

Chapter 16

Ten Ways to Improve GarageBand's Performance

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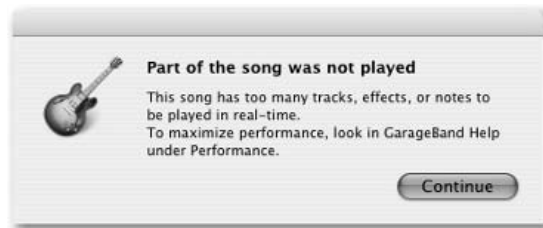
I must say that GarageBand is one of the most stable 1.0 releases that I can remember. It's doing a lot, and it rarely crashes or freezes. Still, it is a 1.0 release (1.1 as I write this), and it occasionally gives you trouble. That trouble mostly affects its performance, which is why this little chapter offers ten ways to shoot that trouble right between its beady little eyes and get your GarageBand rocking again.



You'll find that most GarageBand issues are related to performance. So, the older your Mac (that is, the slower its processor), the more likely you are to encounter performance issues.

If you have never (or almost never) seen the ugly warning dialog box that's shown in Figure 16-1, you are either lucky or you're fortunate to use a Mac with a fast G4 or G5 processor, 512MB RAM (or more), and at least one fast (7,200 rpm) hard drive.

Figure 16-1:
N0000!! I
HATE when
it says that!



That has to be one of the most irritating dialog boxes ever to disgrace my screen. I ought to be immune — I have a Power Mac G5 with dual 1.8 GHz processors, 2GB RAM, and four fast external FireWire hard drives. I've seen this dialog box more often than I care to admit on the G5, and I see it even more often on my single-processor PowerBook G4.

The point is this: Even the fastest rigs are not immune.

Of course you can do as the dialog box says and look in GarageBand Help under Performance. The tips that you find there are extremely helpful and may do the trick. But alas, every single one of them includes a trade-off. So over the next few pages I show you tips, techniques, and workarounds that will help you keep making music.



Fortunately, while working on this book, I discovered one technique that reduces the load on your Mac: ping-ponging or bouncing tracks, that age-old technique from multitrack analog recording. Although this technique has a trade-off (that is, it's a pain in the butt), I can live with it, and it reduces the load on your processor in GarageBand. See Chapter 10 for details on how this technique works.



How do I know about ping-pong and analog recording? Well, before I became a full-time Mac geek, for two years I studied audio engineering with multi-Grammy-winning producer Bill Lazerus in L.A. I thought audio engineering was going to be my life — I played guitar in a bunch of L.A. bands and produced several artists (and even managed to get one of 'em signed). It was fun but the pay sucked, so instead of starving, I switched to advertising and began producing audio and video for TV and radio commercials. Only after becoming sick of that did I fall into my current full-time geek gig. Anyway, the point is that I am a huge GarageBand fan, but I also have real-world audio production experience.

Checking the Basics

Before I move on to the meat of the matter, because this is a Part of Tens chapter and I only get ten shots, I'm going to cheat just a little and start with a quick set of steps that you should try *before* you begin troubleshooting to improve your performance (or tearing your hair out, as the case may be):



1. Close all open applications (other than GarageBand).

If you have other applications open while you're using GarageBand, they're using up RAM and processing power that can be put to better use. So when you're using GarageBand, it's a good idea to close all other programs and give GarageBand more RAM and processor time to work with.

2. Check all your cable connections.

3. Close GarageBand, and then reopen it.

4. Delete the GarageBand preference file (`com.apple.garageband.plist`) from your Home/Library/Preferences folder.

5. Log off, and then log back on.

6. Restart your Mac.



If you've deleted your GarageBand preferences, every setting you modified in GarageBand Preferences has been reset to the defaults — as they were the first time you ever used GarageBand. You'll probably want to open GarageBand Preferences (GarageBand ⇨ Preferences or ⌘-,) to set the preferences the way you like them again.

Another possible performance-robber is Panther's FileVault feature; it can cause excessive performance reading and writing to your hard drive that hurts GarageBand's performance. To turn FileVault off (or to check to see if it's turned on), follow these steps:

1. Launch the System Preferences application.

2. Click the Security icon.

3. If the text reads, FileVault protection is on for this account, and the button to the right of the text says Turn FileVault Off, click the button to turn FileVault off.

4. If the text reads, FileVault protection is off for this account, and the button to the right of the text says Turn On FileVault, you're golden. You can quit the System Preferences application and go on with your recording session.



If you can't live without FileVault, storing your songs in any folder that's outside your Home directory can help, although not as much as turning off FileVault. Still, it may help enough to use GarageBand without turning off FileVault.

Okay, now let's get serious. The following sections give you some things to try when GarageBand goes sour.

Paying Attention to the Color of the Playhead

The triangular playhead indicator changes colors to indicate processor load. The processor load is a good indication of when you're in danger of seeing the dreaded warning dialog box shown in Figure 16-1.

The triangular playhead glows different colors that reflect the load on your CPU: white for low or no load, yellow for a moderate CPU load, and red for the heaviest load.

Put another way, when the indicator in the playhead gets red and stays red, you're probably going to have your session interrupted by that pesky dialog box soon.

When the playhead is dark yellow or red, you're pushing your Mac to the max. It won't be long before you start hearing sound dropouts and seeing warning dialog boxes.

So my first bit of advice is this: Watch the color of the playhead and use some of the tips in this section (and the rest of the chapter) whenever you see much red, and you may avoid some warning dialog boxes, stuttering playback, and ruined recordings.



If you don't fix the heavy processor load before it happens, that dialog box or an audio dropout will probably wreck the take. And that could wreck your whole day. So try some of the techniques in this chapter whenever you're seeing red.

Adding tracks and effects increases the load on your Mac's processor, and some complex effects, like the Amp models, use more processor time than others. So Apple recommends turning off some effects or reducing the number of tracks to reduce the strain on your processor — and I agree.



This is probably the quickest, easiest fix for performance problems: If you don't need the track or effect right now, mute it (track) or turn it off (effect).

Alas, at times, such as when you're mixing or mastering, this isn't possible, so keep reading for more tricks that you can try when things bog down.

Changing the Maximum Number of Real Instrument Tracks

The maximum number of software instrument tracks in a song is determined by how much RAM you have installed. You can change the number of tracks in GarageBand Preferences by pressing **⌘-,** (**⌘** and comma) and making the change on the Advanced preferences pane, as shown in Figure 16-2.

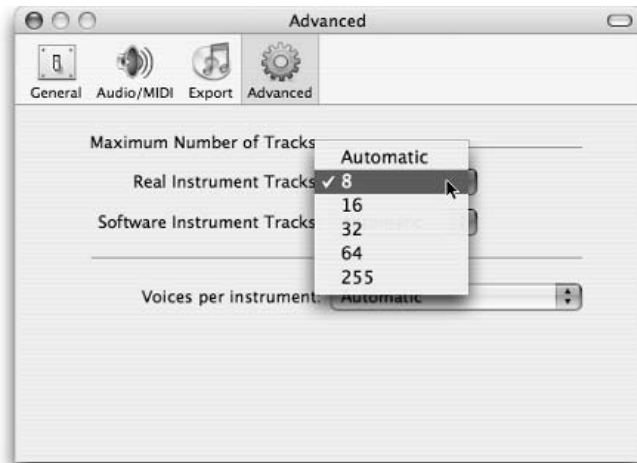


Figure 16-2:
Choosing 8
should
improve
GarageBand's
performance.

GarageBand chooses Automatic for you, which automatically selects the highest number of tracks that your computer can support.

Changing the number of tracks may improve performance, but setting it higher than your Mac can support will almost certainly make performance worse.

It's usually best to leave it set to Automatic, but choosing a low setting (such as 8 or 16) may improve performance.

The downside here should be obvious — you can only have eight or fewer real instrument tracks, which may not be enough for your project.



I have one word for y'all: ping-pong. (Is that one word or two?) Chapter 10 has the details.

Changing the Maximum Number of Software Instrument Tracks

The maximum number of software instrument tracks in a song is determined by how much RAM you have installed. You can change the number of tracks in GarageBand Preferences (press \mathbb{A} -), as shown in Figure 16-3.

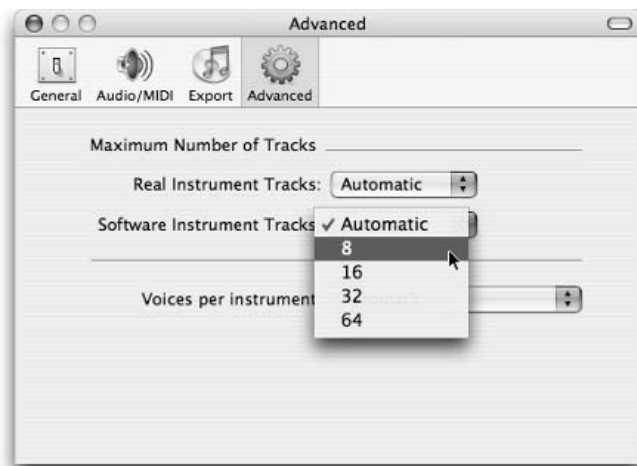


Figure 16-3: Choosing 8 should improve GarageBand's performance.

GarageBand again chooses Automatic.

Changing the number of software instrument tracks may improve performance, but setting it higher than your Mac can support will almost certainly make performance worse.

So to summarize: It's probably best to leave the maximum number of software instrument tracks set to Automatic unless you're having performance issues. If you are, setting it to 8 or 16 may help.

The downside here should be obvious — you can only have eight or fewer software instrument tracks, which may be too few for your song.



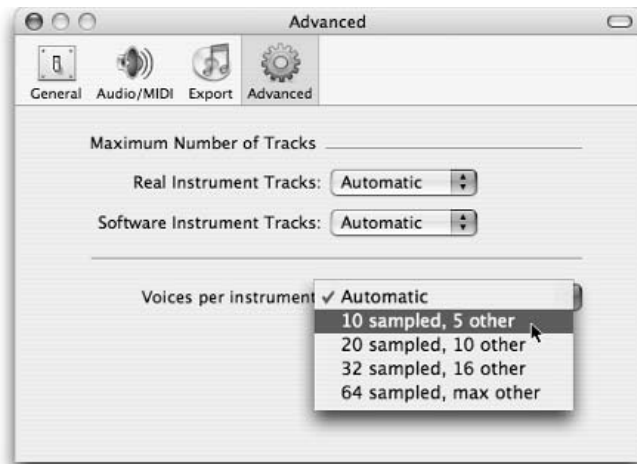
Same word as the previous tip: ping-pong.

Changing the Number of Notes That Software Instruments Can Play Simultaneously

The maximum number of notes that software instruments can play at once depends on the processing power of the CPU in your computer. The number is different for sampled instruments, which use recordings of actual instruments (like bass, guitar, piano, drum, brass, and woodwind instruments) than for the other, truly synthesized instruments (including synthesizers, electric piano, organ, and clavinet instruments).

GarageBand automatically chooses the appropriate number voices per instrument based on the muscle of your CPU, but you can change the number in GarageBand Preferences (GarageBand ⇨ Preferences or ⌘-,) on the Advanced pane, as shown in Figure 16-4.

Figure 16-4: Choosing the lowest setting — 10 sampled, 5 other — may improve GarageBand's performance.



The number of notes includes notes that are still being held when a new note starts. Because this setting is global and applies to all of your tracks together, “10 sampled, 5 other” may not be enough for a song with more than one or two software instrument tracks.

Hiding the Track Mixers while Playing or Recording

The Track Mixer column is the one that has the level (volume) fader (slider), the pan pot (knob), and the simulated LED level meters. To hide it, as shown in Figure 16-5, choose **Track⇧Hide Track Mixer** or press **⌘-Y**.

Figure 16-5:
Hide the
mixer
column
while
listening or
recording.



It turns out that those little animated level meters use a ton of processing power, and you really don't need them much of the time.

So after you've set your level(s), press **⌘-Y** to hide the Track Mixer. Your Mac will thank you for lightening its load by allowing GarageBand to do more before it croaks.

Minimizing the GarageBand Window while Playing or Recording

Minimizing the GarageBand window, as shown in Figure 16-6, provides a respite for your processor.

Figure 16-6:
Minimize
the window
(left), and it
is relegated
to the Dock
(right).



Minimizing the window is superior to hiding the track mixers — GarageBand demands even less of your processor. But stashing the window in the Dock is also less convenient.

Why is it less convenient? You have to remember to begin your recording (or playback) before you minimize the window or you won't be able to play or record without maximizing the window again by clicking its icon in the Dock. Which kind of defeats the whole purpose of minimizing it in the first place. . . .



Minimizing and maximizing the window places a lot of strain on your processor, so it's best to do immediately after you begin to record or play a song. The Count In feature (Control⇧Count In) gives you four beats before recording begins, which is plenty of time to minimize the window.

Correcting a Delay between Playing and Hearing

If you hear a slight delay between playing (or singing) and hearing what you're playing (or singing) on a real instrument track, you're encountering *latency*, which happens when a delay occurs between the time that the sound reaches your Mac's input port (whichever port that happens to be) and when your CPU processes it.

If you're experiencing latency, a setting in GarageBand Preferences allows you to reduce it, but of course, there's a trade-off. That trade-off, as you see in a moment, is that you will be able to hear fewer tracks at the same time.

To reduce latency, follow these steps:

1. **Open GarageBand Preferences by choosing GarageBand⇧⌘P or by pressing ⌘-,.**
2. **Click the Audio/MIDI tab.**
3. **In the Optimize For section of the Audio/MIDI tab, select the Minimum Delay When Playing Instruments Live; Small Buffer Size radio button, as shown in Figure 16-7.**



Figure 16-7:
Optimize for
recording
(as shown)
or mixing
(choose
Large buffer
size) on
this tab.



The small buffer setting shouldn't be a problem when you're recording — just mute some tracks that you don't need to hear. But if you encounter performance problems during mixing, select the Maximum Number of Simultaneous Tracks; Large Buffer Size radio button.

Optimizing Processor Performance in the System Preferences Application

On many Macs, you can find a setting in the System Preferences Energy Saver pane that allows you to choose the performance level of your processor, as shown in Figure 16-8.



To open System Preferences, choose it in the Apple Menu or open the OS X Applications folder and double-click it. Click the Energy Saver icon to see the Energy Saver System Preference pane.

When it comes to GarageBand performance, Automatic is not automatically the best choice. Choose Highest from the Processor Performance pop-up

menu, and your Mac will always use 100 percent of its processing power. Choosing either of the other settings — Automatic or Reduced — causes your processor to perform at less than its peak at certain times, which isn't good for GarageBand.

Before you close the System Preferences window, click the Energy Saver's Sleep tab and deselect the Put the Hard Disk(s) to Sleep When Possible check box, as shown in Figure 16-9.

Figure 16-8:

For best results, choose Highest from the Processor Performance pop-up menu.

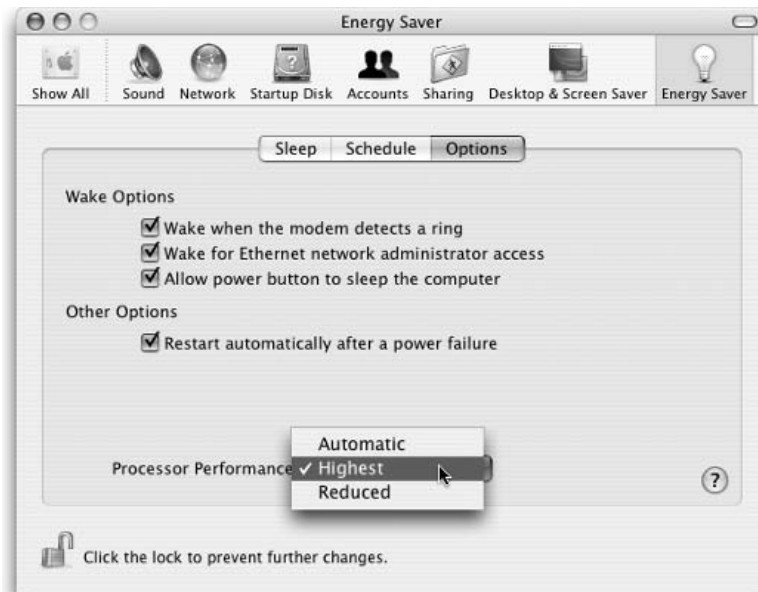
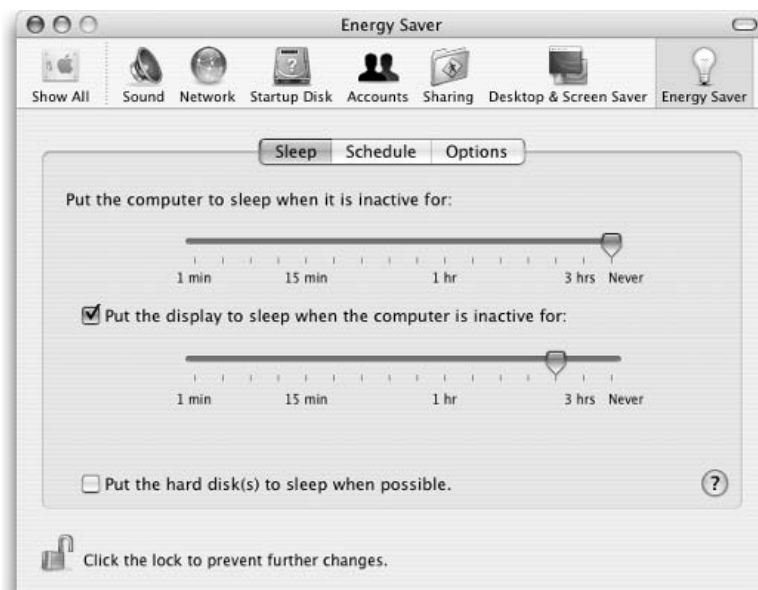


Figure 16-9:

Sleepy hard drives aren't good for GarageBand.



Upgrade Your Mac

If you're having trouble building the kind of songs that you want to build because your processor or hard drive is too slow and you keep getting error messages, check out the following sections to find some things that can help.

Getting more RAM

Almost every time I review a new Mac, I blast Apple for shipping it with insufficient RAM for most people and many Apple applications, including GarageBand. Unless your Mac came with 512MB or more of RAM, GarageBand will almost certainly perform better if you add more RAM.

It's easy to install RAM in most Macs — anyone can do it in 15 minutes or less. For \$50 or \$60, you can add 256MB, or for roughly \$110, you can increase your RAM by 512MB. It's worth every penny.

If you bump up your RAM to a gigabyte or more, GarageBand will run even better — and allow you to have more tracks, instruments, effects, and notes in your songs before the dreaded warning dialog boxes start to appear.



RAM prices are volatile. Those were the prices as of the summer of '04. By the time you read this, prices might move higher or lower.

External FireWire hard drive

Your internal hard drive isn't fast enough for GarageBand, especially if you use a notebook PC.



Most FireWire external hard drives run at higher speeds than your internal hard drive. If you have a FireWire external hard drive, it's probably faster than the internal drive, so save your projects on the external drive.

Many pro audio programs recommend saving your projects to any hard drive *except* your boot disk (that is, the disk with Mac OS X and GarageBand on it). It's a good idea to do so with GarageBand as well. If you save your projects on an external hard drive, you are likely to see fewer warning messages about the speed of your Mac or your hard drive.

If you're considering using a FireWire drive, look for drives that run at 7,200 rpm or higher, rather than the cheaper — and more common — 5,400-rpm drives. Most drive vendors display the speed of a drive in the product description; if you don't see it, ask about it.

Finally, if your Mac has FireWire 800, as many do today, a FireWire 800 drive that runs at 7,200 rpm is even faster and can further reduce warning messages. A FireWire 800 drive costs a bit more than a FireWire 400 unit (that is, a standard FireWire device), but it is worth it if you have a Mac that supports the faster flavor of FireWire 800.



FireWire 800 devices are backward compatible, so they can be used with your Mac's FireWire 400 ports as well as with FireWire 800 ports. (The ports look slightly different and require different cables.) You won't get increased speed when you use a FireWire 800 device with a FireWire 400 port, but if you're planning to buy a new Mac, and the new Mac will have FireWire 800, it's a good investment to buy a FireWire 800 drive and plug it into your FireWire 400 port now — and plug it into the new Mac's FireWire 800 port later.

Processor upgrade

Many Macs can be upgraded with third-party processor upgrade cards. I don't recommend this approach. For the money that you would put into the upgrade plus the money that you could get by selling your old Mac, you could almost certainly afford a new or slightly used Mac, which is a better deal.

Each generation of Mac models has new and improved features that you won't get if you only buy a processor upgrade. So, while your processor will be faster, everything else — hard drives, CD-ROM drives, system bus, RAM bus, and so on — is still slow and old. A new Mac would have a newer, faster hard drive, CD-ROM, buses, and so on — for only slightly more money.

Here's another thought: Apple doesn't sell processor upgrades, so if the new processor doesn't work right, you have to deal with the seller, not Apple. And not all processor upgrades work well.

Caveat emptor.

