Rip, Mix, and Burn

in 10 minutes or less

Digital Music on Mac OS X

- Choosing the right Mac and software
- Be a Digital DJ—burn & mix CDs
- Stream to and from the Web
- Create Sound Effects

Nate Tschetter Sam Molineaux

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Introduction

In this book we've attempted to provide short and sweet answers to common, and not so common, "How do I...?" type questions that music-hobbyist Mac owners might ask. As musicians and Mac geeks ourselves, these are questions we've asked ourselves (and each other) at one time or another, and whose answers have helped us progress with our music making and learn new, fun ways of harnessing the power of our Macs to creative ends. We're happy to share them with you.

In planning this book, we realized it might be a challenge to describe techniques without making specific hardware or software recommendations: but that's what we've endeavored to do. When so much music-related software and computer hardware exists—many that perform similar tasks, some more advanced than others, and some more affordable than others—we didn't feel it was up to us to dictate which to use. We wanted to open doors, not make restrictions. So in describing techniques, we've taken more of a generic approach; and in cases where we've shown examples, we've generally avoided hard and fast recommendations, instead suggesting options and alternatives to the solutions we like to use.

We aim our book at tech-comfortable music hobbyists, and offer solutions to problems which, though possibly daunting to less experienced Mac musos, we're confident are well within the realms of the beginner. We try to avoid repeating information that's readily available in the many OS X handbooks, iTunes and GarageBand guides out there. We hope that those needing more basic theory and understanding can find that information in a technical companion book, delving into this book for a fresher and more wide-reaching experience.

One of our chief aims in compiling our 10-minute solutions was to favor the budget-conscious approach. We're struggling artists at heart and we don't believe in paying over the odds! So pre-installed applications (such as iTunes), readily available freeware and shareware get the biggest thumbs up in our book. Fortunately, there are some outstanding programs out there that let you rip, mix, and burn and *much much more* without breaking the bank. In such cases where a recognizably better software exists that may set you back a few more dollars, we've recommended that option as well.

Everyone needs the basics, and the grounding. We hope the book you hold in your hands provides you with some of that. More than anything, we hope you have fun with it.

Sam Molineaux and Nate Tschetter

December 2004

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In This Chapter...

How to Choose the Right Mac

How to Figure Out Your Hardware Needs

How to Figure Out Your Software Needs

1

Getting Started

How to Choose the Right Mac

As with most computer decisions, when it comes to finding the right Macintosh for your needs, you need to think carefully about your intended application. The good news for music lovers is that all current models of Mac let you do things like rip your CD collection, purchase music online, make playlists, synchronize your portable MP3 player, and burn custom music CDs. Even the lower end Macs are capable of multichannel editing, processing, and mixing.

If your budget only stretches as far as a second-hand Mac, be sure to check any intended application's system requirements. GarageBand, for instance, Apple's new music-making software (part of its iLife suite of programs), requires a G4 or faster to support its software instruments, as well as a DVD drive to install the program. It *will* run on a 600 MHz or faster G3, but not to its full capabilities.

Hard Drive

It's a well-known fact that uncompressed audio takes up a lot of hard disk space. However, a lot of music applications nowadays use compressed audio, such as MP3s and AAC files, which are economical on storage space with comparatively little loss of audio quality. The generous size of today's internal hard drives means it's unlikely you'll run out of space, unless you're one of those digital hoarders who never cleans out your closets. Or you're Wagner. Either way, if your computer's hard drive looks like it's filling up, it's easy and cheap to hook up an external FireWire drive.

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A good place to start shopping around for additional storage is DealMac, a great resource for all the best offers on Mac products and peripherals. Check out its website at www.dealmac.com.

To get an idea of how much audio you can store on your hard drive, see the section "How Much Hard Disk Space Is Enough" in Chapter 4.

RAM

Put simply, random access memory (RAM) gives your processor overhead in which to operate. It determines things like how many tracks the computer can prepare for playback, the number of simultaneous open applications you can have, and the overall performance of your computer. RAM doesn't necessarily make things faster, but it gives your processor room in which to work. Having as much RAM as you can is always good. Too little and your computer's performance is hindered, which means your ease and comfort is compromised.

Think of it like jumping on a trampoline. You might be able to make a 15-foot jump, but it won't do you much good if you're jumping in a room with a 10-foot ceiling. Make the ceiling 20 feet high and you'll have insurance for that extra-high jump. RAM is your "ceiling"; the tasks you request of your machine are the jumps. If you can't afford to max out your RAM—always the optimum solution—your program will normally guide you if it doesn't have enough RAM to work with. It will simply refuse to perform. If that happens, then it's time to buy more RAM.

CPU

The faster your central processing unit (CPU), the greater your computer's performance. Older G3s and G4s have adequate CPU speeds for simple stereo to medium (16 to 24) tracks of recording and playback. The latest single- and dual-processor G5 will provide large track counts (50+) with extensive plug-in capabilities. Your optimum CPU speed will depend on the application you wish to run. Some programs won't run on anything less than a G4. The faster your computer, the more capable it will be to run higher level, or processor intensive, applications.

Certain real-time data manipulation, such as pitch-shifting, time-stretching, filter effects, and tempo matching on the fly (used in DJ mixing software), are processor intensive. For those types of operations, a fast

CPU is recommended. The good news is, even the more affordable current Macs, like the iBooks, eMacs, and iMacs are fast enough to handle these types of functions. But for the real speed, you really can't beat a 2.5 gigahertz G5.

I/O

Another issue to consider is the type of peripherals you intend to use. Some audio hardware requires a PCI slot, so don't go for a PCI "slotless" Mac. Others use FireWire or USB.

Obviously, you'll be looking to weigh your budget with your requirements. Do think about where you might like to go with your hobby. Get the best you can afford for your immediate needs, but keep in mind some room for expansion. A good first stop is www.apple.com.

How to Figure Out Your Hardware Needs

Your hardware needs depend on what you aim to accomplish. A CD burner is vital for creating your own custom-made CDs. A DVD burner is a whizzier option. In Mac-speak, a CD-only burner is a "Combo" drive, while a CD and DVD burner is a "Super" drive.

Getting sound in and out of your computer is also a consideration. All current models of Mac have basic sound input and output capability. You can use these jacks to listen through headphones or multimedia speakers and to record a microphone or line level (such as a cassette deck) source. Using these two jacks limits you to the number of channels (two) they can reproduce, the quality of the internal digital-to-analog (D/A) and analog-to-digital (A/D) converters, and to using a 1/8-inch minijack connector.

For recording beyond what your computer's built-in audio input and output jacks provide—for example, if you want to connect to a line level source (see "What Kind of Inputs Do You Need" in Chapter 2 for an explanation of line level sources)—you'll need to have a separate audio interface. Audio interfaces generally provide multiple inputs and outputs, microphone preamplification, and higher quality D/A and A/D converters. Connecting an audio interface to your computer can be as simple as USB or FireWire or as complex as PCI cards with breakout boxes.

Another consideration is to hook up instruments via MIDI. MIDI is shorthand for "Musical Instruments Digital Interface." It's a protocol that allows compliant devices to control and be controlled by each other. For example, if you have a MIDI-capable keyboard and connect it to a MIDI-capable drum machine, you will be able to control the drum machine's sounds from your keyboard. Similarly, if your computer is MIDI-capable, you can connect your MIDI keyboard to it and, with the proper software, record, play back, and print out music you play on your keyboard.

MIDI interfaces typically connect to the USB port on your computer. They range from simple single input and output on a pair of cables to multiple inputs and outputs on many cables. Increased ins and outs let you have more MIDI-capable instruments (keyboards, sound modules, samplers, mixers, DJ controllers, etc.) connected without having to repatch anything.

How to Figure Out Your Software Needs

This is probably the biggest of the "it depends what you want to do" categories. Software exists for a huge variety of sound and music manipulation. And, of course, there are different levels of complexity for each variety.

For your basic listening, archiving, and shopping needs, Apple's iTunes is hard to beat. It comes with every Mac and offers a wealth of useful functions. Apple's Garageband is a versatile music recording system that comes as part of the iLife package, preloaded on some new Macs.

We'll provide tips and links throughout the book to help you figure out which software to use.

In This Chapter...

How to Choose a Soundcard

How to Choose Speakers

How to Choose a Hard Drive

How to Choose a Microphone

How to Hook It All Up

2

Hardware Solutions

How to Choose a Soundcard

All Macs have some sort of built-in stereo input and output. This is usually fine for casual listening through headphones or multimedia speakers. Some of the current high-end G5 Macs feature analog audio on RCA jacks as well as digital input and output. Other Mac models have only 1/8-inch input and output. Although this is adequate for listening through headphones, it's not a particularly robust connection. The small contact area and flimsiness of the connector and jack simply aren't built for longevity. How many times have you played "wiggle the cable" with a pair of headphones?

It's far better to have an external soundcard, which comes equipped with more types and more stable connections. These cards typically have RCA, 1/4-inch, or XLR (best) connectors, which means you get a better connection with higher quality conversion from analog to digital and back, and a few additional bells and whistles.

How Many Inputs and Outputs Do You Need?

Before thinking about how many you might need, it's useful to understand what they are. Put simply, an input is the place a signal is sent to. Outputs are where the signal is sent from. In other words, inputs receive what the signal outputs send.

History

In the beginning, there was "monaural" or what is commonly known as mono—a single channel of sound containing the entire signal. So, in mono, all the sound came out of a single speaker. Up until the mid '50s, this was the most common way for people to buy and listen to prerecorded music.

Mono faded out (as it were) in the '70s, with the advent of stereo LP records and cassette tapes. Stereo, of course, consists of two signals and requires at least two separated speakers to reproduce the effect. Typically, the two channels were set up as left and right, but as technology progressed, audio pioneers strived for more innovative solutions. Listening to early adaptations of the technology, you'll hear dramatic use of the stereo field. Sometimes the drums were placed on one side, and the rest of the band on the other. Or there was all the "close" sound of the band on the left and the "ambient" sound on the right, and so on.

Stereo, as the most common consumer audio format, persisted for many years. But more recent developments in surround sound have led to an increased number of channels; a way of more accurately imitating how our ears perceive the sound and space around us.

Now we have multichannel surround systems that totally immerse the listener in sound. The most common surround format is "5.1": five full-range speakers (left front, center, right front, right rear, and left rear) and one low-range speaker (the subwoofer). You may also see 6.1, 7.1, and even 10.1 formats.

Application

If you're working strictly with prerecorded program material such as CDs, vinyl records, or cassette tapes, you may never need more than a stereo input and output. Multiple ins and outs are more vital for recording or monitoring more than two channels at once, where you need to have control of those channels until you later combine them.

When might such an instance occur? The simplest example is if you wanted to play a keyboard with stereo outputs while singing into a microphone that has a mono output. This requires three channels: two for the keyboard's stereo output and one for the microphone.

Another scenario would be if you were recording a school concert. You might want a pair of microphones to record the stereo image of the room with additional "spot" microphones on stage to pick up any soloists.

What Kind of Inputs Do You Need?

Soundcards come in many shapes and sizes, and one important difference is the number and type of inputs on each. Only two types exist: analog and digital. The question is whether you need an analog or digital connection. Analog connections exist on many devices such as cassette tape machines, VCRs, microphones, turntables, and synthesizers. It is important to consider the operating level of the gear you're interfacing to your soundcard. Typically, you'll be connecting line level gear to your soundcard. Examples of line level gear are:

- Cassette tape decks
- VCRs
- Synthesizers

Microphones belong in a different category. They have very low output and so require amplification to get them operating at line level. If you're intending to record using a professional microphone, either your soundcard needs to have a mic level input or you'll need a microphone preamplifier.

Digital connectors come in different flavors as well. Two common stereo formats—S/PDIF (Sony/Phillips Digital Interface), which is a consumer digital audio format, and AES/EBU (Audio Engineering Society/European Broadcasting Union)—are used in most professional audio applications. Some devices that have digital connections are:

- DVD, CD, and DAT machines
- Digital video recorders
- Digital mixers

What Interface Connections Are Available on My Mac?

Audio interfaces connect to your computer in a variety of ways. Simpler units use USB, but devices that have more features interface through FireWire or

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