

# Your Free Open Source Music Studio



G.W. Childs IV

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**Course Technology PTR**

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**Your Free Open Source Music Studio**  
**G.W. Childs IV**

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*To Eddie Glen Briscoe,*

*You encouraged me in my pursuits every time we talked, but  
when I started writing, that's when you really made me believe  
I could—even when I didn't.*

*The next book I was writing was going to be dedicated to you.  
I wish you could've been here to see it. Then again, I guess you  
are. I miss you.*

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## Preface

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Let's zoom back to 2006. I was just beginning my first leap into the wonderful world of freelance sound design, music, and editing. As excited as I was, I was hardly financially ready for the expenses of the move I was making. However, ignorance often allows us to do things that we've never thought possible, right? You see, I'd become very comfortable with the amount of equipment, software, and so on that my former employer had outfitted me with, and with all of that gone, I could only incrementally discover what I was missing and needing as I went along.

At the beginning of this freelance journey, I was doing a lot of remixes for a label with whom I was not signed, but they did love my work, so I kept getting freelance jobs from them. Within my first week of working in an office funded entirely by me, I began to be aware of things that I was going to sorely miss. My Waves plug-ins were gone now, as were my wave editor (Sound Forge), my soundproof office, the friendly receptionist down the hall, another plug-in, another plug-in, MS Office...argh!

My head began to swim as I realized I was missing some of the tools I desperately needed for polish, creation, editing, and more. It was a sobering moment, because I had a small nest egg to live on that needed to stretch for an unforeseen amount of time, and purchasing package after package of software every time I realized I was missing something was going to add up.

For many people in my place, piracy becomes an alluring alternative. Why purchase when you can download for free? However, I'd just come from working in the software industry for years, and I didn't want to start contributing to something that had plagued my job in the past. Also, when you begin down this road, anti-virus software becomes a necessity—another purchase I really did not want to make.

For starters, as a former PC builder and tweaker, I'd learned quickly that nothing kills your performance quite as well as anti-virus software. Also, when running on a machine "infected" with anti-virus software, audio software is nonresponsive, buggy, and more. Don't get me started.

I conferred with a colleague or two about some alternatives to the missing software. I learned quickly that keeping the company of likeminded people (nerds like myself) was a great blessing, as I got my first introduction to open-source software and freeware. I also learned a valuable lesson that

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had somehow eluded me for years, perhaps out of pride: It's okay to ask questions.

One of the first software applications I learned about was Wavosaur. Even in its earliest incarnation, it was very powerful and was a viable replacement for Sound Forge. Also, it had batch processing, which was crucial, because I was going to be freelancing in videogames as well.

Did it work out? Wonderfully!

Next, I needed a replacement for some of my Waves software, the main plug-in being the L1. Thankfully, I learned of George Wong's W1 Limiter (mentioned in this book). This was a score, because I sorely needed it for mastering my remixes, and it's very handy for videogame batch processing as well.

Another problem solved, and zero dollars spent!

Next came the need to spruce up my personal FX section. In fact, it was going to need a complete overhaul. I'd need FX plug-ins that would give that instant cool-factor to my music, as well as FX that could also be used for videogames.

This is still an ongoing process, to be honest, because there are so many new FX coming up regularly, and your tastes change and music changes. You just collect like a painter with colors.

One effect I learned about early on and that changed my life (along with the lives of many others like me) is the Glitch plug-in, at the moment known as dB Glitch.

A friend of mine had completed a remix of my band for me. He completed it very quickly from the time I gave him the source material, and the results were astounding.

I inquired as to how he'd pulled off so many seemingly complex edits. This is when he shared a very big secret with me: It was just a plug-in known as Glitch.

At that particular moment of the plug-in's history, the creator had only *just* added a GUI (graphical user interface) to it. My friend had actually been using the command-line version. Being more of a graphics cat, I went with the GUI version.

I quickly learned that by simply throwing audio files into Glitch, letting it do its own thing in real time, and cutting out parts I liked, I could get amazing sound FX that I would have never thought of on my own. I began to slowly build up a collection of sounds that I could use over again and that would become staples in my sound library—available exclusively to me! Ha!

Also around this time, I began to miss a few synthesizers that I had hastily sold in a mad dash for money. Divorce and a major career change can bring on big decisions that you sometimes just have to live with. One such sell was my Roland Juno-106. It was such an authentic sound, and I'd relied on it heavily in my music work. Sad times, indeed...

Since I'd had so much luck with free plug-ins, I decided to see whether anyone had made a VST instrument that emulated a 106. After a few web searches, I came across the TAL U-NO-60 (also mentioned in this book). This plug was actually modeled after a Juno-60, but there are some strong similarities in the sound of the two synthesizers. I elected to give it a try. And you know what? It was so much fun!

The chorus was awesome, and just the behavior of the synth was so authentic. Even the GUI had the same look and feel as my recently departed synth. I shed a little tear.

Another synth that I was sorely missing was my Roland JP-8000. It was such a main tool when it came to doing lead synth lines and arpeggiations on my mixes. Granted, I had other soft synths that were sort of up to the challenge, but they weren't quite the same.

I decided to look around and hope that I had the same luck again.

Fortune smiled on me again; I came across the SuperWave P8. Seeing that it had earned a ton of positive reviews, I installed it and got going right away. Yep, there was the Supersaw that I'd been missing. My muse was back...well, at least the electronic one.

From here on out, I could tell you about discovery after discovery, all of which have some meaning to me. But the main point in writing this preface is to let you know what's out there if you just ask. To some degree, the freeware and open-source community has rekindled my faith in man. The fact that people would put so much time and love into something, only to

turn around and share it with the rest of us who lack the coding skills to create such a thing, is, to me, quite beautiful.

I, in turn, have made every effort to give back in any small way that I can. Being a freelance author and musician isn't always the path to fame and fortune that some might think. But as money would come in, I'd drop a little back to the guys who helped me make things happen. I'm proud to say that I made a decent donation to these developers, and I hope that in some small way, I've helped them continue to develop software to help others like me.

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## Acknowledgments

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First and foremost, God—and then I'd like to thank every talented developer out there who ever decided to share the knowledge, code, and tools that they spent so much of their precious time on. This book would not be possible without your hard work, and it is meant to show off your talent, which is amazing.

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- 
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## About the Author

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Starting off as a small boy on a farm in a galaxy far, far away, **G.W. Childs IV** dreamed of sound and music. As he grew, he learned synthesis, sound design, songwriting, and remixing. As a soldier in Psychological Operations, G.W. learned ways to creatively use sound. As a touring musician performing with the likes of Soil & Eclipse, Deathline Int'l, and Razed in Black, he learned to bring music to the masses.

Still listening to his inner child, G.W. decided to work in videogames as well, and he *really* stepped into a galaxy far, far away doing sound design on *Star Wars: Knights of the Old Republic II: The Sith Lords*, acting in *Star Wars: Battlefront*, and composing music for MTV's *I Woo You*.

But the call of synthesis never fully left his ears, so G.W. did a lot of sound design on the popular music applications Reason 3 and Reason 4 and the amazing Rapture plug-in from Cakewalk.

Excited to share knowledge from these wonderful adventures, he has written books such as *Creating Music and Sound for Games*, *Using Reason Onstage: Skill Pack*, and *Making Music with Mobile Devices*, in the hopes of inspiring other people in galaxies far, far away.

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# Introduction

Let's face it—times are hard. Money doesn't roll in the way it used to for many of us, and the cost of living is not getting any lower. To make matters even more interesting, the computer is a necessary evil for almost all of us.

But despite challenging times, dreams still exist. People still dream of becoming the next president or the next great racecar driver or of achieving many other worthy and honorable careers and achievements.

Music is one such dream for many—especially with shows such as *American Idol* showcasing people like you and me taking a chance and suddenly becoming something that many dream of and few ever attain.

Music production is a monster that tends to hold many back, though—partly because of the uphill technical battle that goes along with it. But another factor is the daunting price of the music-production equipment.

However, most music-production devices now reside within the computer, instead of in heavy racks. This benefits those interested in music production in several ways:

- There are no longer physical manufacturing costs for these devices. The functionality is programmed instead, leading to a much quicker turn-around time and lower costs.
- Music production is now much more portable—and more affordable, due to the decreasing cost of laptops.
- There are no shipping costs. Most music software can be downloaded.

I'd like to give special attention to this final point about downloading. Almost all of the major developers offer downloadable versions of their music software directly from their websites. Simply pay for the product, and they send you a download link. It really doesn't get much better than

that. If there's an update to the music software, you can download that, too.

The Internet has really changed the music-production industry, in much the same way that it changed how people listened to music years ago. Remember when the MP3 reared its trendy, compressed little head? Suddenly, people were downloading albums instead of running out to the stores to buy them. And because the music companies were not in any way ready for this, many fell.

But many artists benefited from this shift. Suddenly, people with a passion for creating music realized, "Hey, I can just put my music online, and now everyone can listen to it!" Granted, their strategies were much more complex than this, and with careful marketing strategies used by many aspiring young artists (and currently even mainstream artists), some power was taken away from the labels and given back to the artist. I'd like to tell you that at this moment—and for more years than you may know—even more power is available to the artist.

Unfortunately, music production is still a major challenge to overcome, though. You may have the fan base, but if your music sounds terrible or if you don't have the ability to produce music at all, that fan base will only scratch their heads as their interest wanes and they look elsewhere.

Even though music-production software has lowered the price of producing music, it is still expensive for many. But in the same way that artists found an audience on the Internet, intelligent and creative programmers found an audience as well.

Do you know that there are thousands of programmers out there trying to give you software that they have spent countless hours creating? I'm talking about software that can allow you to produce quality, professional music.

Why would they give it away, though? For the same reason that many artists give their music away! When you are a small-time artist, you can't just run out and ask people to buy your album. There are millions of other performers out there for people to choose from, so the chances of people buying your album when they've never heard of you are slim. Instead, you give away little bits at a time and build a name for yourself.

The same is true for software programmers. They are guys and gals like you and me who work from their homes on something that they think is a valid and helpful tool to assist musicians. And they would know, too, because music-software programmers tend to be musicians themselves!

The programmers want their tools and instruments to be used and loved in the same way that they use and love them. And hopefully, if they gain enough recognition in the field, they can move on and become professional developers.

In this book, I'll showcase many tools and instruments that are, in most cases, free. These aren't just Frankenstein pieces of software thrown together; they are lovingly created packages, instruments, and tools, made by people who love music just as much as you do and who weren't satisfied with what the pros were putting out. They decided to make their own software instead.

Before we proceed, I'd like to make one point clear: If you find yourself using a piece of software, an instrument, or a tool from this book a lot, kick a little money back to the developer if you can. These guys worked hard, and although most aren't expecting anything, as an artist you know how good it feels to get paid for your work!

And now, without further ado, let's get started building your free open-source music studio!

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# 1

## What You Need, What's Free, and What's Not

So, you've read this book's introduction, and you've decided, "Hey, I'd like to see what's out there." I'm so glad to hear it! Open-source music software offers some innovative and astoundingly cool applications, utilities, and plug-ins that really can add something to your sound—or just help you get a studio running when you're tight on cash.

I started investigating shareware and freeware plug-ins and applications years ago as a very, very poor family man who needed to support himself and his kid. Back then, it was difficult to get my wife to swallow the idea of paying \$300 for software that would make my voice echo, given that we were having a tough time putting food on the table.

I'm not kidding when I tell you that one time I went on tour to Germany with only \$50 to my name, while my wife was left with only \$100. When I was getting my backing tracks together, I ended up using a shareware VST plug-in by db audioware as a compressor for my master tracks. It cost me \$15, when all the other ones (cough, cough ... *Native Instruments*) would have cost me a thousand.

Before I go farther, let me explain the difference between shareware and freeware.

### Shareware or Freeware?

*Shareware* is software that is relatively inexpensive and is far cheaper than software you'd buy from a major manufacturer. It usually costs \$100 to \$200 less than software from a major manufacturer.

*Freeware* is software that does not cost anything at all. Zip! Zilch! And, rest assured, I will do my best to point you toward freeware in almost all instances. However, there will be times when I'll point you to inexpensive software as well, if it's an app or plug-in that I think will assist you.

Which brings us to apps and plug-ins...

## What Are Apps? What Are Plugs-Ins?

*Apps*, or *applications*, are standalone programs that you can install on your computer that do not require any secondary software. They run on their own, and that's that.

*Plug-ins* are supplemental applications that run inside certain types of applications. Think of an application like a studio, and the plug-in as either an instrument (such as a synthesizer or a bass guitar) or an FX processor (such as an echo for your voice). Essentially, the plug-ins only work inside of an application—*host application* is a term you'll hear me use throughout the book.

There are also different types of plug-ins. One good thing about plug-ins is that they are very small and quick to download. Finding and downloading a plug-in is like finding an amplifier online for free and then having someone deliver it to you instantly!

Plug-in types include:

- VST (*Virtual Studio Technology*) for Mac and PC
- AU (*Audio Units*) for Mac only
- DX (*DirectX*) for PC only

Keep in mind that although you may find yourself with a new habit of looking around for free software, you'll spend a lot more time looking around for plug-ins. There are literally thousands upon thousands out there for free, as you will find out in many of the chapters that are waiting for you farther along in the book.

## What Will I Need to Get Started?

Although I can direct you to tons of cheap and free software online, there is nothing I can do for you in terms of hardware. Unfortunately, the Internet does not currently support teleportation (the ability to instantly transport a piece of matter from one location to another, for you guys and gals who never watched *Star Trek*). So instead, I would like to recommend some hardware that you will want to look into.

### Computer

First and foremost, you will need a regular computer. And yes, you definitely want to go with a newer computer that can stand up to the rigors of computer audio.

It is also important to note that the type of computer you choose (Mac or PC) will have lasting implications on what software you use (to a degree). Let's take a quick look at each platform.

### Mac

Apple may come off as the most expensive choice initially. However, Apple handles some costs right off the bat that you might want to be aware of.

The setup is painless. There's no need to worry about driver installation, strange tweaks to the system software, and so on. Apple takes the work out of using a computer, and if you're new to computer audio, there is a lot to be said for this. After all, you're buying the computer to do music, to use it as a tool for creativity—not to take a long journey into computer programming, hacking, and so on. For the most part, when you crack open a new Apple computer, everything is already set up and ready to go.

Also, the Apple brand has been a proven success for audio production over a period of many, many years. Most professional musicians, producers, and engineers have been very open about their love of the

Apple platform, almost to the point of zealotry. With good reason, too: stable computer = unbridled creativity = music at its best = good shot at success.

Seriously, think about it. These days, a computer crashing can kill an album entirely, setting you back for weeks or even months. What you record is precious, and trying to re-create it after the moment is lost is not always a possibility. I've had this happen to me more than once, and I do need to point out that I was on a PC each time it occurred. I've had a Mac go down on me, too; however, I'll admit that I'd been putting the machine through hell for years. The PC was brand-new!

Another point I'd like to make is that the Mac can run Windows, Linux, and every other OS under the sun. People have created "Hackintosh" PCs that run the Mac OS, but if you read the guides for doing this, it's not for the faint of heart. Mac OS X Leopard and Snow Leopard both have Boot Camp, a small application and driver set that helps you set up Windows on a separate partition. When you launch the Windows partition, it's as if you are using a PC. And, in fact, you are—until you reboot and go back into OS X.

Finally, in terms of cost, these days there are plenty of different types of Apples with different price tags to go along with them. For example, at the time of this writing, a Mac mini lists for \$699. It is quite powerful for a computer that is smaller than a football. Something to think about...

Also, because most of the viruses that are being created by the lonely, bitter hackers out there are for the Windows platform, Mac users have enjoyed far more of their system resources. Virus applications use system resources in the background, which interferes with audio applications, and they usually require a monthly, quarterly, or yearly service fee.

I recommend going with new when it comes to computers, because the software is always being upgraded—even freeware. Each upgrade usually means harsher system requirements. Having a new machine means that you won't be left out in the cold.

If you do buy a used Mac, make sure that it has at least these features:

- **An Intel Core 2 Duo processor.** You may see great deals on used G5-based Apple computers, but I advise against purchasing one. The G5 had a lot of heat problems, and they do not compare to the processing power of the Intel-based Macs.
- **CD/DVD player and burner.** Many music apps come on DVDs these days, and you want to be able to burn your songs onto a CD, right?
- **At least 2 GB of system memory with the option to upgrade to 4 GB.** Audio apps, plug-ins, and so on use a lot of system memory, so the more you have, the smoother your productions will be.

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**Note:** Did you know that Apple computers already come with a pretty formidable audio application, right out of the box? GarageBand, covered briefly in Chapter 2, "DAW," is an extremely powerful audio application with virtual instruments, the ability to record multiple tracks, and even piano and guitar lessons hosted by celebrities!

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## **PC**

If you wish to go with a PC (and there is nothing wrong with that), I need to point out a few realities.

- If you are new to computers, have a friend who is very experienced with computer installation give you a hand with getting your machine up and running. Have him actually look at the manuals, too, because audio applications can have some quirky installations at times.
- Be very aware of the ports on the desktop or laptop you purchase. You'll need at least two USB 2.0 ports, and a FireWire port is advisable as well. Many audio interfaces use FireWire.
- Dell, HP, and Sony are all reputable names on the PC market. You might ask around on the forums for various audio applications you

are interested in and see whether people can advise you on a model, a company, or a home-built machine with internal parts that they recommend. It is not uncommon for a particular chipset on a PC to cause problems with certain audio interfaces, applications, and so on.

- Although virus protection software is advisable while you are working on the Windows platform, keep in mind that virus software does not play well with most audio applications. In almost all cases, developers of shareware, freeware, and commercial applications advise you to disable virus software while using audio software.

Aside from these warnings, PCs actually have something very big going for them: There is a ton of shareware and freeware software available for PCs. However, as mentioned earlier, Macs can run this software too, if you Boot Camp your Mac. On the flip side, PCs cannot easily run Apple software. Having a computer that can do both gives you that much more software!

## Audio Interface

Another device I highly advise purchasing is an audio interface. This device simply sends audio to your speakers and gives you additional connections for microphones, guitars, and so on.

You might be wondering why you can't use the connections built into your computer. Well, there are several reasons for that:

- You most likely have only the small, 1/8-inch connections on your computer. If you try to hook a guitar to that, well...it will be a bit big when you try to use a 1/4-inch connector there (see Figure 1.1).
- The audio driver supplied by your computer's manufacturer may not be up for audio recording. On a PC, the ASIO driver format is the standard for all audio recording software; this also comes into play if you're using virtual instruments. If you don't have hardware that has an ASIO driver on a PC, you're stuck using WDM,



**Figure 1.1** If you try to plug a guitar cord (1/4-inch) into this input, it won't fit.

DirectX, or other drivers that can be equally slow and useless for computer audio. This will result in you pressing a key on your keyboard and then waiting a second to hear the sound. Also, you'll get severely lagging audio performance behind the music. It can get ugly.

- The built-in input not only is small, but it also is only one input. What if you want to record two inputs or more at the same time?

The bottom line is that an audio interface is a worthwhile investment if you want to start off right and you don't want to risk pulling out your hair by trying to make a Windows driver work.

If you are using a Mac, you can squeak by for a while with the Core Audio driver for your internal sound device; it has great latency for a built-in sound adapter. However, as mentioned earlier, this will get tricky when you want to directly connect your new mic, guitar, and so on.

Back to keeping it cheap ... Audio interfaces have a broad price range. For example, the Behringer UCA222 is a small, USB audio adapter

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