# Lesson 10. Automating the Mix

**Lesson Files Time Goals**

Logic Pro X Files > Lessons > 10 Alliance

This lesson takes approximately 60 minutes to complete.

Create track and region automation graphically

Record live track automation

Use the Touch and Latch automation modes

Assign a MIDI controller knob or fader to remotely control the desired parameter

Automate track mute and plug-in bypass

Export the mix as a PCM file

When multitrack recorders first appeared in recording studios, they forever changed the way artists produce music. The ability to have separate recordings of individual instruments opened the door for experimentation, and soon artists and producers alike placed their hands on the mixing board during the final mixdown—panning an instrument from left to right or riding a volume fader to change the level of a track throughout a song. Soon enough, two or three pairs of hands weren't enough to perform all the changes needed throughout a mix, and a solution was needed.

Eventually, mixing consoles were designed with faders that also generated a data stream. By recording those data streams onto a separate track of the multitrack tape, the console could automatically re-create those fader movements during playback. This started the era of automated consoles. Today, professional computerized mixing boards and digital audio workstations are fully automated.

In Logic, you can automate almost all the controls on a channel strip, including volume, pan, and plug-in parameters. In this lesson, you will draw and edit offline automation to bring down the volume of a vocoder (a synthesized vocal recording) during the breaks, pan a sound effect from left to right, and turn off a plug-in at the end of a section. You will then record live automation to swipe a low-pass filter over the vocoder, pan the vocoder across the stereo field, and turn off an EQ at the beginning of a section.

## Creating and Editing Offline Automation

In Logic, the techniques used to create and edit track-based automation closely resemble MIDI Draw, which you used to graphically edit MIDI continuous controller events in Lesson 6. While MIDI Draw allows you to automate MIDI CC parameters in a region, track automation lets you automate almost any channel strip controls independent of the regions on the track.

Drawing automation graphically is also known as *offline automation*, because it is applied without regard for the playhead position and can be performed while Logic is not playing.

## Creating Track Volume Automation

When you need to accurately control the volume of an instrument in specific sections of a song, drawing offline automation over the waveform enables surgical precision without the pressure of performing fader movements in real time.

In this exercise, you will add offline volume automation to a vocal track so that the track plays more softly during the breakdowns.

1. Open Logic Pro X Files > Lessons > **10 Alliance**.
2. Play the song, and listen to the Vocoder Chorus track (track 28) in both breakdown sections (at bar 29 and at bar 89).

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**Tip**

Remember to use Solo mode along with Shift-Spacebar (Play from Selection) to listen to a specific region or group of regions.

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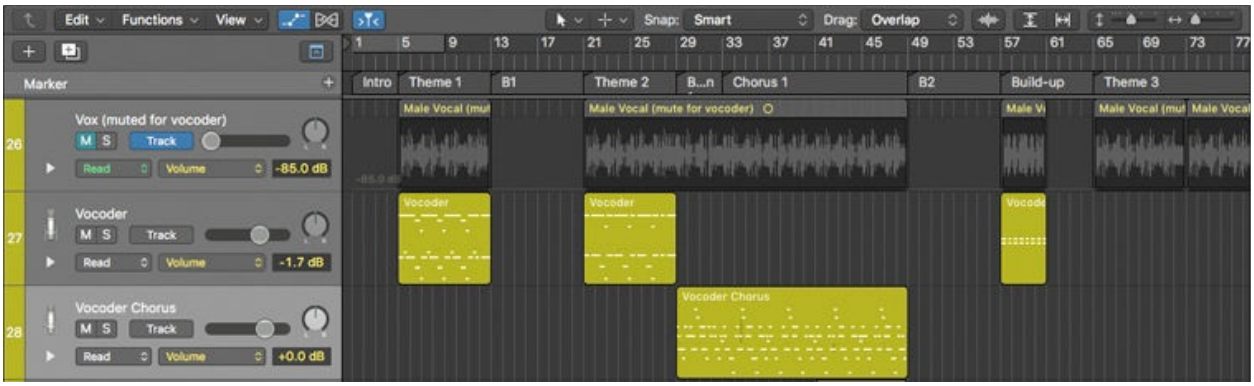
You will bring the vocals down slightly in those two sections.

3. Select the Vocoder Chorus track (track 28).
4. In the Tracks area menu bar, click the Show/Hide Automation button (or press A).




In the Tracks area, tracks must be tall enough to display their automation curves, so the Tracks area is automatically zoomed in vertically. On the track headers, the Automation button, Automation Mode pop-up menu, and Automation Parameter pop-up menu appear.

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**Tip**

When an automation track is shown, you can edit regions (move, copy, resize, and so on) in the thin lane containing the region names.

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You will now create a volume automation curve to reduce the volume of the vocoded vocals in the Breakdown at bar 29.

5 On the Vocoder Chorus track header, position the pointer over the Automation button, and click the On/Off button that appears.


The automation is turned on for that track, and you can see the automation curve on the track.

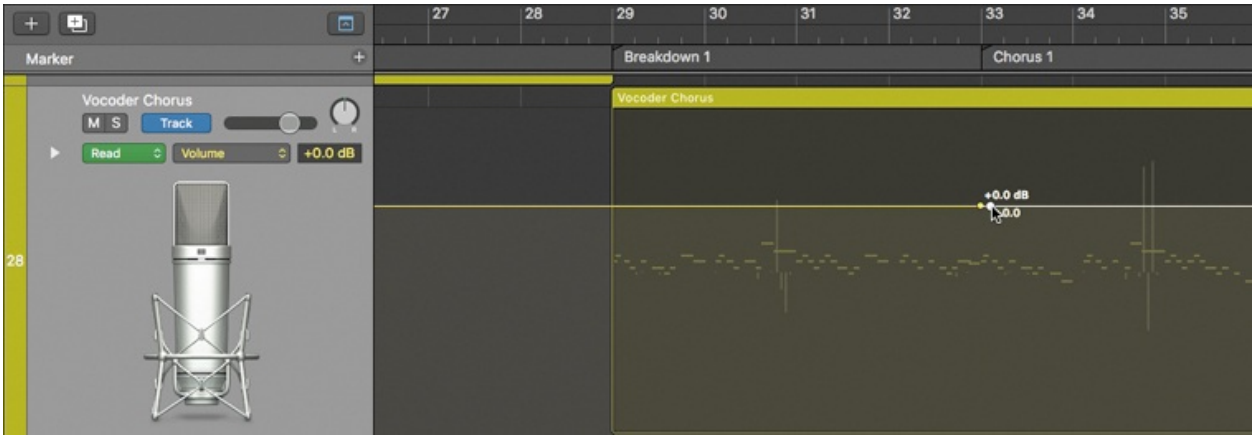
6 Click anywhere on the automation curve.


A control point is created at the beginning of the project (bar 1) at the current Volume fader value, 0.0 dB, and the automation curve is shaded yellow to indicate that some automation data is now present.

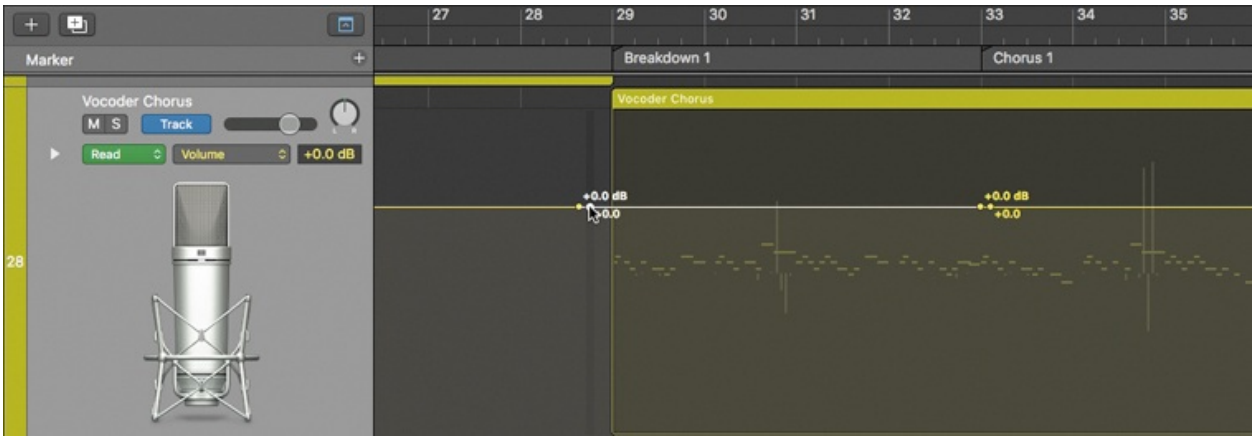
7 Zoom in on the beginning of the *Vocoder Chorus* region at bar 29, below the Breakdown 1 marker.

You can create control points by clicking the automation curve.

**8** Click the volume automation curve just before and just after the beginning of bar 33 to create two 0 dB control points.




**9** Create two more control points before the *Vocoder Chorus* region beginning at bar 29.




**10** In the Breakdown 1 section, drag the automation curve down to –2.6 dB.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## Tip

You can also draw automation curves using the Pencil tool.

**11** Start playback before the four control points (at bar 28).

Look at the Volume slider in the track header, or the Volume fader in the inspector. They both move to reflect the volume automation curve on the track, dropping down from 0 dB to –2.6 dB just before the breakdown, and coming back up to 0 dB at the beginning of the chorus.

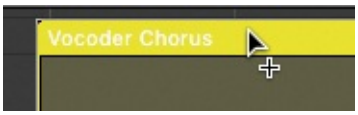
If you're not happy with the timing of your automation, feel free to zoom in on any of the control points and drag them to other locations.

You will now create similar automation in the second breakdown.

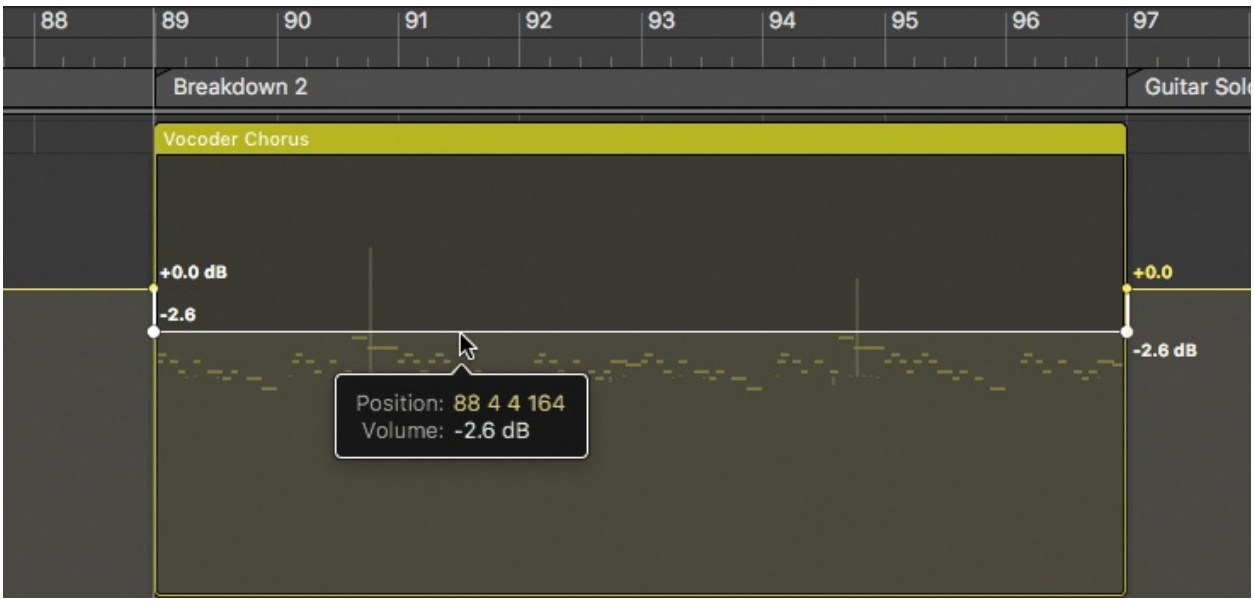
**12** Scroll to the right until you can see the Breakdown 2 marker (bar 89).

This time, you will use the Marquee tool to select a section of the automation curve, and then drag down the selected section of the curve. To quickly select the entire region, you can Option-click the region with the Marquee tool, your current Command-click tool. Since the automation track is displayed, you'll have to click in the region name area.

**13** Command-Option-click the name area of the *Vocoder Chorus* region to select it with the Marquee tool. The region is highlighted.




**14** In the Breakdown 2 section, drag the automation curve down to around –2.6 dB.




As you drag the line down, you can see two nodes created on each end of

As you drag the line down, you can see two nodes created on each end of the Marquee selection, so dragging the automation curve will adjust the volume only for the selected section.

15 Click the background of the workspace to clear the selection, and press Z to see all the regions.

16 Listen to the Breakdown 2 section by starting playback around bar 88.

At the beginning of the breakdown, the Volume fader in the inspector drops down from 0 dB to –2.6 dB. At the end of the section, the Volume fader returns to 0 dB.

When you're happy with the automation curve, you can adjust the overall volume level of the track by trimming the automation on the track.

17 In the control bar, click the "Go to Beginning" button (or press Return).

18 Zoom in on the Vocoder Chorus track. In the track header, place the mouse pointer over the numerical display (the parameter value changes to Trim) and drag up to +1.0 dB.


The automation curve for the entire track is raised by 1.0 dB.

19 Click the background, and press Z to zoom out.

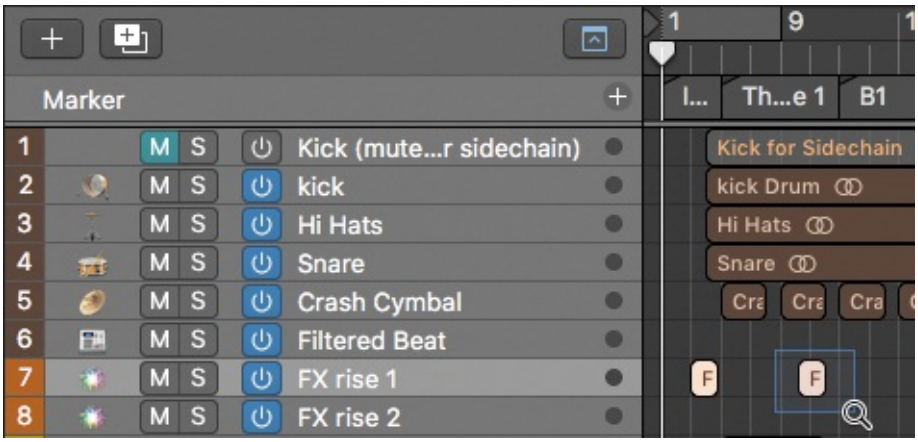
## Creating Region Pan Automation

Applying pan automation can be a fun way to create movement in your mix, moving a sound from one side of the stereo field to the other. It is a powerful effect that calls attention to the automated sound, and when used in moderation, it can add life to a sound effect. Creating the automation in the region makes it easier to move, copy, repeat, or loop the region along with its automation.

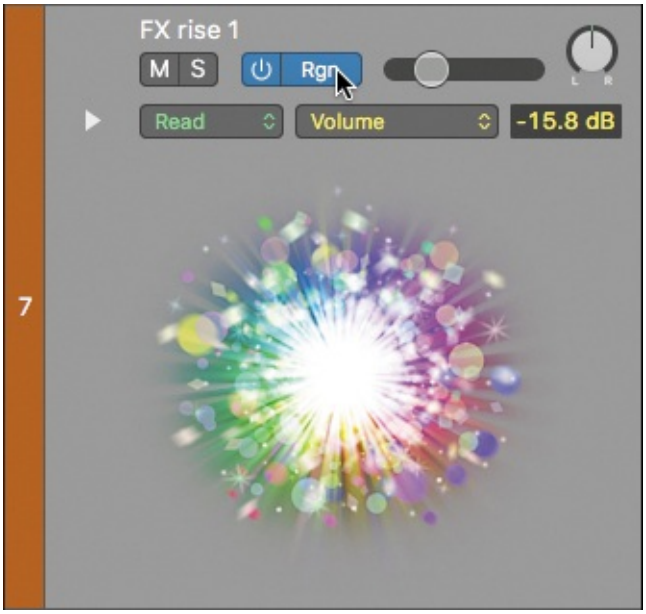
Let's draw offline pan region automation on the second sound effect in the FX rise 1 track to move it from the left speaker to the right speaker. You will copy the automated region later in the song.

1 Select the FX rise 1 track (track 7).

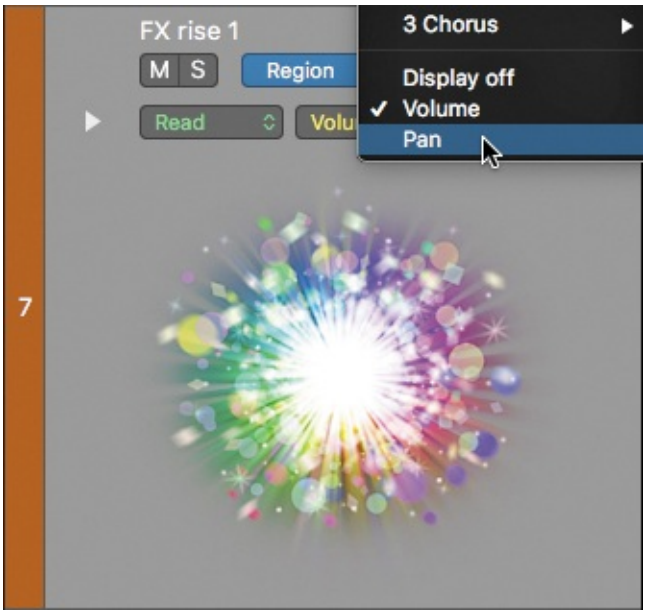
2 Control-Option-drag the workspace to zoom in on the second region of the track.




3 In the FX rise 1 track header, click the right part of the Automation button to switch from Track to Region.



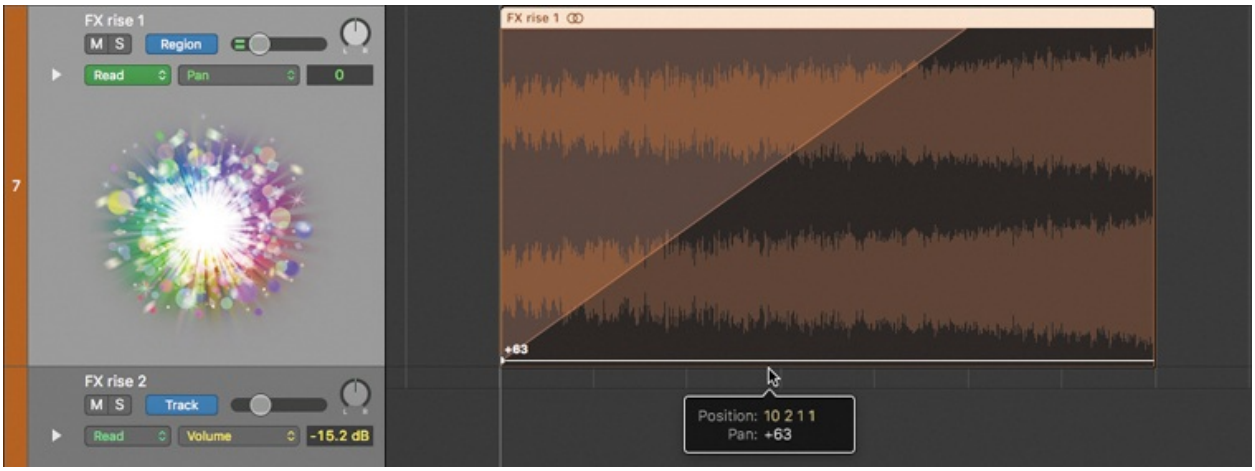

4 From the Automation Parameter pop-up menu, choose Pan.




5 Click the automation curve anywhere inside the region.

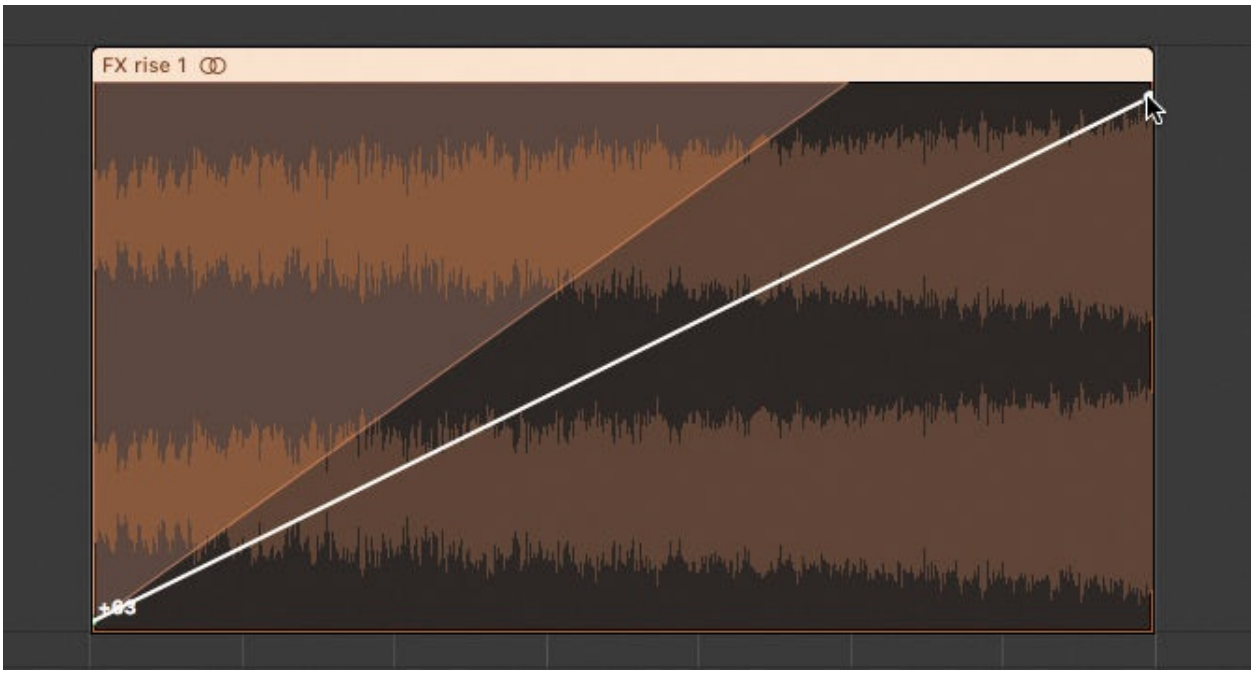
A flat automation curve is created for the current pan value (0), which corresponds to the Pan knob in the center. Let's start the panning effect all the way to the right.

6 Drag the automation curve to the bottom of the region.




To end the panning effect with the second sound effect located all the way to the left, you will create a control point at the top of the automation curve.

7 Double-click the upper right of the automation curve area in the region.




The automation curve goes from the lower left to the upper right of the region, representing the pan position of the track going from the right speaker to the left speaker.

**8** Listen to the Theme 1 section.

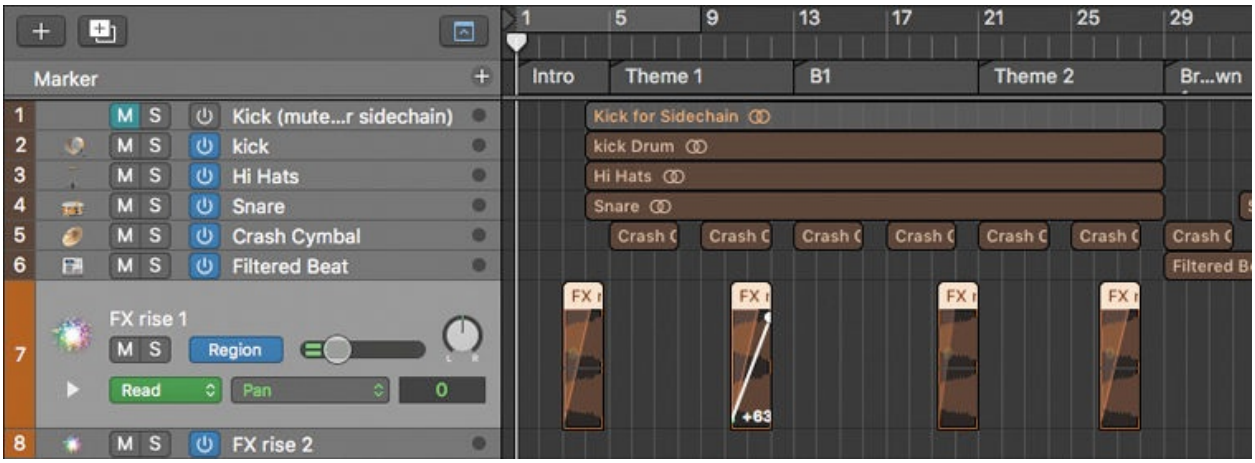
The Pan knob on the FX rise 1 channel strip in the inspector reflects the automation curve, moving from the right at the beginning of the automated FX rise 1 region, then from right to left during the region. You can hear the sound effect move from the right to the left of the stereo field.

Let’s use this panning effect to replace the next FX rise 1 region on the track.

**9** Control-Option-click the workspace to zoom out.

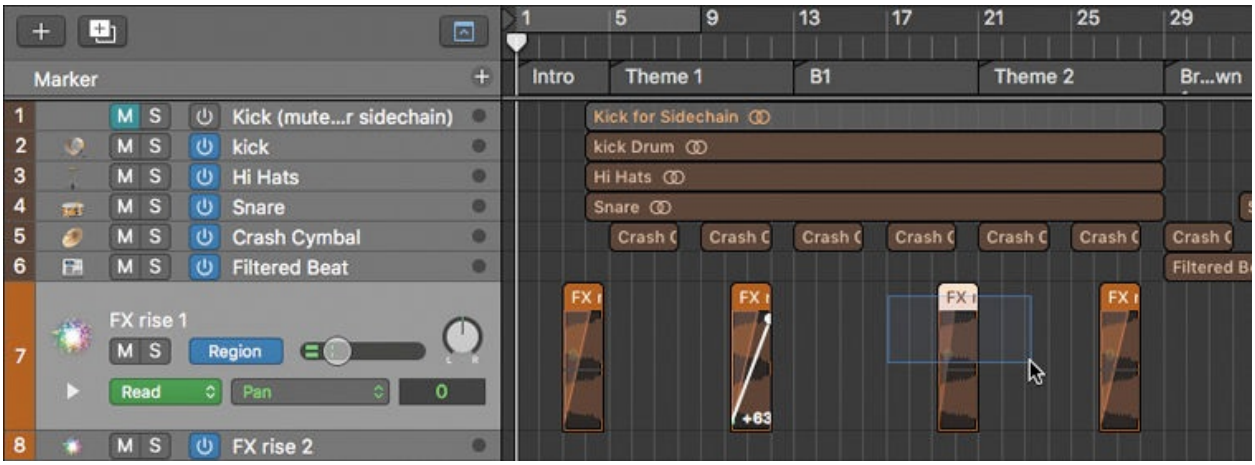
To quickly zoom in vertically on the selected track, you can use the Zoom Focused Track feature.

**10** In the Tracks area main menu bar, choose View > Zoom Focused Track (or press Control-Z).



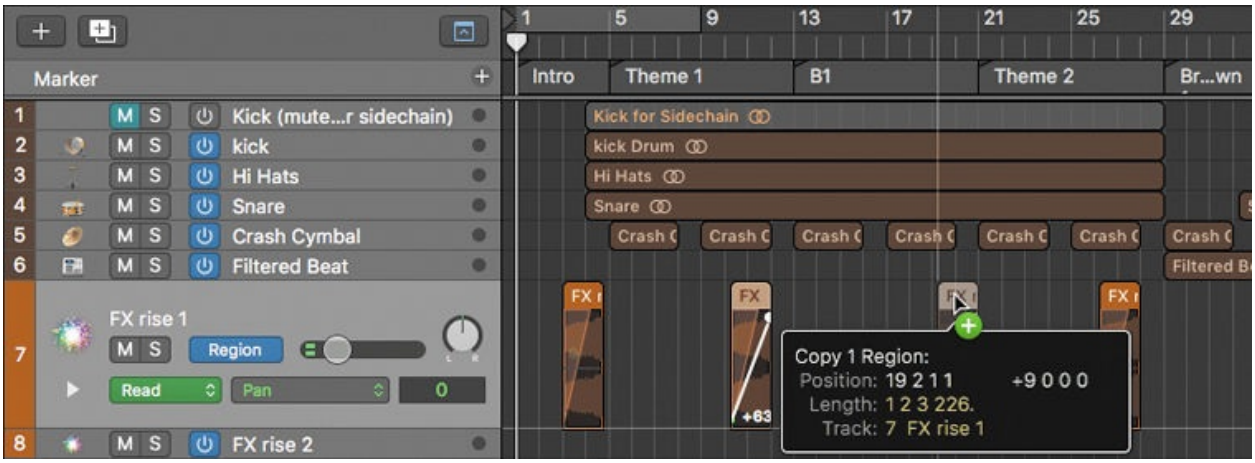

The selected track expands vertically, and you can see the automation curve in the second region. The other regions on the track do not have an automation curve. Let's use the automated region for the end of the B1 section.

**11** Select the region at the end of the B1 section.




**12** Choose Edit > Delete (or press Delete).

**13** Option-drag the automated FX rise 1 region to 19 2 1 1.




14 Listen to the B1 section.

The sound effect at the end of the B1 section goes from the right to the left of the stereo field.

## Creating and Snapping Mute Automation

Mute automation can be very useful when you need an instrument or sound to drop out instantaneously. Although you can edit a region to make it stop playing at a specific point, some effect plug-ins, such as delay or reverberation, may continue to produce sound after the playhead moves past the end of the region. Muting the channel strip ensures that the audio signal processed by the plug-ins on the channel strip is no longer routed to the stereo output.

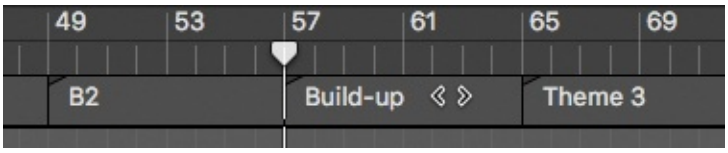
In this exercise, you will mute a reverberant snare drum to stop its ringing at a specific location in the arrangement.

1 Select the Snare track (track 4).

The Snare track expands vertically, and the FX rise 1 track returns to its original vertical zoom level.

You can Command-Option-click a marker to position the playhead at the beginning of that marker.

2 In the Marker track, Command-Option-click the Build-up marker (bar 57).




The playhead jumps to the beginning of the marker.

3 Listen to the Build-up section at bar 57.

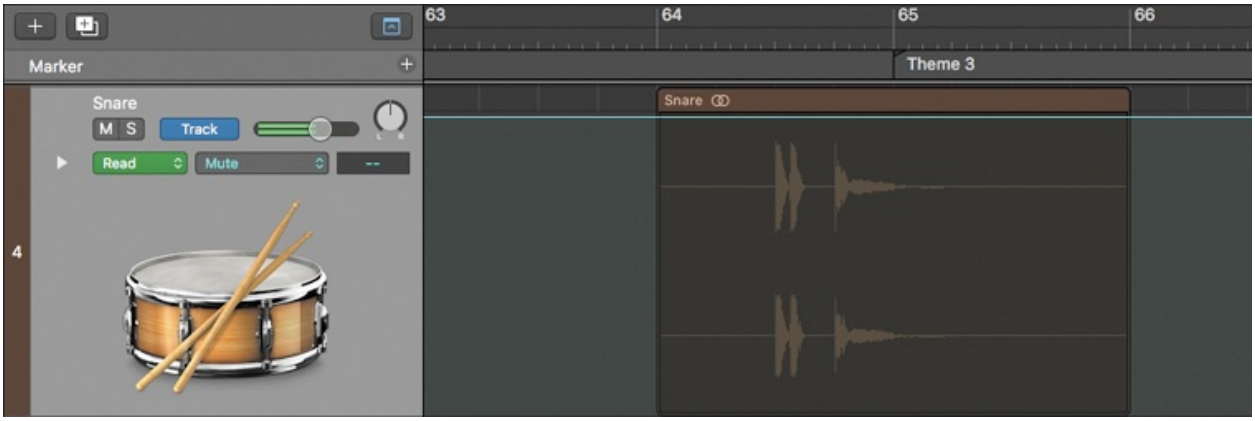
At the end of the section, a drum fill ends with a reverberant snare leading into the next section, Theme 3. The build-up ends with a rising sound

effect and a busy drum fill, whereas the Theme 3 section begins with a very intimate mix. To accentuate the difference in ambiance between the sections, you can mute the reverberated snare so that its reverb tail stops abruptly at the end of the build-up.

4 In the Snare track header, from the Automation Parameter pop-up menu, choose Main > Mute.

5 Click anywhere in the automation curve area to create a control point at the beginning of the track with the current parameter value (mute off).

6 Zoom in on the Snare region at the end of the build-up.



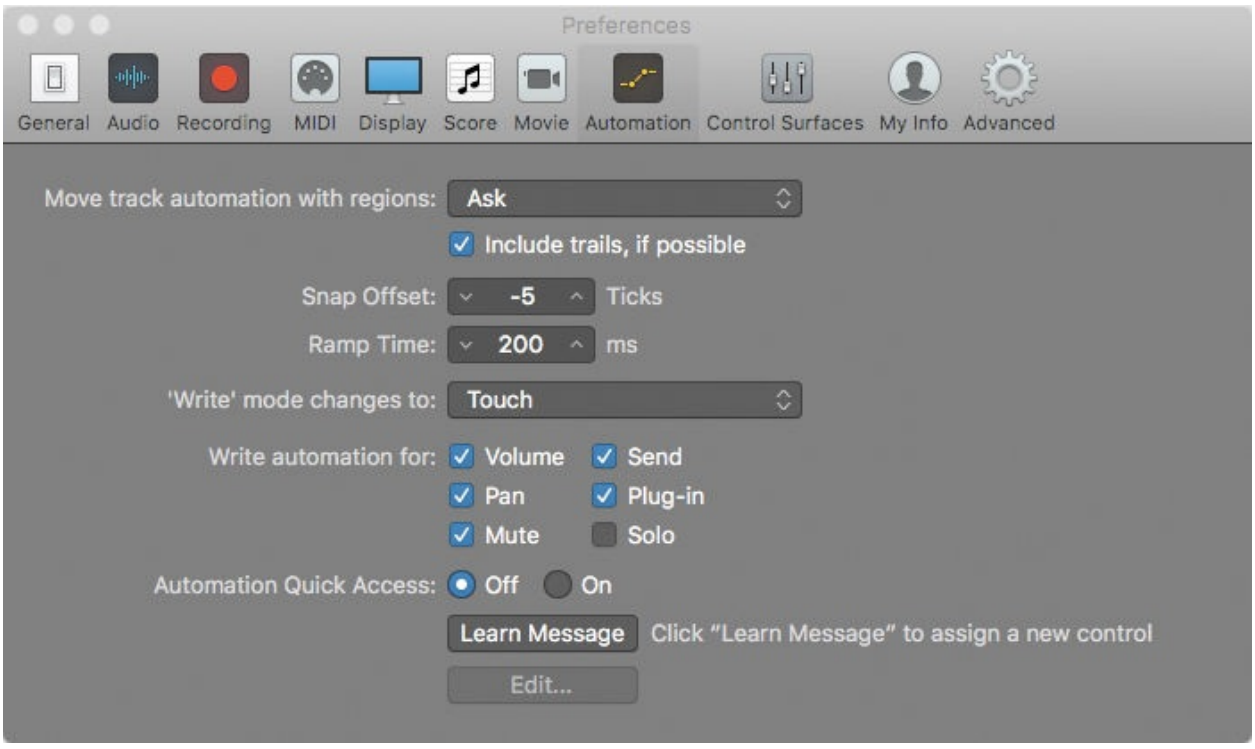

To abruptly cut out the snare exactly before the Theme 3 section, you need to create a control point at exactly 65 1 1 1. You will now use the snap modes to create control points that are aligned with the grid.

7 In the Tracks area menu bar, from the Snap pop-up menu, choose Snap Automation.

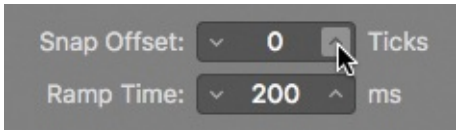
8 From the Snap pop-up menu, choose Bar.

By default, Logic snaps control points five ticks before the closest grid line. This default behavior can be useful when automating, for example, a compressor that needs to be turned on before a downbeat so it can be triggered by the attack of a note on the downbeat. But you don’t need that default offset here.

9 From the Snap pop-up menu, choose Automation Snap Offset to open the Automation preferences window.




**10** In the preferences window, set the Snap Offset to 0 Ticks, and then close the window.




**11** Double-click the lower half of the automation curve close to bar 65.


A control point with the value Muted is created at exactly 65 1 1 1. (You can click and hold a control point to check its position in the help tag.) Note that the mute parameter has only two possible values: Unmuted and Muted.

**12** From the Snap pop-up menu, choose Snap Automation to turn it off.

13 Listen to the build-up.

Although you can see that the track is muted at bar 65, you may have difficulty hearing exactly where the snare stops when the whole song is playing. Let’s solo the snare.

14 Solo the Snare track, and listen again.

You can hear the snare sound and its reverb effect stop abruptly at bar 65.

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**Note**

You can click the On/Off button that appears when you place your mouse pointer over the Automation button to turn the mute automation on and off on the Snare track and compare the results.

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Let’s now unmute the snare for the remainder of the track.

15 Unsolo the Snare track.

16 At the top of the automation track after the end of the region, double-click in bar 66 to unmute the snare.


17 Control-Option-click the workspace to zoom out.

## Recording Live Automation

Offline automation is a good option when you know in advance the automation movements that you want to achieve, but sometimes you want to hear the song playing as you adjust channel strip or plug-in controls in real time.

To record live automation, you need to choose a live automation mode for the track(s) you want to automate, start playback, and then tweak the desired plug-in or channel strip controls.

### Recording Automation in Touch Mode

When you start playback in Touch mode, any existing automation on the track is read, as if Logic were in Read mode. As soon as you hold down the mouse

read, as if Logic were in Read mode. As soon as you hold down the mouse button on a knob or slider, Logic starts recording the new values. When you release the mouse button, Touch mode behaves like Read mode again, and the automation parameter returns to its original value or reproduces any existing automation on the track.

In this exercise, you will use Touch mode to automate closing a low-pass filter on the Vocoder track during the build-up.

1. At the beginning of the Build-up section (at bar 57), zoom in on the Vocoder region on track 27.
2. In the Marker track, drag the Build-up marker up to the ruler, and listen to the section.

   You will automate one of the bands of the Channel EQ plug-in inserted on the Vocoder channel strip to progressively filter more high frequencies, evolving the vocal sound throughout the first half of the build-up.
3. Select the Vocoder track (track 27), and solo it.
4. In the Vocoder track header, click the On/Off button that appears when you place your mouse pointer over the Automation button to turn it on, and from the Automation Mode pop-up menu, choose Touch.


5. In the inspector, click the EQ display at the top of the channel strip to open the Channel EQ plug-in.

   In the Channel EQ, you will automate the frequency of the low-pass filter, the last band of EQ all the way to the right.
6. Position the mouse pointer over the low-pass EQ band’s frequency.


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**Note**

Remember that you needn’t choose a parameter from the track header’s Automation Parameter pop-up menu to record live automation.

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You are ready to record live automation. You don’t need to put Logic in record mode to record live automation. You need only to put the track in one of the live automation modes (Touch, Latch, or Write) and start playback.

When you record automation in Touch mode, hold down the mouse button until you want the parameter to return to its original level (in this case, after the end of the Vocoder region in the Build-up section).

7 Press the Spacebar to start playback, and in the Channel EQ, slowly drag the frequency value down while listening to the effect on the vocoded voice.


When you first click the frequency parameter in the plug-in window, on the Vocoder track header, the Automation Parameter pop-up menu displays that frequency parameter (2 Channel EQ: High Cut Frequency).

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**Note**

High cut is another name for a low-pass filter.

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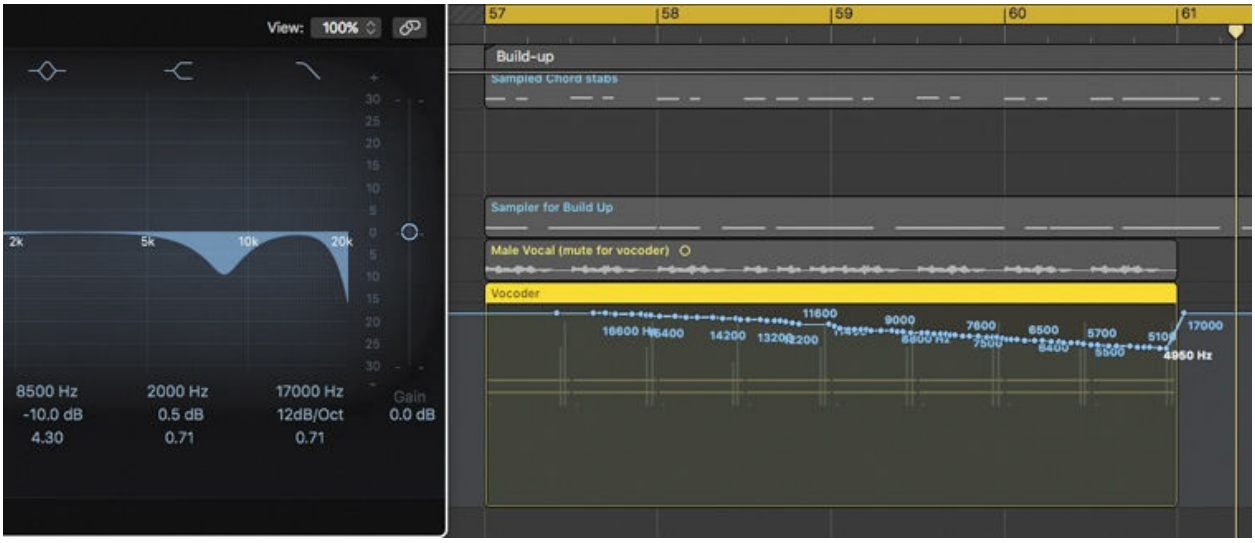
As you drag down the frequency during playback, an automation curve is created to record the new frequency values.

**8** After the playhead moves past the end of the region, release the mouse button.




Control points and their values appear on the automation curve. The frequency automation returns to its original value on the track (17,000 Hz) at the position where you released the mouse button.

at the position where you released the mouse button.

9 Press the Spacebar to stop playback, and press the Spacebar again to resume playback at the beginning of the build-up.

In the Channel EQ window, you see the frequency value at the bottom right reflect the automation curve value at the playhead position. On the graphic display, the EQ curve changes to reflect the closing of the low-pass filter.

10 Stop playback.

If you are not happy with the automation curve you recorded, you can stay in Touch mode and correct your automation. Let's do so now to drop the frequency a little lower.

11 Start playback.

As long as you don't touch it, the frequency parameter reproduces the frequency automation on the track.

12 When you're ready to start correcting your automation curve, drag the frequency value down in the Channel EQ window.

As soon as you start dragging the frequency parameter, the new values overwrite the existing frequency automation.

13 Before the end of the region, release the mouse button.


The frequency parameter responds to the existing frequency automation on the track.

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**Tip**

When you release the mouse button in Touch mode, the time it

takes for the automation curve to go from the last recorded value to the first existing value is called *ramp time*. The default ramp time is 200 ms, and you can adjust it in Logic Pro X > Preferences > Automation.

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**14** Stop playback.

Repeat steps 11 through 13 until you are happy with your automation curve.


**15** Close the Channel EQ plug-in window.

Be careful! A common mistake is to move on to another task and leave the automation mode set to Touch. However, when you do so, any further changes you make to that track's channel strip or any of its plug-in parameters during playback are recorded on the automation lane (even if the track is not selected and the Automation button in the Tracks area menu bar is dimmed). To avoid accidentally recording more automation, let's return the automation mode to Read.

**16** In the Vocoder track header, from the Automation Mode pop-up menu, choose Read.


17 Unsolo the Vocoder track, and listen to your automation.

In the first half of the build-up, the vocoded vocals start bright and get progressively duller, similar to the effect you hear when walking out of a room where someone is singing. The timbral evolution of the vocal keeps things moving and adds interest to the section.

## Recording Automation in Latch Mode

Latch mode works similarly to Touch mode, except that when you release the mouse button, the automation continues to record and the parameter stays at the current value. If automation is already present for that parameter on that track, the automation is overwritten until you stop playback.

You will now enable Latch mode to record pan automation on the same Vocoder region you worked with in the previous exercise.

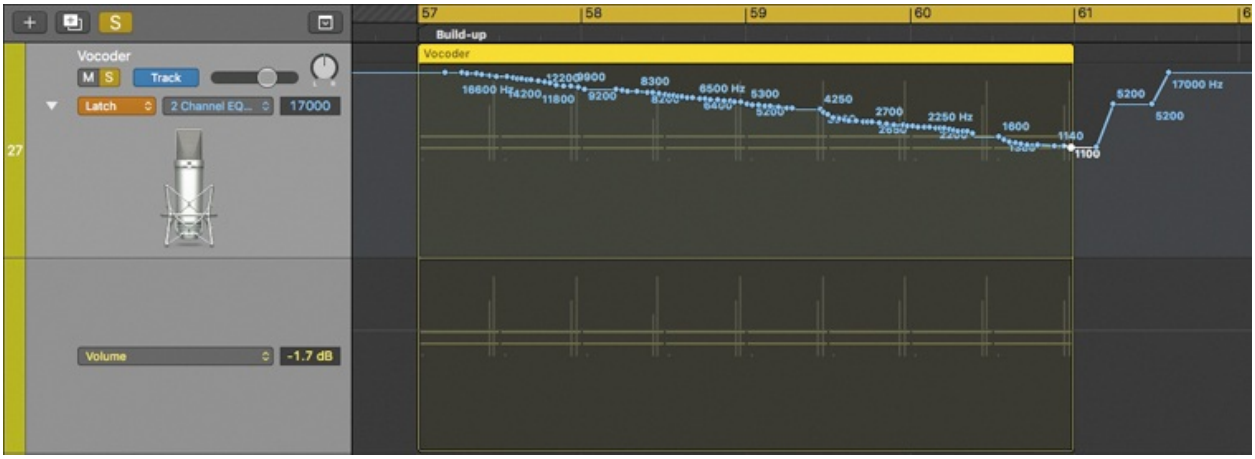
1 Listen to the Build-up section.

The vocoded vocal stays in the center of the stereo field for the length of the Vocoder region.

2 In the Vocoder track header, set the automation mode to Latch.

If you started playback now and dragged the Vocoder track's Pan knob, the Automation Parameter pop-up menu would automatically switch to Pan to show you the automation curve you're recording. If you prefer, you can view multiple automation curves for a single track.

3 In the Vocoder track header, click the disclosure triangle next to the Automation Mode pop-up menu.




A separate automation subtrack opens below the track. By default, it shows the (currently empty) volume automation curve.

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**Tip**

To open more than one automation subtrack, place the mouse pointer over the subtrack header and click the + (plus sign) button that appears at the bottom. To close an automation subtrack, place the mouse pointer over the subtrack header and click the x button that appears at the top. You can also drag subtracks vertically to reorder them.

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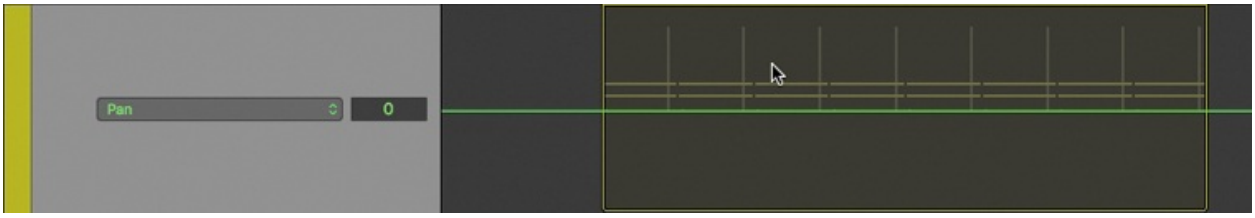
You will use pan automation to place the first two bars (bars 57 and 58) of vocoded vocals on the left side of the mix, and the two last bars (bars 59 and 60) on the right side of the mix.

4 In the automation subtrack, click the Automation Parameter pop-up menu and choose Pan.

Let's create a default center position for the Pan parameter.

5 Click anywhere in the Pan subtrack's automation lane.

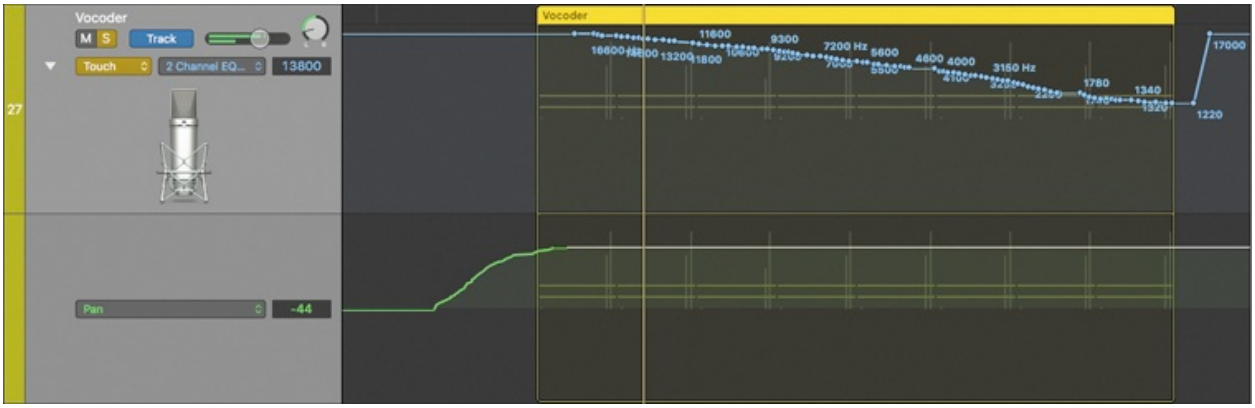



A horizontal automation curve is created with the value 0, corresponding to the Pan knob in the center position. Later, when you stop recording automation, the automation curve will automatically return to that default value.

6 Click the cycle area to turn off Cycle mode.

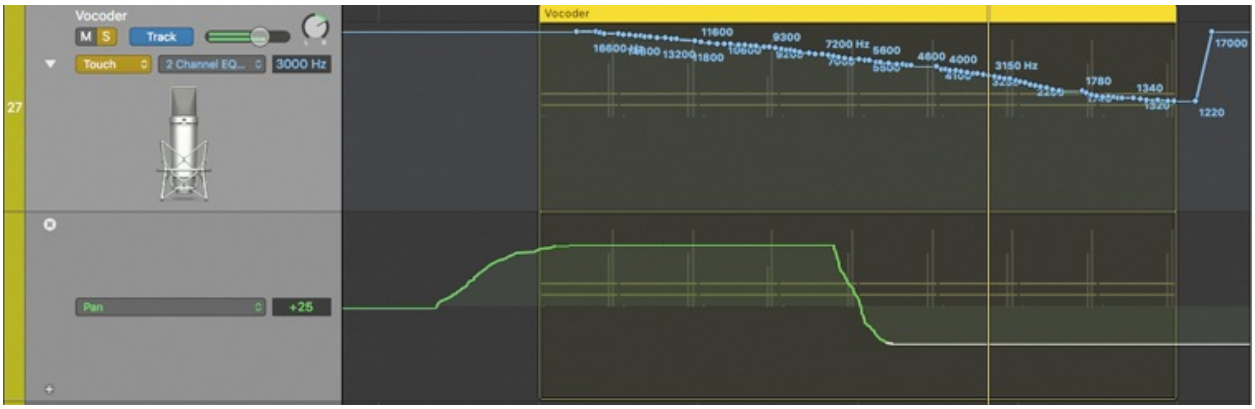
7 Start playback a couple of bars before the Build-up marker.

8 Before the playhead reaches the Vocoder region, drag the Pan knob down on the Vocoder channel strip (to pan the Vocoder sound to the left), and release the mouse button.




The pan automation is recorded on the subtrack, and the Pan knob remains in the position it was in when you released the mouse button.

9 When the playhead reaches bar 59, quickly drag the Pan knob up (to pan the sound right), and then release the mouse button.

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**Tip**

To create sudden breaks in an automation curve, double-click the parameter you're automating (the Pan knob in this case) and type a new value. Then press Return when you want to record the new value on the automation track.

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10 After the playhead has moved past the end of the Vocoder region, stop playback.


The Pan knob returns to its center position, and the automation curve jumps back to the 0 value you previously set.

**11** On the Vocoder track header, set the automation mode to Read, and click the disclosure triangle to close the subtrack.

**12** Listen to the result.

In the build-up, the first two bars of vocals are to the left of the stereo field, and the last two bars are to the right. The vocals moving from left to right in the stereo field renew interest at bar 59 and add excitement to the section.

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**Note**

The Write automation mode is rarely used. It erases all automation data as the playhead passes it and records any new movements you make on the channel strip. It can be quite dangerous, since it even erases automation not currently displayed in the automation track.

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## Recording Plug-in Bypass Automation

Like a guitar player engaging a distortion pedal to play a solo, you'll sometimes want to apply an effect plug-in to only specific sections of a song. Automating the plug-in bypass allows you to turn the effect on and off at specific positions.

You will now add an EQ plug-in to a vocal track, choose a telephone EQ setting, and then automate the bypass of the EQ plug-in so it's turned on only during the first breakdown.

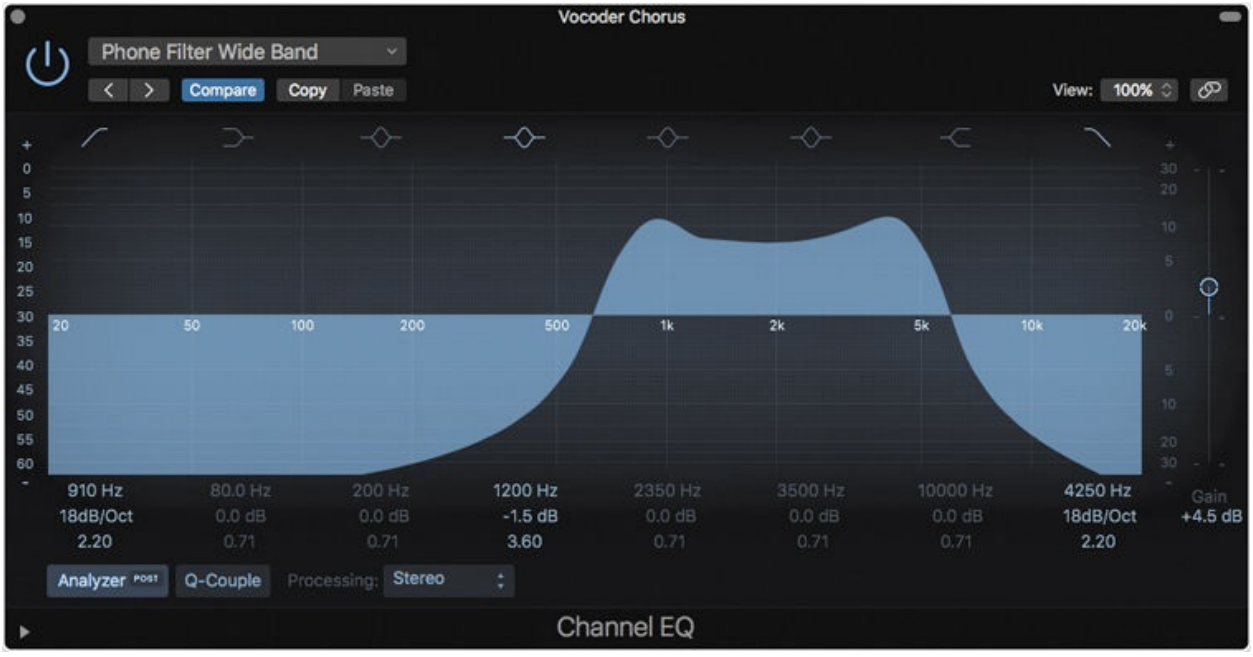
**1** Select the Vocoder Chorus track (track 28).

**2** Zoom in on the first Vocoder Chorus on the track (at bar 29) to view the entire Breakdown 1 marker.


You can see the volume automation curve that you created earlier in this lesson.

3 In the inspector, on the Vocoder Chorus channel strip, click below the last plug-in in the Audio FX area, and choose EQ > Channel EQ.

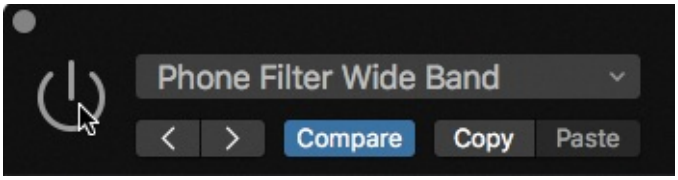

4 In the Channel EQ plug-in window, from the Settings menu, choose EQ Tools > Phone Filter Wide Band.




Look at the EQ curve. This setting emphasizes mid frequencies while drastically cutting high and low frequencies to simulate the sound of a voice through a telephone. You will apply this telephone effect to the

Breakdown 1 section, but it should be off for the rest of the song.

5 Click the Channel EQ On/Off button to turn it off.

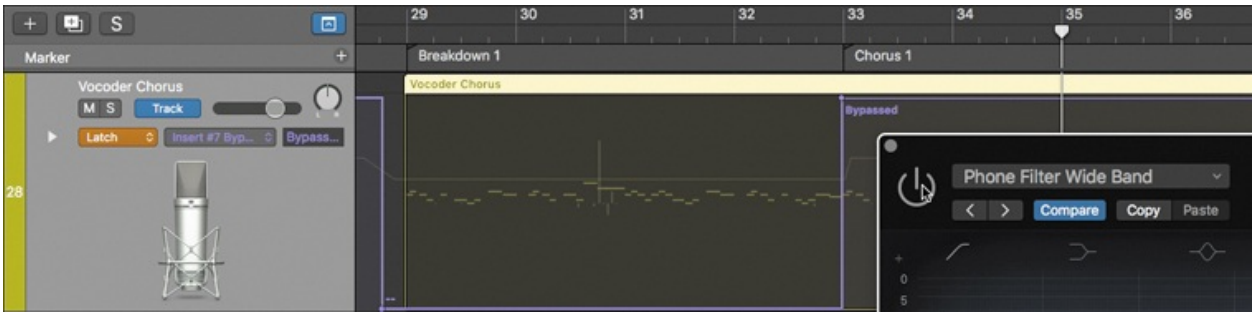



6 In the Vocoder Chorus track header, set the automation mode to Latch.

7 Start playback before the Breakdown 1 marker.

8 Before the playhead reaches the Breakdown 1 marker (at bar 29), click the Channel EQ On/Off button to turn it on.

9 At the end of the Breakdown 1 marker (at bar 33), click the Channel EQ On/Off button to turn it off.




On the track header, the Automation Parameter pop-up menu displays the Insert #7 Bypass parameter, and on the track, the plug-in is bypassed (turned off) at the end of the breakdown.

If you are not happy with the timing of the Bypassed control point, you can zoom in and drag it to adjust its position.

10 Stop playback.

11 On the Vocoder Chorus track header, set the automation mode to Read.

12 Listen to the result.

The vocoded vocal has a narrow band of frequencies during the breakdown, then the Channel EQ is turned off at bar 33 and the vocoded vocal has a full frequency range sound throughout the rest of the song.

13 Close the Channel EQ plug-in, and zoom out.

## Using MIDI Controllers

Recording live automation by dragging onscreen sliders and knobs with the mouse can be a powerful means of expression, but nothing beats the feel of a real fader or knob under your fingers. Adding a control surface to your Logic