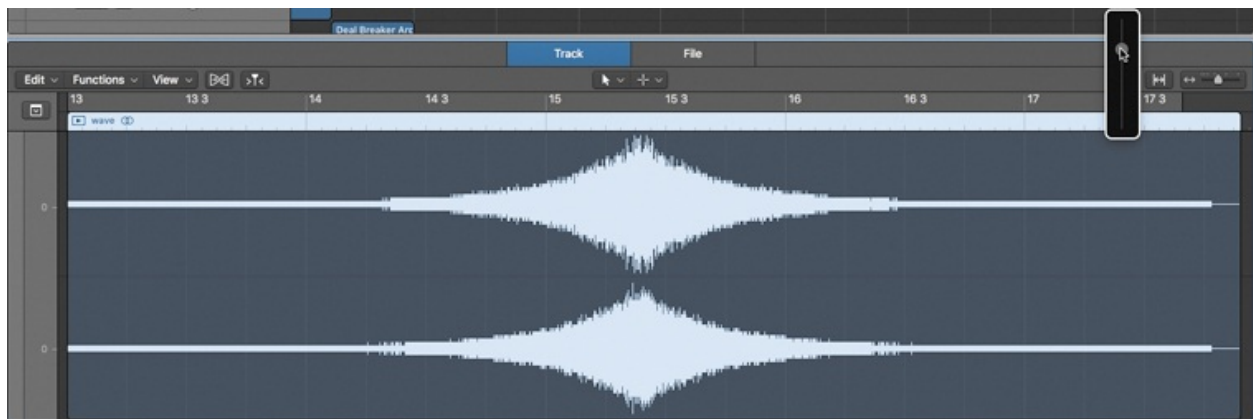
Let's zoom in on the waveform.

- 4 At the top right of the Audio Track Editor, click the Waveform Zoom button.



The waveform is a little taller. Let's zoom in even closer.

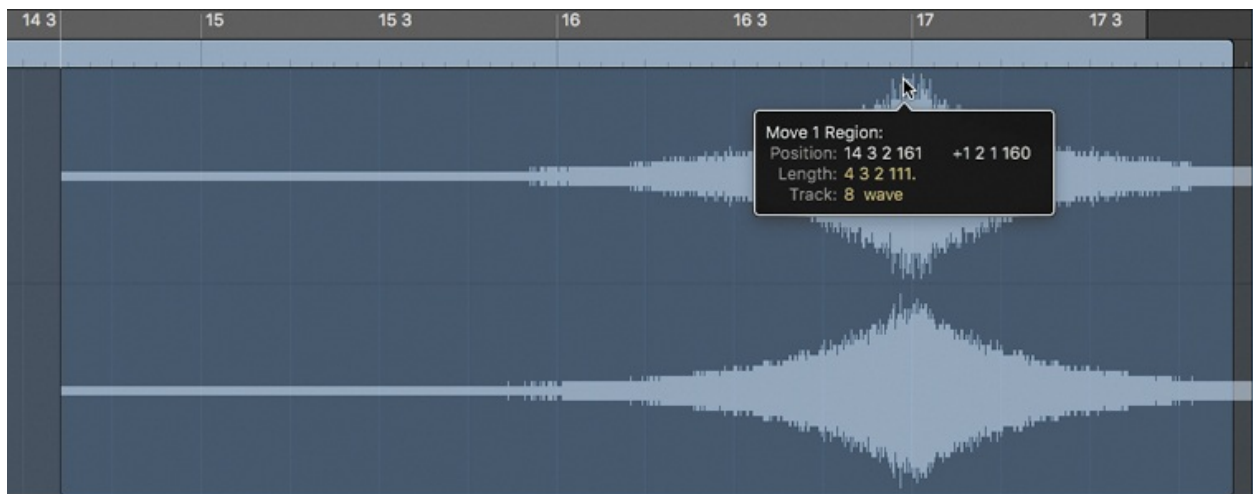
- 5 Click and hold down the Waveform Zoom button until the vertical zoom slider appears, and then drag up until you can clearly see the waveform.



Note

A separate Waveform Zoom button at the upper right of the Tracks area allows you to adjust the vertical zoom level of audio region waveforms in the workspace.

- 6 In the Audio Track Editor, drag the *wave* region to the right until the highest point on the waveform is aligned with bar 17.



In the workspace, the *wave* audio region is moved accordingly.

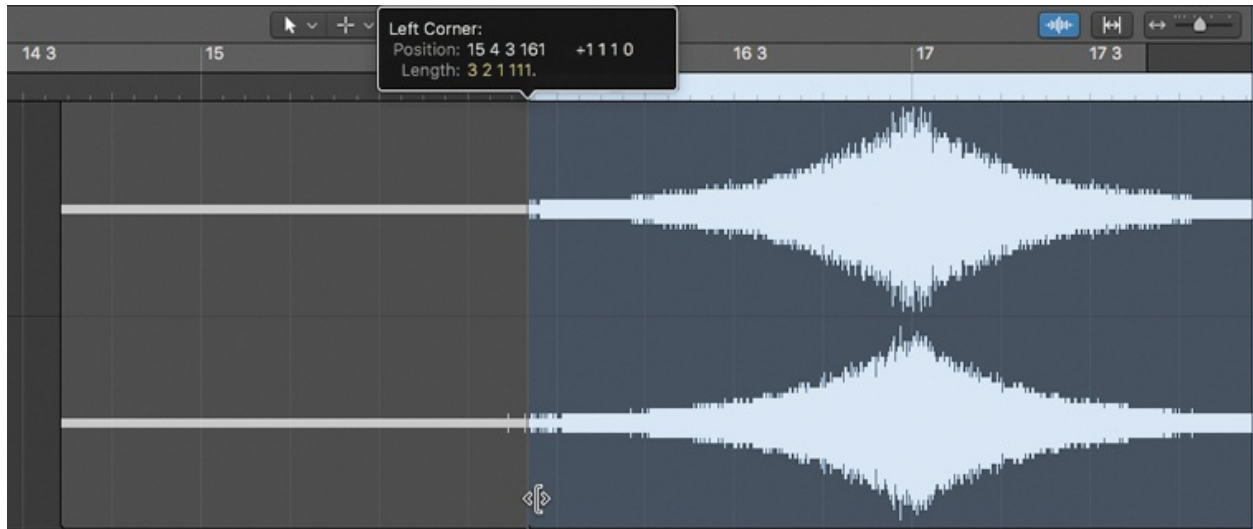
- 7 In the Tracks area, position the playhead before the *wave* region, and press the Spacebar to play the results.

The climax of the wave sound is now perfectly aligned with the transition between song sections at bar 17. The effect would sound even better if the rise before bar 17 were shorter.

- 8 Stop playback.

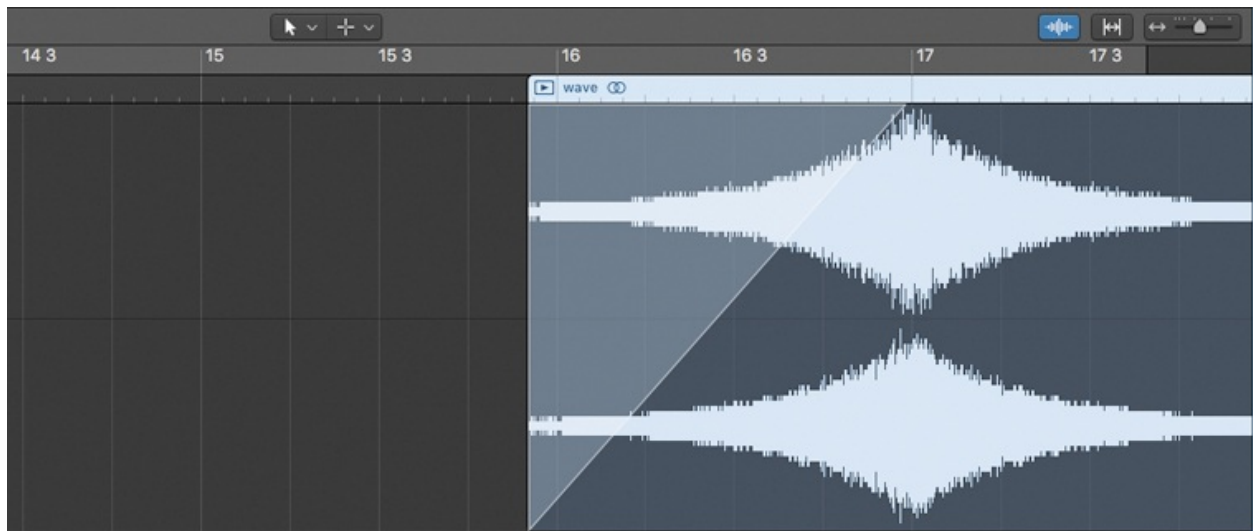
- 9 In the Audio Track Editor, place the mouse pointer at the lower left of the

wave region until it turns into the Resize tool. Then drag to the right so the region starts at bar 16.

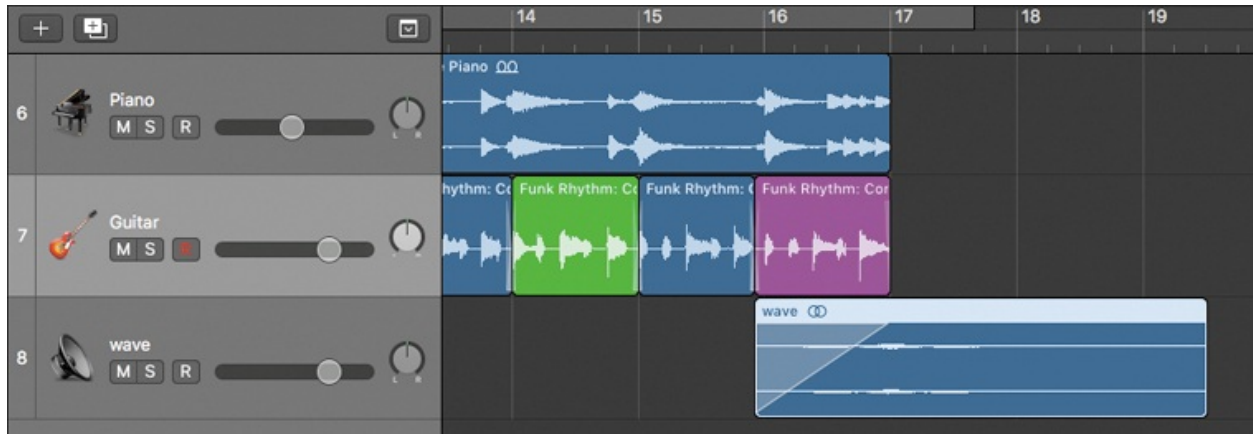


The region is now trimmed. Let's add a fade-in.

- 10 In the Audio Track Editor, Control-Shift-click the waveform at bar 17 and drag toward the left over the region start.



A fade-in is added. All the edits you perform in the Audio Track Editor are reflected in the workspace.



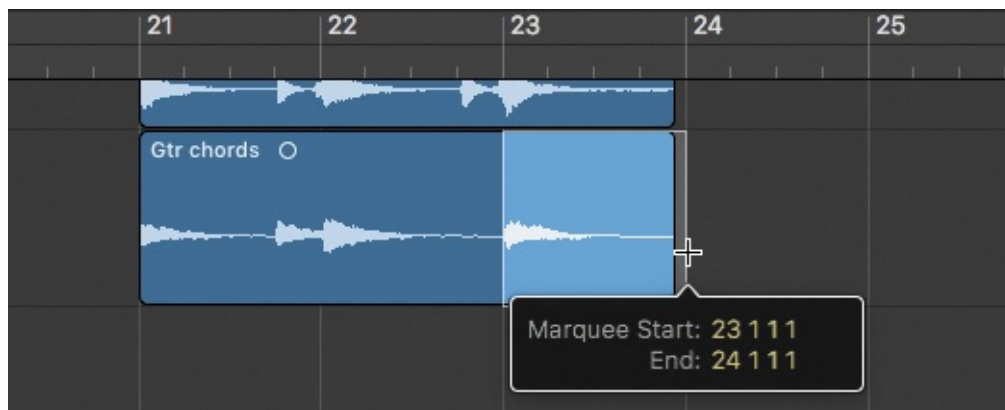
11 In the control bar, click the Editors button (or press E) to close the Audio Track Editor.

12 Listen to the song from the beginning of the breakdown at bar 11.
The wave sound now rises rapidly in the last bar of the breakdown and decays slowly in the next section, which works better for this transition.

Playing an Audio Region Backward

You will now create a new region from the last chord of the *Gtr chords* region at the end of the Guitar track, and copy it to the beginning of the song. You will then reverse the new audio region to create a swelling sound effect during the introduction.

1 On the Guitar track, Command-drag the last bar of the *Gtr chords* region to select it with the Marquee tool.



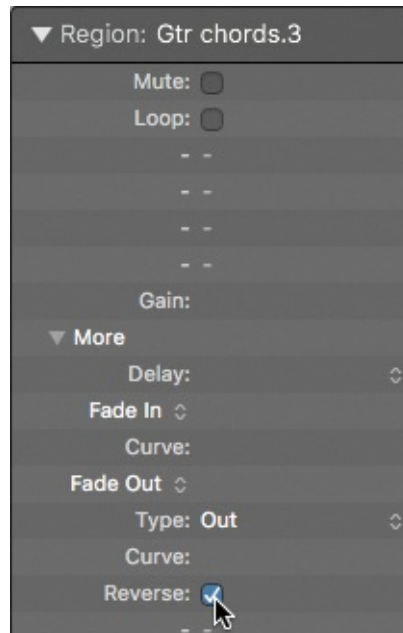
You will now copy that region to bar 4, the last bar of the introduction.

2 Option-drag the region to the left, and release the mouse button when the help tag displays Position: 4 1 1 1.

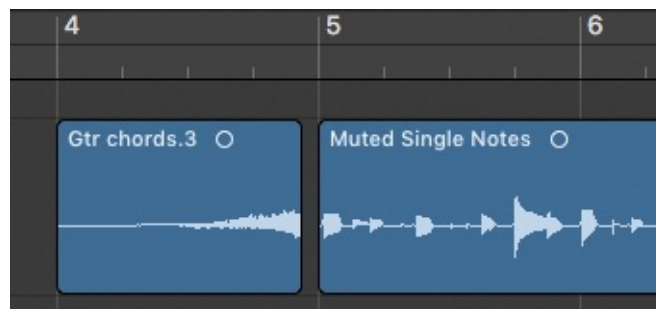
You have a new *Gtr chords.3* region in the introduction that you will

reverse nondestructively.

- 3 At bar 4, ensure that the new *Gtr chords.3* region is still selected, and in the Region inspector, select Reverse.



In the Tracks area, you can see the *Gtr chords.3* region's waveform being reversed: it starts with silence and slowly builds up to the sustained guitar chord.

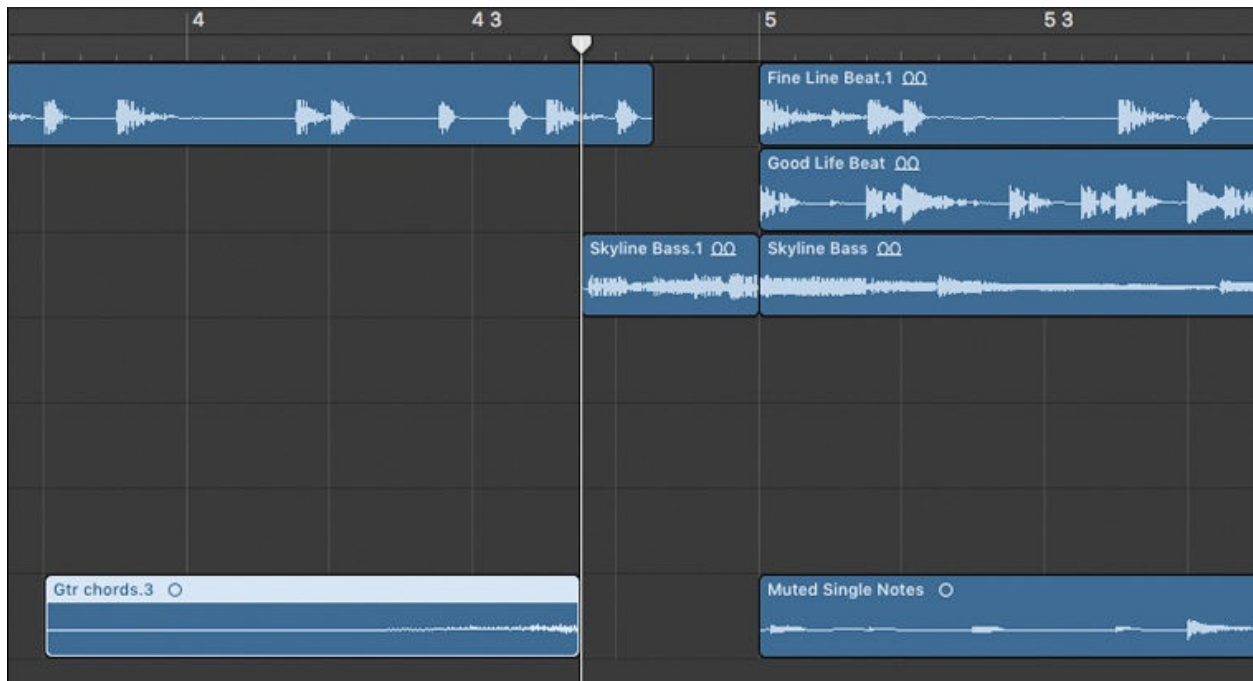


- 4 Press the Spacebar to listen to the introduction.

The swelling guitar chord sounds about right. But it's still not in the perfect position because it overlaps the first notes of the bass. To get the full impact of the break at the end of the intro, the *Gtr chords.3* region should end exactly where the first *Skyline Bass* region starts.

- 5 From the Snap menu, choose Smart.

- 6 Drag the *Gtr chords.3* region a little toward the left.



To help lining up the end of the reversed guitar with the first notes on the bass track, you can zoom in horizontally and position the playhead at the beginning of the *Skyline Bass.1* region.

Now the swelling guitar chord sounds smooth. It catches the listener's attention just before the bass first comes in, accentuating the effect of the break at the end of the introduction.

Aligning Audio

Accurately aligning audio material to the grid, or to other instruments in the song, is crucial to realizing a professional-sounding song. No amount of plug-ins, mixing, or mastering techniques can fix a sloppy arrangement, so getting a tight-sounding arrangement before moving on is important.

You will now import a guitar recording that was removed from the workspace but kept in the Project Audio Browser. That guitar was removed because of timing issues, which you can now fix using the Flex tool.

- 1 In the control bar, click the Browsers button (or press F).
- 2 At the top of the browser, click the Project tab.
- 3 In the Project Audio Browser, scroll all the way down, and then drag the *Guitar Intro* region to the Guitar track at bar 1.



4 Click the Browsers button (or press F) to close the Project Audio Browser.

5 Play the introduction that includes your new *Guitar Intro* region.

The guitarist is playing four dead notes (unpitched percussive sounds when the string wasn't ringing) that cause a ringing in the vintage spring reverb in the guitar amp modeling plug-in.

The third note, at bar 2, sounds out of place, while the other notes play at the second and fourth beat of each bar, much as a snare would be heard in a drum pattern. You will move that third dead note to the second beat of bar 2.

6 Press T, and choose the Flex tool.

7 Using the Flex tool, click anywhere on the *Guitar Intro* region.

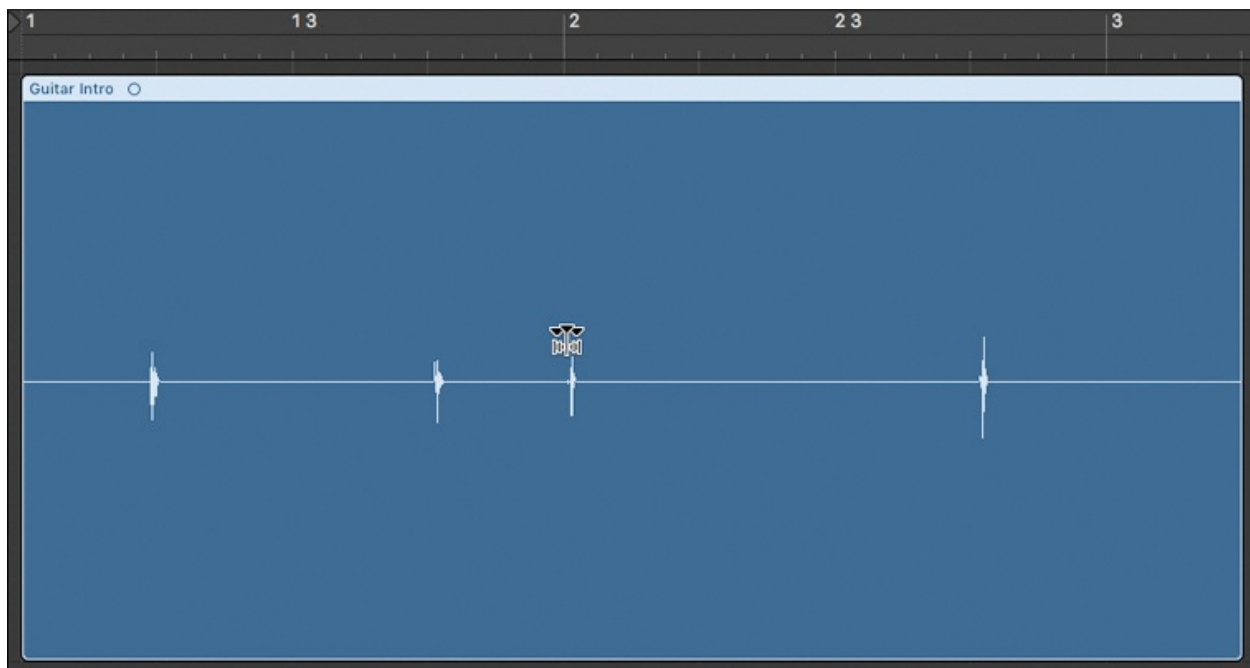
The audio files used on the Guitar track are analyzed for transients. You may see a progress window briefly.

Note

When you click an audio region using the Flex tool, Logic automatically chooses a flex mode and analyzes all audio files on the same track to detect their transients. You will learn more about flex editing in [Lesson 7](#).

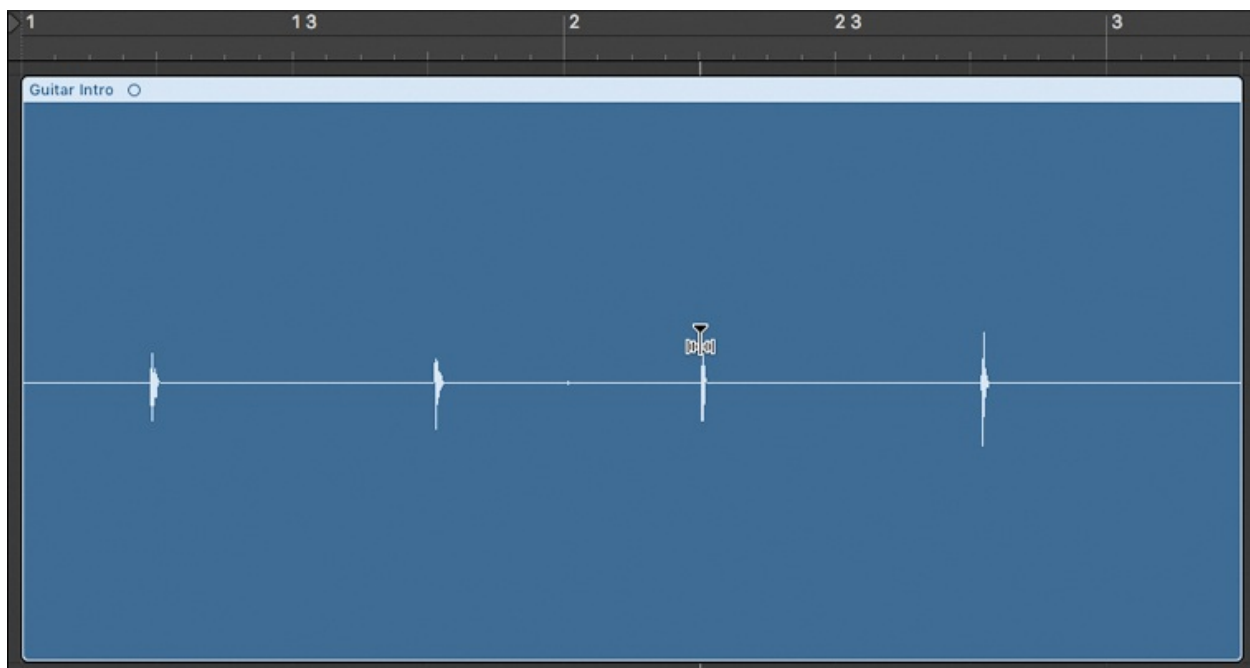
8 Zoom in closer on the *Guitar Intro* region so that you can see the ruler above the waveform (or press Z).

9 Place the Flex tool over the attack of the third note (at bar 2).



Depending on its position over the waveform, the Flex tool can perform different functions, indicated by different tool icons. So, make sure that the tool is located precisely over the note's attack and looks like the pointer icon in the preceding figure.

- 10** Drag the Flex tool to the right to move the third guitar note to measure 2, beat 2.



- 11** Play the introduction.

The dead notes in the first two bars now sound consistent.

The dead notes in this guitar region are still not located perfectly on the grid. If you wanted to take this a little further, you could set your snap mode to Beat, zoom in closer on the first guitar note, and use the Flex tool to drag it exactly on the beat. Then you'd repeat this operation on the second and fourth notes.

You now know how to read a waveform, identifying notes and their attacks to perform precise and clean edits. You acquired skills with a number of editing tools—such as the Marquee tool, Fade tool, Resize tool, Flex tool, take folders, and snap modes—that you will continue to use as you edit recordings and arrange projects.

Further, you can now accelerate your workflow by choosing the appropriate Left-click and Command-click tools for each job. As you produce more music in Logic, you will continue sharpening those skills in the course of becoming an increasingly proficient audio engineer.

Lesson Review

1. What is nondestructive audio editing?
2. Where can you perform nondestructive editing?
3. How do you comp takes?
4. How do you prepare to edit the takes inside a take folder?
5. How can you see the result of your comp as regions?
6. How do you add a fade-in or fade-out to a region?
7. How do you add a crossfade between two regions?
8. How do you select a section of an audio region?
9. Which tool allows you to move an individual note inside an audio region without dividing the region?

Answers

1. Audio region editing that does not alter the audio data in the referenced audio file
2. In the workspace or in the Audio Track Editor
3. Open the take folder, and drag over each take to highlight the desired sections. The take folder assembles a comp including all the highlighted sections.

4. Click the Quick Swipe Comping button at the top left of the take folder to disable Quick Swipe Comping mode.
5. From the Take Folder pop-up menu, choose Flatten.
6. Drag the Fade tool over the boundaries of a region (or Control-Shift-drag the Pointer tool), or adjust the Fade In parameter in the Region inspector.
7. Drag the Fade tool over the junction of the regions (or Control-Shift-drag the Pointer tool), or adjust the Fade Out parameter in the Region inspector.
8. Use the Marquee tool.
9. The Flex tool

Keyboard Shortcuts

Workspace

Control-Shift-drag with the Pointer tool	Adds a fade
Option-click with the Fade tool	Removes a fade
While dragging, press and hold down Control	Partially disables snapping
While dragging, press and hold down Control-Shift	Disables snapping with increased placement precision
Command-J	Renders the selected regions and their fades into a single new audio region
Command-G	Toggles snapping to grid

Tools

T	Opens the Tool menu at the mouse pointer position
Press T twice	Changes the Left-click tool to a pointer
