7 Recording Software Instruments

The process of recording Software Instruments in GarageBand is similar to that for Real Instruments, but different enough that I've provided a separate chapter for each procedure. There is some duplication between the chapters, but I decided it was better to make each one complete rather than use a lot of cross-references and make you flip back and forth.

Once your MIDI hardware is set up and connected to your computer, you're ready to record. The act of recording into a Software Instrument track is simple: click the Record button, and whatever data comes in through your MIDI interface is captured on your computer's hard disk.

Before you click that button, you should check out some GarageBand features that will streamline your recording session. Here's what I cover in this chapter:

- An overview of recording in GarageBand.
- Using GarageBand's onscreen keyboard and a suggestion for an alternative.
- Using the metronome to help you keep a steady beat while recording.
- Recording a new region into a Software Instrument track.
- Using a cycle region to re-record a portion of a track.

About Recording in GarageBand

As I said, it's easy to record in GarageBand. Recording an entire song, on the other hand, takes a bit of work. By this I mean that recording in GarageBand has significant limitations. You can record into only a single track at a time, so if you want to make a multitrack recording of your band, with drums in one track and guitar in another and a vocalist in another, you have to record the tracks one at a time. This takes a lot of the fun and spontaneity out of the whole band experience.

Alternatively, you can set up a pair of microphones in front of the band (or mike each performer individually and run the mikes through a mixer) and record the band's performance into a single track. But in that case, which Real Instrument do you assign to the track? You can record into a basic track, but then you lose out on one of GarageBand's coolest features: the preset effects settings that define each Real Instrument.

GarageBand is designed with the solo musician in mind. Thanks to the fact that GarageBand handles several types of musical materials (loops, audio recording, and MIDI data), a musician working alone can have a lot of fun producing richly textured songs with GarageBand. One way to go about it is to start by laying down a percussion track constructed from loops. Next, record a bass line using a MIDI keyboard into a Software Instrument track. Finally, record a Real Instrument track while playing guitar; or record yourself singing and add piano or guitar chords later, using another Software Instrument track.

GarageBand doesn't assume that you're going to record entire tracks at once. Each time you record a take, you create a *region* within a track. A region can be any length, from a few notes to a whole song. You can record as many regions in a track as you want, and you can start recording at any point in the timeline. This gives you tremendous flexibility: you can record small pieces of a song as inspiration strikes and then arrange them into a larger composition when you're ready (you'll learn how to do that in Chapter 8).

Working with the Onscreen Music Keyboard

For those without MIDI hardware, GarageBand includes a virtual keyboard: a picture of a keyboard, which you play by clicking the keys with the mouse. The onscreen keyboard acts as a substitute for a "real" MIDI keyboard. Any notes you play on it are sent to the selected Software Instrument track. If you are recording, the notes you play are recorded, just as if you had played them on a piece of hardware.

The keyboard is rather clumsy, and it's not useful for entering lively melodies. It comes in handy, though, if you're trying to get some work done in GarageBand while you're away from your studio—traveling with a PowerBook, for example. It works well for recording long-held notes, and it's useful for trying out unfamiliar Software Instruments to see how they sound.

To display the onscreen keyboard:

- With a Software Instrument track selected, choose Window > Keyboard (Command-K).

  The onscreen keyboard appears (**Figure 7.1**) bearing the name of the currently selected Software Instrument track.

  If you select a Real Instrument track while the keyboard is displayed, the keyboard dims and becomes inactive (**Figure 7.2**).

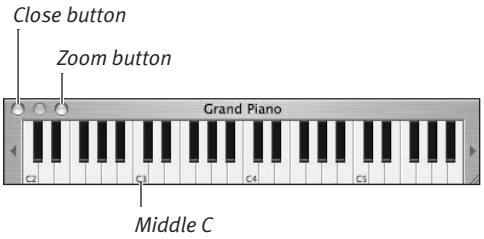

Figure 7.1 GarageBand's onscreen keyboard. The name of the currently selected track is displayed at the top.

Figure 7.2 The keyboard is now unavailable for use.

Figure 7.3 Playing the keyboard with the mouse.

To hide the onscreen keyboard:

- If the keyboard is displayed, *do one of the following:*
  - ▲ Choose Window > Keyboard (Command-K).
  - ▲ Click the Close button in the upper-left corner of the keyboard.

  The keyboard disappears.

To use the onscreen keyboard:

- Click a key on the keyboard (**Figure 7.3**).

  GarageBand sounds the note, using the selected Software Instrument track.

Playing Softly and Loudly

GarageBand's onscreen keyboard allows you to reproduce the effect of applying varying degrees of pressure to a physical key to create notes of different volume. levels. And no, it doesn't depend on how vigorously you press the mouse button.

Click near the key's front edge to produce a loud tone (**Figure 7.4**). The farther toward the back of the key you click, the softer the tone produced (**Figure 7.5**).

The volume of each note is recorded as velocity data and can be edited using the track editor (see Chapter 9 for more information about using the track editor).

Figure 7.4 Clicking here plays a note *forte*, or loudly.

Figure 7.5 Click here to play *piano*, or softly.

Configuring the Onscreen Keyboard

For a tool of limited practicality, the onscreen keyboard itself is remarkably flexible as a user-interface element. You can resize it and change its pitch up or down to a different octave. It's even touch sensitive (see the sidebar "Playing Softly and Loudly" earlier in this chapter).

By default, the keyboard spans four octaves. In this configuration, the lowest note (labeled "C2") is equivalent to C below middle C on a piano keyboard. The keyboard can expand up to $10^1/_2$ octaves—far wider than the range of any physical keyboard (concert grand pianos top out at 8 octaves). You can reduce its range to a minimum of 2 octaves.

You can access notes outside the keyboard's current display by shifting its range up or down by octaves. The lowest note of the keyboard is always a C.

To resize the keyboard:

1. Position the mouse pointer over the lower-right corner of the keyboard (**Figure 7.6**).
2. *Do one of the following:*
   - ▲ Drag to the right to widen the keyboard's range (**Figure 7.7**).
   - ▲ Drag to the left to shrink the keyboard.

✔ Tip

- ■ To quickly expand the keyboard to its full 10-octave-plus extent, click the zoom button in the keyboard's upper-left corner (**Figure 7.8**). Clicking the zoom button again snaps the keyboard back to its previous size.

Figure 7.6 Ready to resize the keyboard.

Figure 7.7 After dragging the corner of the keyboard to the right.

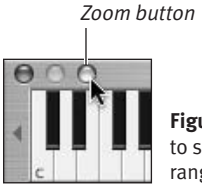

Figure 7.8 Click the zoom button to snap the keyboard to its full range.

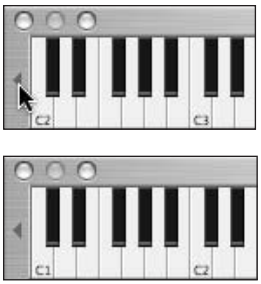

Figure 7.9 Top: Clicking the left-pointing triangle moves the keyboard's range down an octave. Notice that the lowest note of the keyboard is C2. Bottom: After you shift the range, the lowest note of the keyboard is now C1.

To change the range of the keyboard:

- *Do one of the following:*
  - Click the triangle at the left end of the keyboard to shift the keyboard's range downward by an octave (**Figure 7.9**).
  - Click the triangle at the right end of the keyboard to shift the keyboard's range upward by an octave.

MIDIKeys

Chris Reed's excellent utility MIDIKeys gives GarageBand users a keyboard substitute that is far superior to GarageBand's onscreen model (**Figure 7.10**). MIDIKeys, too, includes an onscreen keyboard, but that's not its most useful feature. It lets you use your computer's keyboard (with its keys of the good old QWERTY variety) as a MIDI keyboard.

This substitute keyboard works amazingly well. With a little practice, entering melodies is a snap. You can even play chords by holding down multiple keys at once (up to between six and eight at a time—the limit varies from keyboard to keyboard). Best of all, the program is free!

Download the software from the author's Web site:

www.manyetas.com/creed/

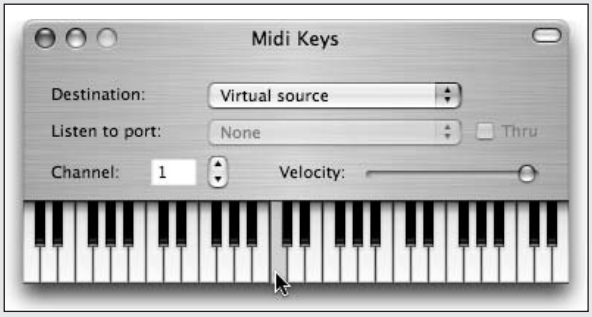

Figure 7.10 The MIDIKeys keyboard.

Using the MIDI Status Light

Buried among the LED-like digits of the time display is a tiny indicator that tells you whenever GarageBand receives a signal from a MIDI instrument. No bigger than a period, this little dot blinks momentarily whenever a key is pressed or released (to MIDI's way of thinking, these are separate events) (**Figure 7.11**).

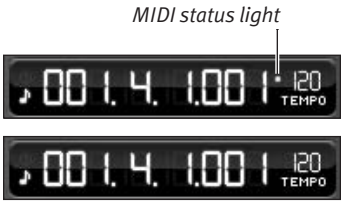

Figure 7.11 Top: The time display, showing the MIDI status light on. Bottom: No MIDI signal is being received, so the light goes out.

The MIDI status light can be a useful troubleshooting tool. Everyone who works with MIDI will someday experience the frustrating experience of playing a note on a keyboard and getting no sound. Of course, in any complex system (including your GarageBand setup), there are myriad things that can go wrong, but the MIDI status light helps you isolate the problem. If you press the key and the MIDI status light appears, then GarageBand is getting MIDI data from your keyboard, and you know the trouble lies elsewhere. If the MIDI status light remains dark, then you know it's time to start troubleshooting your MIDI gear.

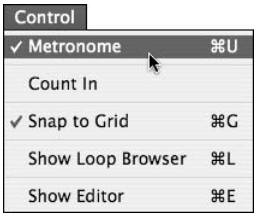

Figure 7.12 The check indicates that the metronome is on.

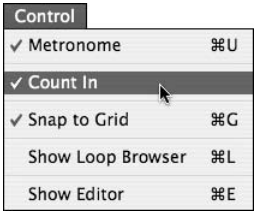

Figure 7.13 Setting the metronome to play a full measure before starting to record.

Using the Metronome

To help you play or sing in time, GarageBand provides a metronome. While you record, it ticks away at the tempo you set for your song. The sound of the metronome itself is not recorded. You can set the metronome to play only during recording or during both recording and playback.

To give yourself a running start, you can also set the metronome to play for a full measure, or *count-in*, before you start recording.

To use the metronome:

- Choose Control > Metronome (Command-U). A check mark indicates that the metronome is enabled (**Figure 7.12**).

  When you click the Record button, the metronome will play a sound on each beat of the song.

To turn off the metronome:

- Choose Control > Metronome (Command-U). The item is now unchecked.

  The metronome will no longer play during recording.

To have the metronome play a count-in before recording:

- Choose Control > Count In. A check mark appears next to the command (**Figure 7.13**).

  When you click the Record button, the metronome will play for a complete measure before recording begins.

To disable count-in:

- Choose Control > Count In. The item is now unchecked.

  The metronome will not play before recording starts.

To set preferences for the metronome:

1. Choose GarageBand > Preferences (Command-,) (**Figure 7.14**).

   The Preferences dialog opens, displaying the General pane.

2. *Choose one of the Metronome options:*
   - ▲ Select During Recording to have the metronome play only while the Record button is pressed.
   - ▲ Select During Playback and Recording to have the metronome play both while recording and during playback.

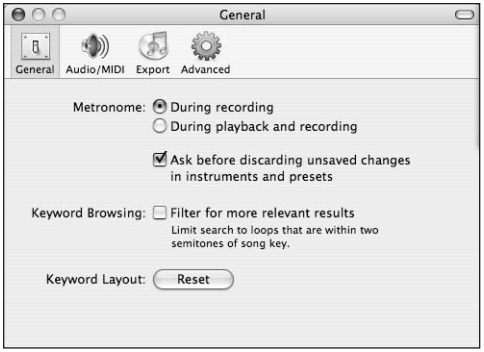

Figure 7.14 The GarageBand Preferences dialog.

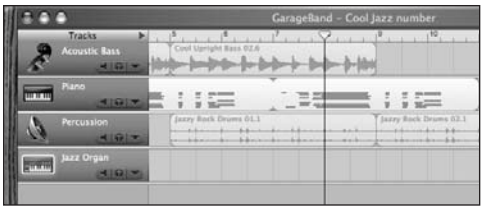

Figure 7.15 Pick a spot to begin recording.

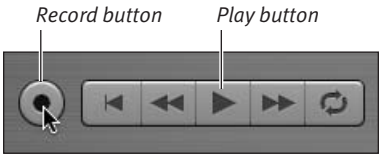

Figure 7.16 Click the Record button to start recording, and the Play button to stop.

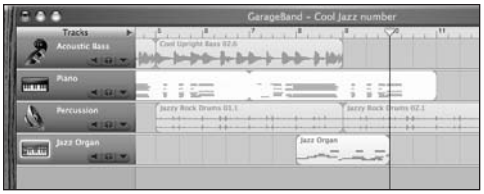

Figure 7.17 A new region appears during recording.

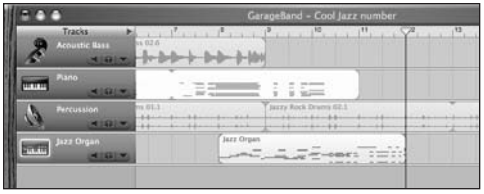

Figure 7.18 Your newly recorded region.

Recording into a Software Instrument Track

It's almost time to record. Here are the items you should have on your preflight checklist:

- Check your MIDI instrument and interface (if applicable) to make sure they are properly connected to your Mac and that a signal is coming through.
- Select a Software Instrument track to record into.
- Play a few notes on the instrument and make sure sound comes out of your Mac.

To record into a Software Instrument track:

1. With a Software Instrument track selected, move the playhead to the spot in the song where you want recording to begin (**Figure 7.15**).
2. Click the Record button (or press R) to start recording (**Figure 7.16**).

   The red dot in the center illuminates.
3. Begin your performance. Any notes you play on your MIDI keyboard (or enter by clicking the onscreen keyboard) will be recorded. Also, if you use the Pitch Bend or Modulation controller or the Sustain pedal, that information will be recorded, too.

   As you record, the playhead moves down the timeline, leaving a new region in its wake (**Figure 7.17**).
4. Click the Play button (or press the spacebar) to stop recording.

   The playhead stops at the end of your newly recorded region (**Figure 7.18**).

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5. To make further recordings, *do one of the following:*
   - ▲ To record another region in the same track, move the playhead to a new location and repeat steps 2 through 4.
   - ▲ To record into another track, create a new track or select an existing track and repeat steps 1 through 4.

Recording Software Instrument Drums

The job of recording Software Instrument drum kits poses particular challenges. These instruments, like MIDI drum sounds in general, contain many different percussion sounds, each of which is assigned to a different note on the keyboard.

The GarageBand Help file recommends that you make a chart listing the sound or instrument played by each note on the keyboard (**Figure 7.19**), but this is a difficult (not to mention tedious) task. It's also unnecessary. GarageBand's drum kits follow the General MIDI specification pretty closely, so you can use **Table 7.1** as a guide. GarageBand's drums have more sounds than the four octaves defined in the specification, and they do deviate from the spec in places, so you'll still need to do a quick test of the full range of the Software Instrument to find all of its sounds.

The Software Instruments that model acoustic drums (like the Pop Kit and Rock Kit) follow the General MIDI list more closely than the instruments that re-create digital drum pads (like the Dance Kit and Electro Kit). The digital kits use a number of electronic sounds that don't match the General MIDI sounds. You can distinguish the two by their icons:

Acoustic drums: 

Electronic drums: 

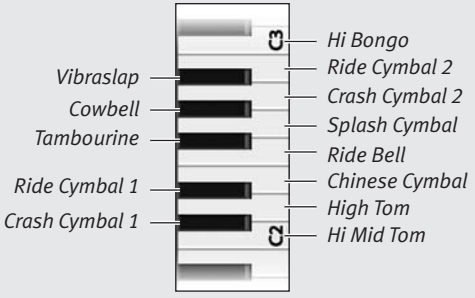

Figure 7.19 Part of a map showing the key mappings of percussion sounds.

Table 7.1

General MIDI Percussion Key Map

Keyboard Note	Instrument	Keyboard Note	Instrument
B0	Acoustic Bass Drum	B2	Ride Cymbal 2
C1	Bass Drum	C3	Hi Bongo
C#1	Side Stick	C#3	Low Bongo
D1	Acoustic Snare	D3	Mute Hi Conga
D#1	Hand Clap	D#3	Open Hi Conga
E1	Electric Snare	E3	Low Conga
F1	Low Floor Tom	F3	High Timbale
F#1	Closed Hi Hat	F#3	Low Timbale
G1	High Floor Tom	G3	High Agogo
G#1	Pedal Hi Hat	G#3	Low Agogo
A1	Low Tom	A3	Cabasa
A#1	Open Hi Hat	A#3	Maracas
B1	Low Mid Tom	B3	Short Whistle
C2	Hi Mid Tom	C4	Long Whistle
C#2	Crash Cymbal 1	C#4	Short Guiro
D2	High Tom	D4	Long Guiro
D#2	Ride Cymbal 1	D#4	Claves
E2	Chinese Cymbal	E4	Hi Wood Block
F2	Ride Bell	F4	Low Wood Block
F#2	Tambourine	F#4	Mute Cuica
G2	Splash Cymbal	G4	Open Cuica
G#2	Cowbell	G#4	Mute Triangle
A2	Crash Cymbal 2	A4	Open Triangle
A#2	Vibraslap		

Re-recording a Section of a Song

Suppose the first take of your recording goes swimmingly, except for one measure where you flubbed a few notes. You don't have to record the whole track over again to fix those notes—GarageBand includes a feature that lets you re-record just a portion of a track.

You do this by creating a *cycle region* that includes the passage you want to record over again (**Figure 7.20**). The next time you click the Record button, only the cycle region is recorded. A new region is created in the track, splitting the original region into two parts (**Figure 7.21**).

When recording starts, the playhead jumps to the beginning of the cycle region and proceeds to the end and then jumps back to the start of the region. The playhead continues to cycle through the region until you click the Play button to stop. To correct a mistake, play during the first time cycling through the region; then listen to the playback on the second cycle.

GarageBand is recording the whole time, so if you play during several repetitions of the cycle, everything you play is recorded. This can sound like a train wreck if you're not careful, but it's useful for building a track by overdubbing (see the sidebar "Using a Cycle Region for Overdubbing" later in this chapter). If you click Record again after stopping, the cycle is wiped clean, and you can begin afresh.

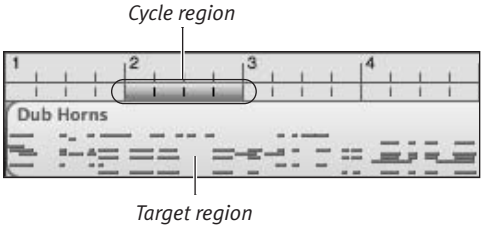

Figure 7.20 A one-measure cycle region defined, before recording.

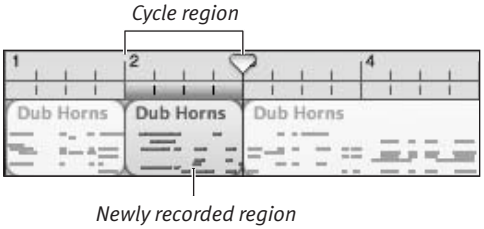

Figure 7.21 After recording using the cycle region. A new region has been created in the selected track.

Real vs. Software Instrument Cycle Regions

When you record into a Real Instrument track, the cycle region operates differently. GarageBand records only on the first pass through the region. The subsequent passes allow you to hear what you just recorded, but not to record anything new.

If you want to re-record over the cycle region, you have to stop recording and make a fresh start. See Chapter 6 for more information on recording Real Instrument tracks.

Figure 7.22 The Cycle button.

Figure 7.23 Dragging the cycle region to a new position.

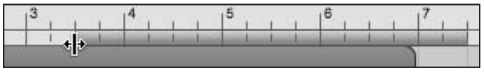

Figure 7.24 Resizing the cycle region.

To record over part of a song:

1. Click the Cycle button in the transport controls below the timeline (**Figure 7.22**) or press C.

   A second ruler appears below the beat ruler; a portion of it is colored yellow, indicating the cycle region. If this is the first time you've invoked the cycle region for this song, the cycle region will encompass the first four measures. If you have used the cycle region before in this song, GarageBand displays it at its previous location.

2. Drag the cycle region so it covers the portion of the timeline you want to record again (**Figure 7.23**).

3. To resize the region, move the mouse pointer over either end. The pointer turns into the Resize tool (**Figure 7.24**). Drag either end of the region to resize it.

4. Select the track into which you want to record.

5. Click the Record button (or press R) to begin recording.

6. Play your instrument.

   While you are recording, the playhead moves through the cycle region. A new region appears in the timeline, containing your newly recorded material. When the playhead reaches the end of the cycle region, it jumps back to the beginning and starts through the cycle region again. This time, you can either listen to the performance you just recorded or keep playing to record fresh material on top of what you've already recorded.

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7. Click the Play button (or press the spacebar) to stop recording.
8. If you are satisfied with the new recording, click the Cycle button again to hide the cycle region.

✔ Tips

- Other audio programs call this technique *punching in* and *punching out* and refer to the ends of the cycle region as *punch-in* and *punch-out points*.
- When you're satisfied with the results of your cycle recording, you can fuse the newly recorded region with the pieces of the original region to form a single unit. (See "Joining Regions" in Chapter 8.)

Using a Cycle Region for Overdubbing

Overdubbing refers to the technique of making multiple recording passes over the same part of a track. In GarageBand, it's a good way of constructing a percussion part using Software Instruments, and you can use a cycle region to accomplish it.

A live drummer plays multiple instruments at once to create a rich percussion texture. Usually, the lowest-sounding drums reinforce beats 1 and 2, with brighter sounds on beats 3 and 4. The whole texture is topped by a lively sound moving at a quicker clip, perhaps a cymbal or hi hat playing in eighth or sixteenth notes.

You can reproduce that kind of percussion sound working by yourself in GarageBand. Set up a cycle region in a Sound Instrument percussion track and play a different rhythmic pattern on a different key on each recording cycle (**Figure 7.25**). For example, on the first cycle play C1 (Bass Drum 1) on the strong beats, on the second cycle play F1 (Low Floor Tom) on the weak beats, and on the third cycle play G#1 (Pedal Hi Hat) on every eighth note.

Beware though: If you stop recording and try to overdub more notes later, you'll erase what you just recorded. Overdubbing works only during a continuous series of passes through the cycle.

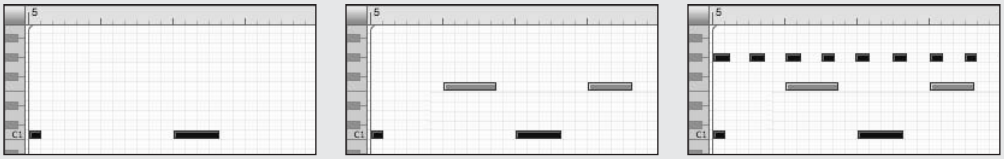

Figure 7.25 Overdubbing a percussion track, using a cycle region (shown here as seen in the track editor, for greater clarity). Top: The first pass through the cycle. Middle: The second pass. Bottom: The third pass.