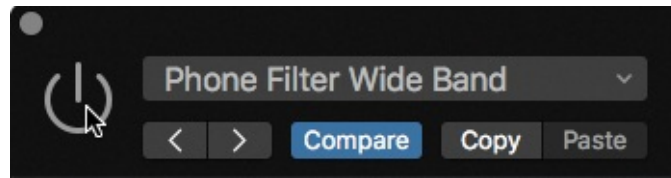Breakdown 1 section, but it should be off for the rest of the song.

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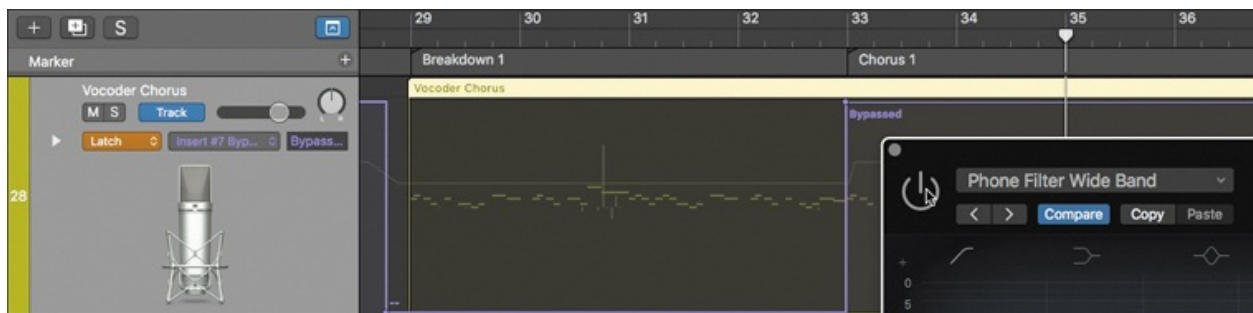
On the track header, the Automation Parameter pop-up menu displays the Insert #7 Bypass parameter, and on the track, the plug-in is bypassed (turned off) at the end of the breakdown.

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

setup allows you to map different knobs to the desired channel strip or plug-in parameters to remotely control those parameters to record live automation.

Many supported control surfaces (such as Logic Remote) are automatically detected by Logic, which also will automatically assign their faders and knobs. With certain MIDI controllers, Logic will ask you if you'd like to automatically map their controls, and that behavior can later be toggled by clicking the Auto checkbox in Logic Pro X > Control Surfaces > Preferences, under the MIDI Controllers tab.

More Info

To learn more about supported control surfaces, choose Help > Logic Pro Control Surfaces Support.

When the controls are not automatically mapped, you can manually assign the physical knobs to the parameters you want to automate.

Note

If your control surface is a MIDI keyboard that does not have a controller knob of any kind, you can use the modulation wheel to perform the following exercise. Any device sending MIDI CC events can be assigned to any channel strip or plug-in parameter.

Using Automation Quick Access

Automation Quick Access allows you to assign a single controller knob to the automation parameter that is currently displayed on the selected track. You need to assign the controller knob only once, and you can then use it to control any parameter on any track. Just select a track and choose the desired parameter from the Automation Parameter pop-up menu.

In this exercise, you will slowly fade out the entire song at the end. To record automation curves for the Output channel strip, you must first show the output track.
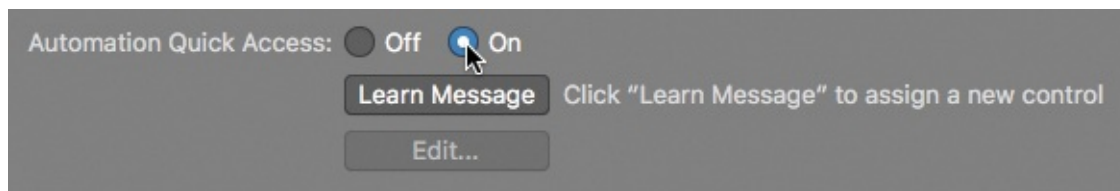
1 Choose Track > Show Output Track.

An Output track appears at the bottom of the list in the Tracks area.
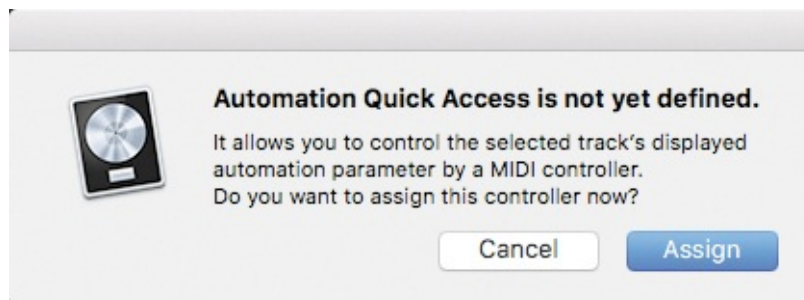
2 Click the Output track header to select it.

3 Choose Logic Pro X > Preferences > Automation (or press Option-A).

**4** At the bottom of the Automation window, turn on Automation Quick Access.

An alert message asks you to assign a controller to Automation Quick Access.

5 Click Assign.

6 On your MIDI controller, turn a knob all the way up and then all the way down.

In the inspector, the Output Volume fader moves accordingly.

7 Turn the controller knob back up so that the Output is set to 0 dB.

8 Close the Automation preferences window.

9 In the Output track header, set the automation mode to Latch.

10 Start playback at the beginning of Chorus 3 (at bar 105).

11 Slowly turn down the knob on your controller to record a slow fade-out throughout the Chorus 3 section.
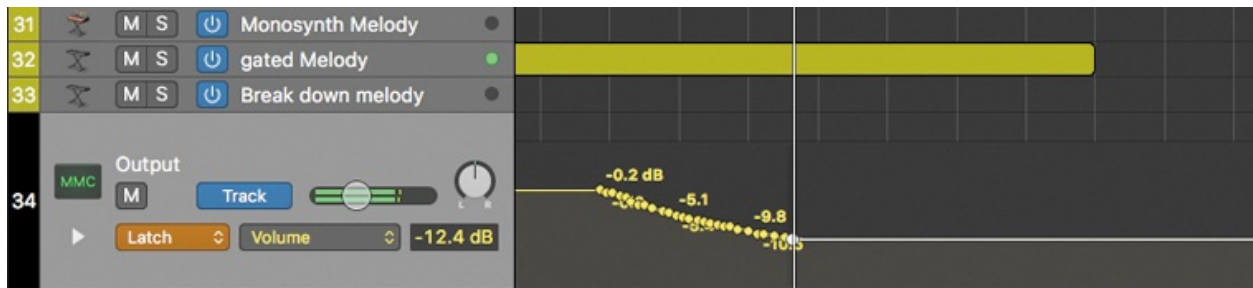
The controller knob allows you to remotely control the Output channel strip Volume fader and record its automation. From now on, you can select any track, and the controller knob you assigned to Automation Quick Access can control the parameter selected in that track's Automation Parameter pop-up menu.

12 Set the Output track's automation mode to Read.

13 Select the Guitar Solo track (track 17).

14 In the Guitar Solo track header, from the Automation Parameter pop-up menu, choose Pan.

15 On your MIDI controller, turn the controller knob assigned to Automation Quick Access up and down.

The knob now controls the Pan knob on the Guitar Solo track. Feel free to set the track to Touch or Latch mode, start playback at the beginning of the Guitar Solo section (at bar 97), and then turn the knob to automate the position of the guitar solo in the stereo field. Make sure that you set the Automation Mode pop-up menu back to Read when you're finished.

You are now done automating this project, so you can hide all the automation curves.

16 In the Tracks area menu bar, click the Show/Hide Automation button to turn it off.

In the workspace, all the automation tracks are hidden, and on the track

in the workspace, all the automation tracks are hidden, and on the track headers, the Automation button and menus disappear.

Using knobs on a control surface to tweak plug-in parameters in real time can be a lot of fun as you discover new ways to "play" the plug-ins as musical instruments. Make sure that you keep this technique in mind when you feel that an instrument or a section of a song is a little static or repetitive and could benefit from automation.

Bouncing the Mix

In Lesson 1, you exported a finished mix to an MP3 file. To come full circle, in this final lesson, you will bounce your automated mix at the highest quality available: an uncompressed PCM file.

First, you will zoom out so that you can see the entire song in the workspace.

1 Click the background of the workspace, and press Z to view the entire song.

Note where the last regions end, at bar 114. When you are not sure of the exact end of a song, zoom in on the end of the last regions, and play the final few bars. Sometimes effect plug-ins such as reverberation and delay still produce sound long after the end of the song!

2 Choose File > Bounce (or press Command-B) to open the Bounce dialog.

3 In the Destination column, ensure that PCM is selected, and enter *114* in the End field.
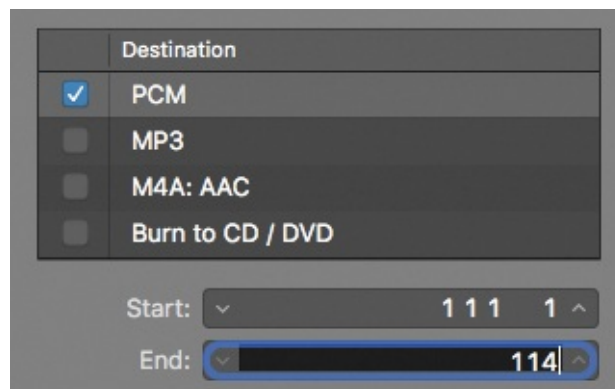

Whereas Realtime mode lets you hear your song bouncing in real time, Offline mode takes advantage of your CPU to complete the operation as fast as your Mac can process it, which can save a lot of time.
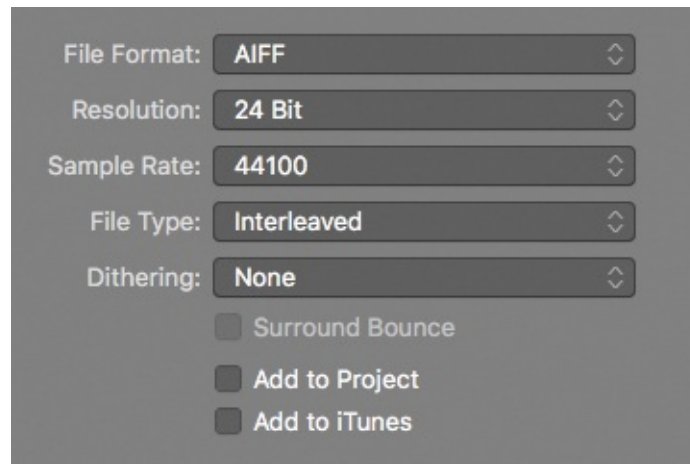
Leave the Mode set to Offline.

The Normalize function automatically adjusts the level of the file so that it peaks at or below 0 dBFS. If you have used mastering plug-ins to ensure that the Output peak meter peaks at 0 dBFS, you do not need Normalize.

4 Set Normalize to Off.
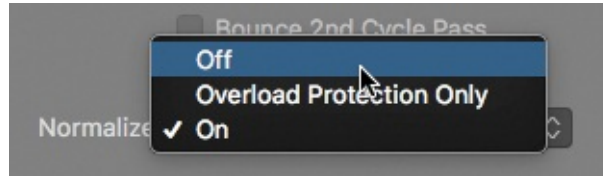
**5** In the Resolution pop-up menu, make sure 24 Bit is selected.

▶ The File Format choices—AIFF, Wave, and CAF—all produce the same sound quality. The File Format you choose depends mostly on which format is needed for further processing, such as mastering.

▶ The (bit depth) Resolution is set to 24 Bit, which is the best sound quality.

▶ The Sample Rate is set by default to the project sample rate. You should change this only if you want to convert the bounced file to a new sample rate.

▶ The File Type is Interleaved, which is the most common file type used.

▶ Dithering can make a subtle difference in very quiet sections of a song, or when a song is fading in or out.

▶ When you select "Add to Project," the bounce file is added to the Project Audio Browser.

6 Click OK.

A Bounce Output 1-2 dialog opens, and you can choose a filename and a location for the bounced file.

7 Name the file *Alliance* (the name of the song), press Command-D to save it to the desktop, and click Bounce.
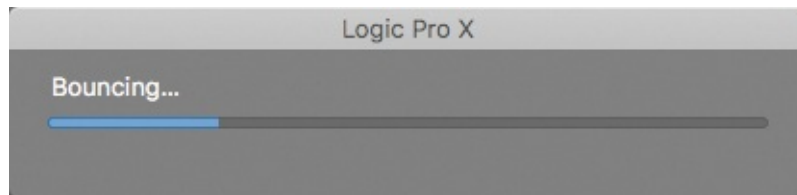
A progress window appears, and in the Tracks area, you can see the playhead move faster than real time as the bounced file is created.

When the progress window disappears, your bounced file is ready.

8 Press Command-Tab to go to the Finder.

9 In the Finder, choose Finder > Hide Others (or press Command-Option-H).

10 On your desktop, click **Alliance.aif**, and press the Spacebar to play the final version of the song.

Using automation, you have taken your song to a new level, adjusting the volume and adding EQ automation to vocoded vocals to change their sounds in different sections. You have drawn offline automation on the track, and recorded live automation using both the mouse and a control surface. Let your imagination run wild, and think of other applications to automate your own projects.

Lesson Review

1. How can you create a control point on the automation curve?

2. How can you create a control point away from the automation curve?

3. How can you quickly adjust the value of a parameter for a given section of a track?

4. How can you trim an automation curve?

5. How can you create control points that snap to the grid?

6. What differentiates Touch mode from Latch mode?

7. How can you view multiple automation curves on the same track?

8. How do you assign a controller knob to Automation Quick Access?

9. How do you determine which parameter the knob assigned to Automation Quick Access controls?

Answers

1. Click the automation curve.

2. Double-click the automation track using the Pointer tool.

3. Use the Marquee tool to select the desired section, and drag the selected automation curve up or down.

4. Place the mouse pointer on the numerical display in the track header and drag vertically.

5. From the Snap pop-up menu, choose Snap Automation. You can adjust the Snap Offset in the Automation Preferences window.

6. After you drag a parameter in Touch mode, when you release the mouse button, the parameter returns to the previous value on the automation curve; in Latch mode, the value remains at the current value.

7. Click the disclosure triangle in the track header to show an additional subtrack, and then click the + (plus sign) in the subtrack to create another subtrack.

8. In the Automation preferences, turn on Automation Quick Access. An alert asks you to assign a controller knob. Click Assign, and turn the knob of your choice up and down to assign it.

9. Automation Quick Access always controls the parameter displayed in the Automation Parameter pop-up menu on the selected track header.

Keyboard Shortcuts

Tracks

A	Shows or hides automation tracks in the Tracks area
Control-Z	Automatically zooms vertically on the selected track

Windows

Option-A	Opens the Automation preferences window

Various

Command-B	Opens the Bounce dialog
Command-Tab	Goes to the next application
Command-Option-H	Hides all other applications