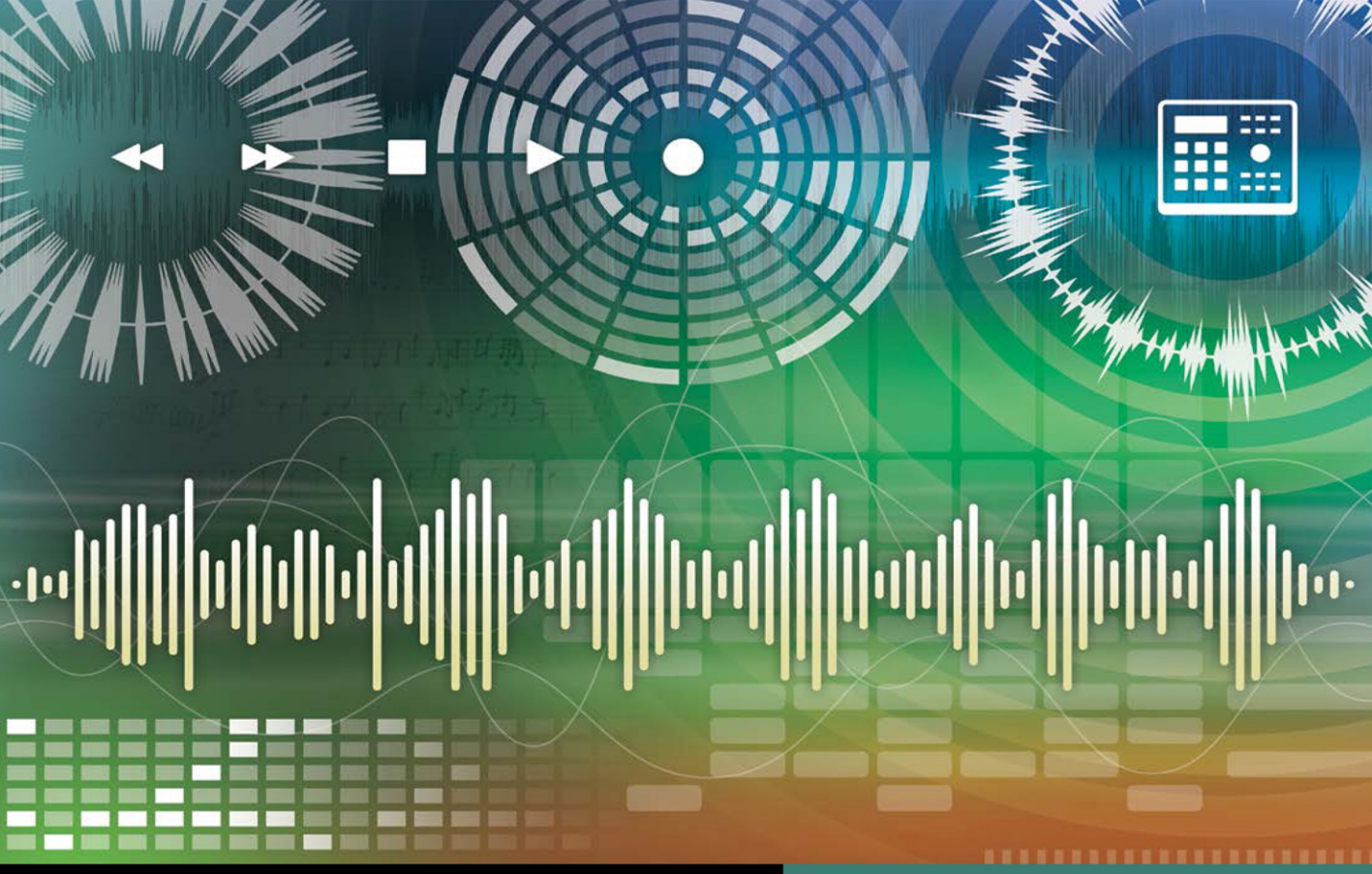

Apple Pro Training Series

Logic Pro X 10.5

Professional Music Production

David Nahmani

Apple Certified

Lesson and media files available for download

FREE SAMPLE CHAPTER

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Apple Pro Training Series

Logic Pro X 10.5

David Nahmani

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Getting Started

Welcome to the official Apple Pro Training Series course for Logic Pro X 10.5. This book is a comprehensive introduction to professional music production with Logic Pro X 10.5. It uses real-world music and hands-on exercises to teach you how to record, edit, arrange, mix, produce, and polish audio and MIDI files in a professional workflow. So let's get started!

The Methodology

This book takes a hands-on approach to learning the software, so you'll be working through the project files and media you download after registering the book at www.peachpit.com/apts.logicprox10.5. It's divided into lessons that introduce the interface elements and ways of working with them, building progressively until you can comfortably grasp the entire application and its standard workflows.

Each lesson in this book is designed to support the concepts learned in the preceding lesson, and first-time readers should go through the book from start to finish. However, each lesson is self-contained, so when you need to review a topic, you can quickly jump to any lesson.

The book is designed to guide you through the music production process as it teaches Logic, and it is organized in 10 lessons.

Lesson 1 starts you with an overview of the entire process. You'll become familiar with the interface and the various ways to navigate a project; use Apple Loops to build a song from scratch; and then arrange, mix, and export the song to an MP3 file.

Lesson 2 focuses on drum tracks, the foundation of your song. You'll use Drummer to generate virtual drumbeat performances triggering acoustic and electronic drum instruments.

In Lesson 3 you will explore effect and instrument plug-ins, use the Library to load patches and presets, and save your own plug-in settings.

Lesson 4 dives deeper into typical situations that you may encounter when recording audio sources, such as microphones, guitars, and MIDI controllers. You'll record both in the linear Tracks view editor and in the Live Loops grid.

You will use the new Quick Sampler instrument plug-in in Lesson 5 to turn a voice into a synthesizer pad, record your own handclap sample, create vocal chop effects, and sample a bass sound from a loop to create your own bass line.

Lesson 6 shows you how to connect MIDI controllers to Logic to trigger loops, navigate the project, or adjust plug-in parameters. You will explore the free Logic Remote app (for iPad and iPhone) to control Logic from your multi-touch screen and use the iPad's built-in gyroscope to modulate effects.

To create content in Lesson 7, you'll program MIDI in the Piano Roll, create drumbeats and step automation in Logic's new Step Sequencer, edit Audio regions, and add fades and turntable start and stop effects.

Lesson 8 is a brief overview of workflow that integrates multiple features—learned in the previous lessons—into a complete music production process. You'll start by building your own drum instrument with samples, program a drumbeat in Step Sequencer, combine it with recordings and Apple Loops in the Live Loops grid, and record your Live Loops performance into the Tracks view to build an arrangement.

Lesson 9 explores various ways to edit the pitch and time of your recordings, using Smart Tempo to ensure that all your audio files play at the same tempo; creating custom tempo curves; using groove tracks and Varispeed; time-stretching audio; and tuning vocals.

You'll study the end processes of music production in Lesson 10: mixing, automating, and mastering using track stacks, EQ, compressor, limiter, and delay and reverb plug-ins. You will export your final mix as a stereo audio file.

Appendix A lists a wealth of useful keyboard shortcuts to help speed up your workflow.

System Requirements

Before using *Apple Pro Training Series: Logic Pro X 10.5,* you should have a working knowledge of your Mac and the macOS operating system. Make sure that you know how to use the mouse or trackpad and standard menus and commands, and how to open, save, and close files. If you need to review these techniques, see the printed or online documentation included with your system.

Logic Pro X and the lessons in this book require the following system resources:

- macOS 10.14.6 or later
- Minimum 6 GB of disk space (up to 72 GB of disk space for the full Sound Library installation)
- High-speed internet connection for installation
- MIDI keyboard (optional but recommended to play and record software instruments) connected via USB or via a compatible MIDI interface
- (optional) iPhone or iPad with iOS 13.1 or later for controlling Logic using the Logic Remote iPad app as shown in Lesson 6

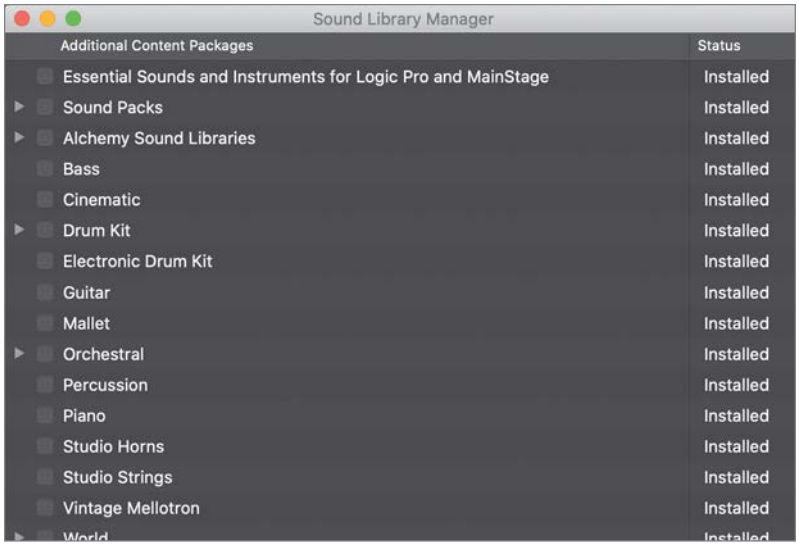
Preparing Your Logic Workstation

The exercises in this book require that you install Logic Pro X along with the entire Apple Sound Library (including the Legacy and Compatibility content). If you have not yet installed Logic, you may purchase it from the App Store. When your purchase is completed, Logic Pro X will automatically be installed on your hard drive, and you will be prompted to install the Apple Sound Library.

Some of the instructions and descriptions in this book may vary slightly, depending on the sounds you have installed.

When you first open Logic Pro X, the app will automatically download and install the essential content. If you get an alert offering to download more sounds, continue to download and install all the sounds.

To make sure the complete Apple Sound Library is installed on your Mac, choose Logic Pro X > Sound Library > Open Sound Library Manager, and click Select All Uninstalled. Make sure the Legacy and Compatibility content is selected. Then, click Install.



NOTE ▶ If you choose not to download the entire Logic sound library, you may be unable to find some of the media needed in the exercises. Missing media will appear dimmed with a down arrow icon. Click the down arrow icon to download that media.

Online Content

Your purchase of *Apple Pro Training Series: Logic Pro X 10.5* includes online materials provided by way of your Account page at www.peachpit.com. These include the following.

Lesson files

The downloadable content for *Apple Pro Training Series: Logic Pro X 10.5* includes the project files you will use for each lesson, as well as media files that contain the audio and MIDI content you will need for each exercise. After you save the files to your hard disk, each lesson will instruct you in their use. To download the lesson files, you will need to follow the instructions below.

Free Web Edition

The Web Edition is a free online version of the book that is included with your purchase. Your Web Edition can be accessed on our site from any device with a connection to the Internet.

Accessing the lesson files and Web Edition from www.peachpit.com

1. Go to www.peachpit.com/apts.logicprox10.5.
2. Sign in or create a new account.
3. Click Register.
4. Answer the question as proof of purchase.

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5. Click the Access Bonus Content link below the title of your product to proceed to the download page.
6. Click the lesson file link(s) to download them to your computer.

   The Web Edition can be accessed from the Digital Purchases tab on your Account page.
7. Click the Launch link to access the product.

   NOTE ▶ If you've enabled the Desktop and your Document folder to sync to iCloud, you are strongly advised not to copy your lesson files to your Desktop. Choose another location, such as the Logic folder within your Music folder.
8. After downloading the file to your Mac desktop, you'll need to unzip the file or mount the disk image to access a folder titled Logic Book Projects, which you will save or move to your Mac desktop. Each lesson explains which files to open for that lesson's exercises.

   NOTE ▶ If you purchased a digital product directly from www.peachpit.com, your product will already be registered. However, you still need to follow the registration steps and answer the proof-of-purchase question before the Access Bonus Content link will appear under the product on your Registered Products tab.

Using Default Preferences and Key Commands, and Selecting the Advanced Tools

All the instructions and descriptions in this book assume that you are using the default preferences (unless instructed to change them). At the beginning of Lesson 1, you will be instructed how to show advanced tools and select all additional options.

If you have changed some of your Logic Pro X preferences, you may not see the same results as described in the exercises. To make sure that you can follow along with this book, it's best to revert to the initial set of Logic preferences before you start the lessons. Keep in mind, however, that when you initialize preferences, you lose your custom settings, and later you may want to reset your favorite preferences manually.

1. Choose Logic Pro X > Preferences > Advanced Tools.
2. Select Show Advanced Tools.
3. Click the Enable All button to select all additional options, and then close the preferences window.
4. Choose Logic Pro X > Preferences > Reset All Preferences Except Key Commands.

   A confirmation message appears.
5. Click Initialize.

   Your preferences are initialized to their default states.

   NOTE ► After initializing Preferences, you may need to re-select the desired audio interface: choose Logic Pro X > Preferences > Audio, choose your audio interface from the Output Device and Input Device pop-up menus, and make sure Core Audio is enabled. The first time you create a new audio track, in the New Track dialog, make sure Output is set to Output 1 + 2.

Using the U.S. Key Command Preset

This book assumes that you are using the default initialized key command preset for a U.S. keyboard. If you have customized your key commands, you may find that some of the key commands in your Logic installation do not function as they are described in this book.

If at any point you find that the key commands don't respond as described in this book, make sure the U.S. key command preset is selected on your Mac by choosing Logic Pro X > Key Commands > Presets > U.S.

Screen Resolution

Depending on your display resolution, some of the project files may appear different on your screen than they do in the book. When you open a project, if you can't see the whole main window, move the window until you can see the three window controls at the left of the title bar and Option-click the Zoom button (the green button, third from the left) to fit the window to the screen.

When using a small display, you may also have to zoom or scroll more often than instructed in the book when performing some of the exercise steps. In some cases, you may have to temporarily resize or close an area of the main window to complete an action in another area.

About the Apple Pro Training Series

Apple Pro Training Series: Logic Pro X 10.5 is a self-paced learning tool and Apple's official guide for Logic Pro X. Books in this series also include downloadable lesson files and an online version of the book. The lessons are designed to let you learn at your own pace.

For a complete list of Apple Pro Training Series books, visit www.peachpit.com/apple.

Resources

Apple Pro Training Series: Logic Pro X 10.5 is not intended as a comprehensive reference manual, nor does it replace the documentation that comes with the application. For comprehensive information about program features, refer to the following resources:

- Logic Pro Help, accessed through the Logic Pro X Help menu, contains a description of most features. Other documents available in the Help menu can also be valuable resources.
- The Apple websites www.apple.com/logic-pro/ and www.apple.com/support/logicpro/.
- The official Logic Pro release notes: https://support.apple.com/en-us/HT203718/.
- The Logic Pro Help website, an online community of Logic users moderated by the author of this book, David Nahmani: www.logicprohelp.com/forum.
- For additional help with accessing the lesson files, you may send email queries to ask@peachpit.com.

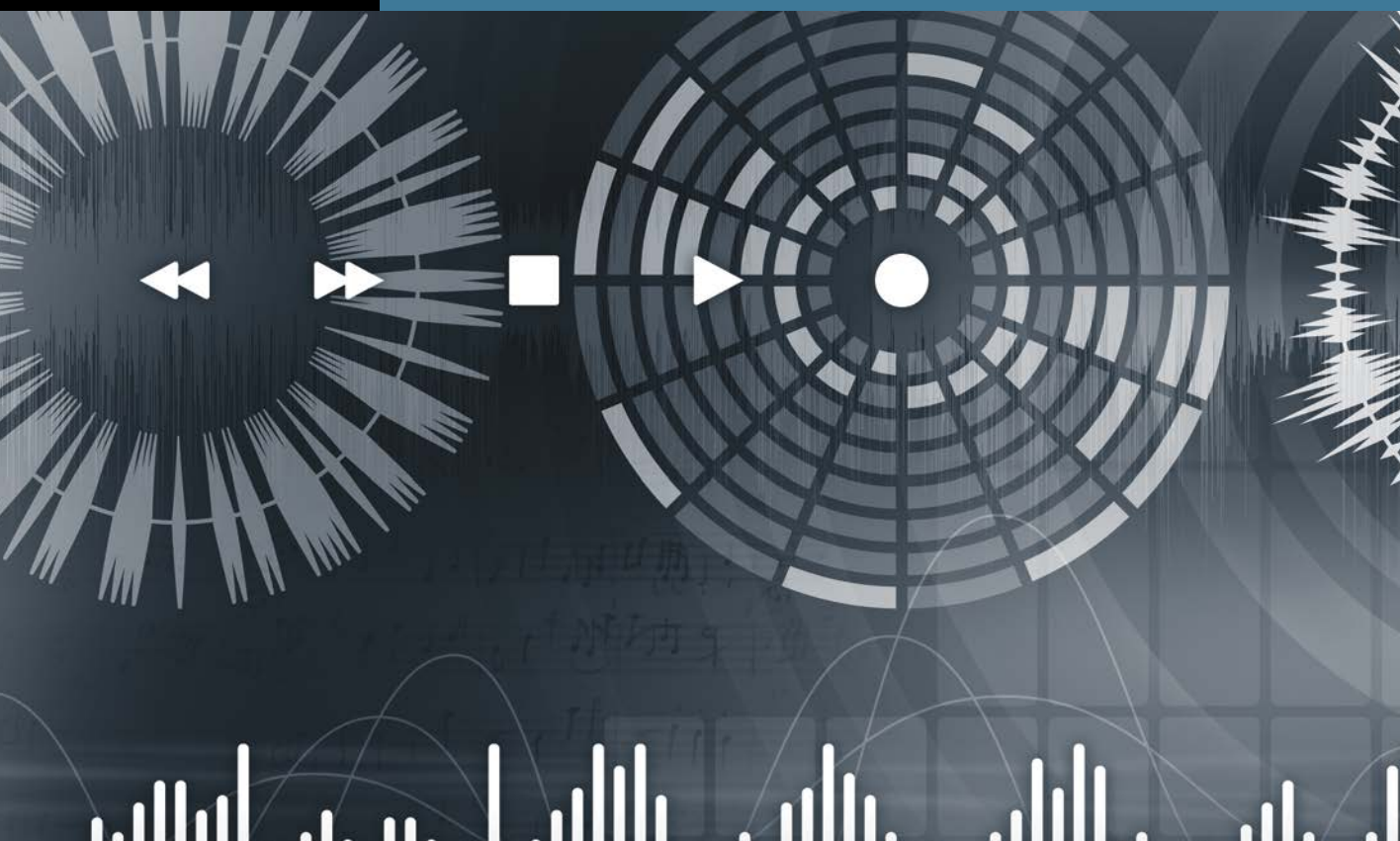
1

Lesson Files — None

Time — This lesson takes approximately 150 minutes to complete.

Goals

- Perform scene triggering in the Live Loops grid
- Produce a one-minute instrumental piece using prerecorded media
- Explore the Logic Pro X main window interface
- Navigate and zoom the workspace
- Move, copy, loop, trim, and transpose regions in the workspace
- Mix down and export the project



Lesson **5**

Sampling Audio

Shortly after the first analog tape recorders appeared around 1935, composers started using the recording medium as a compositional tool—manipulating the audio playback using reverberation and echo; using voltage control devices that changed the tape speed and thus altered playback speed and pitch; and using punch recording to splice different sounds together. Throughout the following decades, electro-acoustic composers—and later pioneering electronic musicians—fascinated by the new unique sounds they could come up with, continued exploring audio transformation techniques involving recording devices to stray away from the classic acoustic instrument sounds of composers from past centuries.

In 1988, Roger Linn designed the AKAI MPC60, which quickly became the most legendary sampler and had a major impact on hip-hop music. The iconic MIDI sampler made it easy to trigger patches by finger drumming on its built-in square pads, while recording the performance onto its built-in sequencer. Today, you would be hard-pressed to find a music genre where sampling isn't used.

In this lesson, you will explore Quick Sampler, a new Logic Pro X software instrument plug-in. You will import a finger snap and record a hand clap, and then turn a sustained vocal note into a pad synthesizer sound. You will slice a drum loop, shortening the volume envelope of the individual slices, and add a gritty filter to give it a low-fidelity sound. You'll splice loops together to combine notes from different instruments into a composite melody, creating an exhilarating rhythmic sound collage. Finally, you will edit samples into an effect called *vocal chops*.

Always consider the source of your sampling, and if any of that material is copyrighted, make sure you thoroughly research sample clearance. Two easy ways to avoid worrying about potential legal issues are to sample your own instruments or noises around you, or to sample the royalty-free Apple Sound Library content that you downloaded along with Logic Pro X (such as software instruments or Apple Loops).

Sampling Single Notes

The easiest way to use samples in your productions is to import or record a single note into Quick Sampler and then trigger that single note from your MIDI keyboard. In Quick Sampler, you can modulate the sample's pitch to give it a vibrato effect, adjust the volume envelope, and loop a section of the sample so that you can sustain its sound.

Importing Audio in Quick Sampler and Selecting a Mode

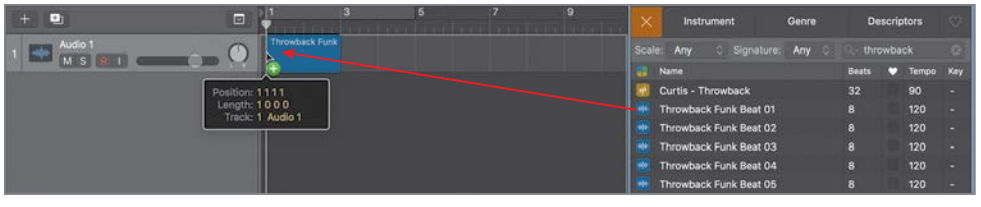
In this exercise, you will use an Apple Loop of finger snaps to create a Quick Sampler instrument so that you can trigger the audio file using your MIDI controller keyboard. To get started with a rhythmic reference, you'll first import a loop to create a drum track.

1 Choose File > New (or press Command-N).

An empty project is created, and the New Track dialog opens.

2 In the New Track dialog, select Audio, and click Create (or press Return).

3 Open the Loop Browser, find Throwback Funk Beat 01, and drag it to the audio track at bar 1.



4 In the Region inspector, click the Loop checkbox (or press L).

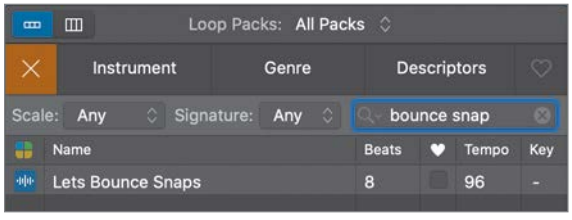
In the workspace, the audio region is looped throughout the project. Now let's create a new track for Quick Sampler.

5 At the top of the track headers, click the + button (or press Command-Option-N).

6 In the New Track dialog, choose Software Instrument, make sure the Instrument pop-up menu is set to Empty Channel Strip, and click Create (or press Return).

7 Click the Instrument slot, and choose Quick Sampler (Single Sample).

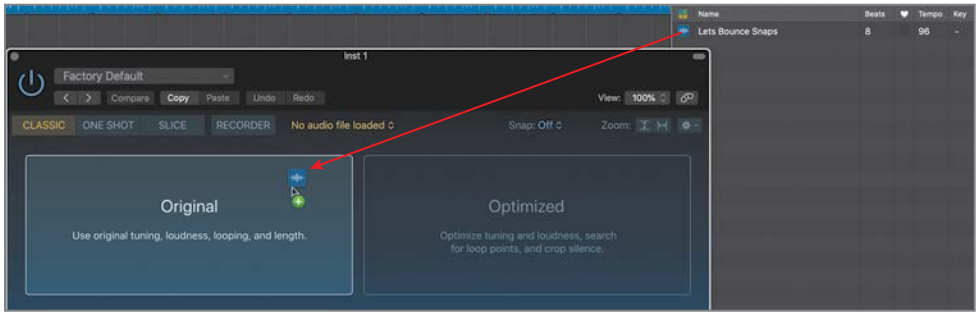
8 In the Loop Browser, search for *bounce snap*.



9 Drag Lets Bounce Snaps to the waveform display in Quick Sampler.

In the waveform display, two areas appear (Original and Optimized).

10 Drop the file onto Original.



The audio file is imported into Quick Sampler, and its waveform is displayed. Below the waveform display on the left, the root key is C3.

TIP You will trigger samples using specific note pitches throughout this lesson. If you need to see incoming MIDI note pitches in the MIDI input activity monitor, click the small arrow to the right in the LCD display and choose Custom.

11 Play a C3 on your keyboard.

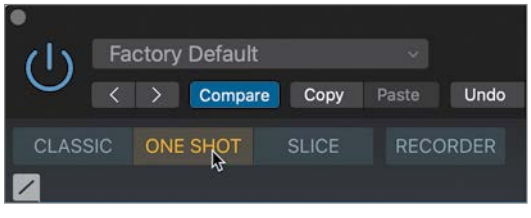
In Classic mode, the sample plays back while you hold down the key on your keyboard and stops playing when you release the key. Play a C3, and hold down the key for a while. The audio file starts with silence and contains four finger snaps. To turn it into a playable instrument, in the next exercise you will adjust the start and end markers so that a C3 note immediately triggers a single finger snap.

12 Play notes other than C3 on your keyboard.

The sample is transposed chromatically across the keyboard, according to the pitch of the note you play. Higher pitches make the sample play back faster, and lower pitches make it slower, much like classic samplers, and also like the results you'd get from manipulating the speed of analog tape or a turntable. You will change that behavior for other samples later. For this finger snap sample, you'll play only C3 notes to trigger the sample at its original speed and pitch.

To avoid having to hold down the key for the whole duration of the sample, you will use the One Shot mode.

13 Click One Shot.



14 Play a C3.

In One Shot mode, the sample plays back from the start marker to the end marker, even if you release the key earlier. This mode is adapted for drum sounds, as you can

trigger drum hits with pads or drum controllers that send very short notes, and still play the full duration of the drum sample.

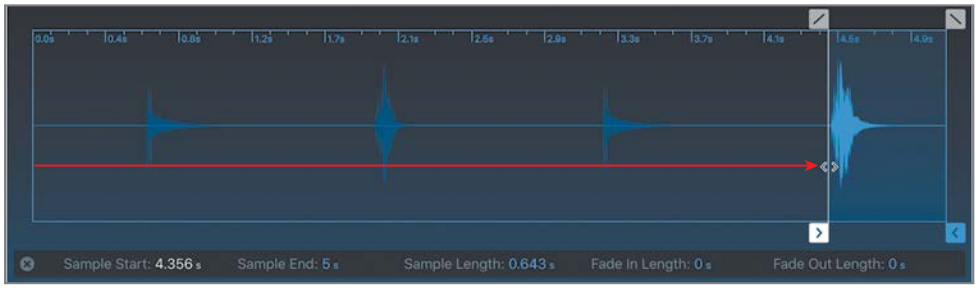
TIP To stop a sample from playing back in One Shot mode, turn the Quick Sampler plug-in off and on, or press the Space bar twice to start and stop playback.

You have created your first sampler instrument with a finger snap sample and selected the One Shot mode. You are now ready to start editing the portion of the sample you want to play back in the waveform display.

Editing Markers in the Waveform Display

When editing a drum sample, it's crucial to make sure the sample starts playing exactly when you trigger it. You will now use the waveform display in Quick Sampler to precisely adjust the start and end marker locations, making sure only the fourth finger snap on the waveform is triggered. Don't worry about finding the perfect position right away. You will later zoom in to readjust the start marker position with more precision.

1 In the waveform display, drag the start marker to beginning of the last finger snap.

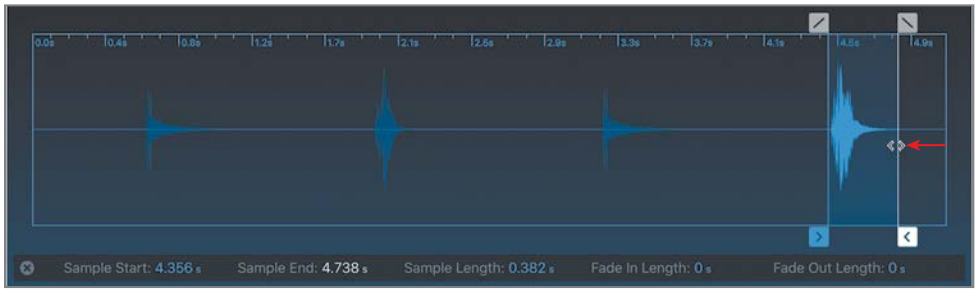


Below the waveform display, parameters and values related to the current action are displayed.

2 Play a C3.

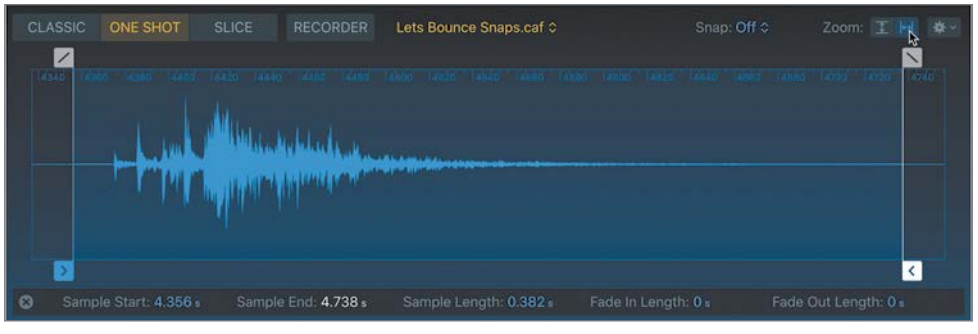
This time only the fourth finger snap plays.

3 Drag the end marker a little closer to the end of the waveform.



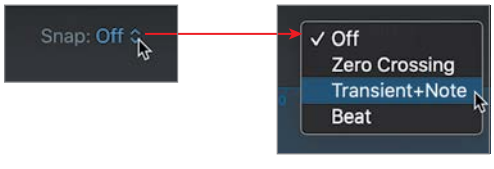
You will now zoom in on the waveform between the start and end marker.

4 At the upper right of the waveform display, click the Zoom horizontal button.

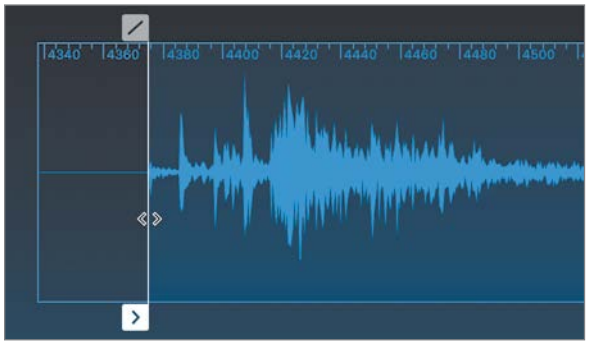


The zoom level is optimized to show the area between the sample start and end markers. To help positioning the start marker exactly at the beginning of the finger snap sound, you can make the markers snap to transients.

5 At the upper right of the waveform display, click the Snap pop-up menu and choose Transient+Note.



6 Drag the start marker toward the beginning of the waveform.



The start marker snaps precisely to the first transient on the waveform.

7 Play a C3.

The sample is triggered right away. Your sampler instrument is now ready to be played!

Adjusting the positions of sample start and end markers lets you determine exactly which portion of an audio file you want to trigger when playing your keyboard, and it represents the foundation of creating a quality sampler instrument. Using Quick Sampler's zoom and snap functions, you were able to get the job done efficiently and can now focus on the performance.

Recording a MIDI Region to Trigger Samples

You will now put the recording chops you acquired in the previous lesson to good use and record a very simple finger snapping performance. You will play a finger snap on the second and fourth beat of each bar throughout the first five bars of this project to double the snare in the drum loop on Track 1. Let's open the Piano Roll to see the notes you record.

1 In the control bar, click the Editors button (or press P) to open the Piano Roll.

Regions recorded on a track are assigned the track name, so it's always a good idea to give your track a descriptive name before you start recording.

2 In the Inst 1 track header, double-click the track name, and then enter *Snaps*.

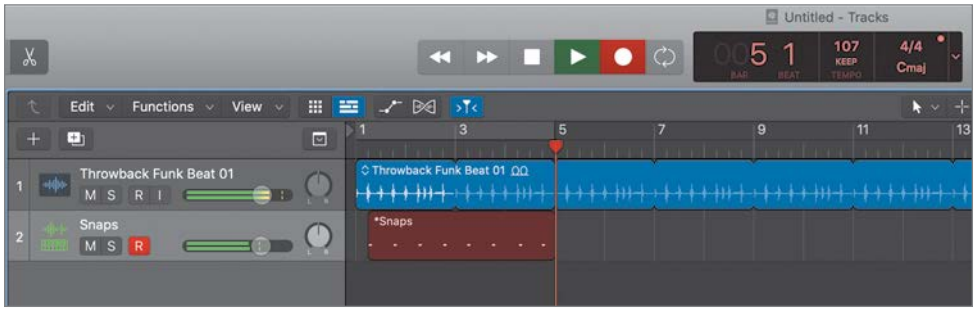
When using only Apple Loops and MIDI regions, as is the case so far in this project, don't hesitate to lower the tempo as needed to make it easier to perform what you're recording.

3 In the LCD display, lower the tempo down to 107 bpm.

4 In the control bar, click the Record button (or press R).

You get a four-beat metronome count-in, the playhead reaches bar 1, and the drum loop starts playing back.

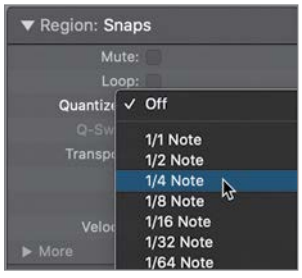
5 Play a C3 on beats 2 and 4 of every bar until the playhead reaches bar 5.



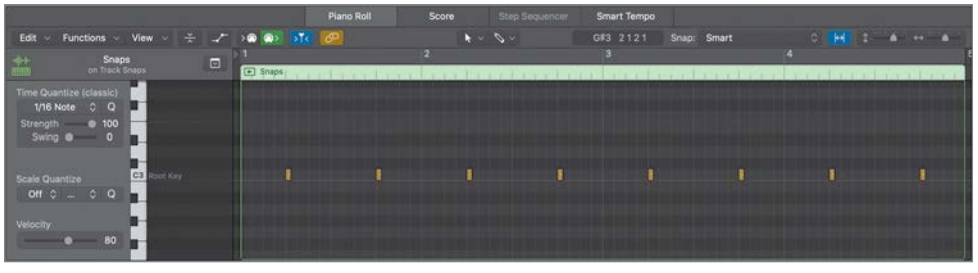
6 In the control bar, click the Stop button (or press the Space bar).

Recording stops, and you have a four-bar green MIDI region on the Inst 1 track. To make the rhythm track, you'll quantize your recording. If you're unhappy with your performance, choose Edit > Undo Recording (or press Command-Z) and try again!

7 In the Region inspector, click the Quantize pop-up menu, and choose 1/4 Note.



In the Piano Roll, the notes snap to the nearest beat.



8 Listen to your recording.

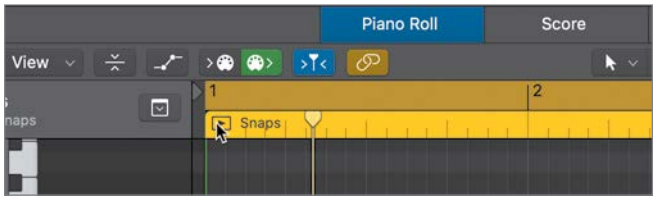
The finger snaps double the snare drum, bringing energy and a human character to the beat.

Modulating the Sample's Pitch

To make the snaps a bit more human sounding, you will now modulate their pitch. In Quick Sampler, you'll use a low-frequency oscillator (LFO) to generate a random signal and route it to the pitch parameter so that each note triggers the finger snaps sample at a slightly different pitch.

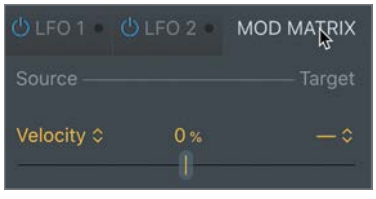
Now that you have a MIDI region on the Snaps track to trigger your samples, you can click the play button in the Piano Roll to cycle through the MIDI region in Solo mode, allowing you to give your full attention to the sample's sound while you adjust the parameters in Quick Sampler.

1 In the Piano Roll, click the Play button.



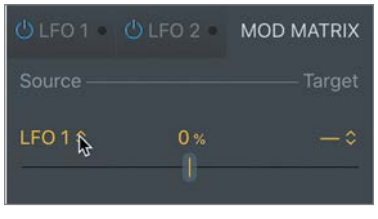
Cycle mode and Solo mode are on, and the MIDI region plays back. In Quick Sampler, you will route LFO 1 to the pitch.

2 In the lower section of Quick Sampler, click the Mod Matrix tab.



The Mod Matrix opens, and you can assign up to four routings. You could choose a controller such as the modulation wheel as the source and the pitch as a target, to control the pitch with your modulation wheel. However, in order to create an automatic random pitch modulation, you'll route an LFO to the pitch, and then set the LFO to produce a random control signal.

3 On the first matrix, click the Source pop-up menu and choose LFO 1.



4 Click the Target pop-up menu and choose Pitch.

To clearly hear the modulation you're routing, you can exaggerate the amount of modulation for now. Once you are satisfied that you've successfully set up your modulation routing and are getting the desired effect, you can dial the Amount slider back down to a more reasonable value.

5 Drag the Amount slider all the way up to 1200 cents.

In the Pitch section, an orange ring appears around the Coarse knob that represents the modulation range. A white dot shows the current value for the Coarse knob, determined by the value sent by LFO 1. Let's make sure LFO 1 generates a random signal.

6 Click LFO 1.

7 Click the Waveform pop-up menu and choose Random.

Each finger snap is triggered at a random pitch within a wide range of pitch modulation. Let's now bring that range to a more subtle value.

8 Click the Mod Matrix tab.

9 In the LFO 1 to Pitch assignment, drag the Amount slider down to around 140 cents.

The pitch modulation is quite subtle now, making each finger snap slightly different sounding than the previous one.

10 Close the Quick Sampler plug-in window.

11 Stop playback.

You've assigned a low-frequency oscillator with a random waveform to modulate the pitch of the sampler in subtle amounts. That pitch randomization is just enough to make the sampled finger snaps sound a bit more human.

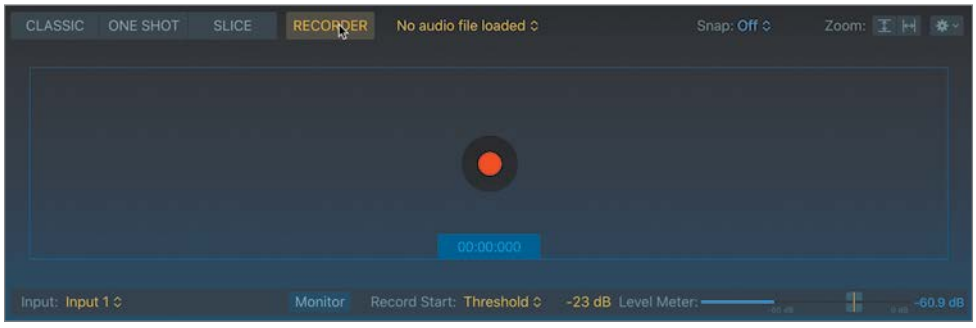
Recording Audio in Quick Sampler

You will now create a new software instrument track and record your own handclap sample directly into Quick Sampler. You'll then copy the MIDI region you recorded for your finger snaps to the new track so that you can trigger your hand clap sample using the same note sequence. For this exercise, you will need to make sure the correct input device is selected in Logic's audio preferences, the same way you did in Lesson 4.

1 At the top of the track headers, click the + button (or press Option-Command-N) and create a new software instrument track.

2 In the instrument slot, insert Quick Sampler.

3 Above the waveform display, click the Recorder button.



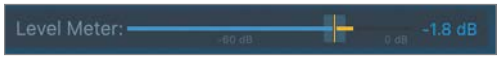
A record button appears in the middle of the waveform display. To the lower left of the waveform display, make sure the input where you've connected your microphone is selected from the Input pop-up menu. To use your Mac computer's built-in microphone, use Input 1.

TIP To record the output of a track in real time into Quick Sampler, choose the desired track from the Input pop-up menu.

TIP To monitor the audio signal you're recording, click the Monitor button below the waveform display.

Below the waveform display, the Record Start pop-up menu is set to Threshold. After you click the record button on the waveform display, Quick Sampler waits for the audio signal at the selected input to reach the threshold set by the slider on the Level Meter slider.

4 Clap your hands a few times and, if needed, adjust the Level Meter slider.



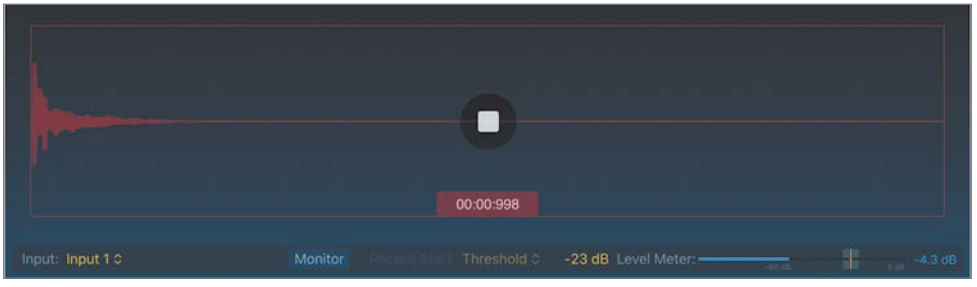
Watch the Level Meter. The input signal level should reach above the Level Meter slider position when you clap your hands. Make sure the peak value displayed to the right of the Level Meter does not turn red, which would indicate you're clipping the signal. If needed, adjust the input gain on your audio interface.

TIP When using your Mac computer's built-in microphone, to adjust the input gain, choose Apple menu > System Preferences, click the Sound icon, click the Input button, and adjust the Input volume slider.

5 In the waveform display, click the Record button.

Quick Sampler is waiting for the input level to reach the threshold set by the Level Meter slider to start recording.

6 Clap your hands once.



If all went well, you can see a waveform for your hand clap, and the peak detector to the right of the Level Meter does not go red. If your clap wasn't loud enough, the recording doesn't start, and you can clap again, louder this time. If your clap was too loud, the peak detector turns red; you can click the peak detector to reset it, click the stop button in the waveform display, and try again.

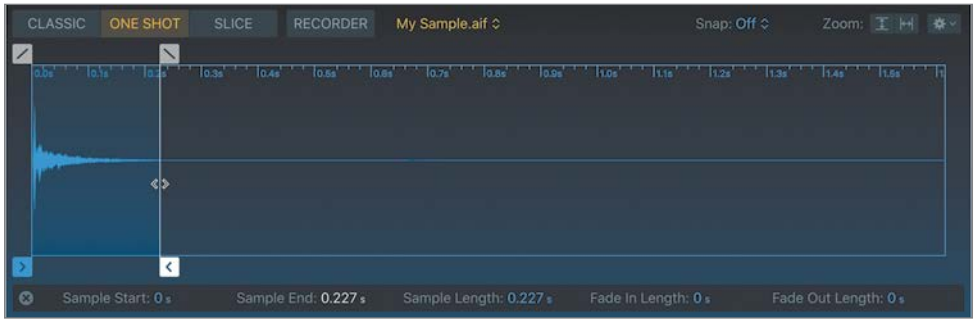
7 In the waveform display, click the Stop button.

The recording stops, and your sample is ready to be triggered.

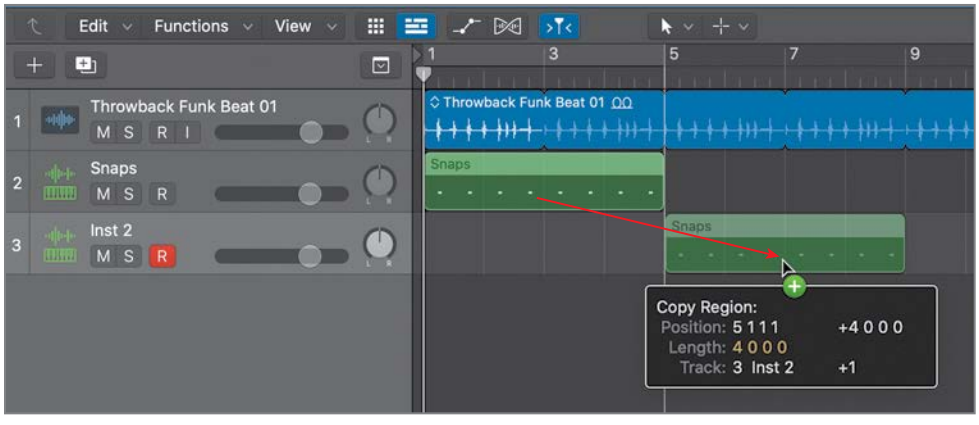
8 Above the waveform display, click the One Shot button.

Since Quick Sampler started recording exactly when you clapped your hands, the start marker is at the right position.

9 Drag the end marker toward the end of your clap sample.



10 In the Tracks view, Option-drag the MIDI region from the Snaps track to the Claps track at bar 5.



Let's rename the new Quick Sampler track and region.

11 On the Inst 2 track (Track 3), double-click the name and enter *Claps*.

12 In the Tracks view menu bar, choose Functions > Name Regions/Cells by Track Name (or press Option-Shift-N).

The selected region on the Claps track is renamed Claps.

13 Listen to your claps.

NOTE ▶ If you're happy with a Quick Sampler instrument that you made in this lesson, save it as a patch in the Library as you learned in Lesson 3.

14 Close the Quick Sampler plug-in window.

Don't hesitate to use the volume sliders in the track headers to readjust the balance between the drum loop on Track 1 and the Snaps and Claps tracks.

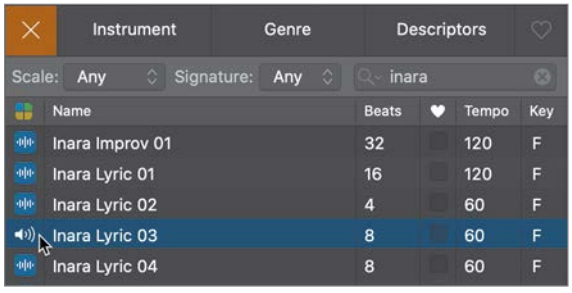
Handclaps are easy and fun to record. If you're not alone, try sampling a group of people clapping together. Don't limit yourself to finger snaps and hand claps. When Trevor Horn recorded the 1980s hit song "Relax" by Frankie Goes to Hollywood, he recorded the whole band jumping into the pool, and you can hear the resulting samples play toward the end of the song! Just look around you and experiment with whatever inspires you. Try stomping on plastic cups, punching cardboard boxes, shredding paper, and so on. All these sound effect samples can add great texture to your beats.

Creating a Quick Sampler Track Using Drag and Drop

For the intro, you will turn a vocal recording into a pad synthesizer instrument so that you can play melodies or chords with your keyboard. This time you will speed up the process of importing an audio file in Quick Sampler by using the shortcuts that appear when dragging an audio file directly to the empty space below the track headers.

1 In the Loop Browser, search for *inara*.

2 Preview Inara Lyric 03.

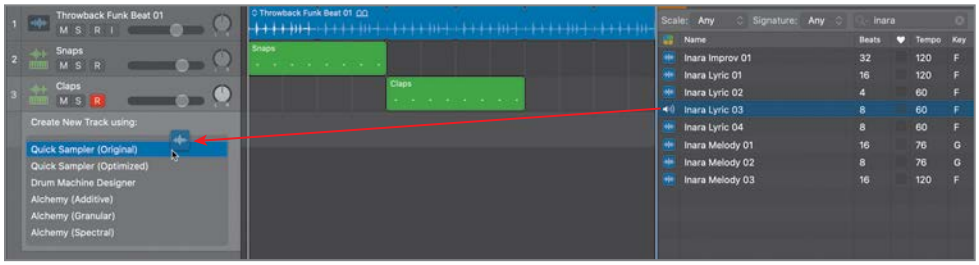


The loop's key is F; however, it's currently previewed in the project key (C). It sounds unnaturally low.

3 In the Loop Browser, click the action menu at the bottom left, and choose Play in Original Key.

Inara's vocals sound more natural. Let's import that loop into Quick Sampler.

4 Drag Inara Lyric 03 to the empty area below the track headers.



A menu opens, giving you choices to create a new track.

5 In the menu, choose Quick Sampler (original).

A new software instrument track is created with Quick Sampler in the instrument slot, and the audio file you dragged is imported in Quick Sampler. Quick Sampler recognized multiple notes in the audio file and determined it was appropriate to use Slice mode; however, you'll switch to a Classic mode in the next exercise to play a single-note sample.

Dragging audio files from the browsers, the workspace, or the Finder to the empty area below the track headers saves you the tedious work of creating a new track and inserting the Quick Sampler plug-in every time you want to experiment with sampling something.

Looping Sample Playback to Sustain Sound

When sampling material that you want to turn into a software instrument to play melodies or chords, you can loop a section of the sample. A sample loop keeps repeating until you release the key, allowing you to sustain the sample as long as you want.

To loop samples in Quick Sampler, you must choose Classic mode.

1 In Quick Sampler, click the Classic button.

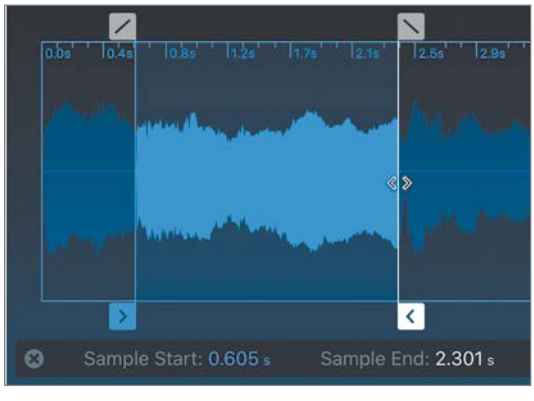
To the lower right of the waveform display, the root key is F2.

2 Play an F2 note, and then play different notes on your keyboard.

The entire vocal sample plays back, transposed according to the note you play. You will adjust the start and end markers so that a single note plays back.

3 Drag the start marker to the beginning of the second note in the sample (around 0.600 s).

4 Drag the end marker to the end of the same note (around 2.300 s).



5 Play a note.

Now only the note between the start and end markers plays. If you continue holding down a key, the note still stops when the Quick Sampler playhead reaches the end

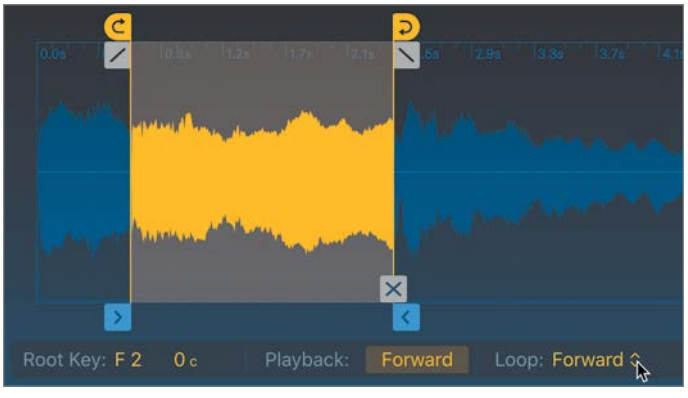
marker. Let's create a loop section. Since you adjusted marker positions, the parameter display bar below the waveform display is hiding the Loop mode pop-up menu, so let's close it.

You may notice that the section of the sample you chose to trigger is actually not an F note. You will later tune your instrument to make sure it plays the correct pitches.

6 Below the waveform display, click the X to the left of the parameter display bar.

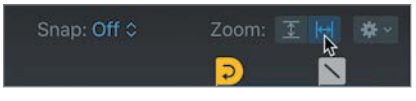
The parameters revert to the default view, and you can see the Loop parameter.

7 Click the Loop mode pop-up menu, and choose Forward.

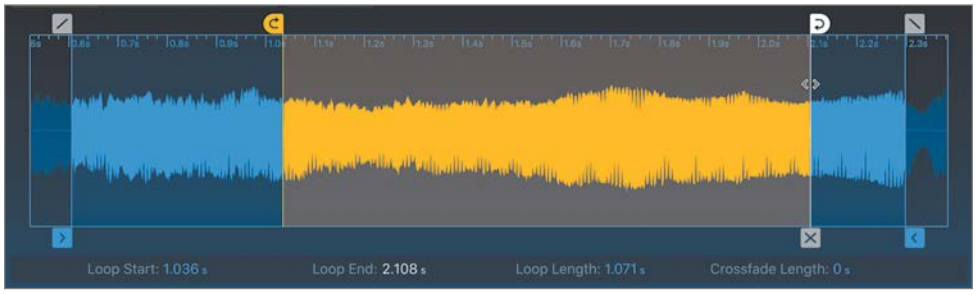


In the waveform display, yellow loop start and end markers let you set the loop boundaries. The loop section between the loop markers is yellow.

8 At the upper left of the waveform display, click the Zoom horizontal button.



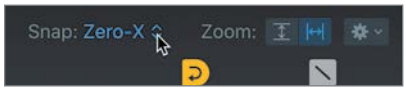
9 Adjust the loop start and end markers.



Continue playing an F2 note while you adjust parameters in Quick Sampler. The goal is to have the loop sound as seamless as possible. Unless you're lucky, you're probably hearing a popping sound as the playhead skips from the loop end marker to the loop start marker. There are a few tools in Quick Sampler that can help that situation.

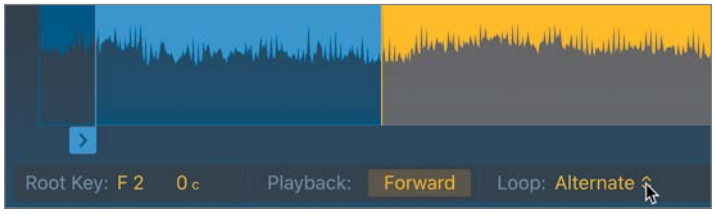
First, you can snap your markers to zero crossings, positions where the waveform crosses the horizontal zero line in the middle of the waveform.

10 Click the Snap pop-up menu and choose Zero Crossing.



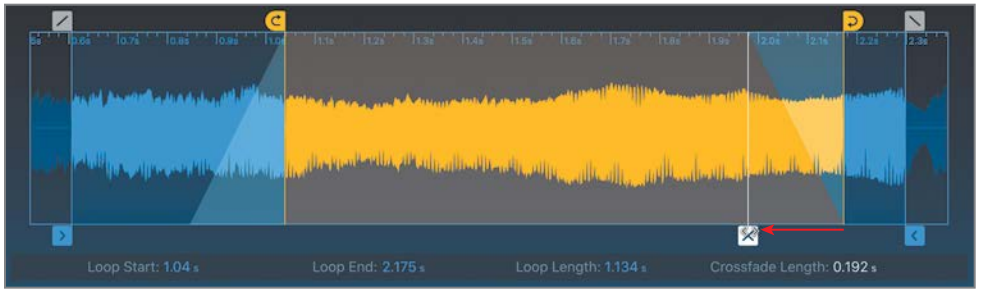
Continue adjusting the loop markers. You should hear less of a popping sound. To make the loop sound even smoother, you can use the Alternate loop mode, which plays the loop alternatively from the loop start marker to the loop end marker, and then from the loop end marker to the loop start marker.

11 Move the pointer away from the loop markers to see the default parameters below the waveform display. Click the Loop mode pop-up menu, and then choose Alternate.



Playback no longer jumps from the loop end marker to the loop start marker, making the loop more even. You can probably still hear some skipping at the loop start and end markers, but for now, try to focus on having the pitch and amplitude of the note sound fairly continuous. Once you're happy with your loop section, you can further polish the loop using a crossfade at the loop start and end markers.

12 Drag the crossfade marker to the left to create a crossfade at the loop start and end points.



Adjust the length of the crossfade so that the popping sound disappears and the loop sounds smooth. You may need to readjust your loop start and end marker positions.

TIP In the waveform display, move your pointer in between the loop start and end markers and drag left or right to move the entire loop section.

Finding the right position for a sample loop can take finessing and experimentation, so take your time and keep trying.

13 Play and sustain a chord on your keyboard.

This sampler instrument still retains the original timbre of Inara's voice, but now you can play it like a synthesizer on your keyboard!

Finding the best positions in an audio file for your sample start, sample end, loop start, and loop end markers is the foundation of good sampling. Ultimately, not all audio files will give you good-sounding results when looped. As you acquire more experience, you'll get better at recognizing parts of recordings that will work when sampled by listening but also by looking at the waveform, and you'll get faster at editing the samples.

Modulating Samples with LFOs and Envelopes

Now that you've turned audio material into a sampler instrument, you can use the modulation section in the lower section of the Quick Sampler interface to affect different playback parameters. You will adjust the amp envelope to give your vocal a soft, slow attack and a long release, turning the instrument into a synthesizer pad. You will then record long sustained chords to lay down the background harmony while adding texture. Then you'll modulate the pitch of the samples to create a vibrato effect.

At the bottom of the Amp section, the envelope display lets you control how the level changes over time when a sample is triggered. The selected envelope type, ADSR, stands for Attack, Decay, Sustain, and Release—the four segments that determine the shape of the envelope.

1 At the bottom of the Amp section, move the pointer over the Attack handle (the first point in the envelope display).

The Attack field (A) is highlighted.

2 Drag the point toward the right.

TIP To adjust a handle numerically, drag its corresponding field vertically, or double-click the field and enter a value.

To check your work, keep playing an F2 note after adjusting parameters in Quick Sampler. The Attack segment is slopped, and the samples fade in slowly rather than starting abruptly. Try different attack lengths, and finally settle for around 400 ms.

3 At the lower right of the envelope shape, drag the Release handle to set the release to around 600 ms.

The sound takes 600 ms to fade out when you release keys on your keyboard, almost like the sound of a reverb tail. This soft envelope is great for a pad sound. Let's dial in a vibrato effect.

4 Click the Mod Matrix tab.

5 On the first routing, click the Source pop-up menu and choose LFO 1.

6 Click the Target pop-up menu and choose Pitch.

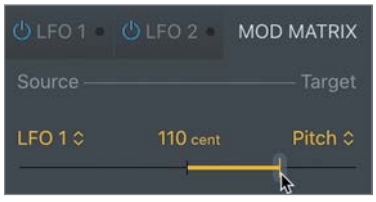
7 Drag the Amount slider to around 500 cents.

In the Pitch section, note the orange ring around the Coarse knob, representing the range of pitch modulation applied by your routing.

8 Play a few notes on your keyboard.

You can hear a very wide pitch range vibrato—it sounds like a siren! A white dot moves around the Pitch knob to indicate the pitch in real time. Let's dial in a more reasonable pitch range.

9 In Mod Matrix, drag the Amount slider to 110 cents.



That is still a fair amount of vibrato. When you listen to and observe classical string players, they often attack a note with a constant pitch at first, and start applying vibrato with an increasing pitch range as the note is sustained. To reproduce this effect, you will apply a delay to LFO 1.

10 Click the LFO 1 tab.

11 Drag the Fade In knob to around 2500 ms.

Before you start recording, you need to tune the instrument. When you play an F2, you hear a G2 instead, so let's fix that.

12 At the lower left of the waveform display, set the root key to G2.

Let's rename the track and record some chords.

13 On the Inara Lyric 03 track header, double-click the name and enter *Synth Pads*.

14 Record one-bar long notes or chords from bar 1 to bar 5 to lay down a harmony in the intro section.

You are just experimenting for now, so feel free to play any notes you want. However, if you can, keep all melodies and chords you record in this lesson in the key of C minor, and you will later be able to arrange all your tracks together into a cohesive song.

If needed, use the Quantize pop-up menu in the Region inspector to correct the timing of your performance. If some of the notes need to be edited, open the Piano Roll to drag the notes to the desired position or pitch. Don't hesitate to readjust Quick Sampler settings to your tasting, adjusting the attack or release of the Amp envelope, and the amount or delay of vibrato. In the inspector, feel free to add audio effect plug-ins to the Synth Pads channel strips.

15 Close the Quick Sampler plug-in window.

You have explored several methods for sampling single notes. You have imported a finger snap audio file, recorded your own hand claps, and sampled a vocal note to turn it into a new software instrument. In the process, you've gained familiarity with Quick

Sampler—using the Mod Matrix to route LFO to pitch, adjusting the Amp envelope, adjusting sample start and end markers, and creating a loop and making sure it cycles smoothly.

Sampling and Slicing Drums

Bringing an audio file into Quick Sampler allows for sound manipulation that opens new horizons. When you import a drum loop, Quick Sampler detects the transients and Slice mode is automatically selected. Each drum hit is separated into a slice and mapped to a note pitch so that it can be triggered by a specific key.

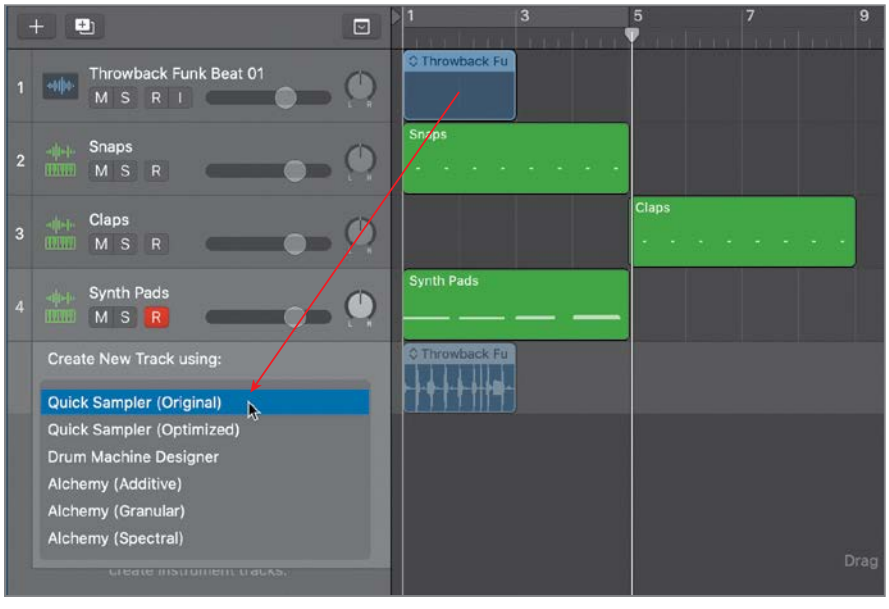
You will use the Throwback Funk Beat 01 drum loop on Track 1 to create a new sampler instrument track that you can use for the song intro. You will shorten the individual slices with the Amp envelope, give the loop a lo-fi (low-fidelity) sound with a distorting filter, and reprogram the MIDI note sequence in the Piano Roll to switch around the pattern a bit.

1 On Track 1, click the Throwback Funk Beat 01 drum loop to select it.

   To import only one loop in Quick Sampler, you will temporarily turn the looping off.

2 In the Region inspector, deselect Loop (or press L).

3 Drag the Throwback Funk Beat 01 region on Track 1 to the empty area at the bottom of the track headers and choose Quick Sampler (Original).



A Quick Sampler track is created, and Quick Sampler opens in Slice mode. Slice markers are positioned at each detected transient on the waveform display. Below the waveform display, MIDI note pitches are assigned to each slice, starting on C1 and ascending chromatically.

TIP You can click the waveform display to create a slice marker, drag a slice marker to move it, and double-click a slice marker to delete it.

4 Rename the new track *Sliced Drums*.

5 On your keyboard, play some of the notes assigned to the sample slices.

For each note you play, the corresponding slice is triggered. First, you will re-create the note pattern that triggers the entire original loop on the track.

6 Control-click the waveform display away from a slice marker, and choose Copy MIDI Pattern.

The MIDI pattern is stored in the clipboard, ready to be pasted.

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

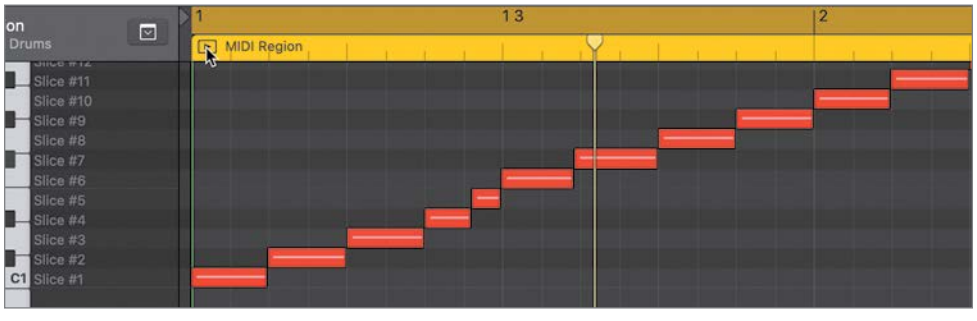
8 In the workspace, on the Sliced Drums track, Control-click in bar 1, and choose Paste (or click the Tracks view to give it key focus, and then press Command-V).

A MIDI region is created on the track at the playhead position.

9 Double-click the MIDI region.

The Piano Roll opens, and you see the pattern of chromatically ascending notes that trigger the successive slices in Quick Sampler.

10 At the upper left of the MIDI region in the Piano Roll, click the Play button.



In Quick Sampler, the slices are triggered in succession, and it sounds just like the original loop. You are now ready to start mangling this drum loop to give it the lo-fi treatment that will give you an intriguing sound for the song intro. Keep the loop playing while you tweak its sound. First, let's shorten the envelope of each slice to give the loop a muffled, cut-up sound.

11 In Quick Sampler, on the envelope display at the bottom of the Amp section, drag the Decay handle to set Sustain to 0% and Decay to 20 ms.

Each drum hit is cut up, as if it was harshly gated, giving a bouncy, staccato feel to the loop. You will now further distort the loop using a filter.

12 In the Filter section, click the On/Off button.

13 Drag down the Cutoff knob to around 63%.

Some of the high frequencies are filtered, and the loop sounds are muffled.

14 Drag up the Drive knob to around 50%.

The filter is overdriven, and the loop sounds slightly distorted and punchy. To give the loop a more mid-rangey sound, you'll use one of the band pass filters.

15 Click the Filter mode pop-up menu and choose BP 6dB Gritty.

The loop sounds small and lo-fi, and the kick drum is quite distorted. Use the Filter On/Off button to compare the sound of your sampled drums with and without filtering.

You will quickly rearrange the regions in your workspace to create an intro section.

16 Press the Space bar to stop playback.

17 Close the Quick Sampler plug-in window.

18 On the Slice Drums track, loop the MIDI region once so it lasts for four bars (from bar 1 to bar 5).

19 On the Throwback Funk Beat 01 track (Track 1), drag the Throwback Funk Beat 01 region to bar 5.

20 In the Region inspector, select Loop (or press L).

The Throwback Funk Beat 01 region on Track 1 is looped.

21 Listen to your intro.

From bar 1 to bar 5, the sliced drum loop introduces the beat with a small, lo-fi sound punctuated by your finger snap samples. The small drums leave ample sonic room for the pad sound that you sampled from Inara's voice. At bar 5, the full-sounding drum-beat takes over. The use of a filtered drum loop in the intro makes the original drum loop sound bigger by contrast when it kicks in.

Resequencing Drum Slices in the Piano Roll

On the Sliced Drums track, in Quick Sampler, each slice of the drum loop is triggered by different MIDI notes. That means you can now change the pitches of the notes in the Piano Roll to switch the beat around while keeping the same rhythm.

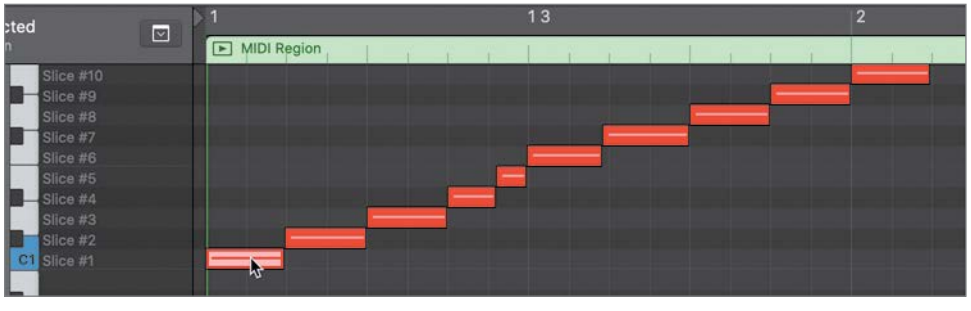
1 On the Sliced Drums track, click the MIDI region to select it.

The Piano Roll opens, and you see the MIDI notes that trigger the drum slices.

2 In the Piano Roll, on the keyboard on the left, click a key next to a slice number label.

The corresponding slice plays. Let's use key commands to select different notes in the Piano Roll and transpose them. You will press the Left Arrow or Right Arrow key to select the previous or next note, and Option-Up Arrow or Option-Down Arrow to transpose the selected note up or down by one semitone.

3 Click the first note.



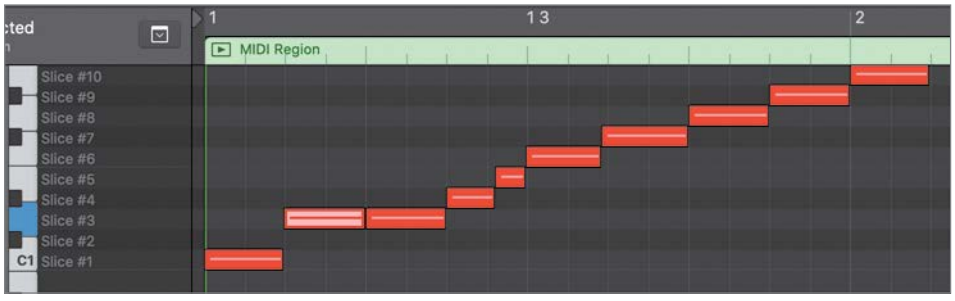
The corresponding slice plays.

4 Press the Right Arrow key a few times.

With every key press, the next note to the right is selected, and the corresponding slice plays.

5 Use the Left Arrow and Right Arrow keys to select the second note.

6 Press Option-Up Arrow.



The selected note is transposed one semitone up.

7 At the upper left of the region in the Piano Roll, click the Play button.

The MIDI region plays in Cycle and Solo modes. You hear your new pattern with two successive snares at the beginning of the loop. The note is deselected.

8 Click any note to select it.

Continue using the same key commands to navigate from one note to the next and transpose some of the notes so that they trigger the desired slice.

TIP Press Shift-Option-Up/Down Arrow to transpose a note up or down one octave (12 semitones).

9 Stop playback.

10 Listen to the intro leading into the next section.

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