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MARCH 2008

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ELECTRONIC MUSICIAN

INTELLIGENT  
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CONVENIENCE  
VS. QUALITY

MASTERING  
VINYL

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PUBLICIST  
CAN DO  
FOR YOU

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REVIEWS: ABLETON LIVE 7 | ROLAND SP-555  
APPLE GARAGEBAND '08 | AND 11 MORE

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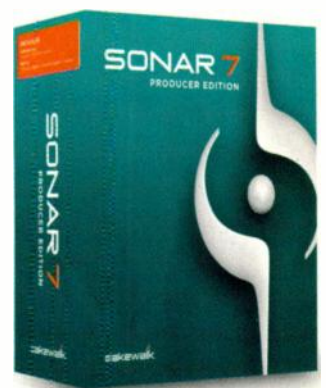
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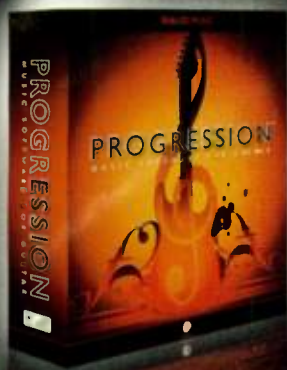
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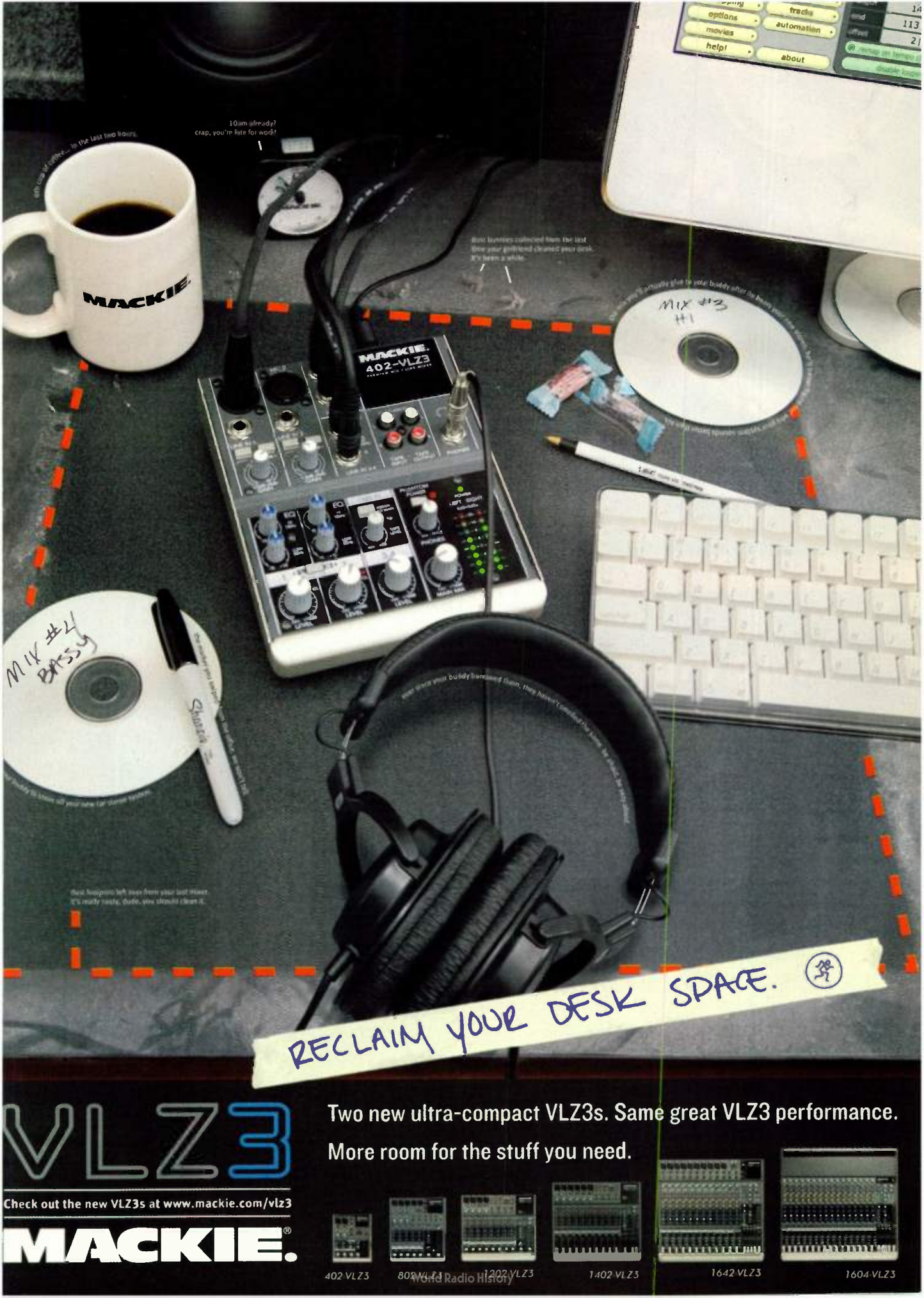
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Offbeat and unlikely rock heroes They Might Be Giants just celebrated 25 years of working together. In this exclusive interview, the two Johns talk about their personal studios, production techniques, and tag-team songwriting.

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## EM Spotlight

Bill Nelson: Renaissance Man  
BeBop Deluxe guitar hero Bill Nelson has released scores of albums and soundtracks from his modest home studio. In this interview from the archives, he talks about harnessing spontaneity, being an independent artist, and how inspiration and invention can transcend the limitations of your tools. [emusician.com/em\\_spotlight](http://emusician.com/em_spotlight)

By Michael Molenda



## Show Report

The 2008 Winter NAMM show is the biggest annual musical-instrument expo in the United States. Visit [emusician.com](http://emusician.com) for video and Podcasts from the show floor, as well as a report on the exciting new recording gear, music software, and electronic musical instruments unveiled this year.

## Online Videos

Check out EMtv to see interviews with *Metal-ocalypse* creators Brendon Small and Tommy Blacha. [emusician.com/videos](http://emusician.com/videos)



## Editors' Picks

Interested in learning about specific topics? EM's editors have assembled the best tutorials and master classes under categories such as drum tracking, electric guitar recording, and basic microphone technique. [emusician.com/editorspicks](http://emusician.com/editorspicks)

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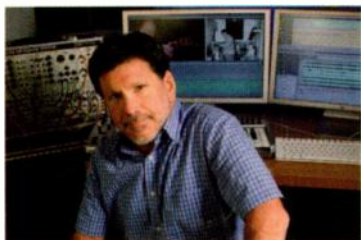


# A Richer Experience

The day after the 2008 Winter NAMM show ended, I participated in a direct-to-disc recording session at Infrasonic Sound

in Los Angeles in preparation for writing the "Mastering Vinyl" feature (p. 54). I wanted to learn firsthand, from a mastering engineer's perspective, what the limitations of the media really are. I've made a few records over the years, but my knowledge about the format's peculiarities was mostly picked up from a quarter century of DIY productions. As you'll read, there's quite a bit more to making a record than a 1:1 transfer from a digital master.

Despite the medium's marginalization, vinyl has remained relevant to the remix and dance crowds since the advent of CDs in the mid-'80s. But a recent groundswell of interest in vinyl releases—across all genres—has taken the mainstream by surprise. Sources in the music industry report that nearly a million records were sold last year, and this doesn't even include the thousands sold at gigs and via mail order by musicians who are operating off the retail radar. That figure may seem insignificant to some, but considering the decline in CD sales over the past few years, vinyl records represent at least one area of growth in a stagnating industry.



JANE RICHHEY

From a consumer's point of view, the resurgence in vinyl's popularity stems not only from the format's sound quality, but also from its presentation as a complete work of art. Downloads, by comparison, are disappointing as a multidimensional entertainment experience. And LPs provide a generous canvas to work with, unlike CDs. As a boutique item, 7- and 12-inch records are collectible and stand out on a crowded merch table at gigs.

From an artist's standpoint, records demand more of the listener's active participation than a CD or download. To rip the music into an MP3 requires a complete journey through the groove at least once, in real time. And, you have to get up and flip the disc over to hear all of the songs. A record has attitude—it must be dealt with.

But vinyl's sudden moment in the spotlight is merely a signal that not everybody wants to have music on tap 24/7 at the expense of audio quality or artistic vision. The devaluation and perceived disposability of intangible music files that can be shared easily over the Internet is fueling a reevaluation by musicians, consumers, and distributors of how we create and experience music.

This theme was echoed during the NAMM launch of the Music Engineering Technology Alliance (METAlliance), a coalition of producers, engineers, and audio manufacturers who noted that the entertainment industry continues to move backward in terms of audio resolution, sacrificing sound for convenience. The organization's goal is to foster an awareness of quality in the recording arts, in part by certifying gear from its Pro Partners, manufacturers whose products meet the exacting standards of top engineers like those on the METAlliance board of directors—Chuck Ainlay, Ed Cherney, Frank Filipetti, George Massenburg, Phil Ramone, Elliot Scheiner, and Al Schmitt. Certification of the gear comes only when there is unanimity among the engineers involved.

Whether or not more than a handful of high-end audio products actually achieve certification from seven of the busiest people in the recording industry (or if it's even relevant to the overall debate about the resolution of consumer delivery formats) remains to be seen. However, many of the participants talked about creating outreach programs to educate the next generation of content creators and consumers about high-resolution audio. They have their work cut out for them, for as Nashville engineer Denny Purcell once noted, "We live in the age of 'good enough.'"

Most of us would agree that talent and content trump sound quality. But we also need to raise the bar sonically so that our audience comes to expect something more than the audio equivalent of fast food.

Gino Robair  
Editor



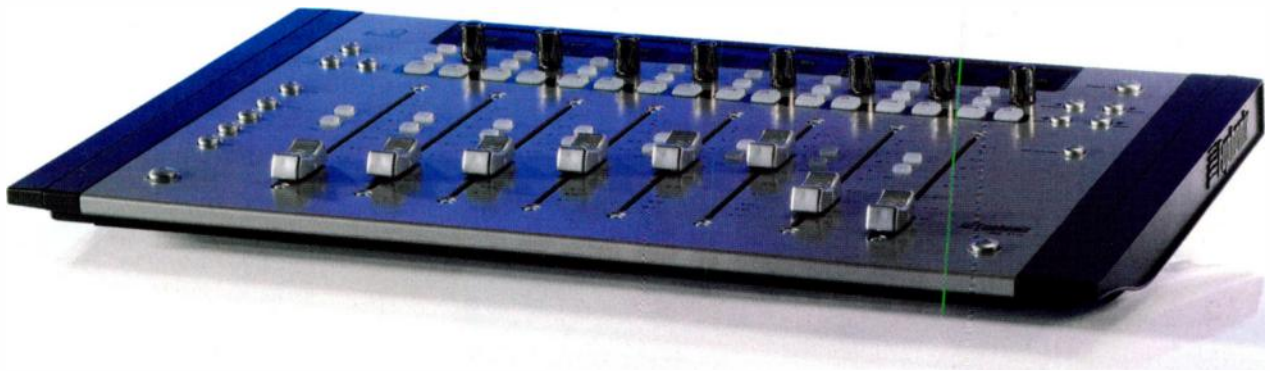
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- :: arrange
- :: edit
- :: process
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Lexicon's Desktop Recording Studios help thousands of musicians record and produce their own music. Now we've upgraded these products with Version 2.0 software featuring Steinberg® Cubase LE 4™ and Windows® Vista™ compatibility.

Cubase LE 4 offers many of the same features as Steinberg's award-winning Cubase 4, such as integrated virtual instruments and all-new VST3 plug-ins. Combined with Lexicon's own Pantheon™ reverb plug-in, this powerful new workstation makes it easy to turn your demo samples into polished attention-getting productions.

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Version **2.0** **ALPHA LAMBDA ΩMEGA**

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## Editors' Choice Awards @NAMM '08



The Winter NAMM show is the biggest and most exciting event of the year for EM. Each January at the Anaheim Convention Center in Anaheim, California, hundreds of manufacturers gather over four days to announce new products and meet with their clients and the press.

Traditionally, the night before the show, we host an event honoring the winners of the EM Editors' Choice Awards and the Remix Technology Awards. However, this year's awards ceremony was all the more special because we unveiled EM's new design to the dozens of our industry Friends in attendance. Here are a few highlights from the evening and the show.



1. Urs Heckmann and Jayney Klimek pose with Editor Gino Robair and their award for u-he Zebra 2.1. 2. Remix editor Kylee Swenson with Universal Audio's Joseph Lemmer. 3. Katelyn Benton, Brad Zell, and Jim Odom of PreSonus. 4. Check out our video interview with Herbie Hancock at [emusician.com](http://emusician.com). 5. XLN Audio's Niklas Moeller, Lars Erlandsson, and Jakob Moeller.



WHAT'S YOUR

# X FACTOR

FIND OUT AT:

[www.XFactorVST.com](http://www.XFactorVST.com)

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guys.

**Steve Stevens**  
(Billy Idol, Atomic Playboys,  
soundtrack • Top Gun)

[www.radialeng.com](http://www.radialeng.com)

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World Radio History



...true to the music™



# FRONT PANEL

By Tracy Katz

## Give Back

At a nickel or a dime apiece, blank CDs and DVDs are affordable enough to use and lose without much regret—but not to the environment. Most of us already recycle paper, cans, and bottles, so why not add CDs and DVDs to our growing list of recyclables?

Organizations such as the CD Recycling Center of America ([www.cdrecyclingcenter.org](http://www.cdrecyclingcenter.org)) make it easy to learn about disc recycling and starting your own campaign

at home or at work—it provides the logo, a plan, the promotional materials, and a place to send the discs. The free membership allows you to keep all your unwanted, damaged, or obsolete discs out of landfills and incinerators, and instead recycle the plastic used in the discs into everyday items such as household products, building materials, and auto parts. So think before you toss that demo CD you listened to only once, or that CD-ROM press kit from last year's trade show.

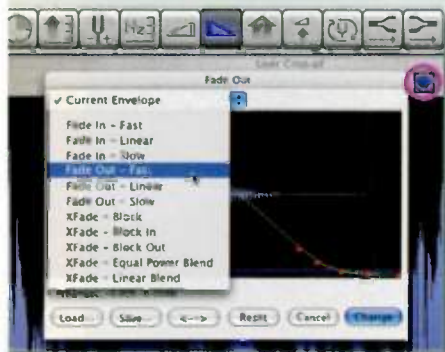


CD Recycling Center of America

[www.cdrecyclingcenter.org](http://www.cdrecyclingcenter.org)

## OPTION-CLICK

By David Battino



## Fading Out Gracefully

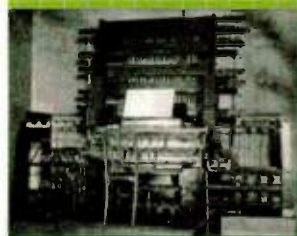
Discover cool features lurking inside BIAS Peak.

One of the secrets to making smooth audio edits is to cut on a *zero-crossing*, the point where the waveform crosses the centerline. Like many editors, BIAS Peak can snap to zero-crossings automatically, and that works well when you're snipping percussive sounds. With flowing sounds or ambience, though, you'll usually get better results by enabling Peak's blending mode, which crossfades the audio on each side of the edit points. You can switch between modes instantly by pressing the Caps Lock key. When I'm having trouble making a smooth edit, I'll toggle the blending mode each time I adjust the edit points. That makes finding a seamless transition faster.

Another frequent editing task is applying fades, and Peak seemingly requires an annoying five clicks to change fade curves. Fortunately, Option-clicking on the fade-in or fade-out button brings up the curve window instantly. (For more about David Battino's work, visit [www.batmosphere.com](http://www.batmosphere.com).)

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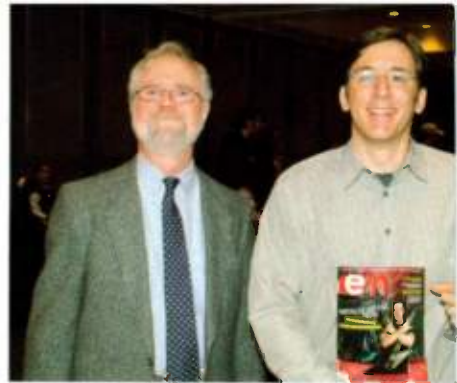
NAMM '08

### GIBSON GUITAR AND TC GROUP COMBINE

One of the most newsworthy announcements at NAMM didn't concern new products—at least, not yet. What began as a rumor soon became official: TC Group plans to merge with Gibson Guitar. Both companies stressed that the deal isn't a takeover but a merger, and although they have yet to work out all the details, TC's Anders Fauerskov will reportedly serve as the combined company's CEO. TC Group, which is based in Denmark, comprises TC Electronic, TC-Helicon, TC Applied Technologies, Tannoy, and Lab.gruppen. Gibson Guitar, whose long list of brands includes Epiphone, Steinberger, Slingerland, Oberheim, Baldwin, and Wurlitzer, is based in Nashville. The merger should be final by the end of February. —Geary Yelton

### ROLAND PURCHASES MORE OF CAKEWALK

Roland Corporation and Cakewalk have agreed to a deal in which Roland will become the majority stockholder in the Boston-based software developer. According to both companies, this will mark an expansion of their strategic alliance that has been ongoing for a number of years. Roland first became an investor in Cakewalk back in 2003, when it purchased a minority interest. The two companies have been involved in various collaborations such as the inclusion of Roland's V-Vocal, V-Mixing, and REAC technologies in Cakewalk Sonar, and the distribu-



Associate Editor Geary Yelton and Executive Editor/Senior Media Producer Mike Levine proudly display the newly redesigned EM.

tion of Cakewalk Sonar LE software with a number of Roland, Boss, and Edirol hardware products.

What will Roland's majority interest in Cakewalk mean to the latter company's future? "Although Roland now owns a bigger share of Cakewalk, they didn't acquire the whole company," says Cakewalk CEO and founder Greg Hendershott. "Cakewalk is not becoming a division of Roland." Hidekazu Tanaka, the president of Roland Corporation, stated, "Roland and Cakewalk will continue to expand our joint-product line. Together, our companies bring decades of experience in a wide range of music and audio technologies."

Roland's press release on the acquisition did state that "new products for musicians and professional audio producers will be branded as 'Cakewalk by Roland.'" —Mike Levine 



6.

7.

8.

6. Yamaha's Athan Billias gives us a peek at the Pocketrak 2G while accepting the award for the Motif XS6. 7. Martin Tichy of Vienna Symphonic Library shares a laugh with Gino Robair. 8. Ingrid and Roger Linn with *Remix* technology editor Markkus Rovito.



"Radial makes a DI box that does exactly what it is supposed to do. No compromise."

**Paul Boothroyd**  
(FOH engineer - Paul Simon, AC/DC, Paul McCartney)



"I'm really happy... I replaced my old DI's and found the J48's to have more output and less coloration. Acoustic music has never sounded so good."

**Jerry Douglas**  
(Alison Krauss & Union Station, 12-time Grammy winner)



"I thought Radials only worked on cars, but since my sound man hooked them up to my guitar, I like them even better. Great clear and pure sound!"

**Phil Keaggy**  
(world renowned guitarist/performer)



"It is nice to find great sounding industrial grade equipment still being made today!"

**Daniel Lanois**  
(U2, Robbie Robertson, Bob Dylan, Peter Gabriel)



"Over the past 13 years I have used a variety of DI boxes. The Radial J48 is without a doubt the best, cleanest and most versatile DI I've ever used."

**Paul Richards**  
(California Guitar Trio)



"With a Radial DI, the difference is surprising and dramatic. The sound is punchy, warm, solid and accurate. There's no going back!"

**David Oakes**  
(Front of house engineer - Pat Metheny group)



"When it comes to sonic integrity, nothing touches Radial. Great gear built by great guys."

**Steve Stevens**  
(Billy Idol, Atomic Playboys, soundtrack - Top Gun)

# Power Tools!

...for Power Players



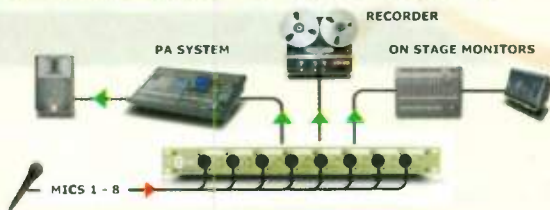
### Radial SW8 Auto Switcher

Multi-channel switcher for backing tracks ensures your audio keeps playing even when your playback recorder fails. Choice of balanced or unbalanced inputs plus eight built-in Radial DI boxes for remote stage use. Fully expandable with manual, remote or auto switching.



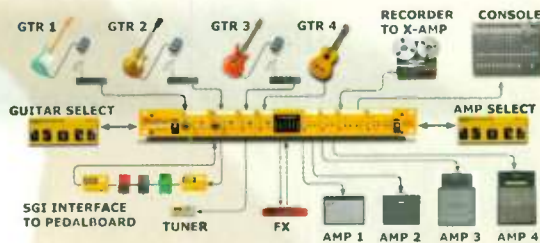
### Radial 8ox Mic Splitter

8-channel splitter lets you split mic signals and drive three separate feeds to the front-of-house console, monitor mixer and recorder. Radial transformer equipped for exceptional signal handling without distortion and the 8ox eliminates buzz & hum caused by ground loops.



### Radial JX44 Air Control

Guitar amp and effects routing system lets you remotely select between four guitars and drive up to six amps plus your tuner at the same time. Equipped with Radial SGI long-haul guitar interface, Radial JDI direct box and Radial X-Amp for post-production.



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# FRONT PAGE

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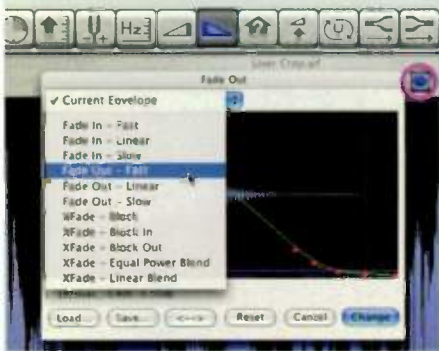
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# THIS MONTH'S SOUNDTRACK

These albums offer something a little different, from circuit-bent toys and field-recorded sounds to open-structure composition techniques.

1. Pixelh8: *The Boy with the Digital Heart*
2. Rabbit and Poe: *Cosmic Beats in Outer Space*
3. Sia: *Some People Have Real Problems*
4. Zoe Keating: *One Cello x 16: Natoma*
5. Amon Tobin: *Foley Room*



### PIXELH8

Pixelh8 makes music from vintage computers and children's toys like Speak & Spells and Game Boys.



JEFFREY RUSCH

4.



ALEX MILLER

2.



### RABBIT AND POE

Fun, lighthearted electro-pop is the name of the game for Rabbit and Poe.



### SIA

Those people do not include Sia, the leading lady everyone loves to remix.



### ZOE KEATING

The former Rasputina cellist uses live looping to transform solo performances into multipart masterpieces.



### AMON TOBIN

Tobin's expertise in field recording and gathering found sounds bleeds through this album.



AND COUSINS

5.



3.

What is your primary sequencer or DAW software (any version)? a) Cubase, b) Digital Performer, c) Logic, d) Pro Tools, e) Sonar, f) Live, g) other. Submit your answer at [www.emusician.com](http://www.emusician.com). Your participation allows the editors of EM to learn more about you!

## 1930-1940

Electronic and electro-acoustic instruments performed by musicians

A4 = 440 Hz established as international standard

## 1940-1950



Transistors (solid-state electronics) introduced

## 1950-1960

Commercial recordings of electroacoustic music released

Speech synthesis experiments at Bell Laboratories

## 1960-1970

Voltage controlled synthesizers developed



Introduction of compact cassette tape

## Download of the Month

### LiveLab LiveSlice (Win) By Len Sasso

LiveSlice (\$64) from Danish software developer Jacob Carstens is a beat slicer and audio file mungler for Windows that's both powerful and easy to use. You choose an audio file or pipe audio into its Slicer in real time, specify how you want the audio sliced, then click on a button to transfer the slices to a track in its built-in Arranger for further processing and playback. The Slicer holds up to 64 loops, and each of LiveSlice's 64 arrangements holds as many as 32 tracks. You play MIDI notes to trigger whole arrangements or individual slices.

LiveSlice offers both fixed-length and threshold slicing. Fixed-length slicing, in which all slices have the same length (say, beats or 16th notes), is great when you want to rearrange the elements of a loop, because every slice fits in every slot. Each track has a randomize button that will rearrange its slices in ran-

dom order. Threshold slicing is best for capturing individual events and preserving timing, and you can even import REX files directly. For example, you might transfer the content of one loop into slices obtained by threshold slicing from another loop.

Once you've added some tracks to an arrangement, you have a variety of tools for munging their slices. You can reverse, pitch-shift, and stretch any slice. You can alter its volume, volume envelope, and pan settings. Possibly most interesting, you can set the probability that the slice will play. You can randomize each of those parameters independently, and you can set the range of randomization. For instance, you could randomize the probability of each slice within a range of 90 to 100 percent to give you



occasional dropouts with little likelihood of long gaps. Stretch is one of my favorite parameters to randomize because it adds an echoing quality to some slices (see **Web Clip 1**).

You can purchase LiveSlice or download a demo complete with examples from the LiveLab Web site ([www.livelab.dk](http://www.livelab.dk)). While there, have a look at the free Touchpad 2, which turns the touch pad on your laptop into a MIDI x-y controller. If you enjoy messing with loops, LiveSlice is for you.

**ONLINE  
BONUS  
MATERIAL**



## OverClocked ReMix



Do you live and breathe video games? If the answer is yes, put down that controller and head over to OverClocked ReMix ([www.ocremix.org](http://www.ocremix.org)), a nonprofit, online organization that enhances the world of game music

with even more game music. Visit its Web site to learn about classic and popular video-game music, listen to user-created arrangements (called ReMixes, as opposed to remixes) of existing songs, and upload your own arrangements in any genre you like. All audio is available for free and can be streamed or downloaded directly from the site.

OverClocked ReMix provides detailed profiles of composers, full lists of every game commercially available, and user-submitted tips on the best DAWs, sequencers, and instruments to use in creating arrangements. If you are in need of free resources, tutorials, and guides for game music and computer music, OverClocked ReMix is a great place to go. Its affiliation with Video Games Live also presents numerous opportunities to network with other game-music fans and composers,

which can be done easily by taking part in the interactive community forum, where users can discuss any topic related to game audio.

You don't have to be a well-known working professional to be a game-music composer. Everyone is welcome to participate in what the organization has to offer, regardless of experience. So feel free to share your arrangements with OverClocked ReMix and achieve rock-god status from your own home, while you play.

For more about game audio, check out "Fun and Games," a feature on the technical and professional aspects of working in the field in the December 2007 issue of EM (available at [www.emusician.com](http://www.emusician.com)), and "Production Values: Games People Play," an interview with game-composing guru Tommy Tallarico in the January 2008 issue. **EM**

## 20th-Century Developments in Electronic Music

**1970-1980**

Personal computers become available

U.S. copyright laws revised to include magnetic recordings



Development of digital magnetic recording, MIDI, DAT standards, commercial digital music synths, and CDs



**1980-1990**

**1990-2000**

Development of DSP and computer software for MIDI sequencing and music notation





# 15 Ways to Play Berklee This Summer

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- 2 Berklee in L.A.
- 3 Berklee Percussion Festival
- 4 Brass Weekend
- 5 Business of Music
- 6 Five-Week Summer Performance Program
- 7 Guitar Sessions
- 8 IMELI
- 9 **NEW** Music for Video Games
- 10 Music Production Workshop
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## JZ MICROPHONES BLACK HOLE

JZ Microphones ([www.jzmic.com](http://www.jzmic.com)) has just released its first product, the multipattern Black Hole studio mic (\$1,850). The Black Hole's two large electrostatic capsules provide three patterns: omni, cardioid, and figure-8. The company claims the mic has a frequency range of 20 Hz to 20 kHz and a dynamic range of 127 dB for its Class A mic preamplifier. Special features include a patented Variable Sputtering of Diaphragm system, an integrated capsule shockmount, and an original stand-holder system for superior damping.

TWO HEADS ARE BETTER

## M-AUDIO FAST TRACK ULTRA

The new Fast Track Ultra (\$349) from M-Audio ([www.m-audio.com](http://www.m-audio.com)) is an 8 × 8 24-bit, 96 kHz USB 2.0 audio interface offering great flexibility in a compact package. The front panel houses four phantom-powered XLR

mic inputs, two of which are XLR/TRS combo jacks. All in all, you get six balanced analog inputs and outputs (with inserts for outboard effects on the first two channels), two

channels of S/PDIF digital I/O, and two headphone outputs. M-Audio's Core DSP technology allows sophisticated channel routing with multiple monitor mixes.

FLEXIBLE 8 × 8 AUDIO INTERFACE



# IK MULTIMEDIA ARC SYSTEM

IK Multimedia ([www.ikmultimedia.com](http://www.ikmultimedia.com)) has released its ARC System (Mac/Win, \$599; cross-grade, \$499)

for acoustic room correction. ARC System uses Audyssey MultEQ technology to correct both frequency- and time-domain problems. You start by using the included 1/4-inch omnidirectional, precision-measurement condenser microphone and ARC's room-measurement software to perform a step-by-step analysis of your room. You then use the VST, RTAS, or AU plug-in in your DAW to make the indicated corrections.

## ACOUSTIC ROOM CORRECTION



CAPTURE IT ALL



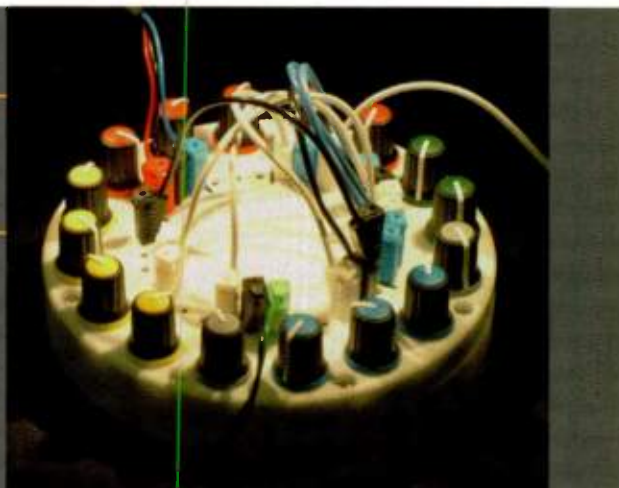
## OLYMPUS LS-10

The new LS-10 handheld PCM recorder (\$399) from Olympus ([www.olympusamerica.com](http://www.olympusamerica.com)) targets the on-the-go musician. In addition to 24-bit, 96 kHz PCM recording, the unit offers 44.1 kHz, MP3, and WMA recording at various Kbps rates. You can augment its built-in 2 GB memory with SD removable media cards. Olympus claims you can get 10 hours of recording time from two AA batteries. You connect the unit to your computer through its USB port, and Steinberg Cubase LE 4 is included for those without other DAW software. The LS-10 comes with a carrying case, cables, and batteries. An infrared remote, AC adapter, tripod, zoom mic, and headset are available as options.

## Chimera Synthesis bC16

Chimera Synthesis ([www.chimera-synthesis.com](http://www.chimera-synthesis.com)) is shipping the bC16 (\$229), a cylindrical modular synthesizer roughly the diameter of a CD. Its top is ringed with 16 color-coded knobs and 30 sockets. The knobs control the synth modules (oscillator, noise generator, 24 dB filter, amplifier, ADSR, LFO, and ring modulator). You interconnect the modules using mini banana cables. A built-in headphone amp and two 9V batteries for power make the unit self-contained. External power is optional, and you can integrate the bC16 with MIDI equipment by using a soon-to-be-released MIDI-to-CV converter. You can also drive the unit with an upcoming step sequencer, the SM16.

### COMPACT MODULAR SYNTHESIS



## Get Smart

### Grooveboxmusic.com's Logic 8 Explained

Grooveboxmusic.com ([www.grooveboxmusic.com](http://www.grooveboxmusic.com)) has released a new set of Apple Logic 8 tutorials by Logic guru and EM contributor Eli Krantzberg. You can purchase *Logic 8 Explained* (Mac/Win, \$49.99) as a download or on DVD-ROM. Its 41 tutorials comprise more than 5 hours of video. The tutorials start with basic descriptions of all the elements of Logic 8, then launch into advanced how-to sessions designed to speed up your work and expand your horizons.



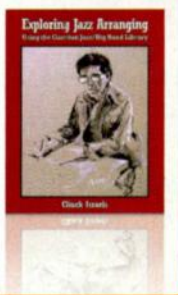
### ASK Video's Reason Version 4 Tutorial DVD

ASK Video Interactive Media ([www.askvideo.com](http://www.askvideo.com)) has released a new tutorial DVD for Propellerhead Reason 4 (Mac/Win, \$55). You get 41 video tutorials totaling over 5 hours of instruction. Topics range from the elementary, such as installation and preferences, through in-depth coverage of the sequencer and each module in the Reason 4 rack. Two tips-and-tricks segments creating demo projects round out the DVD. Author Morgan Pottruff also created ASK's popular Live and Melodyne tutorial DVDs.



### Garritan Libraries' Exploring Jazz Arranging

Exploring Jazz Arranging (Mac/Win, free), from Garritan ([www.garritan.com](http://www.garritan.com)), is an interactive, online series of 20 lessons from the upcoming book of the same name by legendary arranger and bass player Chuck Israels. The online version expands on a course already in use at Juilliard School of Music by embedding more than 100 animated scores performed live or played with Garritan Libraries *Jazz and Big Band Library*. You do not need the library to hear the scores. The lessons, which are hosted by Northern Sound Source ([www.northernsounds.com](http://www.northernsounds.com)), are available 24/7 along with associated Q&A threads.



## PSPAUDIOWARE XENON

### PUSHING THE LIMIT

Polish plug-in developer PSPaudioware ([www.pspaudioware.com](http://www.pspaudioware.com)) has released the latest in its line of professional mastering plug-ins. Xenon (Mac/Win, \$249 [MSRP]) is a full-band, dual-stage limiter with integrated leveler and advanced K-System metering. Applications include peak limiting, maximization, and transient shaping. The plug-in's 2-stage brick-wall limiter minimizes



intermodulation distortion. Xenon uses 64-bit precision processing throughout its signal path and supports sampling rates up to 192 kHz. Triangular Probability Density Function dithering at the output features three psychoacoustically optimized noise-shaping curves for requantization and dithering.

## VIRSYN MATRIX

### WORDS TO MUSIC

Matrix (Mac/Win, \$199) from German software developer VirSyn ([www.virsyn.de](http://www.virsyn.de)) brings precision analog modeling to vocoding. It renders top-quality resynthesis using 8-pole filters with extremely fast envelope followers, and its stereo 32-channel filter bank preserves the spatial characteristics of the vocoded signal. High speech intelligibility is achieved with new voiced/unvoiced-detection and pitch-extraction algorithms. Despite its advanced features, Matrix is easy to use. You set a few analysis and resynthesis parameters, map the filter bands using an onscreen matrix, and start talking. Matrix sings the rest.



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## EXPANSION BFD2

**THE BEAT GOES ON** FXpansion ([www.fxpansion.com](http://www.fxpansion.com)) has released the much-anticipated upgrade of its flagship drum-production workstation BFD2 (Mac/Win, \$399; upgrade, \$199). You now get ten full kits featuring multiple mic positions, a variety of articulations, and up to 96 Velocity layers. The new FX suite includes high-quality circuit-modeled compression with models of the Universal Audio 1176 and a legendary British compressor, along with an EQ modeled on a well-known console. Presets along with 5,000 ready-to-use drum parts let you start working immediately. BFD2 comes standalone as well as in VSTi, AU, and RTAS plug-in formats.



## Sound Advice

**Vienna Symphonic Library** ([www.vsl.co.at](http://www.vsl.co.at)) has released a sequel to its 2008 Remix Technology Award-winning *Appassionata Strings*. *Appassionata Strings II* (Mac/Win, \$515) features large, muted string ensembles with most of the articulations of the original collection, but they are played con sordino for a broad, cinematic sound that is perfect for styles ranging from pop to symphonic. This 10.7 GB 24-bit, 44.1 kHz collection comes as a standalone virtual instrument as well as a plug-in in AU, VSTi, and RTAS formats.



WAV and REX files in downloadable format. The CD version includes separate data and audio CDs.



**Loopmasters** ([www.loopmasters.com](http://www.loopmasters.com)) *Airwave Triloops Dance Breaks* (Mac/Win, \$69) is a 550 MB collection of drum loops ranging in tempo from 60 to 140 bpm. Most loops fall between 125 and 132 bpm and are well suited to house, trance, techno, and break genres. These royalty-free samples come from the private collection of noted producer and collaborator Airwave. They are provided as

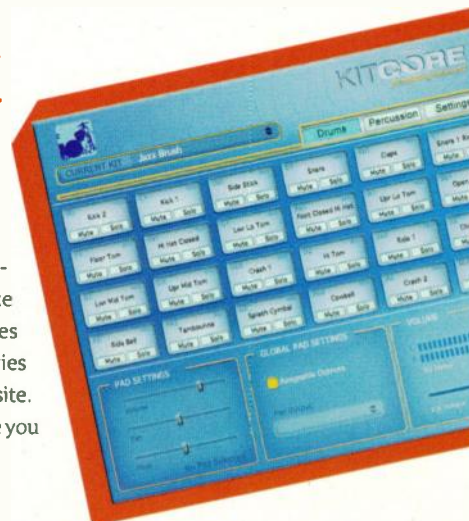
**Propellerhead Software** ([www.propellerheads.se](http://www.propellerheads.se)) has released the latest in its Drummerheads series of ReFills for Reason. The *Jason McGerr Sessions* (Mac/Win, \$49) were recorded by the Death Cab for Cutie drummer in his Two Sticks Recording Studio. You get more than 450 REX loop variations in both close- and ambient-miked configurations. For adding your own spice, each set of loops comes with a matching drum kit. The collection includes song starters, MIDI files, and ReDrum; NN-XT; effects patches; and style kits and drum-machine patches for Combinator.



## SUBMERSIBLE MUSIC KITCORE

KitCore (Mac/Win, \$49), now available from Submersible Music ([www.submersiblemusic.com](http://www.submersiblemusic.com)), provides the MIDI drum-machine portion of DrumCore as a plug-in for your DAW in VSTi, AU, and RTAS formats. It features eight kits and includes MIDI grooves that cover pop/rock, jazz, electronic, and Latin sounds. KitCore Deluxe (\$99) offers all the kits and grooves from DrumCore Deluxe (more than 100 kits and 1,000 MIDI files). Libraries can be expanded with KitPacks, which you can buy from the Submersible site. According to Kord Taylor of Submersible Music, the company's goal is to give you no-hassle access to your favorite DrummerPack kits. 

### PLUG-IN FOR DRUMCORE KITS



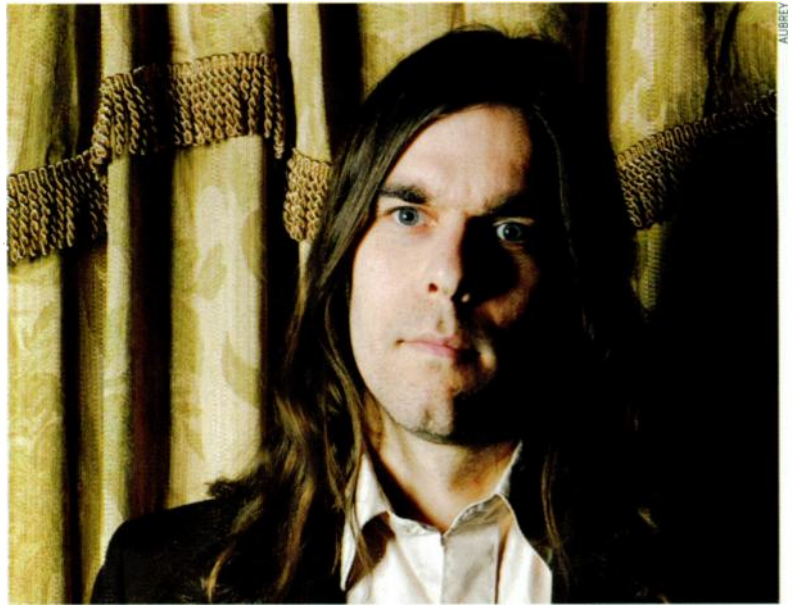






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 Web site: [www.goldenarmtrio.net](http://www.goldenarmtrio.net)



»» Graham Reynolds

# Live and Cinematic

Graham Reynolds weaves electroacoustic dreams with the Golden Arm Trio.

**R**ichard Linklater's 2006 film adaptation of *A Scanner Darkly*—a jarring, rotoscope-animated view of the drug-addled future depicted by Philip K. Dick in his 1977 novel—opens with an unhinged cello theme that sets the tone for the wild ride to come. As each character wrestles with the onset of madness, the music gradually takes on the various states of a psychotic break—disjointed mania, paranoia, abject dread, and, finally, release. Composed by multi-instrumentalist Graham Reynolds, the film's score is another example of the visually suggestive music that Reynolds has crafted over the years with the ever-expanding aggregate of players he calls the Golden Arm Trio.

By Bill Murphy

"One of the big things I got from *Scanner* was something I was interested in for a long time but had never invested in the equipment to do," Reynolds says, "and that is processing or manipulating sound, either in the act or afterwards. That helped me gain the knowledge and the facility with processing that we were able to apply to some of the material on the latest Golden Arm Trio album."

That album, *The Tick-Tock Club* (Rickety Fence, 2007), could be the soundtrack to an as-yet-unmade film. Based on ideas inspired by the music

of Shostakovich, the album turns on a dime between avant-classical ("Dmitri Dmitryevich") and cool gangster jazz ("20 Million Ways to Die in Chicago") with all the subtlety of a right hook to the jaw, but with keen attention paid to live musicianship, sonic textures, and experimentation.


"Throughout the making of the album, we were recording all these chunks," Reynolds says. "Some of them were recorded with the intent of being assembled into one track, but there were also montage tracks that were

made with chunks either of other tracks, or discarded takes, or variations on elements from other sessions, and then pieced together collage-style into one sonic unit."

"He Lies Like an Eyewitness" contains the results of what Reynolds refers to as "sound hunts," where he goes around capturing found sounds using an Edirol R-09 handheld recorder and Earthworks mics. He combined the sounds with a vibraphone-like drone that he stumbled onto when his MOTU 896HD interface—which he uses along

with Digital Performer—decided one day to go haywire. "There was this horrendous sound coming out of it that was just killing the speakers," he says, "but my first instinct was to record it. We basically took out the top half of the frequency spectrum, so you ended up with this really full, intense drone."

Although Reynolds is meticulous about how he records acoustic instruments, he never wants to constrain the musicians with such things as a chart or a click track. For the up-tempo car-chase-like mood of "Disco," for example, a MIDI-based piano part generated using Sibelius software was the main accompaniment for most of the track's session history.

"The actual piano was one of the last things to go on there because I tend to speed up," Reynolds confides. "If you're playing inside a band and holding tight, then it's a lot easier to stay steady—it's a lot more of a natural-sounding steady, too. You can still push and pull, but it doesn't make the piece dissolve. That live feel has always been important to me when we're making this music." 

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World Radio History

BILL ROLF



LIZ PAPPADEMAS

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 Vintage keyboards used: Chamberlin, Mellotron, Fender Rhodes  
 Home-studio vocal booth: a closet  
 Web site: [www.lizpappademas.com](http://www.lizpappademas.com)



»» 11 Songs

# Stark Lushness Illuminated

Liz Pappademas finds many ways to record 11 songs.

**L**iz Pappademas's solo debut, *11 Songs*, is gorgeous and lush in a sparse sort of way. The uncluttered arrangements and production allow her songwriting, vocals, and piano playing to shine through. "It's a subtle, nonfiction record," Pappademas says, "intimate and personal in its execution and content. The instrumentation informs the style—piano, stark vocals, drums, bass, pedal steel, and a few vintage keyboards."

By Diane Gershuny

From start to finish, the record was made in less than four months. Although she now resides in Los Angeles, Pappademas wrote much of the material for her self-released *11 Songs* (2007) in her hometown of San Francisco while working as a nanny and living in an in-law apartment. "I would practice and write while the kids were at school and once the family had gone to bed. This may have contributed to the quiet darkness of many of the songs—I didn't want to wake anyone. At the time, I was listening to a lot of Patsy Cline and also the Bonnie 'Prince' Billy album *I See a Darkness* [Palace Records, 1999]. The immediacy you hear may be the Patsy Cline influence—vocals way up front,

other instruments in the background. The sparse quality of the piano and writing is certainly owed in part to BPB."

Initially, many of the vocals and keyboards (which included a Chamberlin, a Fender Rhodes, a Mellotron, and a 100-year-old Emerson upright) were recorded by Scott McDowell at Hyde Street Studios in San Francisco and at Brian Kehew's studio (DFR) in North Hollywood. But subsequent recordings, sometimes employing unusual techniques, were done at a home studio in Austin and in Pappademas's L.A. apartment.

"The bass, pedal steel, and brass kick plate [from a door, played with a bow by Jeff Johnston and reversed in

the mix to create a wailing sound on "Go on Kill Me"] were recorded at Lang Freeman's Folsom studio in Austin," says Pappademas, which was "basically a bedroom, bathroom, and computer! I flew to Austin with the San Francisco tracks on a big hard drive; I'd already sent the roughs on CD to my friends Jeff Johnston and Gary Newcomb (bass and pedal steel, respectively) so they could practice before we recorded."

"For bass and pedal steel," adds Freeman, "we used an API 3124 preamp and an [FMR Audio] RNC compressor. On the pedal steel, we blended two signals: one dry from the DI (using a Radial JCV Mk3), and one super-wet organic track from an old, dirty-

sounding Fender, miked with a Shure KSM32. On bass, we took two tracks as well, one using the same DI and one from the amp, which was close-miked with a Shure Beta 52. We actually used a guitar amp and cabinet to bring out some fuzzy/gritty midrange, which blended really well with the low DI."

Because studio availability was limited, Pappademas also recorded some of the vocals and accordion at home using her laptop, Digidesign Pro Tools, a Digidesign Mbox, and an Audio-Technica AT3035 mic. "I emptied one of the closets and covered its walls with quilts and sleeping bags," she says. "Scott suggested putting the mic in the closet door and leaving it open while I stood in the closet. That way the sound would push out in the room, instead of just being totally closed off in my closet iso booth."

Overall, she says, the recording process was kind of unconventional, "but I was lucky enough to work with extremely talented engineers and musicians (and great friends) who helped make the final product better than I ever imagined it'd be." **EM**

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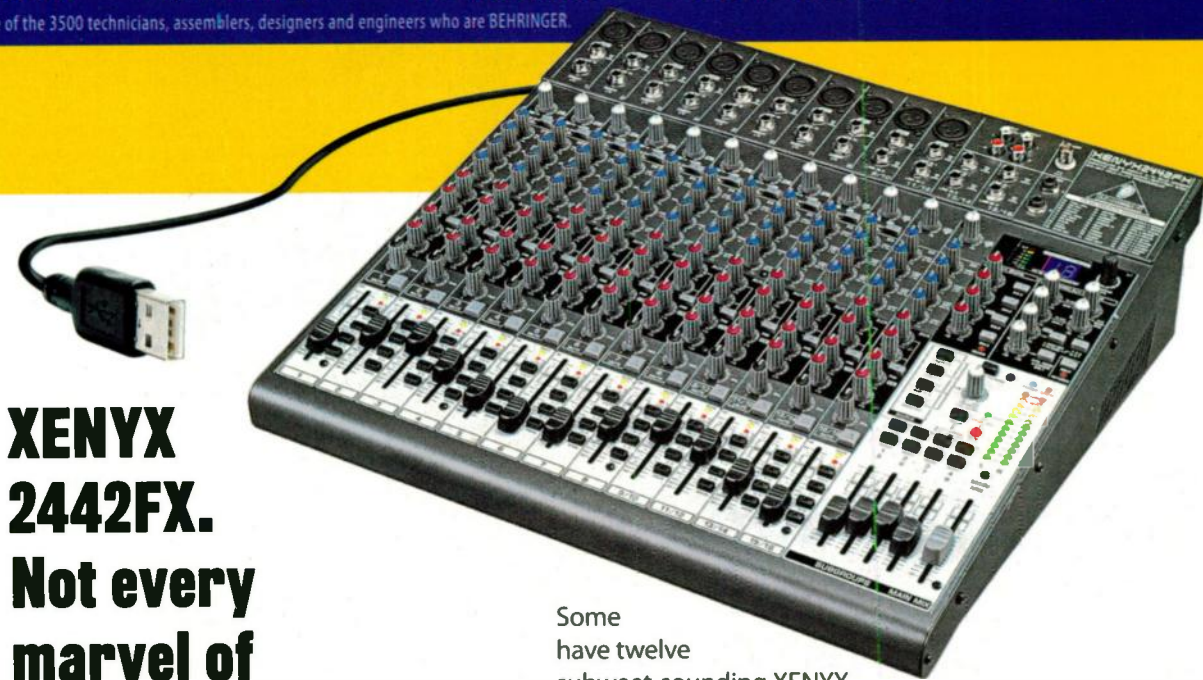
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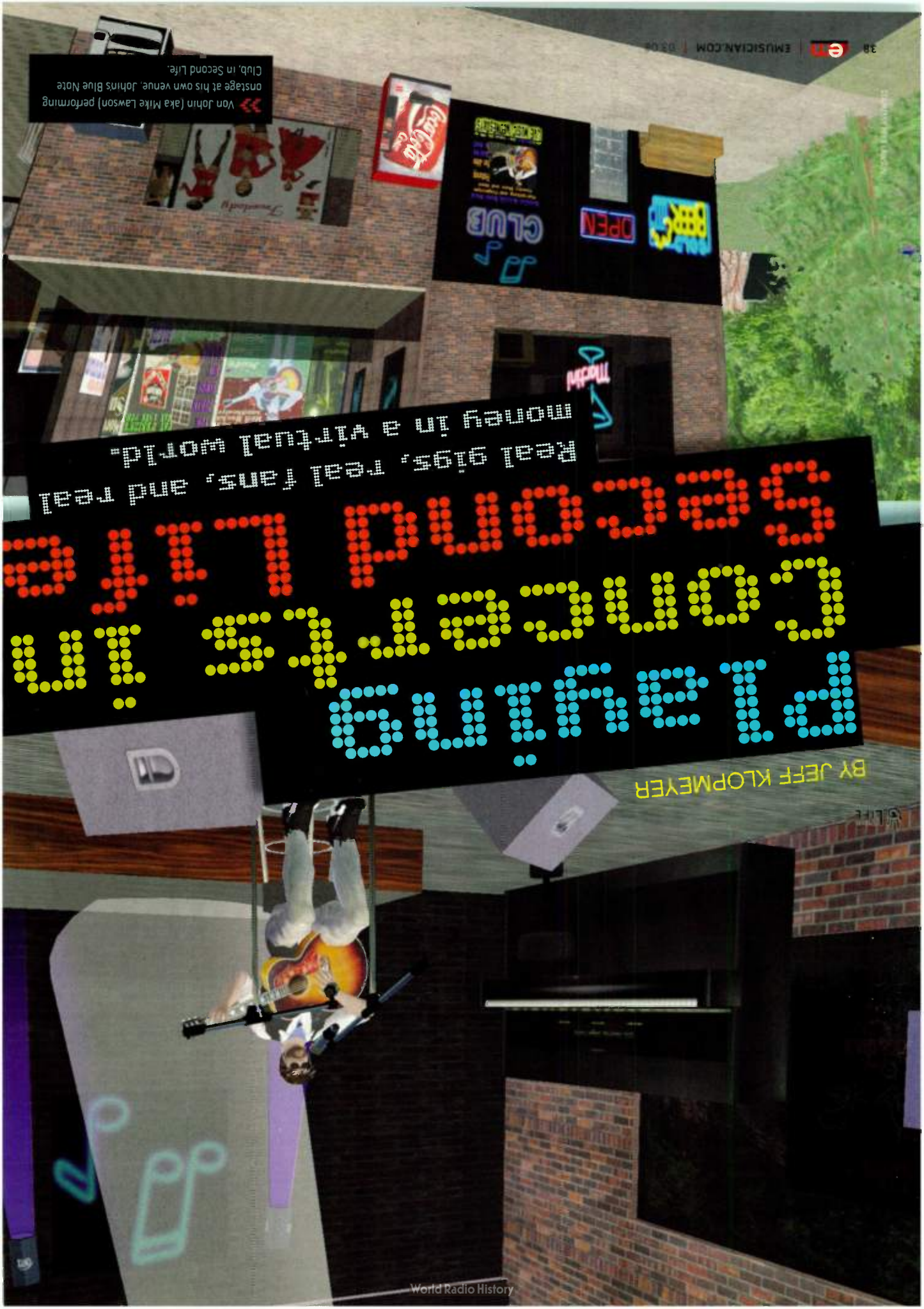
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World Radio History

Von John (aka Mike Lawson) performing onstage at his own venue, John's Blue Note Club, in Second Life.



Real gigs, real fans, and real money in a virtual world.

BY JEFF KLOPMAYER  
Real gigs, real fans, and real money in a virtual world.



**P**icture this: you're at a gig, tuning up your guitar, when suddenly an 8-foot-tall, pointy-eared gothic elf flies into the room. He is greeted by a purple-skinned, scantily clad woman, who then teleports herself into a seat near the stage.

No, you're not hallucinating. You've entered the online world of Second Life ([www.secondlife.com](http://www.secondlife.com)), which is quickly becoming a popular new place for musicians to perform live in front of appreciative audiences.

## Brave New World

Developed by Linden Lab ([www.lindenlab.com](http://www.lindenlab.com)), Second Life (SL) debuted in 2003, but it has taken off over the last two years, with the number of participants soaring from 100,000 to almost 13 million. While that doesn't mean you'll meet 13 million SL residents every time you enter, you'll see that 40,000 to 50,000 folks are on at any given time.

The Second Life experience is simple—think of it as a three-dimensional version of the Internet. Each resident is represented by an *avatar*, a kind of cartoon version of a person that users can customize. Some residents create outlandish avatars for themselves that range from anthropomorphized raccoons to muscle-bound he-men and well-endowed supermodels. Others (myself included) try to re-create their own real-life image as much as possible (see Fig. 1). When you sign up, you choose from a list of available last names, which is how I became the resident known as Zak Claxton when I got involved in 2006.

The Second Life world is laid out on a giant grid and is created completely by its users. Chances are, if you can imagine it, someone in SL has created it. To get around, you can teleport directly to locations, fly around the grid, or (for a slower-paced experience) simply walk. Dozens of virtual venues have been built specifically for the purpose of live music performance.

## Gigging Online

Compared with other audio projects, setting up a performance in SL is fairly simple. First, you need a sound source, which for me consists of a Martin D-18V acoustic guitar, a set of Hohner harmonicas, and my voice. To capture the sound, I run two condenser mics—a Groove Tubes GT57 for my voice and harp, and a GT30 for my guitar—into a Mackie 1202-VLZ mixer. The stereo output goes into a Digidesign Mbox

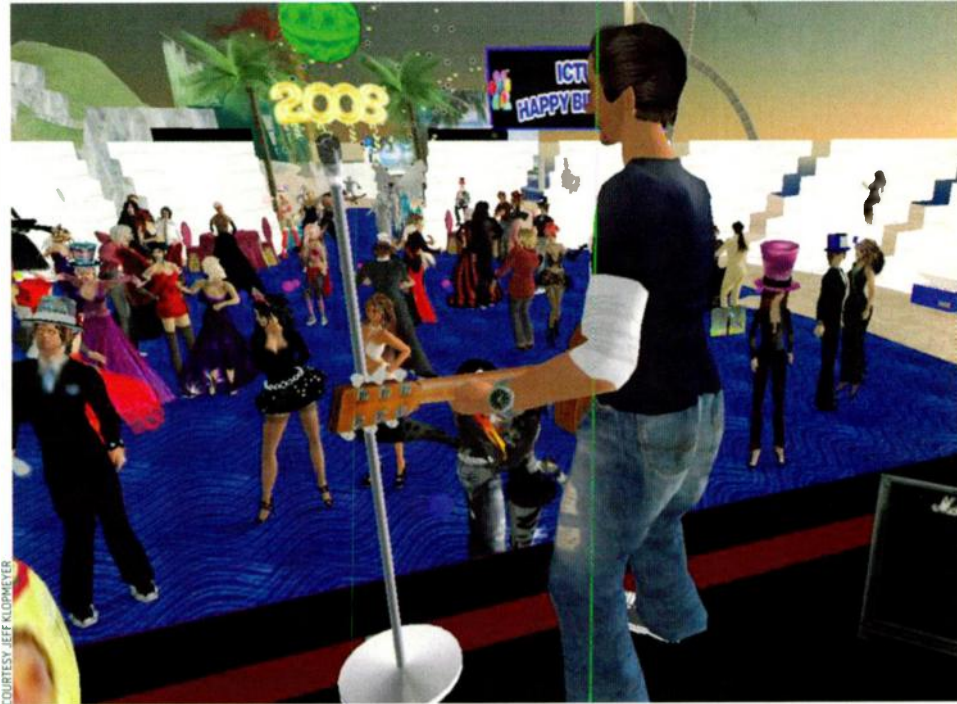
interface followed by an Apple MacBook Pro. (The mixer isn't necessary, but I like having a tangible control surface for levels, pans, EQ, and so on.) Most performers in SL are singer-songwriters like me, but if you have more than one person playing, simply send a stereo mix of your sources into your computer interface.

Next, you stream the audio, like an Internet radio station, so it can be received in Second Life. I use Rogue Amoeba's inexpensive Nicecast application (Mac, \$40); Windows users can use

this service. However, I rarely need to provide my own stream, because the venues where I perform almost always have their own. The venue gives me a stream URL and password, which I plug into Nicecast's server settings. Once that's done, I'm ready to play.

## Delayed Reactions

Because you are streaming audio through multiple servers, you won't want to monitor the playback through SL. The resulting latency is



**FIG. 1:** Jeff Klopmeier's Second Life avatar, Zak Claxton, plays a New Year's Eve event for a crowd of revelers.

WinAmp's Shoutcast plug-in or a third-party app like SpatialAudio SimpleCast (\$139). If I'm playing for only a couple of people, that's all I need. The software provides a streaming address that gets plugged into the virtual venue's media stream, and everyone in the area where I am performing can hear me play.

Once your audience grows beyond two or three people, the limitations of your Internet connection's bandwidth (even on cable or DSL) won't serve the audio correctly, or at all. At that point, you need to rent a Shoutcast server, which typically can stream to 100 listeners at 128 Kbps, which is similar in audio quality to a standard MP3. Although you can rent your own stream through Shoutcast, it's easier and cheaper to rent it by the hour from an SL resident who offers

pretty high, and it can take up to 30 seconds or more before your music is heard by the audience. Consequently, I monitor only my input signal, and that generally works fine. Speaking from experience, I can tell you that the audience will let you know if there's a problem with your sound.

In my small studio, I position the mics so I can watch the computer running SL, which allows me to interact with my audience like at a real-life gig (see Fig. 2). I can chat with folks between songs by responding to the text messages that pop up onscreen as the audience communicates with each other. I even take requests from time to time.

The only disconcerting aspect of this much latency is that after I finish a song, 30 seconds



COURTESY JEFF KLOPMEYER

FIG. 2: Klopmeier's simple real-life setup consists of two Groove Tubes mics, a Mackie mixer, a Digidesign Mbox, and an Apple MacBook Pro laptop computer.

can go by before I get any kind of audience reaction. I just assume the folks are going to applaud, so I thank them proactively before I've even seen the first kudos, which arrive as text messages.

### Autostrumming

You're probably wondering how you control your virtual self while in real life you have both hands on your instrument. You simply plant your avatar on the stage, and the animations built into your virtual instrument will strum the guitar or play the piano with enough realism to be entertaining to your fans. This allows you to concentrate fully on playing and singing your music.

Some instruments have a variety of animations built in, so you can pick the movement that works best for your style. These range from gentle strumming to Pete Townshend-like windmilling and jumping around the stage.

### Showtime in the Metaverse

I recommend attending several shows in Second Life before attempting to do one of your own. You can check out SLs in-world event listings under the Live Music category. (Events are also published on the Second Life Web site at [www.secondlife.com/events](http://www.secondlife.com/events).) If you find an event that looks interesting, simply click on the Teleport button and you'll appear at the show.

Residents have built a wide variety of venue types, ranging from giant amphitheaters to small clubs, jazz lounges, and dive bars (see the sidebar "Building a Second Career"). Typically, you can just walk up and find a seat, or hit the

dance floor if you're in the mood. Every kind of music is welcome, from mellow folk and jazz to house, techno, and metal.

### Virtual Show, Real Money

Second Life has its own in-world currency known as the Linden Dollar (L\$), which can be

## Building a Second Career

I've performed in clubs, festivals, street fairs, and concert halls since I was a teenager, but I've grown tired of the normal gig scene. I started performing in SL as Von Johnin after learning that an old friend, ambient musician Tony Gerber, was gigging there. Eventually, I bought land and built a venue, Johnin's Blue Note Club, making it look like an amalgam of the juke joints I've played around the country. Every Wednesday, the club fills to capacity, which is about 20 people seated and 35 standing. My wife soon joined SL and learned to make clothing and other items to sell. We bought more land and attached it to the club, and Johnin Village was born.

To make the club feel realistic, I added a jukebox, a pinball machine, and a P.A. system with floor monitors. Von Johnin sits on a stool with mics for voice and guitar, while people dance in front of the stage, sit at the bar or tables, or stand and socialize in an open chat as he plays. They can also type in song requests.

I capture my real-life audio with a pair of Violet condenser mics—a Globe for vocals and an Amethyst Vintage for the guitars—going through a Focusrite Platinum Penta preamp/compressor into a Digidesign 002R interface (see Fig. A). When I travel, I use an Mbox 2 interface and use the high-speed Internet connection at the hotel. When you see Von Johnin holding a Gibson J200, it's because I'm playing a Gibson J200. When he switches to a Gibson J160E or Hound Dog Dobro, it's because I've switched in real life. I don't have to do that; I just think it's fun.

I use Nicecast for streaming. It hosts AU and VST plug-ins, so I can add reverb if I want. But I find that effects can make things less stable, so I broadcast dry. I use a direct cable connection to my high-speed cable modem. Wireless and SL is not the best combo due to packet loss of data, and you're asking for problems if you do a show wirelessly. When I'm not performing, I use Nicecast to send music into my land and club from my iTunes playlist.

Renting a Shoutcast stream from another avatar in SL costs me \$16 a month for 100 simultaneous listeners. (For slightly more, I can have unlimited listeners.) I also use Nicecast to capture a 128 Kbps MP3 archive of all my shows, which I edit and make available on the Von Johnin Web site ([www.vonjohnin.com](http://www.vonjohnin.com)), because I often get requests from Internet radio operators in SL for my recordings.

In the first few months, I played about 40 concerts, earning the equivalent of \$40 to \$50 in Linden Dollars (L\$) at each performance outside of my club. The exchange rate is about 1,000 L\$ to 4 U.S. dollars, and my average take each show is from 10,000 to 15,000 L\$ in tips from concert attendees and fees from the club owner. Obviously, when I play my own club, I don't get a fee from the owner, so I earn about 5,000 L\$ less there. Sure, I make half as much as I would in a real club, but I don't have to leave my house.

And I now have fans all over the real world who log on to hear me play. What's not to love about that? —Mike Lawson



COURTESY MIKE LAWSON

FIG. A: Mike Lawson plays a concert in Second Life (as Von Johnin) from his home in Nashville.

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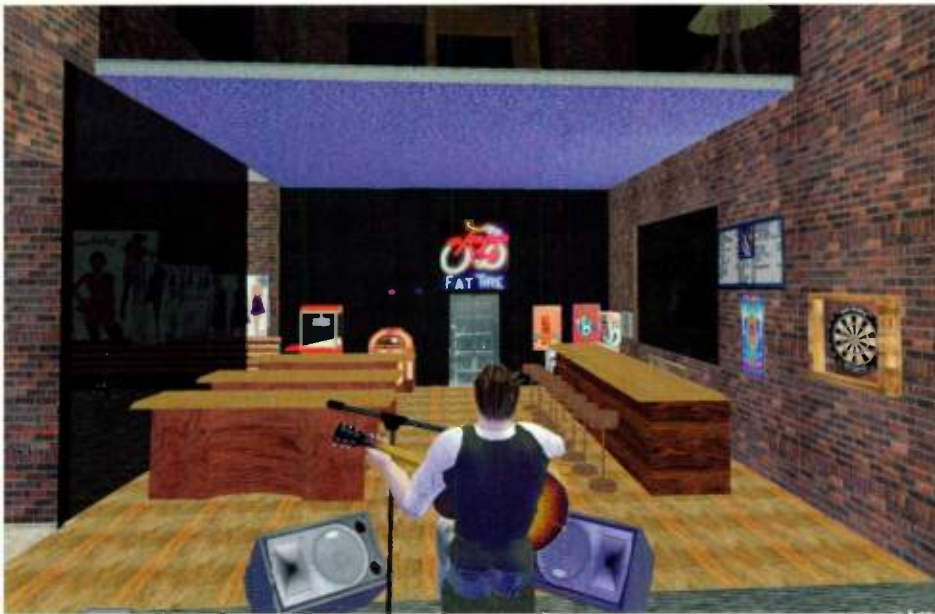


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World Radio History

# PLAYING CONCERTS IN SECOND LIFE



COURTESY MIKE LAWSON

➤ The view from the stage of John's Blue Note Club in Second Life. Mike Lawson's realistic touches include P.A. speakers, floor monitors, a jukebox, and even a popcorn machine.

used to buy clothes and other items, as well as services and virtual real estate. Although there is no cost to join SL or to participate in everything it has to offer, if you want to own land (think of it as renting server space), there are fees involved.

The in-world currency is exchangeable for real-world cash. Just like with a real-life gig, your compensation for performing is negotiable. Some venues pay their performers a set rate, with popular artists commanding higher fees. Other venues don't pay artists at all but allow them to set out a tip jar so the audience can show their appreciation with a little money. Most of my gigs involve a bit of both; I charge a relatively low fee to the venue but also accept tips.

Before you get too excited, note that it's been my experience that it's rare for an SL gig to bring in more than \$10 to \$20 in real money. Not bad, though, considering I don't have to leave my living room (or change out of my sweats) to do the gig. And I can do as many

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shows per week as I choose. However, there are other benefits to playing in SL beyond monetary compensation and convenience.

First, this is an easy way to promote your music to an international audience. I've cultivated a fan base in SL, many of whom have expressed interest in purchasing my next album when it's available. Second, every performance gives you an opportunity to hone your craft.


SL is hungry for live music. I once played a show in the middle of a weekday and found 40 to 50 people waiting to see me when I arrived. Try that at your local coffeehouse.

## An Avatar, a True Star

You can become a well-known musician in Second Life through promotion, just like you would in your first life. However, it's much easier in Second Life because this online world represents only a portion of the real world (at least for now). Although you can use SL's events listings to get people to your shows, you can also join groups that help promote live music there. Beginning performers will be happy to know that many venues have open-mic times; those are a good way to get your name out.

There are Web sites and forums dedicated

to the Second Life music community, such as <http://slmc.myfastforum.org>. As you get more serious about your SL career, you can set up a Web site or MySpace page for your avatar, as I've done at [www.myspace.com/zakclaxton](http://www.myspace.com/zakclaxton). There, I announce upcoming shows, talk with fans, post photos from previous gigs in my blog, and do all the stuff you'd do to promote a serious real-world band or artist.

There is a lot more to discover about Second Life. Try signing up for the basic membership, which is free, to get the hang of walking around and teleporting throughout the grid. Then go to a show or two and get the vibe. Before you know it, you might end up as a rock star—virtually, anyway. 

*Jeff Klopmeier (aka Zak Claxton) is a music/audio technology expert with more than 25 years of experience as a gigging and recording musician. Despite his Second Life escapades, he still loves playing in the real world.*

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» John Flansburgh (right) sums up TMBG's niche in popular culture: "On some level, we like to think of ourselves as floating somewhere outside the earth's gravitational pull."

# CONTRIVE



# INTERVIEW WITH THE MIGHT BE GIANTS

## WITH THE MIGHT BE GIANTS

BY GEARY YELTON

**I**f you've ever attended a They Might Be Giants concert, you know what an enthusiastic audience the band has. You also know that John Linnell and John Flansburgh, the founders and core members of TMBG, are two of the most inventive, original, and prolific songwriters you'll find anywhere. Based in New York, the two Johns (as they're affectionately called by their fans) have been writing, recording, and performing songs together since 1982.

Linnell and Flansburgh spent their early years performing as a duo in alternative rock clubs and performance-art spaces, quickly attracting a dedicated following and eventually landing airplay, first on college radio and soon thereafter on MTV and Nickelodeon. Their breakthrough 1990 album, *Flood*, yielded two of their most enduring hits: "Birdhouse in Your Soul" and a remake of the 1953 classic by the Four Lads, "Istanbul (Not Constantinople)." Their popular Dial-A-Song telephone service has been available since 1984, and they've been distributing their music on the Web for more than a decade, with free and paid MP3 downloads and frequent Podcasts.

In 2002 TMBG won a Grammy for the theme song to the TV show *Malcolm in the Middle*. They also recorded the theme and created the incidental music for Jon Stewart's *The Daily Show*. Just describing all their accomplishments could easily fill a feature-length article.

I recently caught up with the two Johns shortly before a performance at the Neighborhood Theatre in

Charlotte, North Carolina. They invited me aboard their tour bus and graciously answered more questions than EM has room to print. You can find an extended version of this interview at [www.emusician.com](http://www.emusician.com) (see the online bonus material).

ONLINE  
BONUS  
MATERIAL

**MOST  
ENGINEERS  
HAVE A  
HARD TIME  
KEEPING  
UP WITH US.**

### DO YOU HAVE PERSONAL STUDIOS IN YOUR HOMES?

JF: I have two personal studios. I have my studio in Brooklyn that we used to rehearse at and one upstate in the Catskills. I spend about half my time up there.

### WHAT KIND OF SETUP DO YOU HAVE?

JF: Our setups are pretty simple. Basically, we're just running Digital Performer and a bunch of [MIDI modules].

JL: We recently moved over to a lot of software—samplers and synths—from unreliable hardware. We have [Mac] G5s.

PHOTOGRAPH BY MICHAEL LAWRENCE

JF: We kind of came up with MIDI before digital recording.

### **YOU USED THE ORIGINAL MOTU PERFORMER, DIDN'T YOU?**

JL: Yeah, exactly.

JF: I think our very first album has some Performer tracks.

JL: Well, no, the first album was all drum machine synced to the timecode on one of the tracks on the 8-track. And then the second record, we got the Mac Plus running Performer—version 1, I think. Pretty much just the drums and bass were on the computer. For some moronic reason, I insisted on playing the keyboards live, even though we'd already learned to start doing that stuff. *Lincoln* is all human, nonquantized keyboards.

### **YOU DIDN'T WANT TO SEQUENCE THE KEYBOARDS?**

JL: We were just dipping our toe into sequencing at that point.

### **DOES TECHNOLOGY GET IN YOUR WAY A LOT WHEN YOU'RE TRYING TO GET AN IDEA DOWN?**

JL: Absolutely, yeah. I thought that's what it was for [laughs].

### **YOU'VE WORKED WITH A LOT OF PRETTY ACCOMPLISHED PRODUCERS OVER THE YEARS, AND YOU'VE PRODUCED YOURSELF ON A FEW ALBUMS. HOW DID THE EXPERIENCE OF WORKING WITH THE DUST BROTHERS COMPARE?**

JL: It was completely different from everything we've done before. We worked with producers who, in a certain way, were kind of traditional. They want to take the material and just sort of polish it, and [the Dust Brothers] were not interested in that approach. It was a great, different direction for us to go into, because they were willing to [mess things] up. It's just like, throw all the cards in the air and try something else. In some ways the actual process was frustrating, because they work so differently from the way we work that it took some patience on our part to get to that.

JF: It's hard to explain the difference between them and other producers. Because they are coming from sort of a hip-hop background, they're not worried about prepara-

tion time. They're in the studio trying things every which way they can imagine. Even if they think they've got something that's good, they're interested in experimenting to some degree to make something great. John and I tend to give ourselves very free rein when we're off the clock. If we're in a project studio, we do all these very time-intensive things that sometimes [are] fruitful and sometimes aren't. But then when we actually get into the studio and we're working with our band, we're quite deliberate and quite focused and tend to work extremely fast.

Most engineers that we work with have a hard time keeping up with us. One of the things about working with Pat Dillett, our long-term collaborator and coproducer, is that he's one of



☘ "If you can think up the lyrics and the melody and everything at the same time," says John Linnell (left), "you've had some strong coffee. But I find it really challenging to make it all come together at once."

the few people who's really capable of working at this manic pace that we're working.

Working with the Dust Brothers was a big lifestyle adjustment for us because we had to accommodate their pace, which was just much, much slower. Sometimes it was hard to know even what we were trying to achieve. We would have already recorded the track that would be the final track, but we were trying to figure out if we could top it. That's just a luxury that we've never afforded ourselves. We've always had small budgets, and we just kind of came up that way. The time that you're in the studio, you're on the clock.

### **IT SOUNDS LIKE THEIR APPROACH WAS THAT TIME, AND THEREFORE MONEY, WAS NO OBJECT—AND YOU OBJECTED TO THAT.**

JF: Yeah, exactly. But they're extremely successful producers. They're very dedicated to doing outstanding work. We weren't trying to turn them into hacks.

JL: But they were very true-blue in their approach. They were not willing to accept an unfinished or mediocre project, and that was great. That part of it was exactly how we feel about it.

JF: I think one of my strongest memories was being up in Pat's room, like a little project room, where we were just doing some really crazy guitar overdub on "Withered Hope." It was so weird—I didn't even really know what we were going for, and it was all on me, and it was just this totally wide-open, nutso improvisational thing. I didn't even know how John King was going to edit it together. It was just kind of unclear what we were doing, although the result actually seems quite purposeful. I remember saying, "I think that's good." And John King, with this very crazy look in his eye, but very seriously, said, "It's good, but is it awesome?" I don't know. I don't know what awesome is.

### **YOU'VE WORKED WITH DILLETT FOR SO LONG. IS HE LIKE THE UNOFFICIAL THIRD PERMANENT MEMBER OF THE BAND?**

JF: Yeah, he's like the third Beatle. He was an assistant engineer at Skyline when we were making *Flood*, and he worked with Nile Rodgers. Skyline was in many ways one of the studios in that last era of great New York studios that had a formal—I don't even know what you'd call it. Engineers were really taught how to work this certain way. It had more to do with the way people made records in the '50s and '60s than with the way things are made now. [Pat] comes at it with a lot of skills that you're not going to learn on your own.

### **AND YOU'RE DEPENDENT ON HIM.**

JF: We're very dependent on him. The sonic things that really speak on the record are often coming from his side of things. And so when we went to working with the Dust Brothers, one of the things we wanted to do—since they were only working on half the record—was to avoid a



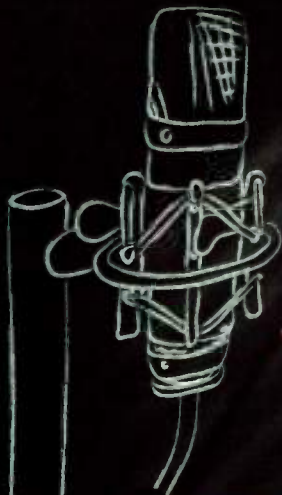


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World Radio History



GEARBY VEILTON

Although Linnell is well known as an accordion player, he started playing keyboards in rock bands before he ever touched an accordion. "I'm very self-taught. I use the left hand pretty much just for bass notes. I don't really play the chords," he says.

sort of schizophrenic project. Pat and the band are consistent throughout the whole project.

### **THAT'S SOMETHING THAT REALLY IMPRESSED ME ABOUT THE ELSE. EVEN THOUGH VARIOUS PEOPLE PRODUCED DIFFERENT SONGS, IT ALL SOUNDS VERY COHESIVE.**

JF: Yeah, well, it was all mixed by Pat. That was by design. From the experience we had with *Mink Car*, which was kind of a similar mixed bag, we just wanted to make sure that this had more sonic continuity.

### **YOU'VE WORKED WITH MAJOR LABELS—ELEKTRA BEING THE BIGGEST—AND YOU'VE WORKED INDEPENDENTLY. HOW DO THOSE EXPERIENCES COMPARE?**

JL: Sometimes I think it's less and less relevant whether we're on a major or whatever. We've very much established the way that we like to work, and that is the principal thing—that we're kind of figuring out the scheduling and who's producing, what hours we're going to work, the atmosphere in the studio—things like that. That to me is the key ingredient: how we actually work day to day, not so much what organization is producing the record.

### **JUST HOW MUCH OF YOUR SONGWRITING TIME DO YOU SPEND TOGETHER?**

JL: Not very much. Now, John mostly works up in the Catskills when he's writing, and I'm in Brooklyn; that's where my studio is. We write pretty independently, and we've had a number of tracks in the recent past where we've collaborated. The song "Mink Car," off of [the album] *Mink Car*, we actually wrote sitting at a piano in this Leopold and Loeb sort of way. We don't really ever do that.

JF: More likely, these days it'll be handing off a file. Sometimes it's just small things, like specialty items that need to be addressed.

JL: Here's a sort of happy way that we collaborated on the last record. One example is I sent my demo of the first track, "I'm Impressed," to John. I emailed it to him.

JF: MP3. Really lo-fi MP3.

JL: At some point I gave John the OMF, which just has the vocal and the drum reference and the chords. He took that and constructed a whole new track just behind the vocal. So he basically created a completely new track based on what I'd given him. Then we [brought] the OMF to Pat Dillett.

JF: Although what's funny is the vocal that's on the track is from the MP3. If you wonder how we capture that really crummy sound, it is

**DON'T BE AFRAID OF PRESETS.**

that familiar sound of kind of a low-res MP3. We listened to [the vocal track], and part of it just had some slightly distressed effect on it.

JL: Sort of a murky sound to it.

JF: And combined with the original source and the effect, it did seem more interesting than just a straight vocal.

JL: I think the MP3 had the effects I had put on it in my home studio. The OMF we brought to Pat of the original full-bandwidth vocal didn't have the effects that I'd put on the demo. And we're like, "Well, how do we get these effects?" And Pat was like, "Well, why don't you just use this track—this perfectly good MP3 track?"

### **DO YOU TRACK AND MIX IN THE SAME STUDIO?**

JF: No, we tracked in a bunch of different places, mostly to get bigger drum sounds. When we do tracking, we are very purposefully thinking, "We've got everything we need here, and now we can move on to the next stage." It's almost like you're doing yourself a favor to have a process that says that chapter is over.

JL: I think it helps to have a sense that you know what you're doing rather than hope it will all get sorted out at the end. You actually have to put together the whole project in your head. It's how they make movies; you have to shoot everything and know that you've got everything you need, rather than go, "Maybe we'll fix this later on."

JF: But in spite of the fact that we work electronically in the early stages of what we do, we do a lot of recording in very traditional ways. We'll set up the full band to record and track with everybody playing at the same time.

### **THAT IS VERY TRADITIONAL.**

JF: The reason we started doing it was very practical. We didn't do it until we started doing the incidental music for *Malcolm in the Middle*, and then the deadlines were so fast, we were basically totally in over our heads. We had way more work to do than we knew how to finish, and so it was just kind of an all-hands-on-deck moment professionally. And then, as we were working in this kind of panic-stricken way, the efficiencies of working that way just kind of appeared to us.

JL: The great thing about our situation now is that we also have these very competent musicians who are deeply concerned about how integrated their parts are with one another. They'll go back and do it again if they feel like the bass and the kick aren't agreeing, if the part's not working, or if the performance isn't working. And all these issues can be [decided] simultaneously to the recording being made. I think that's a really valuable thing about the band.

### **HOW EARLY IN THE SONGWRITING PROCESS DO YOU BRING THE BAND IN? DO YOU GET IDEAS FROM THEM WHILE YOU'RE WRITING A SONG?**

JF: It really varies from song to song. If you have a song that's got a more organic feel, you can leave it in a more skeletal way, and then just



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present it to the band and kind of work it up together. And what the band will bring to it will really amplify all those qualities.

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#### WHAT SYNTH?

JL: It's the [MOTU] MX4, but there's some backwards drums in there as well, as part of the sound. It's like a loop of a lot of different drums. Some of it is backwards.

JF: That song was written for the movie *Coraline* for the opening sequence and was cut out of the movie. We contributed a lot of songs to this movie, and the whole movie just changed direction midway through. We were brought in very early, so our stuff has had every chance to be shot down.

JL: Obviously, when something happens over and over again, you start to wonder how



# Mastering Vinyl

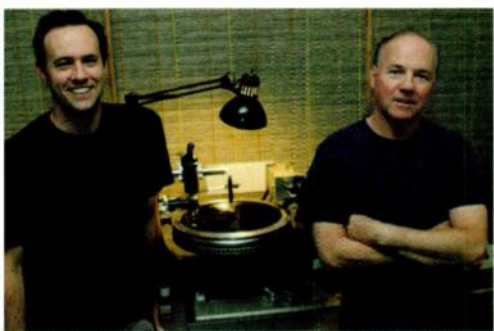


FIG. 3: Mastering engineers J.J. Golden (left) and John Golden with their Neumann VMS-70 cutting lathe.

de-essing the vocal,” Golden recommends. “My rule of thumb is de-ess the vocal when you record it, then de-ess it again when you mix. It works much better if a little is done at both stages rather than trying to de-ess it all at once. A good de-esser can actually make the vocal sound brighter because the only time it affects the voice is during the *s* sound.

“Some vocalists learn to underpronounce the sibilant sound—that makes all of our jobs much easier,” he adds. “But if you double a vocal that’s already sibilant, you get twice the problem. Heavy compression and limiting can also make a nonproblematic vocal very sibilant: the limiter will tend to pull up the *s* sound because most compressor/limiters don’t work at the same threshold for high frequencies as they do for mid vocal frequencies. Consequently, the limiter doesn’t see the *s* sound and opens up the level, adding even more sibilance.”

As you’d expect, the current trend of heavy-handed compression and limiting in the recording industry does not lend itself to releases destined for vinyl. It’s not uncommon for engineers to be given overcompressed masters with exaggerated highs that sound terrible on a record. Lyman recommends that artists prepare a separate master for a vinyl version of a project, one that has “a greater dynamic range and is not overlimited.”

## Center the Lows

At the other end of the spectrum, there are things to consider when working with bass and low-midrange content destined for vinyl. “Low frequencies use up the most space, especially if they’re heavy and constant,” Golden remarks. “Care must be taken to control excessive low

end. The lathe can cut it just fine, but if the volume exceeds a certain level, the record could skip when played back.”

Two things that can cause problems are bass instruments that are hard-panned, and phase issues in the low end. To compensate, the lowest frequencies going to vinyl are often moved to the center of the stereo field during the mastering stage. The engineer chooses a crossover frequency at which the centering begins based on orchestration, volume, program length, and other variables in the music. Because every project is different, there are no hard-and-fast rules, so if you are concerned about this happening to your master, consult with the engineer who will cut your lacquer (see the sidebar “The RIAA EQ Curve”).

“I always tell clients, especially dance artists, ‘Mono your bass,’” Lyman says. “Staging is a big problem for vinyl cutting. I’ve run into situations where producers try to do stereo kick drums, and they think they’re fattening them up by moving one a couple of milliseconds, which only knocks it out of phase and results in less bass. And it’s almost impossible to cut. We can do things to try to mono the low end, but usually it requires a remix.

“When something’s out of phase, it tries to pull the cutting head two different ways, and then the cut just collapses,” Lyman adds. “Phasing causes the cancellation of frequencies, and the cutting head can’t process that, so you lose your groove, which causes a skip.”

“Our Neumann cutting system has the ability to record a bass in one channel only, and when I play that disc back, the bass is still in the same channel,” notes Golden (see Fig. 3). “It is true that the more low frequency you mix on the sides, the more vertical up-and-down movement will be required of the cutter to make that sound. And with more vertical movement, the groove will use more space on the disc. Significant amounts of low end panned hard left and/or right can also cause a record to skip during playback. For the record to have fewer problems, you should try to keep most of the low end near, or in, the center of the mix, especially percussive sounds like the kick drum and bass guitar.”

Golden uses a crossover that centers frequencies of 70 Hz and below. “I use that frequency because it’s nondirectional,” he adds.

“You can’t tell where the sound is coming from when it gets down that low.”

He also points out that if the crossover frequency is too high, it can have an adverse effect on the mix. “Depending on the frequency, it can make the low end become cloudy, because the bass, bass drum, and low guitars go to the middle.” He says that you’ll hear the artifacts when you compare the vinyl pressing to the CD result of the same project.

“Before CDs became available,” Golden explains, “when a vinyl record was cut, the only source to compare it to was the master tape, in a studio that had a machine that could play it. After the CD was introduced, people started saying, ‘The vinyl record doesn’t sound like my CD.’ And to some degree, that still happens today. The fact is, it will never sound like the CD—it’s the ‘vinyl version’ of your music.”

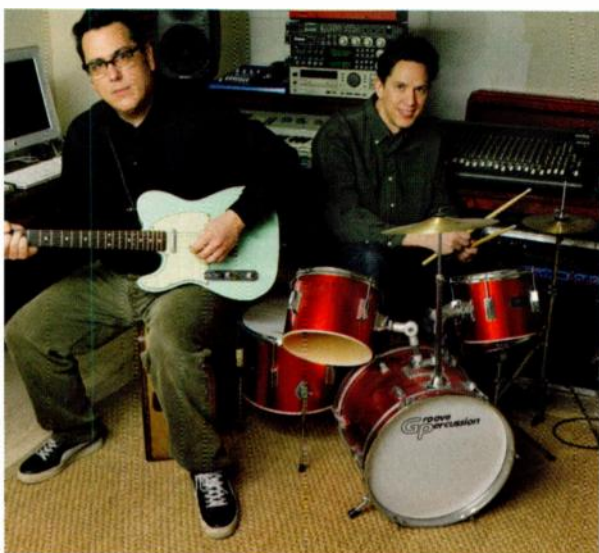
Simpson usually uses a crossover point at 150 Hz. “But if we don’t need one, we don’t use it. It’s only needed if there are too many vertical or out-of-phase components.”

Ingram uses a variable crossover with a range from 0 to 750 Hz. “Normally I set it to 70 Hz. If I see problems with vertical modulation on the disc, I will select 150 or 250 Hz. If I have to exceed 250 Hz, I’m in dangerous territory and it’s going to affect the sound quality. At this point I conference with the clients and suggest a reference lacquer. If it’s okay, we move forward; if not, it’s remix time.”

## Check Your Reference

To get a sense of how their project will sound on vinyl, the pros get a reference disc cut before creating a master lacquer. Similar in composition to the master lacquer, the reference disc is a 12-inch, lacquer-coated aluminum record that the artist or producer can listen to at home to see whether or not they want to make any EQ or level adjustments. “The actual purity of the coating on a reference disc is not quite as high as what’s on a master disc,” Simpson says.

“We always made a reference disc first, with every record we did at RCA,” comments Simpson, who spent more than a decade at the label. “We’d write down the levels and any EQ we used. They’d go listen to it, and if they approved it, we would cut the master. Or they would come back and say they want to make minor changes. There might be two or three



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#### **WHAT SYNTH?**

JL: It’s the [MOTU] MX4, but there’s some backwards drums in there as well, as part of the sound. It’s like a loop of a lot of different drums. Some of it is backwards.

JF: That song was written for the movie *Coraline* for the opening sequence and was cut out of the movie. We contributed a lot of songs to this movie, and the whole movie just changed direction midway through. We were brought in very early, so our stuff has had every chance to be shot down.

JL: Obviously, when something happens over and over again, you start to wonder how



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much is on your own end. We cooked up a lot of songs, and then we realized that this project was moving at about a tenth the speed that we're used to going. We probably would have been wise to slow down our own engine.

### IN THE STUDIO, WHO'S IN CHARGE OF THE INSTRUMENTATION AND ARRANGING?

JF: I think we both kind of lead the songs that we write. But in a weird way, our skill sets overlap tremendously. Our collaboration, aesthetically, is extremely active and very real. We both challenge each other in ways that are incredibly profound and hard to even quantify.

JL: We're still scared of each other.

JF: When we go into the studio and there's chart arranging, it falls to John. If there's horns or strings coming in—especially when we're doing outside work, work-for-hire stuff for TV or movies or whatever—a lot of times, I'm the de facto producer. I think we both have the x-y axis of our skill sets. I think we've learned where our strengths lie.

JL: Yeah, that's right.

JF: And it's not like we don't defer to the other one in a million different ways all the time, and it's not like it isn't a collaboration. We recognize that the other one can bring something really powerful to the thing.

### WHAT CAN YOU TELL ME ABOUT YOUR NEW DISNEY ALBUM, *HERE COME THE 123S*?

JF: We made it at the same time as we made *The Else*. We were working on these two projects. In some ways, the fact that we were making a children's record while we were making an adult rock record probably made *The Else* acerbic [and] masculine-like.

JL: I was saying to John while we were making it, "Boy, this is like the least cuddly record that we've ever made."

JF: If something suddenly seemed adorable, we would put it on the children's record right away. But there's a track on the album that we did with the Dust Brothers, which is a very cool piece of music called "Seven." It really has their stamp on it, too. I think if you ask anybody who's written kid stuff, it's so much fun for the writer. It's such a blank check. You really have license to do almost anything you've ever wanted to do.

JL: This is one thing that I feel like we're very off the hook with (off the hook in the old-fashioned sense), which is that the Disney stuff is not going to be judged in the context of rock music. People aren't going to listen to it and go, "Well, it pales before *Exile on Main Street*." It's actually going to be judged by young people who don't have any context, for the most part, very little context, or a very strange context.

I'VE WASTED EXTRAORDINARY AMOUNTS OF MONEY ON FUZZ BOXES.

### THERE'S YOUR FUTURE AUDIENCE.

JF: Hopefully.

JL: So a lot of the stuff we're doing, they're hearing an entire genre for the first time in this one particular song. This will be the very first ska-like music that this child will ever hear. They don't really care that it doesn't sound authentic. There's the huge freedom that you have writing for kids, because you're just trying to make it interesting or entertaining or fun or wake them up in some way. Those are the primary concerns for the adult stuff, but often we feel like we are kind of in the spotlight in a way when we're doing adult material.

JF: Where we land in the culture is basically just a source of confusion for us. We don't feel like we're part of the pop world, but that's the only place that our work makes sense. When we're writing songs, we're trying to write songs that will be worthy of repeated listening, just like any other songwriter.

JL: I think we're trying to be astronauts.

### I THINK THAT IS THE PUBLIC PERCEPTION—YOU BRIDGE POP AND AVANT-GARDE, AND YOU'RE SOMEHOW OUTSIDE OF IT ALL.

JF: I hope that's true. I feel like there are different levels that you can take that posture as meaning.

### HAVE YOUR CAREERS TURNED OUT THE WAY YOU HAD IMAGINED?

JL: We didn't imagine what it was going to be like. When John and I started doing this thing together, we very consciously thought, "We're not going to figure out what people want; we're no good at that. We're going to do the thing that we like instead, and if we're successful at it, then that'll be good. But if we're unsuccessful, at least we'll be something that we like rather than something we failed to anticipate that other people won't like."

### JUDGING BY THE ENTHUSIASM OF YOUR AUDIENCE, YOU'VE MANAGED TO DO WHAT YOU WANTED AND STILL CONNECT.

JF: From the minute we started performing, our act—in air quotes—completely worked. The strange thing about audiences is, it seems like audiences love bad music. What's been our luck is that we've always gone over in the most immediate sense. There have been periods when we were the critics' darlings; there have been periods where we've gotten total indifference from the general music culture. But when we perform, it always just seems like it's going down in a glorious way.

### IS THAT WHAT MAKES YOU KEEP TOURING?

JF: It certainly helps. People clapping at the end of your songs is very exciting. It's hard to get used to that. It's a good thing, and it's very validating. It definitely makes you feel like you're doing something worthwhile.

### DO YOU HAVE ADVICE THAT YOU COULD GIVE TO SOMEONE WHO'S TRYING TO SUCCEED IN MUSIC?


JL: Gear! It's all about gear [see the online bonus material at [www.emusician.com](http://www.emusician.com)].

JF: [Laughs.] Get more expensive gear! And don't be afraid of presets.

### I WASN'T EXPECTING THAT.

JL: I was being a little facetious.

JF: I wasn't being facetious.

JL: The presets thing—that's totally right. 

Geary Yelton has been a full-time EM associate editor since 2000 and has written for the magazine since 1985.



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# Mastering

**FIG. 1:** The Neumann AM-32 lathe at Infrasonic Sound. The large dial on the control panel at the right can be used to manually regulate the number of lines etched into the master lacquer.

# Vinyl

What you need to know before committing your sounds to wax.

*By Gina Robair*

Nearly a quarter century after the CD was introduced, and kept alive in large part by club-based music, vinyl records are experiencing a resurgence in popularity. (*Time* magazine reported in January that record sales were up 15.4 percent in 2007.)

Musicians in nearly every musical genre are pressing records again, not only because they believe the sound quality is superior to that of digital audio (and especially data-compressed formats), but because of the large graphics and collectibility, which help these products stand out in the crowd of new releases. The latest trend is to offer a free downloadable version of the record with the purchase of the LP; this makes the release more attractive to members of the iPod generation who want instant gratification as well as something collectible.

However, simply pressing an LP or a 7-inch from your CD master does not guarantee the best results that vinyl has to offer. Often a number of decisions, and even some compromises, have to be made to get a great-sounding record.

I asked four mastering engineers who specialize in cutting vinyl—John Golden ([www.goldenmastering.com](http://www.goldenmastering.com)), George Ingram ([www.nashvillerecordproductions.com](http://www.nashvillerecordproductions.com)), Pete Lyman ([www.infrasonicsound.com](http://www.infrasonicsound.com)), and Richard Simpson ([www.richardsimpsonmastering.net](http://www.richardsimpsonmastering.net))—to weigh

in on the subject. Their insights will help you understand what to expect from your release and allow you to create masters that will translate well into the analog medium of the vinyl record.

## Groovin'

To cut a record, the engineer plays your master recording in real time—whether on analog tape, DAT, CD-R, or as digital files—through a lathe (see Fig. 1) that mechanically translates the audio information into an etched groove on a 14-inch, lacquer-coated aluminum disc using a precision cutting stylus. EQ and limiting are added as needed.

The resulting disc is known as the master lacquer, and the engineer cuts one for each side of your LP or single (see Fig. 2). The master lacquers are sent to the manufacturing plant, where they are processed to create the metal stampers used in mass-producing records. (To watch a video of this process from start to finish, see Web Clips 1 and 2.)

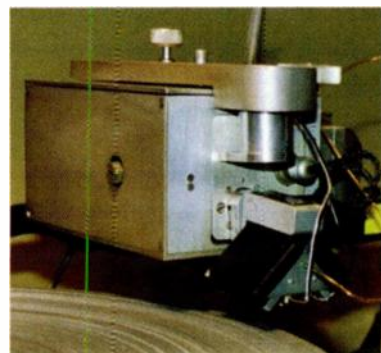
Although the master disc's diameter is 14 inches, the engineer starts cutting where a 12-inch disc would begin. The extra surface area allows for ease of handling and ensures that the critical area for cutting is free from flaws that are typically at the edges of a disc.

During the mastering session, the engineer determines how loud the resulting play-

back levels can be, based on program length and overall volume; how much, if any, EQ or limiting is required; and how the grooves are laid out across the disc, among other things. It's a good idea to find an engineer who has cut records in your musical genre, because he or she will know from experience what kinds of demands it makes of vinyl.

## Short but Sweet

With iPods that can hold a month's worth of nonstop music and CDs that offer 80 minutes, it comes as a surprise to some that LPs typically have less than 45 minutes of music on them. Whether or not you think the amount of storage space on a record is a



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**FIG. 2:** A close-up of the Neumann AM-32 recording assembly that houses the cutterhead (lower right): the internal drive coil can reach temperatures of 392 degrees Fahrenheit, so the system is helium-cooled.



LUCAS PHELAN

**FIG. 2:** The master lacquer is a 14-inch aluminum disc evenly coated with a nail-polish-like substance. The mastering engineer etches a single, long groove into the disc.

limitation, the amount of good-sounding space on the disc is important to consider. The rule of thumb is that the greater the circular distance over which the music is cut into the record, the better the reproduced sound quality will be.

"Most people don't realize that the distance around the inside of a 12-inch record is about half the distance than around the outside," Golden explains. "As the distance around each revolution decreases, the high frequencies become harder for a playback stylus to read."

As a result, the inner tracks will sound duller than the outer tracks. The high frequencies "simply can't be reproduced the same as if they were cut on the outside of the disc," Golden adds. "And no, it can't be fixed by adding extra high end. That would add more distortion to the inside cuts." Consequently, song sequencing for a vinyl release is very important if you want to maximize sound quality, particularly in the upper frequency spectrum.

Lyman notes that you will begin experiencing a loss of high end about halfway through an LP. "A lot of classic records were sequenced so a softer song or a ballad was on the inside, and usually the louder cuts were on the outside. I always tell clients to consider sequencing the vinyl version differently than the CD. Maybe put a softer song with less high end on the inside. You'll have a better-sounding record, especially if you keep the length of each side under 20 minutes."

Simpson notes that even if he puts only a few minutes of music on a 12-inch record, he tries to keep the grooves closer to the outside of the disc rather than spacing them out evenly

across the entire platter. "It might look like you're not getting your money's worth, because the disc doesn't look full, but it'll sound better overall."

## Length vs. Volume

In addition, there's a direct correlation between program length and loudness: the shorter a record is, the louder it can be. "There is only so much room to cut the groove," Golden explains. "The longer the time per side, the smaller the groove needs to be, and the lower the volume must be to make it fit and to prevent skipping."

"A lot of DJs don't want to deal with big volume discrepancies when they're changing records," says Lyman. "So if you're doing a club track and you want strong levels, definitely keep it under 10 minutes on a 12-inch disc at 45 rpm."

Lyman notes that records produced during the LP's heyday rarely held more than 40 minutes of music—total. "And they sounded great! Because of the CD format, albums are definitely getting longer. These days, LPs are almost always over 45 minutes, as people try to cram more and more onto records. If you have anything over 40 minutes, spread it out; make the investment and do a double-LP release."

The engineers I spoke with recommended putting no more than 16 to 18 minutes of music on a 12-inch record at 33½ rpm. "Anything over 18, and you begin to sacrifice sound quality," Lyman warns. "The longer the disc, the lower the overall volume. When you're cutting a record at a lower volume, the noise floor increases." (Disc manufacturers often post the

recommended playing times for different-sized records at various speeds on their Web sites.)

## Tame the Highs

Many of the engineers I spoke with noted that a wider frequency and dynamic range can be cut into a vinyl master than can be reproduced in playback. For example, extreme transients and high frequencies will distort because the stylus cannot properly track them in the disc's grooves.

Sibilance, the high-frequency noise burst that you get when the letters *s*, *f*, and *t* are emphasized, is a major issue that mastering engineers encounter. "Problematic sibilants typically fall in the 6 to 12 kHz range," Golden observes. "Because a CD can reproduce it without trouble, it isn't recognized as a problem area until you decide to make a vinyl record."

"I hear a lot of tracks, especially from indie musicians, that have extremely sibilant vocals," says Lyman. "It's something I'm always aware of when I'm mastering a CD, because I often cut a vinyl master of the same project. But when I get something that's already been mastered, and we're doing a straight cut from that master, I'll watch the high end. I try to cut it as flat as possible, without causing any distortion. If I have to do any high-frequency limiting, I let the artist know and see how much we can get away with on this end before we ask someone to change their mix or remaster it. Unfortunately, a lot of the rock stuff is coming through with more high end than is going to work properly on vinyl."

"In general, if you even think it sounds a little sibilant, chances are you should be

## The RIAA EQ Curve

The RIAA equalization curve, a standard adopted in the mid-'50s, allows engineers to overcome certain limitations and maximize the amount of full-frequency music they can get onto a record. The EQ curve is applied as the music is cut into the master lacquer. When a record is played back, the inverse of this EQ curve is applied by the phono preamp so that the listener hears the music as it was intended. (Try playing an LP without a phono preamp if you want to hear how drastic the curve is.)

Because low frequencies require larger grooves and more space on a disc than high frequencies, the EQ curve gradually rolls off the bass by 6 dB per octave starting at 1 kHz so that by 20 Hz, the level has been reduced 20 dB. Without the RIAA bass cut, only about 5 minutes of low-frequency information could be stored per 12-inch side.

In addition, the RIAA curve boosts the frequencies above 1 kHz to increase the signal-to-noise ratio in the high end. The maximum increase is about 20 dB around 20 kHz. "Unfortunately, all the high end we're now used to is aggravated by the RIAA curve," Lyman says. "When they came up with this system, there wasn't much going on above 8 and 10 kHz."

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# Mastering Vinyl



FIG. 3: Mastering engineers J.J. Golden (left) and John Golden with their Neumann VMS-70 cutting lathe.

de-essing the vocal,” Golden recommends. “My rule of thumb is de-ess the vocal when you record it, then de-ess it again when you mix. It works much better if a little is done at both stages rather than trying to de-ess it all at once. A good de-esser can actually make the vocal sound brighter because the only time it affects the voice is during the *s* sound.

“Some vocalists learn to underpronounce the sibilant sound—that makes all of our jobs much easier,” he adds. “But if you double a vocal that’s already sibilant, you get twice the problem. Heavy compression and limiting can also make a nonproblematic vocal very sibilant: the limiter will tend to pull up the *s* sound because most compressor/limiters don’t work at the same threshold for high frequencies as they do for mid vocal frequencies. Consequently, the limiter doesn’t see the *s* sound and opens up the level, adding even more sibilance.”

As you’d expect, the current trend of heavy-handed compression and limiting in the recording industry does not lend itself to releases destined for vinyl. It’s not uncommon for engineers to be given overcompressed masters with exaggerated highs that sound terrible on a record. Lyman recommends that artists prepare a separate master for a vinyl version of a project, one that has “a greater dynamic range and is not overlimited.”

## Center the Lows

At the other end of the spectrum, there are things to consider when working with bass and low-midrange content destined for vinyl. “Low frequencies use up the most space, especially if they’re heavy and constant,” Golden remarks. “Care must be taken to control excessive low

end. The lathe can cut it just fine, but if the volume exceeds a certain level, the record could skip when played back.”

Two things that can cause problems are bass instruments that are hard-panned, and phase issues in the low end. To compensate, the lowest frequencies going to vinyl are often moved to the center of the stereo field during the mastering stage. The engineer chooses a crossover frequency at which the centering begins based on orchestration, volume, program length, and other variables in the music. Because every project is different, there are no hard-and-fast rules, so if you are concerned about this happening to your master, consult with the engineer who will cut your lacquer (see the sidebar “The RIAA EQ Curve”).

“I always tell clients, especially dance artists, ‘Mono your bass,’” Lyman says. “Staging is a big problem for vinyl cutting. I’ve run into situations where producers try to do stereo kick drums, and they think they’re fattening them up by moving one a couple of milliseconds, which only knocks it out of phase and results in less bass. And it’s almost impossible to cut. We can do things to try to mono the low end, but usually it requires a remix.

“When something’s out of phase, it tries to pull the cutting head two different ways, and then the cut just collapses,” Lyman adds. “Phasing causes the cancellation of frequencies, and the cutting head can’t process that, so you lose your groove, which causes a skip.”

“Our Neumann cutting system has the ability to record a bass in one channel only, and when I play that disc back, the bass is still in the same channel,” notes Golden (see Fig. 3). “It is true that the more low frequency you mix on the sides, the more vertical up-and-down movement will be required of the cutter to make that sound. And with more vertical movement, the groove will use more space on the disc. Significant amounts of low end panned hard left and/or right can also cause a record to skip during playback. For the record to have fewer problems, you should try to keep most of the low end near, or in, the center of the mix, especially percussive sounds like the kick drum and bass guitar.”

Golden uses a crossover that centers frequencies of 70 Hz and below. “I use that frequency because it’s nondirectional,” he adds.

“You can’t tell where the sound is coming from when it gets down that low.”

He also points out that if the crossover frequency is too high, it can have an adverse effect on the mix. “Depending on the frequency, it can make the low end become cloudy, because the bass, bass drum, and low guitars go to the middle.” He says that you’ll hear the artifacts when you compare the vinyl pressing to the CD result of the same project.

“Before CDs became available,” Golden explains, “when a vinyl record was cut, the only source to compare it to was the master tape, in a studio that had a machine that could play it. After the CD was introduced, people started saying, ‘The vinyl record doesn’t sound like my CD.’ And to some degree, that still happens today. The fact is, it will never sound like the CD—it’s the ‘vinyl version’ of your music.”

Simpson usually uses a crossover point at 150 Hz. “But if we don’t need one, we don’t use it. It’s only needed if there are too many vertical or out-of-phase components.”

Ingram uses a variable crossover with a range from 0 to 750 Hz. “Normally I set it to 70 Hz. If I see problems with vertical modulation on the disc, I will select 150 or 250 Hz. If I have to exceed 250 Hz, I’m in dangerous territory and it’s going to affect the sound quality. At this point I conference with the clients and suggest a reference lacquer. If it’s okay, we move forward; if not, it’s remix time.”

## Check Your Reference

To get a sense of how their project will sound on vinyl, the pros get a reference disc cut before creating a master lacquer. Similar in composition to the master lacquer, the reference disc is a 12-inch, lacquer-coated aluminum record that the artist or producer can listen to at home to see whether or not they want to make any EQ or level adjustments. “The actual purity of the coating on a reference disc is not quite as high as what’s on a master disc,” Simpson says.

“We always made a reference disc first, with every record we did at RCA,” comments Simpson, who spent more than a decade at the label. “We’d write down the levels and any EQ we used. They’d go listen to it, and if they approved it, we would cut the master. Or they would come back and say they want to make minor changes. There might be two or three

reference discs before we got the final okay.”

Although it's tempting to skip this step to save money, it's better in the long run to have a reference disc made. Otherwise, the first time you'll hear how your mix translated to disc is from a test pressing, which is more expensive to produce than a reference disc because of the steps involved (cutting the master lacquer, plating, producing metal stampers, and pressing), all of which you'll pay for. And if you want to make changes at this point, you'll have to pay for the entire process again.

Lyman notes that the reference will wear out over time. “But you can get upwards of a hundred plays out of it if you're really careful.”

### Know Thy Master

Much of the vinyl mastering work is done without the artist or producer in attendance. Clients will either mail in the master or deliver files over the Internet via FTP. Though it may


seem obvious, be sure that the master sounds the way you want it to, and that the songs are in the proper order. I heard several stories of artists who hadn't auditioned their master tapes or test pressings and wound up pressing records they didn't intend to.

“We have to assume that the customer has listened to the master tape,” explains Ingram. “They like what they hear, and this is what they want their record to sound like. We'll do 2 to 3 dB of EQ in any of three frequencies. If we have to go beyond that, we talk with the customer before proceeding forward.”

In addition, the master should include printed documentation showing song titles in the proper order, with correct timings. This information, among other things, will allow the engineer to accurately gauge the distance between grooves.

If your master is on linear media, such as tape or CD, indicate where side one of your

record ends and side two begins by inserting a long area of silence. A minute or two will be sufficient, but check with your mastering engineer about the length of the gap required, as well as other technical information they may want, such as test tones on analog media, a minute or two of silence at the beginning of a DAT master before your music begins, and IDs for each track on DATs and CDs.

Although some mastering houses charge extra when clients attend a disc-cutting session, Lyman prefers to have them present in case he has any questions. “Sometimes local artists come down and watch the record being cut: it's not really something you get to see every day. I like having people in the studio. It takes longer with the client here, but it makes my job more fun. And it's well worth it for the artist to be involved.” 

Gino Robair is the editor of EM.

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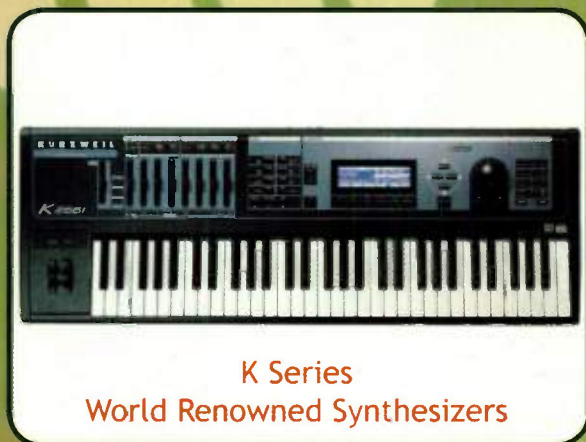
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# Intelligent Harmonization

Create scale-based backing vocals with Melodyne Plugin. | By Michael Cooper

**W**hen trying to create a parallel diatonic harmony from a main melody, simple pitch transposition almost never works. That's because the transposition of all notes by the same number of half steps will, in all but the simplest compositions, create at least some *nondiatonic notes* (notes outside the current key). For example, to create a harmony that consistently uses diatonic sixth intervals relative to the main melody, you'll need to transpose the song's melody by a major sixth on some notes and a minor sixth on others.

Intelligent pitch-shifting moves all notes by the same interval (such as a third or a sixth) but adjusts the transposition amount of individual notes by a half step where needed to keep all transposed notes

within a key signature specified by the user. One application of such processing is to create scale-based background harmonies from a lead-vocal track. In this article, I'll show you how to do that using Celemony Melodyne Plugin. To keep things simple, I'll create a single harmony part (see "Step-by-Step Instructions").

## I've Been Duped

Begin by making a duplicate of the lead-vocal track. The duplicate track will be transposed using Melodyne Plugin's pitch tools to become your background-vocal (BV) track. Preserving the original vocal track allows you to hear it and the BV track simultaneously while composing your harmony part.

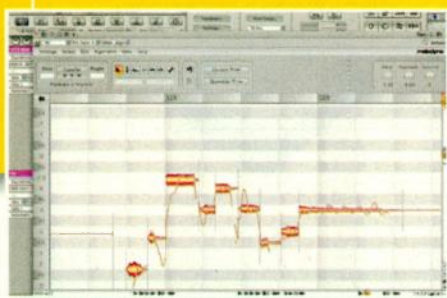
Delete any regions of unprocessed vocal

on the BV track where you are certain you will not want harmony (see Fig. 1). Deleting these areas will prevent Melodyne Plugin from voicing unprocessed audio in those sections, which would cause a doubling effect when played along with the lead-vocal track. Instantiate Melodyne Plugin on the BV track, click on the plug-in's Transfer button, and play back only those portions of the track where you want to generate harmonies. (This loads the original audio into the plug-in for analysis and subsequent processing.)

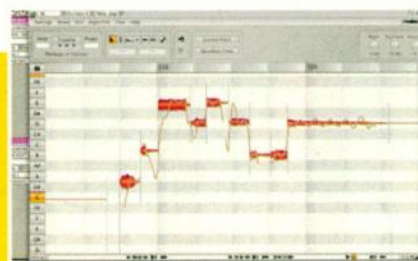
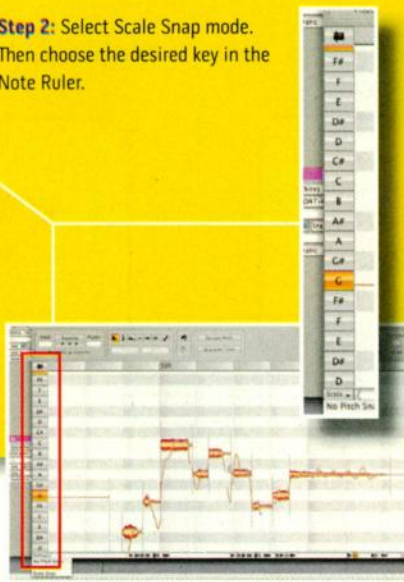
Now click-and-hold your mouse on the pop-up menu in the lower left corner of the plug-in's window and select Scale Snap. In the Note Ruler, click on the letter corresponding to the key of the song. Shift-click on the letter

## STEP-BY-STEP INSTRUCTIONS

**1** **Step 1:** Instantiate Melodyne Plugin on a duplicate of the vocal track. Then click on the Transfer button and load the track's audio into the plug-in by playing it back.



**2** **Step 2:** Select Scale Snap mode. Then choose the desired key in the Note Ruler.



**3** **Step 3:** Select the Blobs of the notes you want to transpose, then drag them up or down by the desired interval. Here, all the notes are transposed up by a third.

to toggle between major and minor keys having the same tonic note.

### What a Drag

Select the group of Blobs (graphical depictions of notes in Melodyne Plugin) that you want to transpose by a particular musical interval by Shift-clicking on each Blob in turn or dragging over the group with Melodyne Plugin's Main tool. Then click on any one of the selected Blobs with the Pitch tool and drag it up or down by the desired interval. All the other selected Blobs will be moved by the same number of half steps and then will snap to notes belonging to the scale you selected in the Note Ruler.

At this point, you have created a parallel diatonic harmony. You can change certain notes, however, to create a mix of different intervals by dragging their Blobs up or down again in the editor. Melodyne Plugin will make each Blob you move snap to the nearest note that fits your current scale. If you want to move a Blob to a nondiatonic note to create a passing tone or accommodate a temporary modulation into another key, select Note Snap from the pop-up menu in the lower left corner of the plug-in before dragging the note. Doing so will allow you to

transpose a Blob chromatically without regard to key signature.

### Fine-tuning


Once your harmony part is to your liking throughout the song, you will likely need to apply pitch correction to some Blobs to make them sound more in tune. Double-click on a Blob with the Pitch tool to move it exactly to its pitch center. In the cases when this doesn't sound good, hold down the Alt (PC) or Option (Mac) key while dragging the Blob with the Pitch tool to deactivate the snap function, and then fine-tune the amount of pitch-shift.

Drag down on a Blob with the Pitch Modulation tool to reduce (or completely eliminate) excessive vibrato. You can use the Pitch Drift tool in a similar fashion to prevent sustained notes from gradually sliding off their pitch center. Drag up or down on a Blob with the Pitch Transition tool to adjust the portamento time between two pitches, smoothing out jerky pitch transitions. All these adjustments can make a big difference in how natural your harmony track sounds.

Finally, you can use Melodyne Plugin's Formant control to gender bend the BV



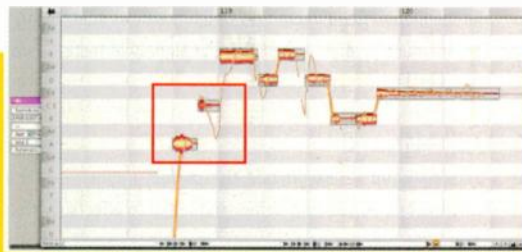
FIG. 1: In this screen shot, the bottom track is a duplicate of the top one but with sections removed where harmonization is not desired.

track. For example, increasing the formant control will create a female-sounding harmony vocal from a male vocal track. Hey, Bruiser—you go, girl! 

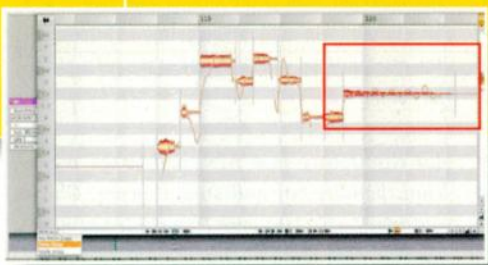
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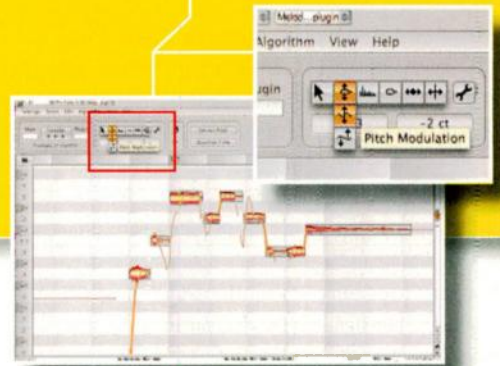
**Step 4:** Choose Note Snap mode and drag individual Blobs to nondiatonic pitches where desired. Here, the last note is dragged down a half step.

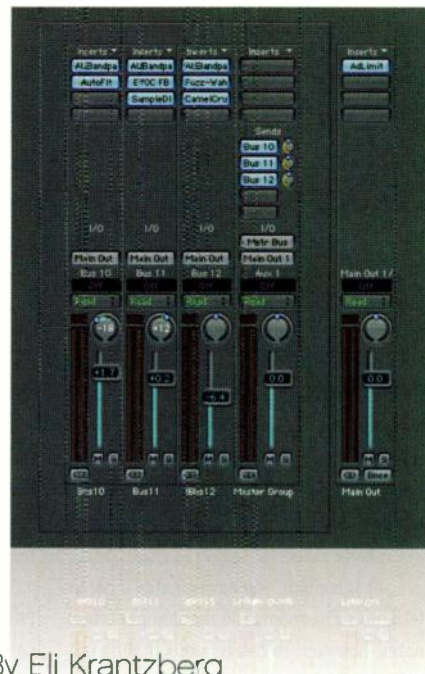


**Step 5:** Use the Pitch tool to tune notes to taste. The first two notes, which were previously flat, are moved to their pitch centers here.



**Step 6:** Use the Pitch Modulation, Pitch Drift, and Pitch Transition tools to correct other pitch problems as needed. The Pitch Modulation tool is used here to reduce the last note's excessive vibrato.





**FIG. 1:** All tracks are routed to the master group, where prefader sends route the signal to different filters and effects.

# On the Bus

Get creative with parallel and serial effects processing. | By Eli Krantzberg

**H**ere are some mix-altering sound-design techniques made possible by routing all tracks to a subgroup, which I'll call the *master group*, before they reach the main output. You do that in most modern DAW software by routing the tracks to a new bus or aux track, and then routing that track to the main output.

Common effects for which a master group is useful include parallel filtering, multiband compression, voice-over ducking, and rhythm-based gating and filtering. In all cases, the processing applies to the master group or to buses fed by it. In some cases you'll want the unprocessed master group heard in the mix, whereas in other cases you won't. For ducking and pulsating effects, you'll use a sidechain fed by the controlling track (voice, drums, or some such), and typically the sidechain signal will also be heard in the mix.

## Detour Ahead

Parallel-filtering effects split the master group into frequency bands, which are then processed separately. Start by creating several send buses on the master group. Next, route different amounts of the master group to those send buses, and insert bandpass, highpass, and lowpass filters to achieve frequency splitting. You might follow each filter with a compressor to create a poor man's version of multiband compression. If you don't want the unprocessed signal in the mix, suppress the master group from the main output either by lowering

its level and using prefader sends or by routing its output to a dead bus.

You can get more creative with additional post-filter effects. In *Web Clip 1*, I took a small mix routed to a master group and set up three prefader sends. To avoid feedback loops, I routed the output of the send buses to the main output and not back to the master group. I placed a bandpass filter on each bus, followed by different modulation effects, and I added a short delay on one bus. Finally, I mixed the four signals to taste (see *Fig. 1*).

## All Aboard

Master-group sends provide the perfect opportunity to get creative with delays and full-stop effects. Automating a send on the master group is the equivalent of automating a separate send on every track in the mix.

With different delay processing on each send bus, you can build a palette of time-based effects to fill the space during pauses in the arrangement. Here, you do want the unprocessed signal in the mix, and you can use either prefader or postfader sends. Automating the sends is one way to control the timing and amount of the signal reaching the delays; another is to automate the return levels. That's the best approach with plug-ins that respond better with their buffers filled before a full stop occurs.



In *Web Clip 2*, I set up a few sends on the master group with different delay effects. I automated the fader levels on the buses to bring in the processed signal during breaks in the music. You don't need to restrict the effects to breaks, however; you can toggle global effects in and out of the mix anytime.

## It's a Duck

To use a track as a sidechain signal for plug-ins on the master group, don't route it to the master group; instead, route it straight to the main output. That's the classic technique for ducking music tracks during voice-overs in commercials and jingles. Insert a compressor on the master group, and route the voice-over track to the compressor's sidechain input. The music will then automatically dip according to the level of the voice.

Many filter and gate plug-ins have sidechains. You can use those to make an entire mix throb to the pulse of a single rhythmic element such as the kick drum. To do that, route the kick drum track to the sidechain input of the filter or gate plug-in and also to the main output. The gating or filtering of the master group will then follow the level of the kick drum. **EM**

*Eli Krantzberg is a Montreal-based musician, bandleader, and studio owner. Check out his "Logic Tips and Tricks" blog at [www.elikrantzberg.com](http://www.elikrantzberg.com).*



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# Stereo Creativity

Mastering the art of 2-channel mixing. | By Dave Simons

One of the secrets to recording success is to avoid doing the usual thing, and rethinking your approach to stereo placement is a great place to start. Common sense (and most audio textbooks) tells us to put drums, bass, and lead vocals down the middle, and guitars and keyboards to the side. But is it really necessary to mix that way all the time? Of course not—and with a little ingenuity and a willingness to experiment, you can easily break out of the same old stereo mold.

First of all, it helps to think of your mix in visual terms. Good engineers treat the mix as though it's a painting. Not only do they instinctively know where to place each part on the stereo landscape, but they also use processing and equalization to add defini-

tion to the individual components once those are in the desired location. Creating a pan portrait that has as much distinction and coloration as some of your all-time favorite mixes should be your objective from the outset.

One thing to keep in mind before you start messing with the knobs is that you want to maintain a proper balance—that is, no matter where you decide to place the various parts, the L level should be consistent with the R level. (You'll know right away if your balance is out of whack by glancing at the master output LEDs during mixdown.)

In this column, I'll look at some of the usual suspects in a typical mix and discuss ways to arrange them across the stereo field.

## Drums

Though the digital domain has made it possible to devote an endless number of tracks to the percussion parts alone, many studio pros still believe that nothing sounds hotter than drums in mono. "Quite often, the drums don't sound as big if they're placed across the stereo field," insists veteran engineer Roy Halee, who has mixed tracks for the likes of Simon and Garfunkel and the Lovin' Spoonful. "I find that kind of arrangement very distracting, which is why I never believed in isolating every single drum or putting gates on—things like that. If anything, I've just done left center and right center. And with room sound around it, using an ambient mic. And in a lot of cases, straight mono."

"I really prefer mono drums," says Jon Brion, producer for Kanye West, Aimee Mann, and others. "For years I was the butt of many jokes—you know, 'What are you trying to do, some retro thing?' But I actually thought it sounded better. Especially when using tube mics, which can make it sound larger than life."

As an experiment the next time out, try assembling all of your drum parts in a single track, taking care to keep the kick and snare good and prominent. Don't be surprised if you find that your mono drums have considerably more punch than the stereo version. What's more, having drums in mono allows you to experiment even further by moving the track around in the stereo field, including radical placement such as hard left or hard right. This has the added benefit of making the path that much wider for the main instrumentation (see **Web Clips 1 and 2**). If you decide on doing a conventional stereo mix, try to stay faithful to the layout of the kit (snare, slightly right of center; high toms, slightly right; floor tom, left; and so on).

## Stereo Guitars

A simple recording involving acoustic guitar and voice certainly narrows the available stereo-placement



DAVE SIMONS

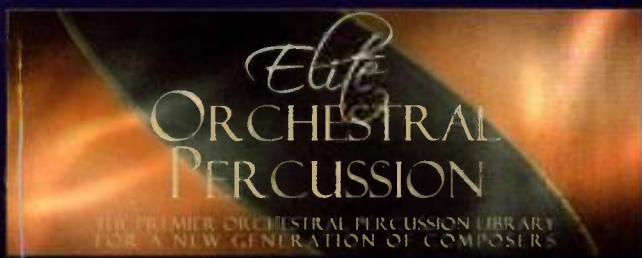
**FIG. 1:** Using a stereo-miking technique on a setup as simple as a single acoustic guitar can produce interesting results.



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options, but with a little extra effort you can create something interesting nonetheless. For instance, if the song has just one acoustic guitar, consider recording the instrument using a pair of directional mics—that is, one aimed at the top of the neck near the 12th fret and the other just below the sound hole. Then pan each signal at about 9 o'clock and 3 o'clock, respectively (see Fig. 1). You can use this same approach for miking an acoustic piano. Place the mics under the lid—anywhere from a few inches to a foot or more away from the hammers, pointed downward and slightly toward the back—then pan the two tracks evenly, and, if necessary, rebalance the levels to achieve uniform volume.

Better yet, lay down a second guitar part, because any differentiation in sound, feel, and performance will provide the best stereo contrast. One common approach involves using a capo: if your basic track has a G progression, for example, you could try a second pass in D (capo 5), E (capo 3), C (capo 7), or any other key-equivalent position that uses open-string chords. You could also try tuning the second guitar down a whole step, so that a song in the key of D is played using an E-based progression.

Acoustic guitars with an above-average bottom end (such as Martins or other large-bodied dreadnoughts) are often problematic when placed in the same position as the bass. However, you can easily alleviate such frequency clashes by hard-panning the acoustic, which will widen the path for the bass track. Dropping some of the low end will add definition, too.

The 2-mic method works nicely for stereo-mixing a mono electric guitar as well. When recording, place one mic (such as a Shure SM57) a few inches from the amp's grille cloth, then suspend a second mic (ideally a condenser, but anything will do) on a boom stand at least 6 feet back from the amp (see Fig. 2). When mixing, pan each track to taste; the farther apart in the stereo field, the more live the sound will seem.

As an alternate approach, you could try panning an electric-guitar part to one side, and then adding a splash of stereo reverb with the return slightly



FIG. 2: If you place the mics properly, you can create an effective stereo mix of a mono electric guitar.

delayed, so the wet signal “jumps” to the opposite channel. This also works great on electric keyboard (see Web Clips 3 and 4).

### Vocals

Rather than putting both lead- and background-vocal parts right down the middle, pan the backgrounds just slightly left of center (around the 11 o'clock position), then set the lead-vocal track to the opposing position. Having just that much space between the parts will allow the vocals to breathe and add definition as well. If you have layered the background vocals, consider spreading the separate tracks across the stereo field. Start hard left and hard right, then gradually move each part toward the center until you achieve the right balance (of course, there is nothing wrong with stacked backgrounds in mono, either).

Double-tracking the lead vocal is a time-honored technique, but for something a little different, take your first vocal and pan it completely to one side. Then, using your track-copy tool, make a duplicate on a separate track that's panned to the opposite side, setting the copied part a few milliseconds apart from the first. The result will give the impression of two slightly different vocals coming out of each speaker.

### I Wanna Be Separated

Though the masters of audio regularly tell us to keep the bass centered and avoid putting vocals on the edge, some of the best-sounding records have ignored conventional wisdom, and so can you. Take

the Ramones' self-titled debut album, for instance, in which everything save the drums is panned one way or the other. Dee Dee Ramone's bass is panned hard left (!), Johnny's guitar hard right, and Joey's double-tracked vocals are evenly split—one per channel.

When tracking, try not to clutter. Instead, focus on the main ingredients (rhythm guitar, bass, and percussion), adding more instrumentation only as needed. It'll make the job of arranging the parts across the stereo field that much easier.

Though your mix might sound great when you're sitting in the sweet spot between a nice set of monitors, be sure to preview it through several different sources. For example, listen through a conventional stereo system and a boombox and in the car.

Use your effects-send controls to add different levels and types of effects to the individual passages—a short delay on the lead vocal, some thick echo on the backing vocals, a delayed stereo reverb on the panned mono drum track. The same goes for EQ—carefully adjust the tone controls for each track to ensure that your parts are well defined and don't sonically clash with one another in the final mix. Finally, always mix at a nominal volume level to make sure that you hear the parts clearly and get the right perspective for stereo placement.

Of course, some of your experiments in stereo will turn out better than others. Still, I don't know how many times I've gone back and reworked what was initially a useless piece of recorded garbage and wound up with a halfway-decent new master. The point is that you should never be afraid to revisit your old mixes with a new attitude. Doing so can work wonders.

*Dave Simons is a faculty adviser with BMI's online resource center Songwriter101.com. He is the author of Studio Stories: How the Great New York Records Were Made (Backbeat Books, 2004) and Analog Recording: Using Analog Gear in Today's Home Studio (Backbeat Books, 2006).*



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## Q&A: Amanda Cagan

Talking shop with a music publicist.

**T**he Internet has empowered today's musician like never before. Career advancement is no longer exclusively predicated on having a record deal. If you work hard at it, you can now market yourself and sell your music directly to the public. But the flip side to that is there are many more artists recording and selling CDs, competing with you for media attention. The proverbial haystack has gotten bigger, and one way for serious, career-minded artists to gain more visibility is to hire a publicist.

By Mike Levine



**FIG. 1:** To raise awareness for a client, publicist Amanda Cagan typically sends out 400 to 600 publicity packages (which include CDs, publicity materials, and sometimes DVDs) to a range of media outlets.

To find out more about what publicists do and how they can help an artist's career, I turned to Amanda Cagan (see Fig. 1), who for the past 17 years has handled publicity campaigns for acts such as the Black Crowes, Green Day, Korn, Alanis Morissette, and many others. Cagan is now the proprietor of the independent publicity firm ABC Public Relations ([www.abc-pr.com](http://www.abc-pr.com)), and her current client roster includes Circus, Diablo, Journey, Night Ranger, Scum of the Earth, Shaw/Blades, Silverchair, and Tesla.

**Is a publicist's main role to get press for a band or artist?**

It is. It's to create awareness. For me, with my clients, it's about getting exposure in as many outlets as possible—especially for a brand-new band. If a band is

**It's about getting exposure in as many outlets as possible.**

willing to work, then I want to put them to work, and I want them to do as many interviews as possible. And I want them to be in every Web 'zine that I deal with and in as many magazines that are on the newsstand that have music coverage.

**What's the typical process you go through to get exposure for an act?**

To get things started I always do a press release, to let people know that the album is coming out and that I'm working that particular act. And then it's a matter

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of getting the music out. I usually send out packages to about 400 to 600 people, and that includes newspapers, TV bookers, weekly publications, monthly publications, and online outlets. Once the packages go out, it's a matter of contacting those people, getting them to listen to the album, [explaining] to them what the story is, [getting] them interested and motivated in listening to the album, and doing a story with the band—out of the box.

**How does a band know whether a prospective publicist is qualified and whether they can trust that person with their reputation and their money?**

Well, that's very important. A lot of it's the vibe you get from someone. You should have a phone call with this person, or maybe you can get a vibe from an email conversation or instant-message conversation. It's about the knowledge in the genre of music that the band is playing. Obviously if someone is more geared in the punk rock world, then you may not want to hire them if your music is death metal. You have to just look for someone who is knowledgeable of the particular genre you play. You want to see how long they've been in the business and see what kind of contacts they have.

**How expensive is it to hire a publicist?**

It could be anywhere between \$1,000 and upwards of \$4,000 or \$5,000 per month. Some publicists might even charge more, depending on the artist. Of course, the bigger names might draw the bigger paycheck, because there's more work involved and there's a higher level of people that you work with. And it's just for the expertise and knowledge of how to deal with an artist like that. It all depends on the situation. But if you have a baby band that's just getting their feet wet and they only have \$500 a month to spend, there are publicists who will take that on.

**How do you know if your publicist is doing a good job?**

It's all about communication. If you're a new band, once you get music out, you're not going to hear from me every single day with some news to report. It might take a couple of weeks, or it might take a month or two months to get an editor to listen to a record. And then they'll finally get back to me, and I can tell the client, "Okay, this magazine got back to me and they're going to do an album review." That happens a lot, especially with new bands. And I copy my clients on all the clips that run, whether they're negative reviews, positive reviews, or feature stories. So they see that I'm doing the work that way, because they're always seeing clips from me as they appear. They're seeing the work when I

An editor is probably going to listen to less than half of each song.

send through interview options for them, whether they're phone interviews or in-person interviews. So I'm in constant contact with all my clients.

**Many of the musicians reading this won't be in a position to hire a publicist, but many will have CDs that they're trying to publicize. Can you advise what the best way is for artists who do their own publicity to get attention?**

First and foremost, you want to send out a CD. Even though the Internet is so important and everyone is on email these days, I find that it's more difficult if you email a link to listen to an album online. It's been very touch and go with me. Some editors were fine with it, and some editors were not happy with that situation—and I had to ultimately send them a CD anyway.

**At what point should you follow up?**

Maybe you give it a couple of weeks and you don't start bombarding people with pitches right away. You have to give editors time to receive the album and to listen to it. And then maybe just drop them an email. Say, "I just wanted to be sure you got my album." Give them a couple of sentences about the band—particularly if you have a good story. Tell them what the story is, link to your MySpace page or official Web site, and then just give it some time for the editor to respond. If you don't hear back, maybe give it another couple of weeks and then check in again. If you don't get another response, then you just have to assume that he or she is not interested.

**You find that email is a better way to go than trying to call on the phone?**

Yes. These days, even though editors get so much email, I just find that there are a lot of editors out there that prefer email over phone calls.

**From my standpoint as an editor, I find that if someone is making a real effort—like sending a personal**

**email, not just sending a press release and a CD—then I often feel more inclined to listen to music that's been submitted.**

Exactly. The thing is to be cool about it. You don't want to overstate your case; you don't want to be too aggressive. That way, if you just check in with an email to say, "Hey, wanted to make sure you got it. Here's a little about me. You can also check out stuff on my MySpace page," then yeah. These days, there are plenty of editors that give bands like that the chance; you just have to give them the time to let it all soak in. And you might not hear anything right away—it might take a while.


**And that first cut on your CD better be darn good.**

Exactly. Because an editor is probably going to listen to less than half of each song on a CD. He or she probably won't have the time to listen to an hour's worth of your music.

**Do you have any other tips?**

If a band has video footage, that's always helpful—whether it's posted on [their] MySpace page, or whether the band wants to spend the money to make up a few DVDs to be included in the packages. I know for me, especially with new artists, it's great to have video footage, because it's all about the visual.

**Are you talking about a live-performance video or an actual music video?**

It could be a combination of both. It could be behind-the-scenes stuff of the band in rehearsal, recording the album, something that shows their personality. And if there were footage of them performing live, that would be great. But again, you should keep it to about 5 minutes. You shouldn't send them like a half-an-hour video, because people aren't going to watch it. 

*Mike Levine is EM's executive editor and the producer of the twice-monthly Podcast "EM Cast" ([www.emusician.com/podcasts](http://www.emusician.com/podcasts)).*

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of getting the music out. I usually send out packages to about 400 to 600 people, and that includes newspapers, TV bookers, weekly publications, monthly publications, and online outlets. Once the packages go out, it's a matter of contacting those people, getting them to listen to the album, [explaining] to them what the story is, [getting] them interested and motivated in listening to the album, and doing a story with the band—out of the box.

**How does a band know whether a prospective publicist is qualified and whether they can trust that person with their reputation and their money?**

Well, that's very important. A lot of it's the vibe you get from someone. You should have a phone call with this person, or maybe you can get a vibe from an email conversation or instant-message conversation. It's about the knowledge in the genre of music that the band is playing. Obviously if someone is more geared in the punk rock world, then you may not want to hire them if your music is death metal. You have to just look for someone who is knowledgeable of the particular genre you play. You want to see how long they've been in the business and see what kind of contacts they have.

**How expensive is it to hire a publicist?**

It could be anywhere between \$1,000 and upwards of \$4,000 or \$5,000 per month. Some publicists might even charge more, depending on the artist. Of course, the bigger names might draw the bigger paycheck, because there's more work involved and there's a higher level of people that you work with. And it's just for the expertise and knowledge of how to deal with an artist like that. It all depends on the situation. But if you have a baby band that's just getting their feet wet and they only have \$500 a month to spend, there are publicists who will take that on.

**How do you know if your publicist is doing a good job?**

It's all about communication. If you're a new band, once you get music out, you're not going to hear from me every single day with some news to report. It might take a couple of weeks, or it might take a month or two months to get an editor to listen to a record. And then they'll finally get back to me, and I can tell the client, "Okay, this magazine got back to me and they're going to do an album review." That happens a lot, especially with new bands. And I copy my clients on all the clips that run, whether they're negative reviews, positive reviews, or feature stories. So they see that I'm doing the work that way, because they're always seeing clips from me as they appear. They're seeing the work when I

An editor is probably going to listen to less than half of each song.

send through interview options for them, whether they're phone interviews or in-person interviews. So I'm in constant contact with all my clients.

**Many of the musicians reading this won't be in a position to hire a publicist, but many will have CDs that they're trying to publicize. Can you advise what the best way is for artists who do their own publicity to get attention?**

First and foremost, you want to send out a CD. Even though the Internet is so important and everyone is on email these days, I find that it's more difficult if you email a link to listen to an album online. It's been very touch and go with me. Some editors were fine with it, and some editors were not happy with that situation—and I had to ultimately send them a CD anyway.

**At what point should you follow up?**

Maybe you give it a couple of weeks and you don't start bombarding people with pitches right away. You have to give editors time to receive the album and to listen to it. And then maybe just drop them an email. Say, "I just wanted to be sure you got my album." Give them a couple of sentences about the band—particularly if you have a good story. Tell them what the story is, link to your MySpace page or official Web site, and then just give it some time for the editor to respond. If you don't hear back, maybe give it another couple of weeks and then check in again. If you don't get another response, then you just have to assume that he or she is not interested.

**You find that email is a better way to go than trying to call on the phone?**

Yes. These days, even though editors get so much email, I just find that there are a lot of editors out there that prefer email over phone calls.

**From my standpoint as an editor, I find that if someone is making a real effort—like sending a personal**

**email, not just sending a press release and a CD—then I often feel more inclined to listen to music that's been submitted.**

Exactly. The thing is to be cool about it. You don't want to overstate your case; you don't want to be too aggressive. That way, if you just check in with an email to say, "Hey, wanted to make sure you got it. Here's a little about me. You can also check out stuff on my MySpace page," then yeah. These days, there are plenty of editors that give bands like that the chance; you just have to give them the time to let it all soak in. And you might not hear anything right away—it might take a while.


**And that first cut on your CD better be darn good.**

Exactly. Because an editor is probably going to listen to less than half of each song on a CD. He or she probably won't have the time to listen to an hour's worth of your music.

**Do you have any other tips?**

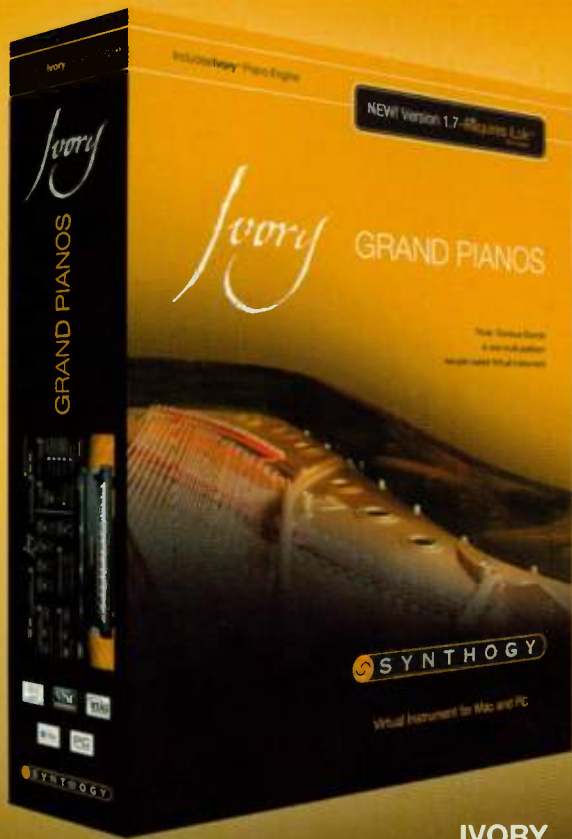
If a band has video footage, that's always helpful—whether it's posted on [their] MySpace page, or whether the band wants to spend the money to make up a few DVDs to be included in the packages. I know for me, especially with new artists, it's great to have video footage, because it's all about the visual.

**Are you talking about a live-performance video or an actual music video?**

It could be a combination of both. It could be behind-the-scenes stuff of the band in rehearsal, recording the album, something that shows their personality. And if there were footage of them performing live, that would be great. But again, you should keep it to about 5 minutes. You shouldn't send them like a half-an-hour video, because people aren't going to watch it. 

*Mike Levine is EM's executive editor and the producer of the twice-monthly Podcast "EM Cast" ([www.emusician.com/podcasts](http://www.emusician.com/podcasts)).*

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# Ableton

## Live 7 (Mac/Win)

Live gets a major feature and content upgrade.

By Len Sasso

**>> PRODUCT SUMMARY**

**digital audio sequencer** **\$499**  
**upgrade** **\$159**

**PROS:** Drum Racks (yes!). Content available to suit any taste. Many user requests implemented. Direct REX file support with automatic slicing.

**CONS:** Purchase alternatives are a little perplexing. Access to multiple libraries could be smoother.

FEATURES	1	2	3	4	5
EASE OF USE	1	2	3	4	5
QUALITY OF SOUNDS	1	2	3	4	5
VALUE	1	2	3	4	5

Ableton  
[www.ableton.com](http://www.ableton.com)

**W**ith the release of Live 7, Ableton implements numerous user requests, improves audio and MIDI performance, and introduces a powerful new rack variation called Drum Racks. Three instruments—Analog, Electric, and Tension—join Operator and Sampler as premium additions to Live. The boxed version (as opposed to the download) comes with an improved Essential Instrument Collection (EIC 2) as well as the Unnatural Selection package of loops and construction kits from Puremagnetik. New premium percussion packs Session Drums and Drum Machines round out the content. You can get all the premium instruments as well as EIC 2 and Unnatural Selection in the Ableton Suite boxed bundle (\$799).

For this review, I installed Live 7 on my dual 2 GHz Power Mac G5 under Mac OS X 10.4.11 and my 3.2 GHz Pentium 4 notebook PC under Windows XP. Performance on both machines was excellent. You'll need to budget roughly 50 GB of hard-drive space to install all the content including the premium packages, but Live now lets you maintain alternate librar-

ies on different hard drives. You have browser access to only one library at a time, but Live songs can use data from multiple libraries as long as the hard drives containing them are mounted.

### Drumroll, Please

Drum Racks combine the features of an Instrument Rack with a drum-machine-style trigger-pad front end (see Fig. 1). You drag audio clips or virtual instruments to Drum Rack pads to add chains to the rack. If you drag a clip, a Simplifier is inserted in the chain with the clip as its source. You can extend chains by inserting MIDI effects before and audio effects after the virtual instrument.

By default, a chain receives only the note corresponding to its pad, and the chain responds by sending note C3 to the devices in the chain. But you can set any chain to send a different note or to receive and send all notes. For example, you could drag a virtual instrument with a tuned-percussion preset to a pad, set the resulting chain to receive all notes, and then use a Pitch plug-in to restrict the note range within the chain. You





➤ The Drum Rack's submixer has a channel for each rack chain duplicating the chain's mixing controls.



➤➤ FIG. 1: Drum Racks map plug-in instruments to individual pads triggered by MIDI notes. Racks have their own send effects and submixer.

➤ Each Drum Rack pad triggers a separate chain in the rack.

➤ Chain settings include the note that triggers the chain, the note the chain sends to its instrument, and mixing controls.

could then use pads outside that range to trigger other drum sounds. You can embed Instrument Racks or Drum Racks within Drum Racks for variations on that theme.

Drum Racks accommodate as many as six send effects. Once you insert an effects plug-in in the effects section at the bottom of the rack, all chains sprout a send-amount slider. You can route the return to the rack output or to any of the send buses in the main mixer.

Both Instrument and Drum Racks have a foldout Session-view submixer with a channel for each chain in the rack. The channel strip controls mirror the controls in the rack's Chain list, but it is often more convenient to view and use them in the Session-view submixer. You can drag submixer channel strips to a new track to split off individual chains, and when you do that with a Drum Rack, the notes in any MIDI files on the main track that apply to the dragged channel will follow, creating new MIDI clips on the new channel.

Although a Drum Rack has pads for all 128 MIDI notes (C-2 to G8), only 16 are visible at a time. A convenient slider to the right of the pad display selects which pads are visible. In a nice touch, if you use a MIDI pad

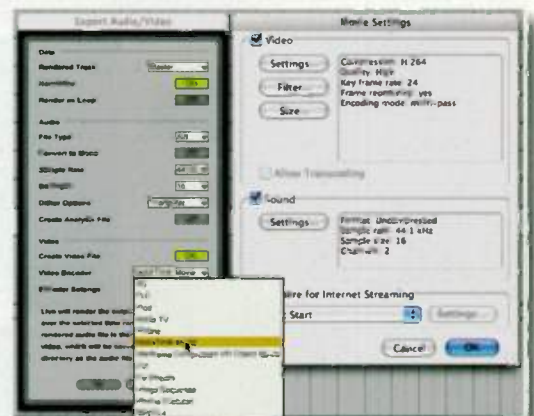
controller with native Live support, its pads will follow the slider selection.

Live now automatically slices REX files as well as files with embedded Live Warp markers. (When you drag a REX file to a clip slot or Arrangement-view track, Live uses the REX-file slices rather than its own Warp markers.) You can then select Slice To New MIDI Track from the Insert menu or the clip's context menu, and Live will create a Drum Rack with a slice on each pad and generate a MIDI clip to play the slices with the proper timing.

## Hello, Fodder

One of the best things about Drum Racks is the use Live has made of them in two of Ableton's premium content offerings. Drum Machines, by Ableton content developer Puremagnetik, is a collection of Drum Racks sampling classic drum machines from Roland, Oberheim, Sequential, and others. The racks come set up with send and insert effects, mapped Macro controls, and several MIDI clips to get you started (see [Web Clip 1](#)).

At the other end of the percussion spectrum, Session Drums is a sample collection of multiked acoustic drum kits that have been developed in collaboration with Chocolate Audio. Like Drum Machines, these are delivered in well-crafted Drum Racks. Each kit includes samples played with sticks, Hotrods, mallets, and brushes. These kits do not come with embedded MIDI files, but you can download a free collection of live-played grooves by session



➤➤ FIG. 2: You can export video along with audio and even choose format and compression settings.

drummer Shawn Pelton that utilize the kits (see Web Clip 2).

The Essential Instrument Collection 2, developed in conjunction with SoniVox and Chocolate Audio, contains one kit from each of these drum collections for you to try. Other than that, the EIC 2 content is similar to EIC 1, but presets have been optimized for sound quality and load time, and they take advantage of Live 7's new features.

### Sequencer Enhancements

Live 7 allows time-signature changes in both the Arrangement and Session views. In Arrangement view, you add time-signature markers by right-clicking in the Scrub area or by using the Insert menu. In Session view, you enter Scene time signatures as part of the Scene name just as you do with tempos. In a nice improvement, Scene names with time and tempo information can contain other text—"Intro 176 BPM 5/4," for example.

You can now export video as well as audio using the Export Audio/Video dialog box (see Fig. 2). Live lets you choose the video format as well as video and audio compression settings. All installed QuickTime codecs are supported, which typically includes QuickTime Movie (.mov), MPEG-4, iPhone, iPod, and many more. Although you can't do any true video editing, you can combine several video clips in the same rendering. The lowest video track in the Arrangement-view tracklist that contains an active clip is the one that is displayed and rendered.

Multilane automation is another welcome Arrangement-view enhancement. The top lane is primary—that's where you select an automation parameter, create lower lanes, and fold or make them visible (see Fig. 3). You can edit automation in any lane.

A common sequencer feature that I've missed in Live is the ability to store text notes. That's usually implemented as part of

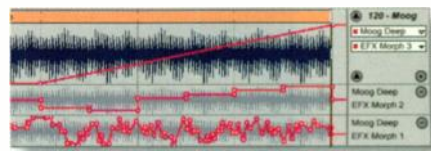


FIG. 3: Multilane automation makes entering and comparing automation curves a breeze.

the sequencer's timeline marker scheme, but Ableton has a better idea. You can tag almost any element of Live by selecting Edit Info Text from the contextual menu that appears when you right-click on the element. The text in the Info view, if any, is replaced by what you type in. That's invaluable when you want to remember what purpose a track or marker or region or plug-in is serving.

Another nice addition is intelligent soloing. If one track's signal is routed into another track and you solo either track, the other track is automatically soloed as well, so you never

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## Plugged In

Version 7 introduces a number of improvements to Live's built-in effects and virtual instruments. The new Compressor replaces the two compressors in previous versions, and it provides a graphic of the compression curve along with real-time visual feedback showing how the signal is being affected. You get soft-knee compression and three envelope-follower modes (Peak, RMS, and Opto). Three Model types (FF1, FF2, and FB) correspond to the old Compressors I and II and a new feedback-compression model. A sidechain input, complete with multi-mode EQ for processing the sidechain signal before it reaches the compressor, rounds out Compressor's bag of tricks. The Gate and Auto Filter plug-ins also have sidechain inputs.

EQ Eight has improved graphics and, along with the Operator, Dynamic Tube, and



FIG. 4: The Spectrum plug-in displays a real-time spectral analysis, which can be expanded to the full width of the Live window (top).

Saturator plug-ins, a 64-bit antialiasing Hi-Quality processing mode. You access that mode by right-clicking on the plug-in control panel.

The new Spectrum plug-in (see Fig. 4) performs real-time frequency analysis, and you can place it anywhere in the signal path. You choose the block size and refresh rate (accuracy), channel (left, right, or both), style (line or bar graph), and scale (linear, logarithmic, or semitones). For a larger display, toggle the

spectrum graphic to occupy the space below the mixer. It then resizes with Live's window.

The virtual instruments Analog, Electric, and Tension are versions of instruments by Applied Acoustics Systems (AAS) modified to fit Live's look and feel. For details, see the online bonus material at [www.emusician.com](http://www.emusician.com) and Web Clip 3.

If you're already a Live user, you will undoubtedly want this upgrade. The price is modest, you'll definitely use some of the new features, and you'll need it if you want any of the new premium content. If you haven't tried Live, you have two easy options to find out what it's all about: you can download a demo of Live 7 or buy the less expensive Live 6 LE (\$149) from the Ableton Web site. Live's unique approach to integrated live performance and sequencing has gained a lot of fans for a reason.

*Len Sasso is an associate editor of EM. For an earful, visit his Web site at [www.swiftkick.com](http://www.swiftkick.com).*

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FIG. 1: The compact SP-555 offers playable effects, a proximity-controlled synth and filter, a USB audio/MIDI interface, and nearly 13 hours of high-quality sampling.

# Roland

## SP-555

The phrase sampler meets the PC.

By David Battino

### PRODUCT SUMMARY

phrase sampler with effects \$699 (MSRP)

**PROS:** Almost 13 hours of sampling with optional 2 GB card. Unique, interactive effects and D-Beam controller. USB audio/MIDI interface and effects processor. Phantom-powered XLR mic input. Includes Sonar LE.

**CONS:** No undo on loop recorder. Time-stretched samples lock to tempo only in Pattern mode. No USB file transfer. No postrecord quantization. Low USB audio output level. Many functions require hidden key combinations.

FEATURES	1	1	1	4	1
EASE OF USE	1	1	1	4	1
AUDIO QUALITY	1	1	1	4	1
VALUE	1	1	1	4	1

Roland  
www.rolandus.com



At first glance, the Roland SP-555 looks like a wider version of the cool little SP-404 (see my review at [www.emusician.com](http://www.emusician.com)). But Roland has packed an astounding number of new features into this performance-oriented phrase sampler while somehow making it faster and easier to use.

The pads are now Velocity sensitive; a D-Beam infrared controller graces the front; there's a combo mic jack with phantom power; a footswitch-controlled loop recorder offers tempo-synced overdubbing; and the SP-555 even works as an audio/MIDI interface for your computer.

And beyond these hardware upgrades, which addressed almost all the items on my wish list for the SP-404, you'll find some clever ergonomic improvements for capturing, twisting, and performing samples and loops.

### Padding Around

About the size of a chunky laptop, the SP-555 weighs just 4 pounds but feels solid (see Fig. 1). The top is metal, the case is thick plastic, most jacks are bolted on, and the rubberized knobs

are firm and turn smoothly. Unlike the SP-404, the SP-555 doesn't run on batteries, but the supplied line-lump AC adapter is quite small.

The front panel is organized into task-specific sections. At bottom right are the sample-playback pads and bank buttons. Above them are buttons for sample editing; these work in conjunction with the three knobs in the adjacent effects section. Below that is the new Loop Capture recorder for real-time overdubbing. At top left is the new input section, and at top center you'll find the addictive D-Beam, controlling filtering, triggering, and a distinctive solo synth.

The 16 Velocity-sensitive pads make a big difference in expressivity compared with the SP-404, though they aren't as responsive as the pads on a dedicated pad controller. I got more-nuanced performances using an external MIDI keyboard. However, I never experienced false triggering, and although the pads are a bit small for 2-finger rolls, a 17th pad, called the Sub Pad, facilitates rolls by retriggering the last note played, and it's Velocity sensitive, too. You can disable Velocity sensing for more consistent triggering by pressing

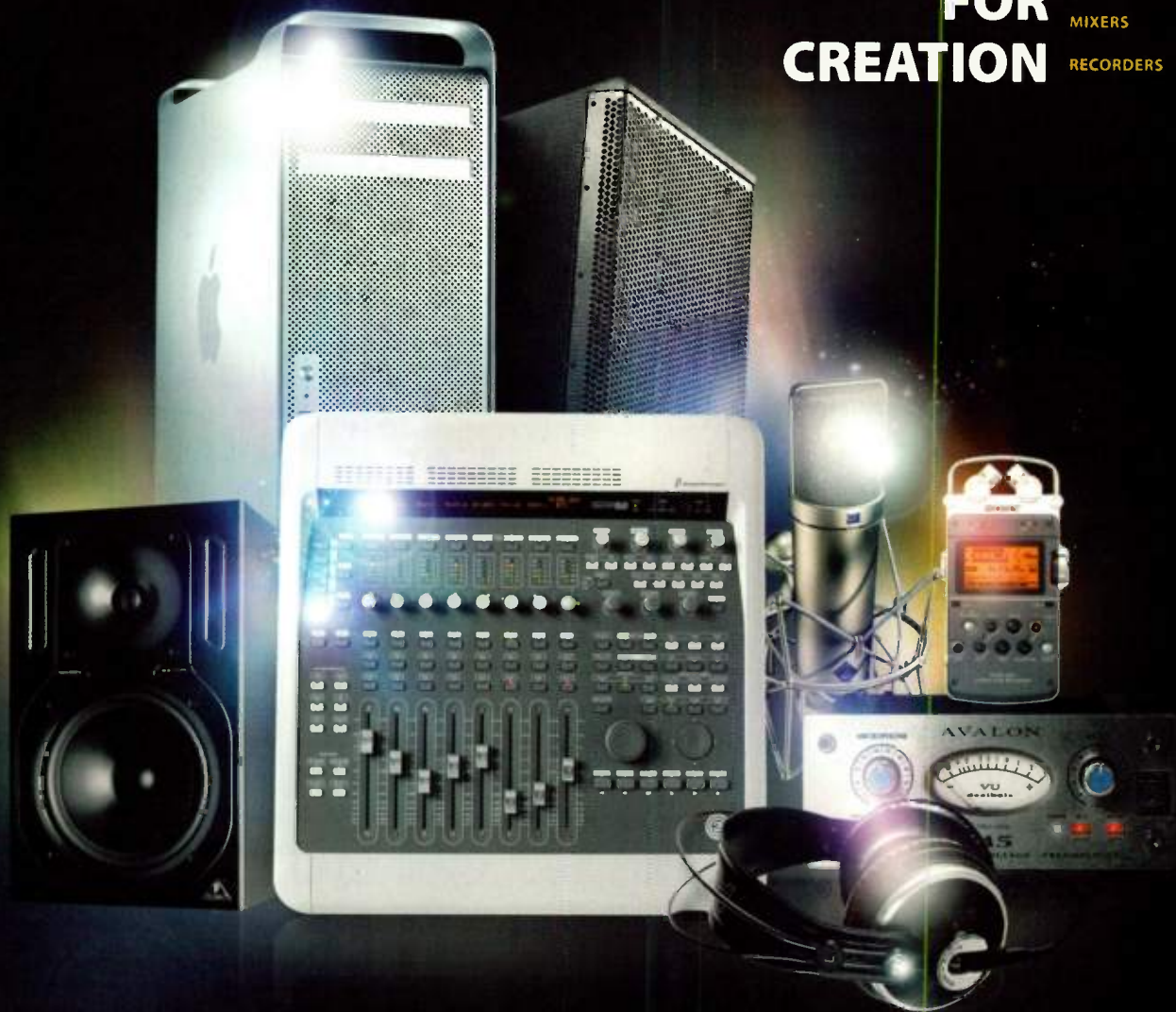
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With RCA jacks as audio I/O, the SP-555 is convenient to use.



The USB port lets you send and receive audio and MIDI from a computer simultaneously.

FIG. 2: Roland beefed up the I/O on the SP-555. There's MIDI In and Out, stereo line in and out on RCA jacks, USB for audio and MIDI, and a footpedal jack for remote control. The top panel sports a combo XLR/TRS jack for mic or guitar input. A headphone jack is on the front.

the handy Fixed Velocity button.

Roland also added a dedicated Roll button, one of my wish-list items for the SP-404. You can set the retrigger interval from quarter notes to 32nd-note triplets, but the notes all machine-gun out at the same level. It is possible to vary the level with the D-Beam controller (more on this in a moment), but I never achieved satisfying results.

There's still no hi-hat cutoff option—another of my SP-404 requests—but if you set a pad to Gate mode, it will mute as soon as you lift your finger, so it's possible to get a similar effect. The other pad playback modes—Trigger, Loop, and Reverse—are the same as on the SP-404, and the Hold button still allows you to sustain a looping pad (or several) even after switching banks. Quadruple-clicking the Cancel button stops all sounds, a shortcut I used often to tame the 10 banks of 16 pads.

I also appreciated the way almost every button lit up to guide me. Pads illuminate when they have a sample assigned and blink while the sample is playing. During multistep operations, the next button you need to hit will flash. The light behind the numeric display flashes on downbeats and increases in brightness as the input level rises, morphing from blue to red. It's an elegant touch that somewhat compensates for the confounding 3-character display

and boatload of “hold this, press that” key commands that are well documented in the manual but punishing to remember.

### In Like Mic

Roland added a bunch of I/O options to the SP-555 (see Fig. 2); the only obvious omission is S/PDIF. Given the box's DJ focus, the RCA jacks make sense, though a turntable input might have been useful. I would have preferred a dedicated headphone volume control, however.

The combo XLR/TRS mic/guitar input is

### An Effect Storm

Oddball effects are a trademark of the SP series, and the SP-555 has 37 of them, including new ones such as Super Filter, Voice Transformer, Amp Simulator, Bit Crash, Step Filter, Step Ring Mod, and Reverse. By this point, the labels identifying the effects are getting really tiny, but Roland provides 1-button access to 6 of them, as well as a new Effect Memory feature that lets you store up to 16 presets (including knob positions) for instant recall from the pads.

The SP-555 delivers a unique combination of sound, storage, and groove.

a great addition; I plugged in an sE USB2200A condenser mic using the mic's analog output. Although I had to crank the preamp to get solid levels, there was almost no hiss. I found lots of uses for the internal mic, too (see Web Clip 1). You can apply effects to both the mic and the line inputs individually. The inputs have dedicated mute buttons and level knobs as well.

Despite the spin that they're “Fantom quality,” many effects sound coarse to me, but that's part of the personality of the Roland SP-555. Resample your loops through a few passes of different effects, and you'll get some truly wild sounds. The manual explains quite a few ways you can apply and alter effects on the fly.





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## Sampling and Sequencing

The basics of sampling, resampling, editing, and sequencing on the SP-555 are the same as on the SP-404, so I'll refer you to that review for details. The newer groove box does offer some big improvements, though. You can now sample the patterns you record in the sequencer, drum hits played over MIDI, and USB audio from your computer. In fact, I was able to rip DVD soundtracks and Windows Media Audio files from my Vista laptop. In one particularly twisted session, I triggered sounds on a software synth from the SP-555's pads, processed the computer's output through the SP-555's effects, and played loops from the SP-555 itself into the Loop Capture section, all with no glitches (see Web Clip 2).

The big news in the sequencer section is swing quantization, but it's implemented in a frustrating way: you can specify the swing amount only before recording, so there's no way to try out different feels without erasing what you've just recorded.

Further, the sequencer remains the only way to tempo-lock loops. Even if you set two loops to track the master tempo, it's not sample-accurate sync. Hold them down and they soon drift apart. Only by constantly retriggering them from the sequencer can you get them to stay together (see Web Clip 3).

## Wave Your Hands

The SP-555 may offer the most portable way yet to get Roland's D-Beam controller. There are three modes: synth, filter, and trigger. With the synth, you can choose among eight sounds. The proximity of your hand to the sensor controls pitch, as on a theremin. But you can restrict the notes to one of 21 preset scales, so you can flail away passionately and still sound musical (see Web Clips 4 through 6). For me, it was like the ear-opening experience of playing the Korg KP3 KaossPad synth, but with more drama and flexibility. I found I could keep one thumb on the CTRL 3 knob to control volume as well.

In filter mode, you can choose among lowpass, highpass, bandpass, and notch shapes with three degrees of resonance. Again, waving your hand is a wonderfully dramatic way to shape the sound of a phrase.

Trigger mode simply fires the selected pad's sample when your hand gets close

enough, though pressing the Roll button lets you control the volume of a roll. I've gotten better results doing that with Aftertouch and track pads; I think the range of motion required here is too great. To make the D-Beam transmit MIDI Control Change messages, press the V-Link button.

## Loop Recorder

The Loop Capture section is a great idea: you're making loops, so why not complement the pattern sequencer with a tape-style looper? To get started, you set a duration of 1, 2, or 4 bars or "free," which runs up to 15 seconds. Then you hit the Rec button and start recording into the external inputs or playing the pads. Each time the recording loops around, you can add new overdubs, changing the effects as you go. When you like what you hear, you press the Save To Pad button.

## Loop Capture for the Clumsy

You can quickly build up amazing layered grooves with the SP-555's Loop Capture (LC) section, but you can just as easily kill the joy if you play a clam, because there's no way to undo the previous overdub. Pressing the Rec button will turn off overdubbing and give you time to practice your next part, but it's safer to save recordings-in-progress to pads. If you subsequently make a mistake or want to try a new direction, you can simply copy the pad's contents back into the LC memory and resume overdubbing.

To do that, erase the current loop by holding Effect Assign and pressing Rec. Set the LC duration to the length of your loop in bars, and then press Auto Start and Rec to put the LC into audio-trigger mode. Hit the pad you want to transfer, and the LC will resample it. Web Clip 12 illustrates this technique, combining multiple loop variations into an evolving song.

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Unfortunately, the flow ends there, because the SP-555 stops and then resamples the Loop Capture memory into the selected pad in real time. You're going to want to save to pad fairly often, too, because there's no undo function on the loop recorder (see the sidebar "Loop Capture for the Clumsy"). It would have been so much cooler if you could simply offload works in progress without stopping playback. For that matter, it's frustrating that a machine with hours of sampling time limits you to 15-second loops.

Nonetheless, Loop Capture breaks the SP-555 out of the phrase sampler box and into a more expressive recording tool. In addition, it offers dedicated buttons for settings such as level-activated recording and tempo sampling. The SP-404 needed hidden key sequences for that.

### Computer Talk

Install the driver and plug the SP-555 into your computer via USB, and your music-production options expand even more. You can use the SP-555's pads and CTRL knobs to control MIDI software, drive the SP-555 itself via MIDI, and stream audio in and out all at once. Windows users also get Cakewalk Sonar LE, a capable DAW. I tested the interface on both Mac and PC. On each, the audio output level from the SP-555 was very low—about 14 percent of maximum.

A bigger puzzle was the bundled SP-555 Wave Converter utility (see Fig. 3). Instead of

enabling the direct USB transfer of samples, Roland makes you turn off the SP-555, pop out the CompactFlash card, plug it into a card reader, fire up Wave Converter, and then transfer samples one by one with a Browse dialog box. You can't drag-and-drop groups of files onto the window and have them populate empty slots, which makes importing drum kits a hassle.

Granted, piping WAV files across a USB 1.0 interface would be tedious as well, especially if you're using the SP-555's massive capacity to store entire songs. But I would have liked having that option, or at least a more polished card-transfer utility. That said, Wave Converter is certainly faster than the SP-404, which had to convert and load directly from the card. (Both models use near-lossless data compression to increase the recording time.)

### Wishes Granted

Product Manager Vince LaDuca says Roland's goal with the SP-555 was to expand on the SP-404's design with better effects, more sampling time, Velocity-sensitive pads, and computer interfacing capabilities for the PC DJ, while keeping it fun and easy. In that, the company has absolutely succeeded. It was exciting to see almost all of my SP-404 wishes granted in the SP-555, along with trickle-down features from Roland's pricier groove boxes. In particular, the "fun and easy" part is facilitated by the colorful *Quick Start* guide; clear, indexed manual; interactive lights; and irresistible D-Beam, which adds a lyrical component to the choppy world of groove boxes (see Web Clips 7 through 12).

The new effects are tasty, and the Loop Capture section goes a long way toward increasing flow, although it's compromised by its 15-second memory limit, lack of undo, and show-stopping save-to-pad routine. That hiccup is surprising in an instrument that offers almost 13 hours of sample playback with no load time.

Although there are more flexible drum machines and samplers on the market, the SP-555 delivers a unique combination of sound, storage, and groove.



»» FIG. 3: The rudimentary Wave Converter lets you transfer samples between the SP-555 and a Mac or PC. You need a CompactFlash reader to use it, though.

David Battino ([www.batmosphere.com](http://www.batmosphere.com)) is the coauthor of *The Art of Digital Music* (Backbeat Books, 2004) and audio editor of the O'Reilly Digital Media site (<http://digitalmedia.oreilly.com>).

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FIG. 1: The everything-in-one-window interface in Kontakt includes a browser/database pane (left), which can be hidden when not needed, and a rack of Instruments (right).



# Native Instruments Kontakt 3.01 (Mac/Win)

A sampler with massive power.

By Jim Aikin

## PRODUCT SUMMARY

software sampler \$449

**PROS:** Beat slicing with MIDI clip export to host. Huge sound library. Integrated browser and database. Multisegment envelopes for all zone parameters.

**CONS:** Learning curve can be daunting because user interface is packed with features. Library presets are a mixed bag.

FEATURES	1	1	1	1	1	5
EASE OF USE	1	1	1	1	1	3
QUALITY OF SOUNDS	1	1	1	1	1	4
VALUE	1	1	1	1	1	4

Native Instruments  
www.native-instruments.com

Software samplers are a vital component in today's studio environment. Whether you're laying down a piano track, composing a film soundtrack, editing a drum loop, or exploring the outer limits of sound design, sample-playback technology will give you the tools to do the job.

Because they're used in such varied ways, professional-quality samplers tend to be complex devices. Case in point: the massive feature set in Native Instruments Kontakt 3. This instrument is packed with options and has a user interface to match (see Fig. 1). Clicking on a button often opens up a whole new panel studded with more buttons, sliders, knobs, graphic displays, or other widgets. Half a dozen video tutorials are included in the installation, but viewing these, while helpful, is only the beginning. Plan on reading the manual.

If you stick with it, you'll be rewarded with mastery of an amazingly capable musical instrument. Time-stretching, streaming of long samples from disk, multisegment envelopes, a basic drum machine, a built-in sample editor, and a good palette of effects

are just the start of the story. Power users can use a scripting language, which has its own manual, to customize Kontakt's response to MIDI performance data (see Fig. 2 and last month's "Square One" for more on scripting). Pop musicians may be more interested in the beat-slicing tools. I don't have room in this review to discuss all of Kontakt's features, so I'll zoom in on beat slicing and the new Zone Envelopes, both of which are quite cool. You can find a review of Kontakt 2 in the November 2005 issue of EM, available online at [www.emusician.com](http://www.emusician.com).

### First Kontakt


Because Kontakt's 33 GB sound library ships on six DVDs, installation on my elderly but still capable 3 GHz Pentium 4 PC took a couple of hours. After a quick trip to the Native Instruments Service Center to authorize the software, I started loading presets and checking them out. The library is in six volumes: Band (that is, pop group, not marching band), Orchestral, Synth, Urban Beats, Vintage, and World.

For details on what is in the sound



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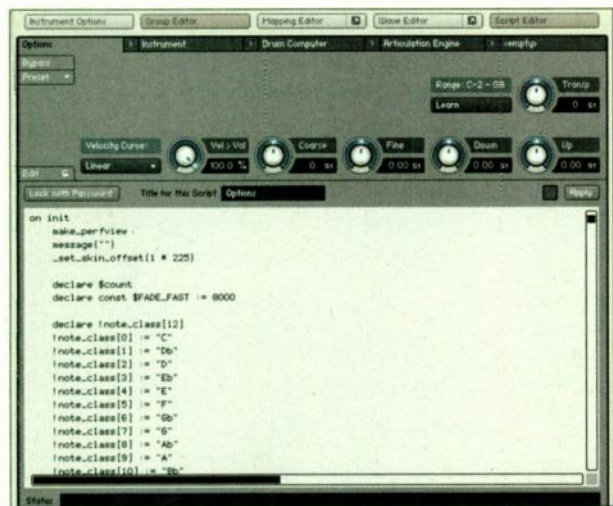


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library, see the online bonus material at [www.emusician.com](http://www.emusician.com). You can also watch the video *The Kontakt 3 Library* at Native Instruments' Web site. The quick summary: it's a mixed bag, with



**FIG. 2:** No need to open a text editor—Kontakt lets you write code for its scripting interface directly in its own window. The knobs, Learn button, and Velocity Curve drop-down menu in the upper part of the panel have been defined in this script.

lots of great sounds and a few that are flawed.

Kontakt runs standalone or as a VST, AU, DXi, and RTAS plug-in. The plug-in comes in versions with 2, 8, or 16 outputs to the host. The standalone version can use up to 32 outputs on your audio hardware.

The main Kontakt window presents two panes. On the left is a file browser/database display, which also hosts some other functions, such as drag-and-drop envelopes and LFOs. On the right is a larger area where a rack of Instruments can be loaded. Unlike the rack in Propellerhead Reason, this one can't be flipped around backward: all connections are handled from the front. As with Reason, however, the rack has a fixed width, and you can open individual modules vertically to display deeper editing options. The window can't be resized vertically, but it has three possible size settings, the largest of which fills the screen on my 1,280 x 1,024 monitor.

### Nuts and Bolts

Like most samplers, Kontakt has a hierarchical structure. At the top level is a Multi,

which can contain up to 64 Instruments. Each Instrument can have its own MIDI receive channel, or you can layer them. An optional container called an Instrument Bank can hold up to 128 Instruments, and you can switch between these using MIDI Program Change commands. In other words, only one Instrument within the Instrument Bank can be active at any given time.

An Instrument contains one or more Zones. Each Zone has a single sample and the voicing data (envelopes, filter settings, and so on) with which to play it. The keyboard and Velocity assignments of Zones can be edited graphically, and crossfades are available from an Edit menu. Zones can be packed into intermediate-level containers called Groups, which makes editing easier. For instance, if you're creating a drum kit Instrument, you could put all the hand percussion in a single Group and then raise or lower the volumes of all the hand percussion Zones with a single knob.

A Multi has its own Mixer panel, which can route Instruments to different outputs. This panel is quite rudimentary: its channels have no mute or solo buttons and no pan pots. The main output channels have no sends to the aux channels—in effect, the aux channels are just extra output channels called by a different name.

Kontakt can load files in a number of non-native formats, including many varieties of Akai (from the S1000 forward), E-mu EIV and Emax II, Kurzweil K2500 and K2600, Tascam Giga, MOTU Mach 5, Reason NN-XT, HALion, REX and REX2, SoundFont

2, LM-4, SampleCell, and some older Roland and Ensoniq formats. The fidelity with which the voicing parameters will be interpreted will inevitably vary, but at least you can get your hands on the sample data.

### BeatMachine

After loading a rhythmic loop into a Kontakt Instrument, you can use the tools in the Wave Editor to slice it (automatically or manually) into individual hits. A click on the BeatMachine button will then allow you to transpose the loop up or down in pitch without changing its tempo, simply by playing different MIDI keys in the sample's Zone. Single hits within the loop can be given parameter offsets using Zone Envelopes (more on this later). For example, you could push up an effects-send knob during the snare hits, adding reverb to the snare while keeping the rest of the loop dry. This is a great implementation.

If you want to edit the groove of the beat, just click on the Drag MIDI To Host button and drag it into a sequencer track. If you're working in standalone mode, the same button will drag a Standard MIDI File to your desktop. Using this button also assigns the slices to individual keys. At this point you can add shuffle to the beat, edit it to create a fill, or whatever you like. This feature was a bit buggy in the 3.0 release, but when I downloaded 3.01, I found that the bugs had been fixed. Because handling beats is so important, I breathed a huge sigh of relief.

Kontakt also loads Apple Loops, Acidized WAV, and REX/REX2 files with their timing information. The same drag-and-drop method is used to export MIDI clips from them.

The factory drum kit Instruments include a basic step sequencer called Drum Computer (see Fig. 3). This is a cute device,



**FIG. 3:** In Play mode, each of Kontakt's drum kits includes a 6-sound, 32-step drum sequencer with a graphical interface for editing Velocity and pitch.



but I couldn't find a word in the manual on how to add a Drum Computer to my own

paste and a snap grid for rhythm-based editing are both implemented for ease of editing.



**FIG. 4:** Every sample in Kontakt can have its own Zone Envelopes, which can be edited in this graphical interface. Note the segment curvature and the easy snapping of the envelope points to sample slice points.

Instruments. Nor was there any information about how to export beats created with it as MIDI data.

### In the Strike Zone

Sometimes an ADSR just won't do the job. Kontakt's new Zone Envelopes allow you to apply multisegment envelopes with

I still don't find its user interface very intuitive. Maybe the plethora of opening and closing panels doesn't sync with the way my brain works, or maybe the huge number of useful features means I'll need a bit more time to learn where everything is.

Kontakt has become my first-call sound module for both REX files and other drum

I created an ear-catching 2-bar loop by modulating the effects-send level from a Zone Envelope and sending only the last two beats to a resonant delay line to add a metallic ringing tone (see Web Clips 1 and 2 for some examples of audio created in Kontakt 3).

### The Big Picture

After spending a few weeks with Kontakt, I respect its power and appreciate having it in my kit, but

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by David Royer



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Kontakt has become my first-call sound module for both REX files and other drum loops.

programmable curvature for each segment to any sample (see Fig. 4). Any parameter of the Zone—filter cutoff, panning, or pitch, for instance—can be modulated by a Zone Envelope. These envelopes are displayed graphically on top of the waveform, making it easy to create rhythmic envelopes for drum loops.

Zone Envelopes can be looped, and the loops don't have to be the same length as the sample. (This feature reminds me of Ableton Live's Clip Envelopes feature.) Cut/copy/

loops. I love the Zone Envelopes implementation, the browser/database is very handy, and I know I'll use some of the sounds in the library, especially those luscious orchestral tam-tams. Native Instruments is known for its high-quality software instruments, and Kontakt firmly upholds the tradition.

*Jim Aikin is a frequent contributor to EM. His new interactive fiction novella, Lydia's Heart, is available for download from his Web site ([www.musicwords.net](http://www.musicwords.net)).*

**FIG. 1:** The pocket-size Zoom H2 has four onboard microphones and records 2- or 4-channel audio at rates as high as 96 kHz. Most controls and the backlit graphic display are on the front panel.



# Zoom

## H2 Handy Recorder

This digital field recorder delivers surround for a song.

By Ruoy Trubitt

### PRODUCT SUMMARY

compact digital recorder **\$199**

**PROS:** Good value. Packed with features. Excellent battery performance.

**CONS:** Adequate but uninspiring tonality and imaging from the internal mics. Sluggish metering.

FEATURES	1	2	3	4	5
AUDIO QUALITY	1	2	3	4	5
EASE OF USE	1	2	3	4	5
VALUE	1	2	3	4	5

Zoom/Samson Technologies Corp.  
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During any creative process, there comes a time when you must start saying no to new ideas. I'm guessing that the Zoom H2's design team postponed that moment as long as possible. This little device has more features than any similar product I've tested. It offers 2- or 4-channel recording using built-in microphones. It records MP3 or PCM audio with up to 24-bit, 96 kHz resolution. It has a metronome, a tuner, a prerecord buffer, plug-in power for external mics, a USB audio interface, and more. And its street price is under 200 bucks.

### Zoom In

About the size of a fresh bar of soap, the lightweight H2 sits easily in your hand (see Fig. 1). It has a few switches and buttons along the side, but Play, Record, and most other controls are clustered on the front panel as seven raised buttons on a membrane switch. With practice, it is possible to find the Record button by touch, although it would be easier if the button were a different shape or size.

The H2 has a small but readable backlit LCD that provides level metering, an elapsed time

counter, the file name and type (MP3 or WAV), the folder name, and the remaining recording time based on the currently selected audio format and resolution. The recorder has no digital audio input or output jacks, but you can transfer digital audio from the H2 via USB 2.0 or a removable Secure Digital card; a 512 MB card is included.

Battery life is excellent, with a pair of AA 2,650 mAh NiMH cells providing well over 6 hours of recording time. I'm a big fan of AA batteries; their small size, light weight, and ready availability are all big pluses for a field recorder.

Included in the box are basic earbud headphones, a stereo-to-RCA cable, two single-use AA batteries, an AC adapter, a foam windscreen, and a small tabletop stand. You also get a conical piece of plastic that screws into a plastic threaded hole (with camera-tripod threads) in the H2's bottom panel; it attaches to the included mic-clip adapter and then slips into a standard mic-stand clip.

### Get Up and Go

Though the H2 has a lot of options, they won't get in the way of making a quick recording. From



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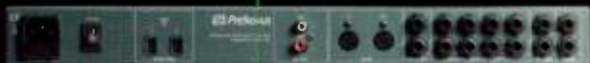
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Most recording interfaces out there use cheap off-the-shelf mic preamps delivering thin, harsh and colored results; not a good thing.

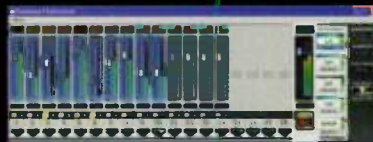
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power-on to recording takes less than 10 seconds. The H2's menus are generally well organized, and the harder-to-find options aren't mission critical.

Out of the box, the H2 will default to recording from the front pair of its internal mics—the ones facing you as you hold the recorder in your hand (more about the four internal mics in a bit). One press of the Record button puts the deck in record-ready mode, which enables the level meters and the record-level buttons. Holding the up or down button for record level scrolls through a range of 0 to 127 (for fine-tuning levels), taking a longish 21 seconds to complete the trip. The more immediate Mic Gain switch has low, medium, and high settings.

The record-level meters feel sluggish; a loud transient registers on the meters a few hundred milliseconds after you hear it. In addition to the LCD level meters, the recorder has two red clip LEDs that respond faster—one for the front mics and another for the rear mics. The LEDs do double duty, glowing continuously to show which mics (front or rear) are active, and flickering immediately when clipping occurs in the analog mic preamp.



**FIG. 2:** The H2's side panels provide a stereo mic input, stereo line input, and stereo headphone output, all on 3.5 mm jacks, as well as connections for the included AC power adapter and USB 2.0.

I'm a big fan of AA batteries these days.

Press Record a second time to capture stereo audio at resolutions ranging from 48 kbps MP3 files to 24-bit, 96 kHz WAV files. During recording of WAV files (but not MP3s), pressing the Play/Pause button drops markers. Pressing the Record button a third time ends the recording and closes the newly created file.

If you want to trim unwanted portions of a recording in the field, you can split a stereo file in two—or, more accurately, take one longer file and copy it into two shorter ones, divided at a point of your choosing. A short pre-record buffer (from 1 to 2 seconds, depending on the currently selected resolution) is helpful when you're waiting for a sound but you don't know exactly when it's going to start. The menu lets you enable a low-cut filter, but you must stop recording before you can toggle it in or out.

### Sounds Good

The sound quality from the built-in mics is adequate for voice, rehearsal recordings, or other casual applications. Compared with the more expensive Edirol R-09, the H2 has less top and bottom and displays a somewhat narrower stereo image. The internal mic preamps are reasonably quiet, measuring nearly identical to the R-09 in terms of self-noise.

The best-sounding recording I made with the H2's internal mics was a close-up acoustic piano and solo vocal recording of a bandmate. With some firm EQ and compression applied in my DAW, a decent-sounding, no-apologies-necessary demo recording was the end result.

You can also connect an external mic to the 3.5 mm input (see Fig. 2). Plug-in power, a conceptual cousin but not equivalent to phantom power, can be switched on or off for the external mic. This helpful addition widens your choices for external mics. The H2's red clip LEDs apply only to the internal mics.

The H2 has an assortment of Automatic Gain Control (AGC) modes, which are descriptively named (Speech, Drums, and so on). These modes determine both the record level and the

mic gain, so you should ensure that you select the mode tailored to the sound source to avoid clipping the mic preamp. I didn't thoroughly test the various AGC options, but attack times for the various modes were in the 10 to 20 ms range, whereas release times varied from a quick 50 ms (Limiter modes) to a longer 300 ms for the Drum Compressor mode. As always, you're better off setting your record levels manually, but AGC can be useful, and the H2 has many more options than are typically provided.

### Making Sound Files

The H2 stores stereo recordings into your choice of ten separate numbered folders. Four-channel recordings end up in their own single folder. Individual stereo recordings are named STE (for *stereo*), followed by a hyphen and a sequential number—for example, STE-014.WAV.

Oddly, it's possible to end up with files sharing the same name, differing only in their extension (STE-009.WAV and STE-009.MP3). Also, if you delete lower-numbered recordings in a folder, new recordings will be named to fill those gaps in the numeric sequence. As a consequence, the highest numbered file isn't always your most recent recording (though a few button presses will show you the date and time each file was recorded). I got confused by this system once and accidentally deleted recent recordings on the assumption they'd already been backed up.

Your computer can work with the H2 in two different ways. First, you can use your Mac or PC to transfer, rename, or delete sound files from the SD card inserted in the H2. The device can also serve as a USB audio interface for your Mac or PC. In this mode, you can use external mics or the H2's built-in mics (optionally with AGC to set your input levels). USB supplies power to the H2 when it's connected, allowing you to transfer files even if your AA batteries are spent.

### Surround in Your Pocket

The H2's built-in mics provide four different recording options. You can record through the

# Bad Drum Sound? Replace It.

front pair only (with 90-degree spacing), or you can record through the rear pair only (with 120-degree spacing). Option three is to record two tracks through the front and back mics simultaneously. Option four is to record four channels, using all four mics, to a pair of stereo WAV files. You cycle through the four options using dedicated left and right arrow buttons on the front panel. Four tiny LEDs, as well as the dual-function mic active/analog clip LEDs on the front and rear sides of the recorder, indicate which mode you're in.

When you select 4-channel recording mode, the LCD shows four level meters, all of which are set by a single master record-level control. I made an assortment of 4-channel H2 recordings and then used Minnetonka's Disc Welder Steel program to create discrete 4-channel DVD-A discs for playback. The surround experience generated by the H2's internal mics is immersive but yields somewhat ambiguous imaging (for details, see the online bonus material at [www.emusician.com](http://www.emusician.com)). Still, if you're interested in exploring the world of multichannel field recording and reproduction, I can't imagine a simpler or less expensive way to get your feet wet.

The H2 Handy Recorder lives up to its name. Though feature rich, it is straightforward to operate. The quick-start tutorial will get you recording in 5 minutes, and the manual (which includes a thorough index, thank you very much) presents the unit's wealth of features in a clear fashion.

The H2 is a good choice for recording rehearsals and documenting performances. With its low cost and AGC modes, it's also appropriate to use for interviews, gathering oral histories, and so on. Although I'm not thrilled by the sound of the internal mics, considering the H2's price point, their performance is acceptable. And as I mentioned before, the inclusion of true 4-channel recording on a deck with a street price of under \$200 is pretty impressive. You won't find a field recorder that has more features at a lower price than the Zoom H2.

*Rudy Trubitt ([rudy@trubitt.com](mailto:rudy@trubitt.com)) is a musician and audio producer in the San Francisco Bay Area. He thanks Bruce Koball for his assistance in the preparation of this review.*



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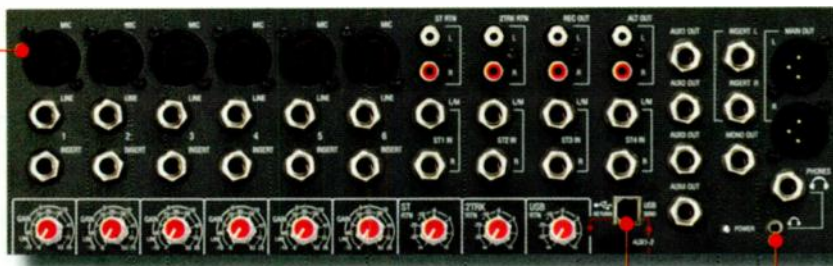


FIG. 2: All the ZED-14's connections, including the mixer's USB port, are on the top panel.

The mixer provides six phantom-powered mic inputs.

The USB 1.1 port is centrally located.

A 1/4-inch headphone jack is also included.

controls for the mixer's ST and 2TRK returns (both on RCA jacks) right above stereo channels 7-8 and 9-10. These returns are normally routed direct to the stereo bus. A volume pot for each rests in the spot occupied on channels 1 through 6 by the gain pot. There's also the same rectangular button that engages the low-cut filter on the other channels. However, on the first three stereo channels, this button routes the ST or 2TRK returns to the stereo channel below, allowing you to use the channel's 2-band EQ or aux sends on whatever sources you have in the RCA jacks.

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The ZED-14 also has a set of related controls above stereo channel 11-12, but these control the USB return from your computer. By pushing the gray button, you can route the stereo mix from your DAW through an aux send on 11-12 to headphones, or you could apply some basic overall EQ, as well as conveniently hit an outboard compressor strapped across the mix insert points.

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# Bad Drum Sound?

## Replace It.

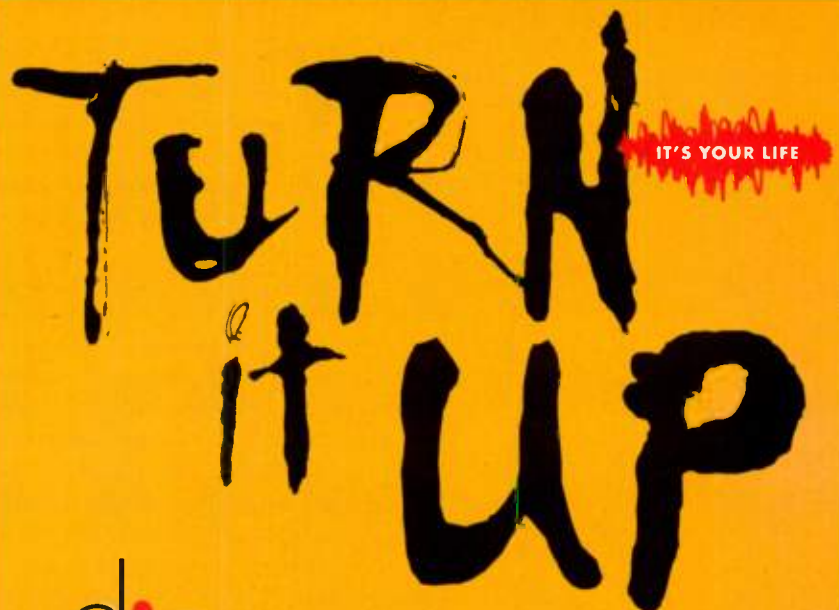


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FIG. 1: Allen & Heath's ZED-14 mixer features six mic/line channels, four dedicated stereo channels, and stereo recording to computers using a built-in USB interface.



# Allen & Heath

## ZED-14

An analog desktop mixer with USB.

### PRODUCT SUMMARY

analog/USB mixer \$499

**PROS:** Excellent sound—clean and quiet. Flexible routing options. Good preamps.

**CONS:** USB 1.1 interface restricts I/O to two channels each way.

FEATURES	1	2	3	4	5
EASE OF USE	1	2	3	4	5
AUDIO QUALITY	1	2	3	4	5
VALUE	1	2	3	4	5

Allen & Heath  
www.allen-heath.com

By Rusty Cutchin

**W**ith the ZED series, Allen & Heath has channeled the company's expertise in large-format hardware mixers with recognizably British EQ into a line of budget mixers. The ZED-14 is the baby of the family in size and price, but its sound and feature set are all grown up.

The ZED-14 and its larger siblings (the ZED-420, ZED-428, and ZED-436) are designed primarily for live sound; their USB 1.1 implementation allows for sending two tracks to a computer for recording and monitoring two return channels simultaneously. But flexibility in the routing scheme lets you control the digitized signal in a couple of ways, making the ZED-14 useful for live-band or solo-artist recording. The mixer ships with a copy of Cakewalk Sonar LE for PC users. For Mac users, Allen & Heath suggests using Apple GarageBand.

### Analog Heart

The ZED-14 follows the form of several currently available analog mixers with digital interfaces (see Fig. 1). The rackmountable unit's first six channels are mono mic/line channels with

XLR mic, ¼-inch line, and TRS insert connectors. All connections are at the top of the mixer's face; there are no rear-panel controls.

The 3-band EQ on channels 1 through 6 includes fixed low-frequency and high-frequency settings, at 80 Hz and 12 kHz, respectively, with 15 dB of cut or boost available for each. The midrange EQ, labeled HM, can be swept from 120 Hz to 4 kHz, also with 15 dB of cut or boost. Each of channels 1 through 6's attenuation pots offers a generous supply of gain: -6 to 63 dB for line sources, and -10 to 26 dB for mics. There's also a switch that engages the 2-pole low-cut filter (12 dB per octave with a 100 Hz corner frequency).

The four blue-capped faders control stereo channels from 7-8 to 13-14. The stereo channels have only fixed LF and HF EQs set to 80 Hz and 12 kHz, respectively. All channels have illuminated mute buttons along with PFL solo buttons whose LEDs double as peak indicators. All of the channels also can access the four aux sends. Sends 1 and 2 are hardwired as pre-fader sends, and sends 3 and 4 are post-fader.

An interesting design scheme places the

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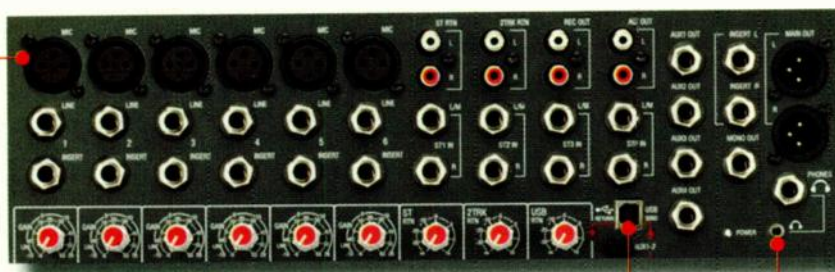
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➤ The mixer provides six phantom-powered mic inputs.

➤ The USB 1.1 port is centrally located.

➤ An 1/4-inch headphone jack is also included.

➤ FIG. 2: All the ZED-14's connections, including the mixer's USB port, are on the top panel.

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# “I've had 1,064 TV Placements for My Music Because I Joined TAXI”

*Stuart Ridgway - TAXI Member*

[www.pyramidmusic.com](http://www.pyramidmusic.com)

I'd seen the TAXI ads (just like this!) hundreds of times over the years and I was very skeptical. But when I got their free information kit and saw that the money back guarantee was for a full-year, I decided to make the leap.

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## **Reality TV and Royalty Checks**

We struck up a good working relationship, and when the supervisor needed music for a new daytime reality show, she asked me if I would like to join her team. For the next two years, I wrote music for an Emmy Award winning show, which aired every weekday on NBC. My first royalty check *alone* covered 10 years of TAXI memberships! All in all, those two seasons netted me more than \$50,000, and the company TAXI

hooked me up with has hired me to write for two other shows as well.

## **Being “Great” Wasn't Enough**

After making more than 1,000 cold calls, it dawned on me that music supervisors didn't care *how* great I was as a composer. How could they? They don't know me and that's that! I could only get so far on my own.

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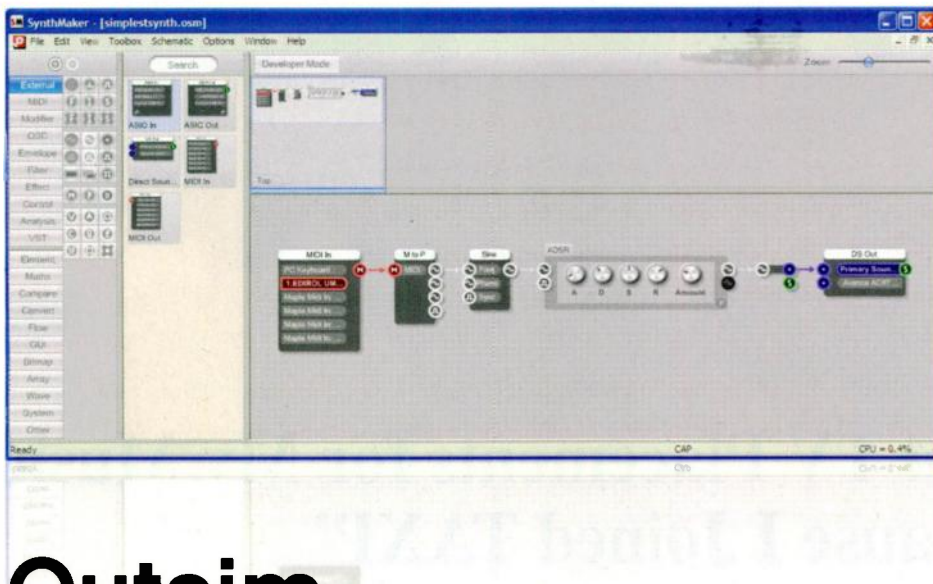
Actually, I may have the greatest job on the planet because I can work in my studio all day, playing piano, writing string lines, recording guitar parts, and the hours easily slip by. I get paid to do what I love, and much of the credit for that goes to TAXI.

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**FIG. 1:** This is an overview of SynthMaker showing the Toolbox (the two columns to the left), the Schematic area (lower right), and the Navigation area (above the Schematic area). The Schematic displays a simple MIDI sine-wave synthesizer.

# Outsim

## SynthMaker 1.0.8a (Win)

Create your own soft synths, effects, and VST plug-ins.

**PRODUCT SUMMARY**

**sound-programming environment**  
**Personal Edition (noncommercial use only)** \$133  
**Standard Edition (unrestricted use)** \$255

**PROS:** Easy-to-use, elegant, and functional user interface. Can produce standalone applications and VST plug-ins. You can easily create your own Modules. Curved wires keep your Schematics clear and attractive.

**CONS:** Could use more examples in the documentation and a more extensive and well-organized library of third-party or user-created Modules.

FEATURES	1	2	3	4	
EASE OF USE	1	2	3	4	5
DOCUMENTATION	1	2	3	4	5
VALUE	1	2	3	4	5

Outsim  
<http://synthmaker.co.uk>



By Peter Hamlin

In the simpler early days of electronic music, many composers created their own circuits, partly out of necessity and partly because they had a specific idea they wanted to carry out. The growing sophistication and complexity of digital hardware and software today makes it much more difficult for nonexperts to create their own electronic-music circuitry and computer programs. This situation has given rise to software that provides a set of building blocks for creating soft synths and effects without having to do everything from scratch. Though Outsim SynthMaker isn't the first program of its kind, this recent entry into the market has a lot to offer in terms of ease of use, elegance, and power.

### From the Ground Up

Working with SynthMaker is simple: you choose from a large selection of building blocks, which the program calls Primitives and Modules, and then wire them together to create designs called Schematics. Primitives are the most basic units, and Modules are created by combining Primitives, perhaps with other

Modules. Some 300 Primitives and Modules come with the program, and it's also very easy to create your own Modules and add them to the library.

When you launch SynthMaker, you'll see a screen divided into three main work areas (see Fig. 1). To the left are two columns collectively called the Toolbox, where you select the Primitives and Modules for use in your Schematic. A large grid-covered work area dominates in the lower right. This is where you drag Primitives and Modules and hook them together. Above the Schematic area is the Navigation area, which provides an overview of your project and a place from which you can easily jump from one section to another (a useful feature as your Schematics become more complex).

Modules are organized by category. Many categories—for example, Maths, MIDI, Effect, and Control—are so obvious, you'll typically be able to find what you want without consulting the manual. Notice in Fig. 1 that the word External has been selected, so the Toolbox shows only the five External Modules.

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(External Modules pass MIDI and audio data between the program and your computer.) You can also locate Modules by selecting the data type they use or by typing keywords into the Search field.

When you create your own Modules, you can either add them to an existing category or create a new category. Modules can have front panels, so any combination of items such as knobs, sliders, and level meters can be included.

## Wires and Data

One of SynthMaker's striking features is its colorful curved connecting wires (see Fig. 2). You bend the wires by clicking on any part of them with the mouse and dragging, very much the way you would physically move an actual piece

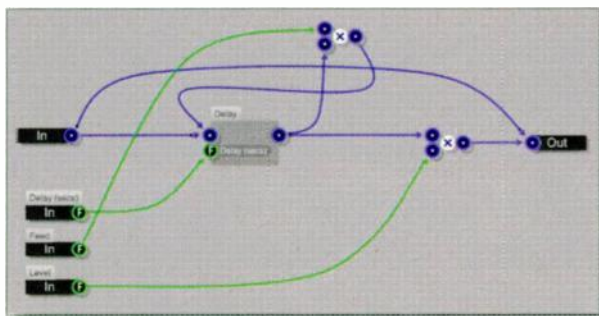


FIG. 2: A striking visual feature of SynthMaker is its flowing curved wires with colors that show the type of data they are carrying.

of wire around other components if you were making a real electronic circuit. Curved wires help keep your Schematics clearly organized and pleasing to the eye.

There are two general types of data that travel through wires: stream and trigger. Stream data, as the name suggests, is continuous, passing through at the sampling rate, whereas trigger data is sent only when a change is made in that data. A simple example of trigger data is the output of a control knob Module: changing the knob position sends the appropriate floating-point number or integer down the line to all other connected Modules. Trigger data can be Boolean (true/false), floating point, integer, or string, and there is also support for arrays. An array is simply a list of items of the same type. You might use an array of integers to store a melodic idea, or a string of floating-point numbers to represent notes in a microtonal scale,

or an array of strings that give the names of various chords you are using in a Schematic.

Stream data can be Mono or Poly. A Mono stream allows only one channel at a time and always has data flowing through it. A Poly stream allows more than one channel (an example

is a synthesizer that is playing more than one note) and is active only when data is being sent. There's also a category called MIDI, which is one of the Special Data types. In a typical situation, MIDI data would be transmitted by an external device and would be immediately converted to a Poly stream within SynthMaker. One advantage of this approach is that in Poly streams, you are not limited to 127 discrete pitch and Velocity steps as you are in MIDI.

Data types are color coded and are also identified by unique symbols. That makes it easy to tell what type of data a Module's inputs and outputs are associated with, and, by looking at a wire's color, what sort of data it is carrying. (Notice, for instance, in Fig. 1 that a red wire is carrying MIDI data, white wires are carrying Poly stream data, and a blue wire is carrying Mono data.) You are prevented from hooking incompatible data types together. On the other hand, if you connect, say, a float to an integer, an automatic conversion is made by simply dropping the fractional part of the number.

## VST and Standalone Apps

SynthMaker lets you create standalone applications or VST plug-ins, an extremely valuable feature. The process of doing this is ridiculously easy.

First, you select all the Primitives and Modules that will make up your soft synth, and choose the Make Module command. You can see the result of this in Fig. 3: the inter-



FIG. 3: The simple sine-wave synth of Fig. 1 has been turned into a single Module with a functional panel. Clicking on VST or EXE on the tab beneath the Module will turn this Module into a VST plug-in or a standalone Windows application.

nal workings of Fig. 1 (the M to P, Sine, ADSR, and Poly to Mono Modules) have been placed inside the Module, and I've added a label to name the synth, a small grouping graphic to set off the ADSR knobs, and a panel color to give it a simple gradated gray appearance.

After you've created a Module that contains your soft synth or effect, select it and click on the VST or EXE tab beneath the Module. You'll be prompted to give the file a name and indicate where it should be saved, and the plug-in or standalone application is then created in seconds. SynthMaker provides a number of Modules that let your VST plug-ins communicate with the host application (for example, providing the tempo, time signature, play status, and the like). There is also a Preset Manager Module that allows you to easily create and manage presets.

## In Action

In this early stage of its development, SynthMaker provides a useful collection of oscillators, filters, effects, controls, tools for building distinctive display panels and user interfaces, many Modules for manipulating data, and much more. You can create a fully functional standalone classic synth or VST effects plug-in in just seconds. Obviously, more time is needed if you're creating your own inventions from scratch. And if something you're looking for isn't in the collection of Modules and Primitives that come with the program, you can often find it on the SynthMaker Web site. (Two examples I found there are a great-sounding physically modeled plucked-string Module, and a toolkit of frequency-analysis Modules.) I expect that the organization and extent of these online resources will develop more fully over time.

## SynthMaker is an elegant, powerful program.

I especially like the idea that you can dream up an idiosyncratic sound or effect for a particular purpose and implement it relatively quickly. I love tone clusters, for instance, and enjoy creating rich additive-synthesis Schematics where notes are added to what you're playing based on a combination of harmonic formulas, random numbers, and time delays. There is also a Code Module that lets you write your own code in an elegant, high-level language that is both powerful and surprisingly simple. In my Frequency Sweeper, for example (see Web Clips 1 and 2), the Code Module was where I implemented the frequency changes you hear.

### Documentation

SynthMaker has three help documents: a User Guide, a Tutorials Guide, and a Component Reference. The User Guide provides an excellent overview of the program. The Tutorials Guide gives a good introductory lesson, but more tutorials on specific topics and techniques would be useful. The Component Reference is clear and terse. Personally, I'd like examples of typical ways each Primitive or Module is used and perhaps a "see also" reference pointing to other Primitives and Modules that are related to or commonly used with the item you're reading about.

There is also a user forum and wiki on SynthMaker's Web site populated by a vibrant and knowledgeable user community. It would be useful if, in time, a more-extensive and -organized user library of Modules and Schematics could also be provided on the site (see Web Clips 3 through 6 for examples of users' Schematics).

SynthMaker is an elegant, powerful program that is easy to learn and fun to use. It's not difficult to get started, and there's no limit to what you can do as your understanding deepens. Being able to create your own professional-looking VST plug-ins and stand-alone applications is quite exciting. SynthMaker gives composers and producers a tool that can help them develop their own unique voice in electronic music.

---

*Peter Hamlin teaches composition, theory, and electronic music at Middlebury College and plays in the live electronic improv band Data Stream.*

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# CME

## UF60

The keyboard for control freaks.

The UF60 provides a multitude of programmable controls, including nine sliders, eight knobs, and six function buttons, as well as transport controls.

By Tony DiLorenzo

### PRODUCT SUMMARY

MIDI keyboard controller \$379.99

**PROS:** Solid, sturdy construction. Keyboard has a tight, consistent feel. Control mapping is simple and straightforward.

**CONS:** Documentation is inadequate. No dedicated numeric keypad for Program Changes.

FEATURES	2	4	
EASE OF USE	1	4	-
DOCUMENTATION	1	2	3
VALUE	1	2	3

CME Pro  
www.cme-pro.com

CME made its mark on the keyboard world with the introduction of the original UF series, a collection of four robust, feature-rich MIDI/USB keyboard controllers. Now comes the next generation of UF controllers, which offers improved functionality, expansion capability, comfortable action, and WIDI wireless MIDI technology. However, all is not well in UF-land—the documentation is woefully inadequate, leading to some serious confusion.

### First Impressions

Just like the previous-generation UF series, the new models come in four flavors. The 49-key UF50 (\$329.99), 61-key UF60 (\$379.99), and 76-key UF70 (\$469.99) have a semiweighted action, while the UF80 (\$649.99) sports an 88-key, weighted hammer-action keyboard. CME sent me a UF60 for this review, and I tested it with my 17-inch MacBook Pro running Image Line PoiZone, Propellerhead Reason, Ultimate Sound Bank PlugSound Pro, and Apple Logic Pro 7. The computer has a 2.16 GHz Intel processor with 2 GB of RAM and a 120 GB hard drive.

Housed in a sturdy aluminum outer case, the UF60 is well suited for life on the road as well as in the studio. I was impressed with the unit's construction quality and logical layout, and the knobs, sliders, and switches seem like they'll hold up to lots of use. The transport controls remind me of the beefy switches you used to find on analog multitrack recorders. The pitch-bend and mod wheels also seem like they're built to last.

In addition to a power switch and power-supply receptacle, the back panel has connections labeled MIDI Out, Pedal A, Pedal B, and USB. The pedal jacks default to Sustain for Pedal A and Volume for Pedal B, but you can change the pedal type and polarity with a few simple keystrokes.

Also included is an  $\frac{1}{8}$ -inch Breath Control jack for use with a Yamaha BC3 breath controller. There aren't many keyboards on the market with breath-controller capability, so this is a welcome feature. A removable panel hides the expansion bay, which can accommodate plug-in circuit boards that add various functions (more on this later).





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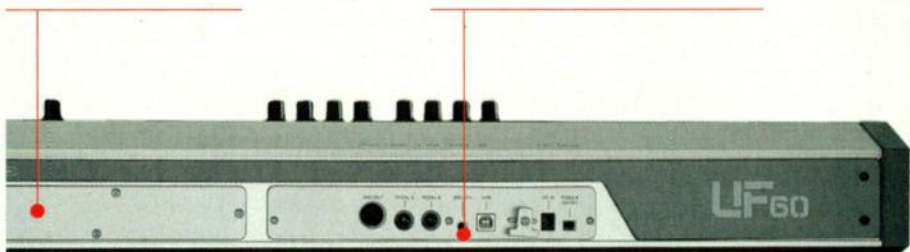
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❧ This cover plate hides the expansion bay.

❧ The Breath Control input is rare among keyboard controllers.



❧ In addition to MIDI Out, two pedal jacks, and a breath-controller input, the UF60 offers an expansion bay that can accommodate optional modules such as a synth card or a FireWire audio interface.

### WIDI Works

I was skeptical when I heard that the new UF controllers have built-in wireless MIDI capability, with an RF transmitter built into the keyboard and a receiver about the size of a thumb drive that plugs into the computer's USB port. Would it work? How much time would I waste trying to get it to work?

To my delight, WIDI worked flawlessly. Setup was simple—I plugged in the receiver to my MacBook Pro, powered up the UF60 and computer, launched PlugSound Pro, and I was up and running—wirelessly. According to CME, the WIDI system has a maximum operating range of 262 feet and high-speed error correction. I felt absolutely no latency when playing via WIDI; notes triggered as quickly as they would with a wired MIDI connection, which is to say virtually instantly.

### A Piece of the Action

I learned to play on a weighted action, so I enjoy playing a keyboard that puts up a bit of a fight. Synth players will appreciate the tight, consistent feel of the UF60's action, and there's enough resistance to satisfy piano players as well.

One of my first adjustments was selecting a Velocity curve. There are ten choices here, including three so-called Fixup curves that fix the Velocity value at 64, 100, or 127. These might come in handy if you need to program many notes with the same Velocity.

You can also tweak Aftertouch with seven preset curves. You'll want to experiment with the different presets to find the one that works best for your playing technique.

### Hands On

Pair the UF60 with any soft synth, and you get that "real" hardware vibe thanks to eight knobs and nine sliders. These controls are labeled according to their default assignments, but they can be reassigned to any parameters. In addition, the assignments can go three layers deep, providing access to more parameters than meet the eye and allowing you to tailor the controls to meet your specific needs.

The UF60 provides a function called U-CTRL, which emulates the Mackie Control Universal (MCU) protocol. By enabling MCU in compatible programs such as Reason and Logic, the keyboard's transport and other buttons can be automatically mapped to control the corresponding functions in the software. However, I discovered that this doesn't work when the keyboard is connected to the computer via WIDI—it must be connected via USB. This is not even mentioned in the documentation, which is a serious oversight.

Before I learned this, I spent a lot of time manually assigning the UF60's buttons to control the software functions via WIDI. That process was straightforward enough, but I could have saved all that time if the manual had been more comprehensive. Once I established a USB connection, U-CTRL worked with Reason and Logic as expected, though I still had to manually assign the faders to behave like drawbars in Logic's EVB3 organ soft synth.

Unfortunately, sending Program Change commands is an awkward, multistep process: press Shift, press Program Change, select your patch with the Data Dial, and press Enter. You can also program the six function buttons



## Joe Chiccarelli talks Royers

"Whether my recordings are analog or digital, I use ribbons to keep the signal as warm and real as possible. My Royer's are all over everything I record - guitars, drum overheads, trumpet, sax, even percussion and strings. They never get harsh or unnatural on the top end, and they find a home in the mix very easily."

**Joe Chiccarelli**  
(Producer/Engineer/Mixer: The White Stripes, The Shins, Morrissey, Mika, Kurt Elling, Beck, U2)

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To my delight, WIDI worked flawlessly.

to send Program Changes. I wish CME had included a simple numeric keypad and dedicated bank-select buttons to make patch changes more convenient.

### Expanding Universe

The UF60 and its siblings are more than just full-featured controllers—they're also expandable by inserting a circuit module into the expansion bay. Two modules are currently available: the Waldorf Nano SynCard (\$279.99) and the UF400e FireWire audio board (\$199.99).

The Nano SynCard is based on Waldorf's MicroQ synth engine and comes with 1,000 sounds onboard. This module provides up to 24-voice polyphony (depending on the patch), and sounds can be edited from the front panel of the UF controller. The Nano SynCard also features built-in effects, left and right ¼-inch line outputs, and a ¼-inch stereo headphone jack. Up to two Nano SynCards can be installed in a UF keyboard, which lets you program splits and layers.

The UF400e provides a FireWire audio interface for your computer, streamlining your rig by integrating all I/O in the keyboard controller. It features 24-bit, 192 kHz audio capability and includes FireWire and S/PDIF ports, a stereo ¼-inch TRS line input, a ¼-inch mic/guitar input, left and right ¼-inch audio outputs, two ¼-inch headphone jacks, and a headphone volume control. The UF400e also provides MIDI In, Out, and Thru ports.

### Breaking News

As I was finishing this review, I got word of two significant developments for CME's UF- and VX-series controllers (see the [online bonus material at www.emusician.com](http://www.emusician.com)). First, the company has announced the development of U-CTRL templates that assign the controls to operate Cakewalk Sonar and Digidesign Pro Tools. The company also claims that templates will be ready for 80 percent of available software by spring 2008. These templates will be

added to the keyboard's firmware, which can be downloaded from the CME Web site and installed in the keyboard via USB. However, the updates can be downloaded only using a Windows computer running CME's UFBrain software; I was unable to try this on my Mac.

Also on the horizon is a new DSP module called the ASX Advanced Synthesis Expansion (\$369). This board provides enough computational horsepower to run a variety of synthesis and effects plug-ins that are stored in its flash ROM, and users can add and replace plug-ins as new ones become available. The onboard memory can hold up to eight plug-ins, any one of which can be active at a time.

The ASX ships with three plug-ins: Mini-Max (a polyphonic emulation of the Mini-moog), LightWave (a virtual synth that combines analog and wavetable techniques with extensive modulation), and B4000 (a convincing emulation of a classic tonewheel organ). When you register the product with CME, you get another plug-in called Vocodizer, a full-fledged vocoder that uses the dedicated mic input on the ASX.

### Studio Approved

CME clearly designed the UF controllers to be the centerpiece of a computer-based music-production studio. The UF60 and its brethren are endowed with features that would make other master keyboards envious, and they have enough tactile control to satisfy any power user. The keyboard has a wonderful feel and control mapping is simple, though the manual is lacking certain key points, such as U-CTRL's limitations. Even so, the built-in wireless MIDI and powerful expansion options put the CME UF60 at the head of the class.

*Tony DiLorenzo created a CD of vintage synth samples for the Kurzweil K2000 and K2500 called Producers Series Vol. 1, which was rated 4.5 out of 5 in EM's review (see the March 1997 issue).*

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## ROGER LINN DESIGN

### AdrenaLinn III

By Orren Merton

Like the previous two AdrenaLinn units, the AdrenaLinn III (\$375) is a modeling guitar-effects processor notable for its impressive beat-synced filter effects. The latest version offers dozens of updates and new features, many of which were requested by AdrenaLinn II users.

This review will focus on what's new with the unit. To read about the AdrenaLinn III's legacy features, check out the review in the March 2004 issue of EM (available at [www.emusician.com](http://www.emusician.com)).

#### TO GOOD EFFECT

Among the many new effects on the AdrenaLinn III is a compressor. It offers fast attack, fairly fast decay, and a high compression ratio. The compressor has been optimized to increase sustain without adding distortion, and to level the volume of the resonant peaks from the AdrenaLinn III's various filter effects. The compressor sounded great on nearly all the unit's amp models and effects, especially in combination with the arpeggiator and filter-sequence effects.

Also new to the AdrenaLinn III is a stereo reverb, which offers five room types. Each room has a preset ambience

depth and decay time. When the reverb is engaged, delay time is limited to 700 ms. I wasn't particularly impressed with the reverb; when turned up, it muddied the sound, and when turned low enough to not interfere with the other effects, it didn't add much.

The AdrenaLinn III includes four new Modulation effects types: Auto Pan, Wah Pedal, Fixed Filter (basically, the AdrenaLinn's existing bandpass, lowpass, and highpass filters in a single-band EQ configuration), and Sci-Fi, which is designed to transform your guitar into a special effect. The Modulation effects are one of the AdrenaLinn's most impressive features (see **Web Clip 1**).

The unit's user presets and drumbeats have each been increased to 200 slots, and the new presets really show off the power and potential of the AdrenaLinn III's amp models and modulations. Another AdrenaLinn III addition is a tuner. The 3-digit LED display shows you which note you're playing, while the eight vertical LEDs to the left of the parameter matrix become tuning meters. The tuner seems accurate and is a welcome feature, especially for live applications.

#### AMPED UP

There are 16 new amp models in the AdrenaLinn III, including 4 bass amps. These emulations encompass models of popular amps as well as original Roger Linn Design algorithms. The models that were carried over from the AdrenaLinn II have been enhanced to more fully capture tube characteristics and dynamics. Each amp model offers a footswitchable boost and a postdistortion treble control.

The models in the AdrenaLinn I and II were solid, but the AdrenaLinn III brings them to a new level. The result is far more sensitivity and realism in response

to playing dynamics. I was particularly impressed by the authentic response in the level of overdrive that resulted when I adjusted my guitar's volume knob. The new amp models sound excellent either by themselves or in tandem with the Modulation effects.

#### A MATTER OF CONTROL

The scope of the MIDI control over the unit's parameters has been greatly increased. MIDI footswitches can be assigned to control nearly all on/off functions and actions that can be toggled. You can even connect two MIDI expression pedals simultaneously. Each preset can have its own MIDI assignments.

The physical buttons now offer more functionality. The right toggle button is called Effect and can be assigned within any preset to toggle any effect or combination on or off. Both the right and left buttons may be reassigned to any action that can be toggled.

Patch programming has never been particularly user friendly on the AdrenaLinn. With the added parameters in the AdrenaLinn III, building presets has become even more tedious. Fortunately, SoundTower ([www.soundtower.com/adrenalinn3](http://www.soundtower.com/adrenalinn3)) offers the AdrenaLinn III Sound Editor software (Mac/Win, \$39.95). It features onscreen buttons and sliders for all the effects, sequencers, filters, and drum parts and makes editing a breeze. It should be a mandatory purchase for anyone who wants to seriously edit the AdrenaLinn III.

#### A SHOT OF ADRENALINN

I don't have space to cover all the new features and tweaks to existing ones that are present in the AdrenaLinn III. Suffice it to say, if you already own a previous AdrenaLinn model, you owe it to yourself to purchase the upgrade kit (\$99). If you're looking for an excellent-sounding and unique effects box for the

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The AdrenaLinn III offers a slew of new features, including new amp models, a compressor, reverb, and much more.

studio or your guitar rig, you can't go wrong with the Adrenalinn III, especially in combination with SoundTower's software editor.

**Value (1 through 5): 4**

Roger Linn Design  
www.rogerlinndesign.com

**APPLE**

**GarageBand '08 4.1.1**

By Nick Peck

GarageBand '08 is part of Apple's iLife '08 bundle (\$79, or free with any new Mac). Based on Logic's technology, it includes plenty of editable software instruments and effects and a large library of MIDI and digital audio loops. The new version has so many powerful capabilities that for certain types of music, it may well be as much DAW as you need. To test GarageBand, I used a late-model dual-core 2.4 GHz MacBook Pro with 4 GB of RAM and Mac OS X 10.6.



**ON TOUR**

GarageBand now lets you divide your song into sections using the new Arrange Track. You can name, duplicate, and change the order of sections such as verses and chorus. Moving an Arrange Region moves all the audio and instrument regions within that section as well, making it easy to rearrange your song's structure.

GarageBand's new Multi-take Recording feature enables you to overdub multiple takes in a row over a given region. Turn on loop mode, select the area, and hit Record. GarageBand will loop repeatedly until you hit Stop. Clicking on the region name brings up a drop-down menu to select from different takes.

While recording, I noticed that regions adjacent to the recording area were occasionally erased. The work-around was to zoom in with Snap To Grid turned off and trim the edges of the adjacent regions, leaving a small gap between the recording area and the adjacent regions.

An alternate visual interface called Magic GarageBand is aimed at novice users who might be intimidated by a traditional timeline approach. For creating new songs, it uses the metaphor of a stage with six instruments. You can choose one of nine songs, each in a different genre, to play backing tracks—typically guitar, bass, drums, keyboard, and melody—that you can jam over. The My Instrument option lets you either select a MIDI-driven software instrument or plug your instrument of choice into the Mac's audio input.

**PLUGGED IN**

GarageBand's automation capabilities have been greatly expanded. Whereas previous versions supported breakpoint automation of panning and level, now you can select all parameters of every instrument or effect for automation. The uses are limitless—for example, you can add a reverb bloom at the end of a vocal phrase, change the Leslie rotor speed on a Hammond organ part, or sweep a synth patch's filter cutoff. If the instrument's or effect's edit window is open, automation changes will be visually reflected in the corresponding slider setting. Another excellent addition is that the Master Track now supports tempo changes. But if you want to control automation parameters with MIDI, you'll need a more advanced sequencer.

Visual EQ is a new 4-band shelving and parametric EQ plug-in. You can sculpt the equalization curve by clicking-and-dragging within its frequency window. The Analyzer feature superimposes a real-time frequency

analysis of the source material over the EQ curve. A large collection of usable preset EQ curves is nicely organized by instrument.

A mastering chain is now strapped across the main bus. You can chain as many as six effects in sequence here. GarageBand organizes dozens of mastering presets by musical genre. It is great fun to experiment with different mastering presets once you finish your mix, as they can radically change the song's sound. You can adjust all of your mastering chain's parameters to taste and save the chain as a custom preset.

**IN PRACTICE**

I had a few problems with the program when I began this review, but they disappeared when I downloaded the latest



New features such as Magic GarageBand make Apple's entry-level sequencer more versatile and easier to use than ever, but you'll need a powerful Mac to make the most of all its features.

update. However, although GarageBand '08 4.1.1 behaved itself over the course of my tests, laying down more than a few software-instrument tracks taxed the system resources, even on a current-generation Mac. Fortunately, locking tracks enabled me to render completed tracks into audio files, and adjusting the buffer further maximized my mileage. If you don't have an Intel-based Mac, especially, you will need to use GarageBand's

software instruments sparingly.

For the money, though, GarageBand '08 is spectacular. It packs a powerful punch behind a deceptively simple user interface. Having such a fabulous songwriting tool with good software instruments, effects, and loops already installed on every new Macintosh is a huge win for musicians of every variety. Audio pros and serious hobbyists have a great foundation to get ideas down quickly (and then open them directly in Logic if desired), and beginners have a fun and easy-to-use app to begin exploring music. GarageBand '08 is a fantastic product, and its new features increase its power greatly.

**Value (1 through 5): 5**

Apple  
www.apple.com

**BLUE MICROPHONES**

**Woodpecker**

By Eli Crews

Blue has carved out a niche in the audio industry by combining innovative, sleek design with superior sonic performance. The Woodpecker (\$999) is a phantom-powered ribbon microphone that has both of those qualities in spades.

**KNOCK, KNOCK**

Two inches in diameter and 9 inches long, the Woodpecker is striking. It has a golden mesh grille, and its cylindrical lower body is covered in a real wood veneer. The Blue logo badge marks the front lobe of the figure-8 polar pattern. The mic comes in a velvet-lined wooden jeweler's box and is accompanied by a golden spider-style shockmount.

I understand the benefit of shockmounts for reducing floor rumble, but I'd prefer an old-fashioned clip over a less useful shockmount that increases the mic's diameter by a factor of three. If any mic manufacturer provides only a shockmount, it must be an excellent one. The spring-loaded clips on the Woodpecker's



🔊 Bold and beautiful, the Woodpecker has a sound that lives up to the mic's regal appearance.

shockmount lost their tension after only a few uses, resulting in a less-than-firm grip. I taped the mic in place to keep it from slipping.

**PEEP, PEEP**

When I plugged in the Woodpecker, I immediately noticed a higher-than-usual noise floor, clearly audible as a high-end hiss. One reason is an approximately 4 dB boost centered around 8 kHz. Another factor is an extremely hot output signal, far exceeding an average ribbon mic's output by up to 30 dB, and even rivaling that of most condenser mics to which I compared it.

When I set the preamp to optimize the recorded signal, the noise level was low enough to be inaudible while recording. In the pauses, though, I still heard faint high-end noise a few decibels

higher than that of my reference mics. The Woodpecker probably isn't quiet enough for critical solo instrument or voice recording. For recording a medium-to-loud instrument in an ensemble setting, however, the noise wasn't an issue during mixdown, even after I applied EQ and compression. The healthy dose of high end in the mic's response usually allowed me to lay off any additive EQ in that range.

The one time I kept the Woodpecker up as a single mic for a solo vocal and piano performance, the subtle extra noise gave the digitally recorded track an almost tapelike quality that the artist was very happy with, reminding me that a little noise is not always a bad thing.

**HOW MUCH WOOD . . . ?**

I had two Woodpeckers, and they found their way into all my sessions during the test period. The pair was sonically well matched, making stereo applications a breeze, but it was almost hard to believe they were ribbon mics. In addition to having a hot output (putting fewer restrictions on the choice of preamps), the top end was very present, unlike with any other ribbon I've ever used. The smoothness of the midrange and the warmth in the low mids sounded similar to that of my favorite ribbons, with not as much subrange beef as a Coles 4038, for example, but right in there with the RCA 77DX, Royer R-121, and Royer SF-12.

Vocals sounded fantastic, up-front and clear, with plenty of body. Even with the enhanced high end, vocal sibilance was less harsh than with most condenser microphones. When I used the Woodpeckers as overheads, the metal of the drum kit had loads of sheen but wasn't overbearing, and the toms and snare were clear and full-bodied. Trumpets and saxophones sounded exactly like trumpets and saxophones, although for certain players the Woodpecker accentuated the brassiness or reediness in a way that made me favor my standby ribbons. Electric guitars sounded fantastic as long as the amp wasn't too bright or the mic too close.

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Based on the award-winning **Central Station** the **Monitor Station** delivers everything you need to control your recording environment and enhance your music creation.

And I may have found my new favorite mic for grand piano and upright bass. The figure-8 pattern does call for a room that sounds good, though. If you usually use cardioid mics, you may hear a little more of your room than you're used to.

**BIRD OF A DIFFERENT COLOR**

If it weren't for the minor noise issue and my problems with the shockmount, the Woodpecker would garner the highest rating possible. It really is an exquisite mic in every other aspect, and it's quickly becoming one of my favorite all-purpose microphones. If absolute silence is mandatory, it may not be the mic for the job. But if you want natural-sounding recordings that capture the nuances and spirit of performances in an open and vibrant way, I highly recommend catching this bird.

**Value (1 through 5): 4**  
 Blue Microphones  
[www.bluemic.com](http://www.bluemic.com)



Brainworx bx\_digital is a software simulation of the company's hardware mastering processors. The display includes a large, well-marked depiction of the EQ curve for each channel.

**BRAINWORX**

**bx\_digital**

By Brian Heller

Brainworx is a new hardware and software company based in Germany, and

the bx\_digital plug-in (approx. \$877, TDM CD and printed manual; \$857, TDM download; \$509, VST/RTAS CD and printed manual; \$488, VST/RTAS download; \$427, RTAS-only download) is an emulation of its bx-series hardware mastering processors. It runs on both Macintosh and Windows platforms and is available in VST, RTAS, and TDM formats. All versions are copy protected and can be authorized with the iLok system or a challenge-and-response procedure.

The plug-in combines a mid-side processor, stereo equalizer, and de-esser. It also includes two unique Brainworx features: Bass and Presence Shifters on each channel and the Mono-Maker (more about these in a moment).

Bx\_digital's EQ section provides five bands per channel, each of which is fully parametric. Bands 1 and 5 can become high and low shelves, and bands 2 and 4 can become high- and lowpass filters. In the TDM version, two more bands offer dedicated high- and lowpass filters for each channel. Each band offers plenty of control over frequency range and bandwidth as well as 12 dB of boost or cut. Each band can also be individually linked to the corresponding band on the other channel, making it easy to work with some bands in stereo and some in mono.

I found the EQ to be exceptional. It was as smooth, transparent, and clean as I've ever heard. Compared with an average mixing EQ plug-in, it was clearly more elegant with large boosts, and it didn't impart any sense of harshness in the mids and highs. It also stood out among some other computer-based mastering EQs, requiring almost 3 dB less gain in the high shelf to give the same sonic results as another such respectable product.

The Bass and Presence Shifters are essentially 2-band EQs with fixed center frequencies and bandwidths that operate in tandem from a single control—a boost in one band causes a corresponding cut in the other. The Bass Shifter bands are

set around 63 Hz and 315 Hz, and the Presence Shifter bands are centered around 6 kHz and 12 kHz. The designers' years of practical experience suggested that corresponding boosts and cuts at these frequencies are commonly needed in mastering, and I found them to be both convenient and effective.

One thing that sets bx\_digital apart is its M-S (mid-side) processing. In fact, the elegant and user-friendly way this is handled represents a significant step forward. In the conventional left/right stereo mode, the controls operate as you would expect. But when you engage one of the M-S stereo modes, all controls for the left channel are relabeled "mono" (mid) and the right channel's controls become "stereo" (side). This makes bx\_digital a useful tool for M-S recordings.

The Mono-Maker is another Brainworx-specific tool. It creates a mono low end by cutting low frequencies in the side channel while boosting them in the mid channel to retain their total power in the mix. This feature has a cutoff-frequency control that ranges from 20 to 400 Hz. The manual provides good examples of how this might be useful, such as ensuring that bass frequencies are mono for vinyl mastering.

In operation, bx\_digital was nearly flawless, and my gripes are mostly nit-picky wishes. For instance, there is a master bypass for the EQ, but there are no bypass controls on the individual EQ bands or the de-esser. In addition, there is no true notch filter, which might be a useful thing to have on a great-sounding EQ like this one. Loading settings saved in a VBox matrix in BIAS Peak Pro didn't work correctly (Brainworx said it will look into this issue). It would also make sense to add a list of the keyboard modifiers to the documentation; for example, Option-clicking on a control resets it to the default value.

Bx\_digital needs a lot of screen real estate. That is part of what makes the plug-in a pleasure to use, but it also



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doesn't leave much room for anything else on a 17-inch display at 1,440 x 900. The TDM version can show or hide the two different sections, but the VST and RTAS versions cannot.

Bx\_digital is the flagship software title, but some of its functions are available in the scaled-down bx\_control (\$99) and bx\_solo (free). In any case, you're sure to be thrilled by the sound of these outstanding plug-ins.

**Value (1 through 5): 4**

Brainworx

www.brainworx-music.de

**BLUE SKY**

**EXO 2.1 Configuration**

By Rusty Cutchin

Blue Sky's EXO 2.1 Configuration (\$399) is a stereo monitoring system that consists of a subwoofer and two satellites with a preamp breakout box that allows you to control the system's overall gain, including the subwoofer level. The setup interfaces easily with mixers or computer-only DAWs



The Blue Sky EXO 2.1 Configuration lets you mix in subwoofer level and control overall gain with a handy remote-control preamp box.

and delivers very high-quality sound at a fairly astounding price.

The satellite speakers have a 3-inch woofer and a 1-inch soft-dome tweeter. The sub contains an 8-inch driver and

the amps for the entire system: 90W for the subwoofer and 35W for each satellite, for a total system output of 160W. The sub cabinet has conical plastic feet that can be removed, and the satellites sit at about a 22-degree angle, great for desktop placement.

The preamp box, which Blue Sky refers to as a desktop remote hub, lets you plug in a computer, an external MP3 player or other device, and your mixer at the same time. Two large knobs labeled Gain and Sub occupy most of the box's front panel. In the left corner of the unit is a 3.5 mm minijack with an icon that resembles an iPod. In the right corner is a 3.5 mm mini headphone jack. A blue LED between the two knobs indicates that the system is powered on.

**OLD AND NEW**

The EXO system sets up easily, although it uses some old-school techniques. For starters, because all of the system's amps are in the subwoofer cabinet, you connect the passive satellites to the sub with provided stripped-lead speaker wires. You feed the wires into dual binding posts on the sub and each satellite.

After the satellites are hooked up, you connect the preamp to the subwoofer cabinet with a cable that is hardwired to the preamp on one end and hosts a 6-pin connector on the other. Blue Sky urges you to keep the system powered off until all connections are made, and the company even covers the preamp cable receptacle on the sub with a reminder

sticker. Plugging in the preamp cable with the system powered up could cause damage.

After the preamp is safely connected, plug in the sub cabinet's power cable and

connect either your mixer's stereo output using XLR or TRS cables at the box's combo connectors, or your computer's output using the supplied adapter cable (stereo miniplug on one end, RCA phono plugs on the other). Slide switches next to the combo inputs let you choose either 0 dB or -12 dB, the latter being for high-output sources at the XLR connection.

**LOCATION, LOCATION**

I was struck by some harshness in the satellites when I first ran a mix through them. As I suspected, the Sub knob on the preamp was all the way down. As I raised the knob, the low end filled out beautifully. Marks on the Gain and Sub knobs give useful starting points for finding a good balance for your room. The built-in crossover is set to 140 Hz, and I found that I needed the sub to radiate fairly directly to my listening position to hear low mids below the crossover point. The EXO manual provides lots of good advice on experimenting with sub placement.

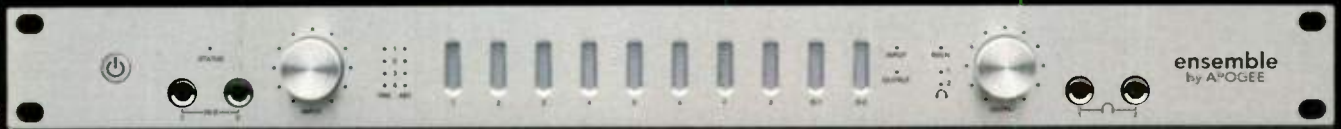
Although the system always sounded good with the sub mixed in, I perceived a slight low-mid scoop, common to home stereo speakers, that can sometimes make you add unnecessary low mids to your mix. The mids and highs were very crisp and detailed, and stereo imaging was excellent on the satellites.

I loved the convenience of the Sub knob, which mixes the sub signal into the overall level controlled by the Gain knob. (You can't isolate the sub without disconnecting the satellites.) The Sub knob is great for quickly getting an approximation of how a mix might sound in a club, and the indicator marks help you quickly reset the sub level for a more accurate mixing environment.

How accurately the EXO system reproduces mixes in your room may depend on how much flexibility you have for experimenting with subwoofer location and how precise you need to be. Although the manual gives detailed instructions on optimizing the sound using an SPL meter and a real-time

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analyzer, the system is short on sound-shaping controls. (You may find that a  $\frac{1}{2}$ -octave stereo graphic equalizer is a good add-on for the EXO.)

If you're looking for monitors in this price range, you'll be pleasantly surprised when you hook up the EXO 2.1 Configuration, turn it on, and hear the excellent sound.

**Value (1 through 5): 4**

Blue Sky International  
www.abluesky.com

**RØDE**

**M3**

By Rusty Cutchin

Røde's M3 (\$299) is a small-diaphragm, cardioid condenser mic designed to do it all. It's a handheld vocal mic that's sleek enough to use on a live-television interview and tough enough to use when fronting a death-metal band. It's also sweet enough to capture the nuances

of an acoustic guitar when resting on a stand. Sometimes, of course, mics designed to do it all wind up doing it barely at all, sacrificing a fine-tuned specialty for mediocre versatility. The M3, it turns out, is no such slacker.

**HANDHELD FUN**

The M3 looks good and feels rugged and professional but not too hefty. Its end-address design features a permanently polarized, internally shockmounted condenser capsule with low-noise circuitry and high immunity to RF interference. Also included is a clip, windscreens, and stand mount, all in a nice hard-shell case with a recessed area to store your own cable.

At first glance, the sliding on/off switch seems similar to those found on many dynamic mics. But the M3's switch has three positions: at the rear-most point (toward the XLR connector and away from the capsule), the switch mutes the mic by disconnecting the power source, as you might expect. Moving the switch to the middle position engages the internal 9V battery or phantom power if the mic is connected to a 48V input. Sliding the switch to its third position engages the mic's low-cut filter (12 dB per octave starting at 80 Hz) while maintaining power.

A 9V battery can be inserted in the upper half of the mic housing after unscrewing the bottom half. Also within the upper housing is a 3-position DIP switch that selects a -20 or -10 dB pad or no pad. This is one area in which Røde made a compromise, probably to cut costs and allow a lower selling price. Although most people don't need to engage a pad several times in a session—and certainly not during a live performance—I think it would be nicer if the pad were controlled with a recessed slide switch on the other side of the mic's exterior.

**STAND AND DELIVER**

The M3 quickly proved itself to be worth every penny of its low cost, even

if I did have to unscrew the housing a few times. The mic exhibited the crisp, clean sound of a condenser as soon as I plugged it into my Mackie Onyx 1220. The Onyx mic pres seemed to be a perfect match for the M3, and the sound only got warmer when I tried the mic with a dbx 386 tube pre I often use for certain vocalists.

I was surprised at how good the mic sounded with both male and female vocalists during a country session I engineered. When the music was cranking and the male singer went into his Big and Rich imitation, the mic held up extremely well. I perceived a slight change in color when he wailed directly into the capsule, so the band waited while I engaged the pad at -10 dB. With the singer backed off a bit, the sound was great, and he could perform as he does onstage. He could even hold the mic when he felt like it without compromising the audio the way movement often does with a dynamic mic.

Røde sent two M3s to test, so I set up both to record my own 30-year-old Dove guitar, which has a mellow, aged richness. The M3s captured the instrument beautifully in a split configuration, one mic slightly above the 12th fret and the other 2 feet back from the sound hole. After a bit of positioning to control phasing, the M3s sounded better than several pencil mics I've used on the same guitar.

**VERSATILITY AND QUALITY**

The M3's internal pad switch is a small compromise to allow Røde to make a low-cost condenser mic that sounds this good. It combines delicate pickup characteristics with a rugged build and sleek design. At street prices, it's the perfect mic for the budget-conscious recording musician who's ready to add a condenser (or two) that can also be used on gigs.

**Value (1 through 5): 4**

Røde Microphones  
www.rodemic.com



Røde's M3 is a versatile small-diaphragm condenser that works well in studio or live-performance applications.

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**PATCHMAN MUSIC**

**Turbo VL**

By Scott Wilkinson

As a MIDI wind player, I've always loved the Yamaha VL-series synths for their highly expressive sounds that can be exquisitely shaped with breath pressure. However, the stock ROM sounds in

the half-rack VL70-m are rather wimpy compared with those of its 3-rackspace cousin, the VL1-m. Too bad, because the VL70-m is much easier to take to gigs.

So I was really glad to learn that Patchman Music, a sound-programming company that specializes in breath-controlled patches, offers a ROM chip called the Turbo VL (\$295), which is full of new

sounds for the VL70-m. It comes with detailed instructions on how to remove the module's cover plate, remove the stock ROM, and insert the new chip. In my case, the stock chip seemed to be stuck and wouldn't budge, even when I used a fancy chip puller, so I took it to a local electronics repair shop, where the swap was easily accomplished.

The patches are logically organized by instrumental family, starting with the brasses. These sounds are generally more realistic than their counterparts in the stock ROM, though they're still not going to fool anyone into thinking they're the real acoustic thing.

Some of the trumpets are excellent, especially in the higher registers. The piccolo trumpet sounded great on the "Penny Lane" solo. I didn't like the muted trumpets as much, except for the Harmon mute, which sounded just like Miles Davis. Being a trombone player, I'm particularly critical of low-brass sounds, and the trombones in the Turbo VL are not all that convincing. I enjoyed the French horns much better, and the tuba is nearly as fat and sonorous as the VL1 version, which I use all the time.

The VL1 saxes are among my favorite sounds on that instrument, but some of the Turbo VL saxes on the VL70-m are not quite as pleasing to me—they have a rougher quality that I just didn't like. A couple of exceptions are the Sanborn and Bird altos, and playing "Take Five" on the Desmond alto was a joy. I liked the tenor saxes better overall, especially NY Tenor and MBrecker, and the Jobim tenor was great for playing "Wave."

None of the flutes sound particularly realistic, but they are very pretty nonetheless. ClassFlt is my fave, and the bass flute is also very nice. I also really enjoyed playing "El Condor Pasa" on the quena, a traditional Andean flute.

The clarinets are really good, just as they are on the VL1. The Turbo VL bass clarinet is a little more synthetic sounding than on the VL1, but still very useful. Likewise, the double reeds are generally very nice; I especially liked SftEngHn, which sounded great on the theme from *Bolero*.

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The Patchman Turbo VL replaces the stock voice ROM in the Yamaha VL70-m with lots of beautiful patches, many with exquisite breath response.

### STRING THINGS

Bowed strings have never been my faves on the VL1, and my opinion is no different here. However, the pizzicato string section is quite convincing. Of course, pizz strings do not respond to breath, nor do the other plucked strings in this ROM, which includes plenty of guitars. Some sound quite authentic, but I didn't find them as much fun to

play as breath-responsive sounds. One exception is GuitHero, which changes volume and distortion in response to breath; it made me feel like a stadium rocker. It was also great fun to play "The Star-Spangled Banner" with the Hendrix patch.


The keyboard sounds, such as Clavinet, also do not respond to breath, which makes them less fun to play with a wind controller. One exception is Jazz B3, which changes volume in response to breath and sounds pretty authentic.

One of the most useful sound groups for wind players is basses, and the Turbo VL has plenty of very realistic examples. Of course, most of them do not respond to breath, but as with the keyboards and plucked strings, that's the nature of the sound. Many of the basses sustain as long as you apply breath, which is a bit

unrealistic, although they do respond to Velocity, which helps them sound more authentic.

### CHIP SWAP

Finally, there is a good selection of purely synthetic sounds, which are uniformly beautiful. My faves include Avalana (a very smooth, pretty sound), ZawiLead (a classic Zawinul patch), LuckyMan (from the ELP song of the same name), and Lyle (as in Mays).

All in all, the Turbo VL is a huge improvement over the stock ROM sounds of the VL70-m. It's relatively expensive, but if you play that sound module using a wind controller, you owe it to yourself to upgrade as soon as you can. 

Value (1 through 5): 4  
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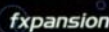
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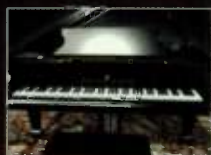
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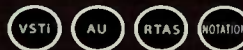
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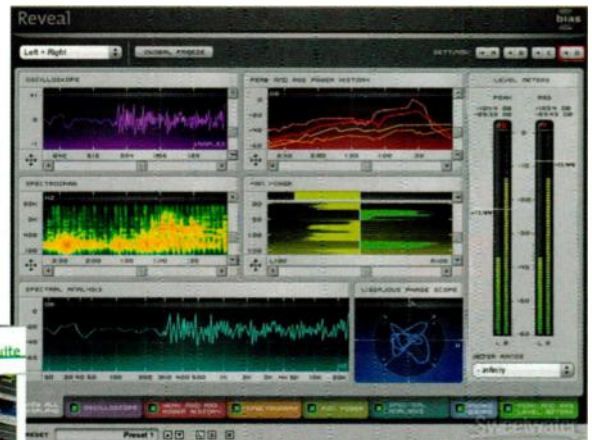
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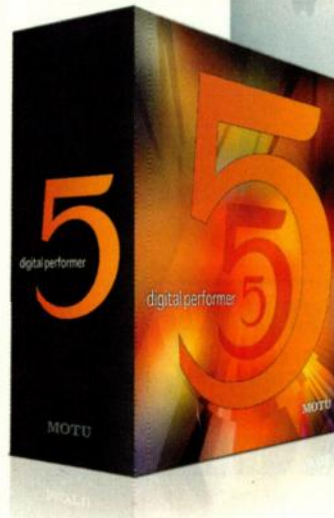
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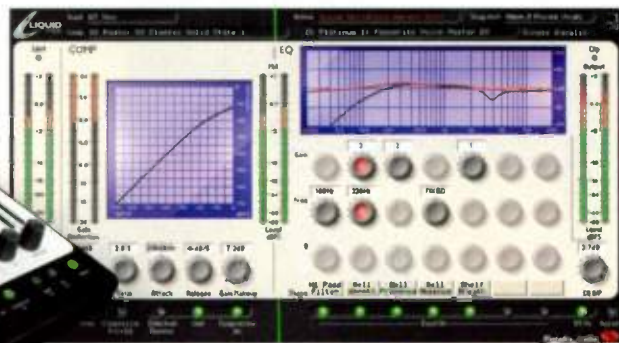
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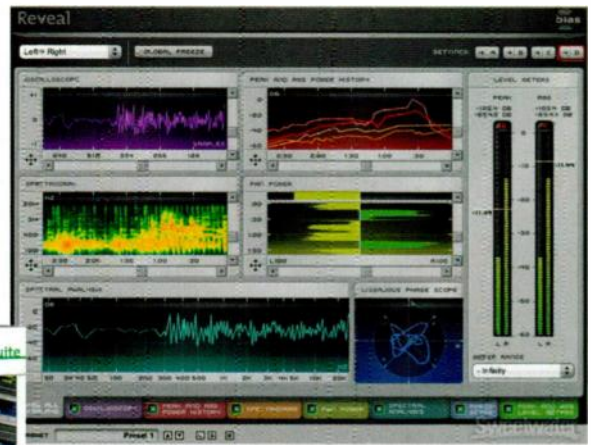


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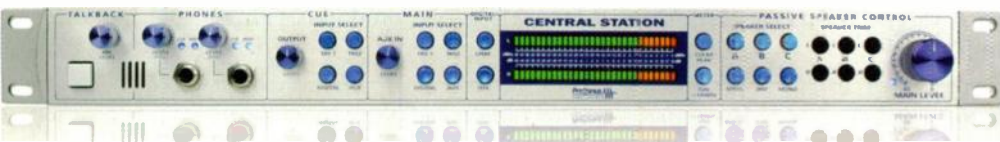
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# Convenience vs. Quality

Thoughts on bringing back high-resolution audio.

By Nathaniel Kunkel



I was recently at the CES show in Las Vegas participating in a panel titled "Convenience vs. Quality." Panel moderator Bob Ludwig opened the discussion by reading an excerpt from an

article by Michael Fremer, who noted that while there is widespread appreciation for fine food and wine, it is difficult to garner similar support for quality audio. In addition, there was an article in *Rolling Stone* titled "The Death of High Fidelity" by Robert Levine that stirred my thoughts on the subject.

Sadly, the mainstream media seems to have little interest in our deviation from quality audio delivery. While we can all agree that we seem to be going backward, knowing how we got here is a key component in figuring out how to get back to the beautiful.

When we talk about the degradation of commercial audio quality, we are principally talking about two things: overall loudness and a diminishing


of dynamic range; and data compression schemes, such as MP3 or AAC encoding.

I remember when CD levels started getting elevated. The reason artists gave for the level increase was simple: when their CD was in a carousel changer, it was quieter than another disc. Admittedly, it was quieter than an overcompressed disc, but it was quieter nonetheless. That was not an upside for the artist. On the other hand, LPs did not let you switch quickly between programs, and listeners usually played a record side from beginning to end, so such level comparisons were uncommon. Level does not seem to matter so much on the radio, because broadcasters compress the music again anyway.

Data compression was a matter of convenience. When MP3s came on the scene, I was as horrified as I was excited. Although the first MP3s sounded dreadful, a typical song was only 3 MB in size. Small files made it easier to move audio across slow, 28.8 Kbps modems to the Internet. And, if you remember, the first iPod was only 5 GB. But things have changed. Cable modems or DSL with upwards of 5 Mbps are common, and soon we will have the bandwidth and storage to easily deliver and retain large quantities of CD-resolution files.

Consequently, some of the reasons we elevated levels and use data compression are less important to consumers today. Unfortunately, people are used to the sound of small, compressed files. In fact, most A&R departments won't approve a CD release that is dynamic and open. They seem to equate the sound of compression with the sound of a hit. It's not that they hate dynamic records, but rather that they've gotten used to compressed ones.

Let's revisit the food-and-wine analogy. People go to a good restaurant for the food, they buy a good wine for its taste, and they buy music because they like the song. They don't go to a restaurant because the waiter is always nice, or buy wine for a cool label, or purchase a song because it was mixed well. They might appreciate it when those things accompany the items they buy, but that is not why they put their money on the table.

Sometimes songs and audio quality are mutually exclusive. But they needn't be. Maybe it is time for all of us to start making dynamic records again, not only because we can, but because they sound really good. It certainly would be different from most of the stuff released today, and isn't that what makes something a hit? 

---

*Nathaniel Kunkel is a Grammy and Emmy Award-winning producer, engineer, and mixer who has worked with Sting, James Taylor, B.B. King, Insane Clown Posse, Lyle Lovett, and comedian Robin Williams.*

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- **British console EQ** — 7-band parametric EQ available on every input/output modeled after legendary British analog consoles.
- **60-second reverb** — Classic reverb with five room types and length up to 60 seconds.
- **Two mic/guitar inputs with pre-amps** — True hi-Z 1/4" guitar input or low-Z XLR mic input with 48V power, pad & precision digital trim.
- **Clip protection** — Hardware limiter for mic & guitar inputs prevents digital clipping from overloaded signals up to +12 dB over zero.
- **Two banks of optical digital I/O** — 16 ch of ADAT lightpipe, 8 ch of SMUX (96 kHz) or stereo TosLink. Mix and match formats.
- **Stand-alone operation** — Adjust mixing and effects quickly with intuitive LCD menus.
- **MIDI I/O** — Connect MIDI gear directly.
- **Includes drivers for Mac and Windows** — Works with all of your favorite software.

CueMix FX on-board digital mixer

Peak / RMS metering



Reverb

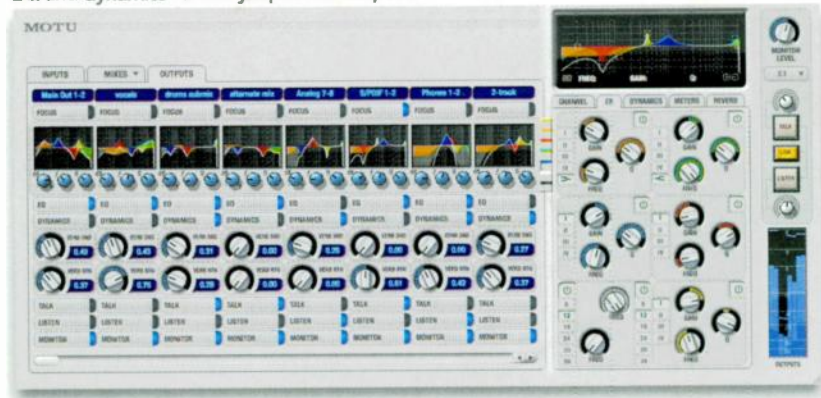
Compressor/Leveler

7-band para EQ

Clip protection



EQ and dynamics on every input and output channel



**MOTU**  
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