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JUNE 2009

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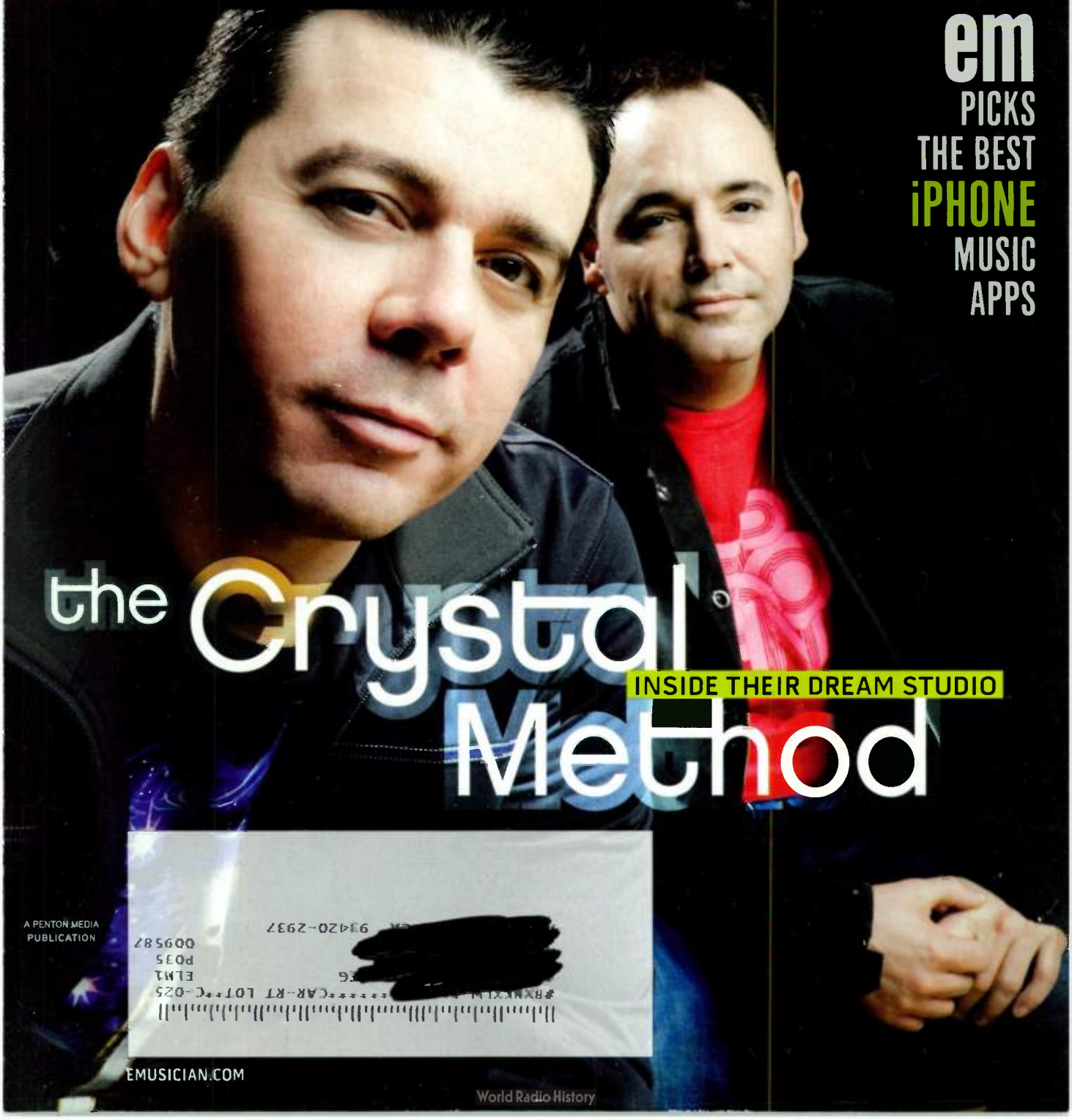

the Crystal Method

INSIDE THEIR DREAM STUDIO

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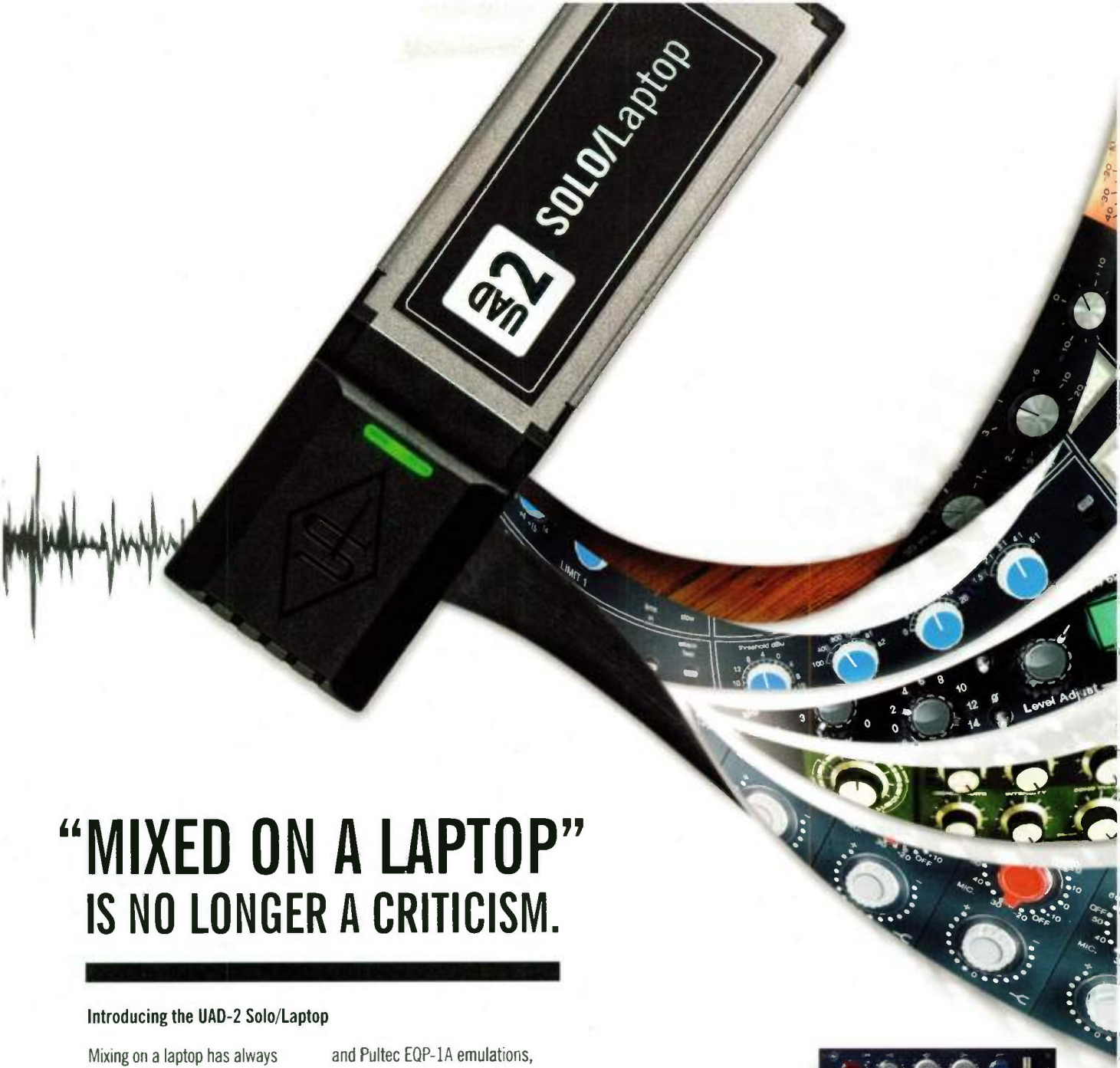

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Chuck Surack
President of Sweetwater Sound

Our Commitment — Our Promise

These are difficult times for our country. And when the economy is struggling, as it is now, it would be easy for us to fall into fear and negative thinking and to cut back on the services and support we provide, in order to save a few dollars. But that's not the American way, and it has never been part of Sweetwater's approach.

Thirty years ago, I founded Sweetwater based on one philosophy: to provide my friends and customers with the kind of service and support that I looked for — but never found — when I was making gear purchases for my own recording studio. As we celebrate our 30th anniversary as a company this year, I'm proud to say that we have stood by that commitment, and we will continue to stand by it.

That's why we're doing everything we can to move forward in these difficult times. You deserve the very best whenever you make a music or pro audio gear purchase. We're committed to providing you all of the great extras you've come to expect from us: free shipping, free lifetime technical support, the quality of our award-winning service department, and the training and effort we put into ensuring that our Sales Engineers are the most knowledgeable and experienced in the industry.

And we're not stopping there. We're adding even more extras to make sure you receive unrivaled value for your gear purchase dollars, such as our free Total Confidence Coverage™ warranty to protect the gear you purchase from us, and our upcoming GearFest Pro Audio and Music Expo — which will be the highlight of our 30th-anniversary celebration and the must-attend pro audio/music event of the year!

So, despite the economy, we're going to continue to provide you with the best music and pro audio gear value available. Our 30-year commitment to our customers, our industry, and the value of music remains unchanged, and we are optimistic about the future!

I'd like to express our gratitude for your support and your business. We know that without you and your confidence in us, we wouldn't be here. On behalf of the entire company, thank you!

Chuck Surack
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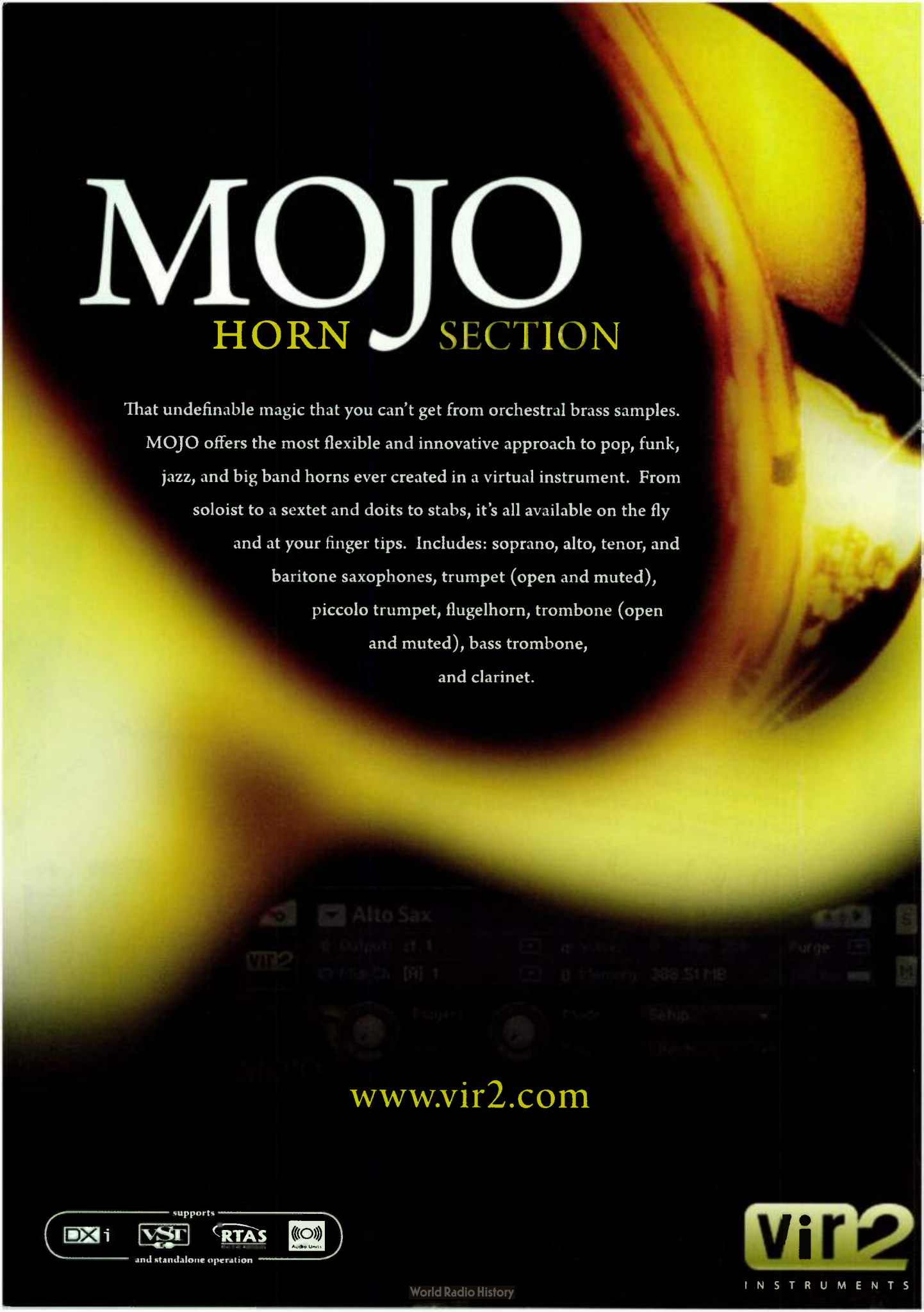

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JUNE 2009 VOL. 25, NO. 6

FEATURES

MITCH TOBIAS

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Scott Kirkland and Ken Jordan, aka The Crystal Method, just released *Divided By Night*, the first CD they recorded in their brand-new studio Crystalwerks. *EM* caught up with them there to discuss their new setup, their synths, their mixing techniques, and plenty more.

By Mike Levine

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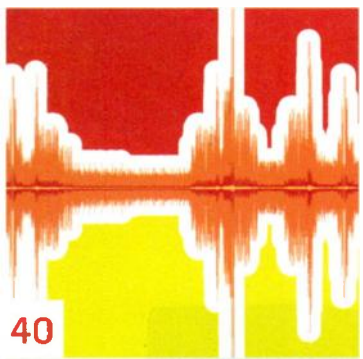
IPHONING IT IN

We pick the best music apps for the Apple iPhone and iPod touch, from multitrack recorders to programmable beatboxes to tuners, DAW controllers, synths, and even singing robots.

By Mike Levine



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MASTER CLASS: PITCH SHIFTING IN PRO TOOLS 8

A hands-on guide to the pitch-shifting capabilities in Digidesign's Pro Tools 8. Improve your workflow for transposing loops, retuning vocals, and manipulating time and pitch with Elastic Audio.

By Brian Smithers

DEPARTMENTS

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COLUMNS

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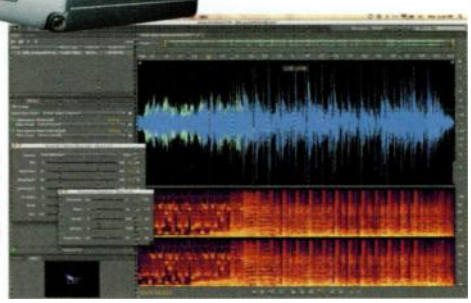
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QUICK PICKS 60

- **Behringer UMA25S MIDI** control surface and audio interface
- **Adobe Creative Suite 4** content production bundle
- **U-he Uhbik** DSP software
- **Garritan Authorized Steinway Basic** software instrument
- **Adam Audio A5** powered monitor

To the Moon...and Back

Whether he's performing on stage or creating in his studio, sound alchemist and Rabbit in the Moon frontman Bunny knows his Euphonix Artist Series controllers are indispensable to his craft.

"The MC Mix and MC Control are at the heart of my studio and have totally changed the way I work. The touch and feel are so conducive to creativity - they've freed me up completely. I get the feeling that I am mixing on a huge $200,000 mixing console, but in a compact little module that fits in my backpack."

Projects:

Remix work for: Tori Amos, Sarah McLachlan, Goldie, White Zombie, Garbage, Smashing Pumpkins and Eric Clapton. Most recently intro/outro show videos for Paul Oakenfold's Planet Perfecto Vegas show and 50 Cent's international tour.

Bunny uses MC Control and (2) MC Mixes to control his:

- Logic Pro • Final Cut Pro • Nuendo
- Apogee Ensemble

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Studio Power in Your Hand

Researching this month's feature on Apple iPhone/iPod touch music apps was quite an experience. Sometimes it felt like I was trying to hit a moving target. Just when I thought I had a handle on the music apps that were available, more would appear in the iTunes Store. From instrument emulations to recorders to programmable beatboxes to utilities and much more, the breadth of software available is pretty astonishing. So is the variety of developers, ranging from established music software companies to individual programmers.

Although the current generation of apps is unlikely to revolutionize music production, these programs do offer hints at the potential for producing, performing, and recording music with a handheld device, which is sure to improve as the technology is refined. I love the idea that in my phone, which is with me at all times, I now have a tuner, a metronome, a decibel meter, and an audio recorder for capturing ideas and rehearsals. But that's not all. I also have several apps that offer emulations of classic drum machines, a 4-track recorder, a controller for my DAW, and a loop-based workstation that gives me sampling, editing, and sequencing abilities, and lets me transfer the files wirelessly to my computer. Even better, most of these apps cost under $10 each.


MARLA COHEN

If you had told me ten years ago that I'd be able to carry all that power in a device that fits in the palm of my hand, I might have thought that you'd been watching too many reruns of *The Jetsons*, or at least that you were overly optimistic. But at the rate things are going, it's possible that in a few years, our phones will offer the same recording power that we have now in our laptops.

When doing the interview with Scott Kirkland and Ken Jordan of The Crystal Method for this month's cover story, I had the opportunity to visit Crystalwerks, their shiny new studio complex in L.A. (Please check out the video tour of Crystalwerks on emusician.com.) It was fascinating to contrast this beautifully designed space with what they told me about their previous studio, The Bomb Shelter. Although they had more vintage synths and cool gear in their old setup than most of us will ever have access to, they had to deal with issues such as poor ventilation, lack of air conditioning, not enough room to properly place studio monitors, and the necessity to put overdubbing musicians in the kitchen.

Those of us who record at home can relate to those problems because we've all had to deal, to one extent or another, with the limitations of producing music in an improvised setup. Such obstacles as lack of space, funky acoustics, outside noises, and so forth all go with the territory. Like Jordan and Kirkland did so successfully in The Bomb Shelter, we all strive to make up for such deficiencies with ingenuity, engineering skill, and determination.

Finally, let me change gears and offer my sincerest appreciation and thanks to Gino Robair, who recently departed as editor of *EM*. Gino started at the magazine back in the '90s, and brought intelligence, vision, excellent editing skills, and a keen understanding of both the recording and electronic-music worlds. He helped *EM* innovate in many ways, both in the printed magazine and on our Website, and was a genuine pleasure to work with. We're definitely going to miss him.

Mike Levine
Executive Editor

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FRONTPANEL

Download of the Month

Sonic Charge Synplant (Mac/Win) By Len Sasso

Software developer Magnus Lindström of Sonic Charge (soniccharge.com) doesn't release a lot of products, so when one does show up, it's big news. His virtual drum-machine plug-in µTonic was the subject of *EM*'s February 2005 "Download of the Month," and his new synth, Synplant ($89.95), is just as unusual. Under the hood it is analog-modeled, but a quick look at the user interface reveals a totally different programming approach that he calls genetic.

The brown seed at the center of the GUI represents a basic synth patch. You use the 12 surrounding branches to grow variations on that patch. Click-drag a branch to make it grow, and audition it by playing a note in the pitch class (C, C#, D, and so on) indicated on the outer ring. All the branches differ in timbre, but because the sounds are evolved from the same seed, you often get a playable synth right off the bat. When you don't, you can clone a branch so they all match, or you can create a new seed from a branch and evolve it some more. Synplant does let you under the hood to tamper with the genome, but that kind of defeats the purpose.

ONLINE BONUS MATERIAL

You can map MIDI continuous controllers to each front panel function, and three are of particular note. By default, the Mod Wheel (CC 1) evolves all the branches at once; the Wheel Scaling slider at the bottom sets the range. If the branches have been cloned, this will have a uniform effect on all notes. CC 18 rotates the branches relative to the pitch-class ring. That's very useful when playing repeating sequences, but it only has an effect when the branches produce different sounds (see **Web Clip 1**). CC 82 creates a new seed from the selected or last-played branch.

Synplant practically forces you to think differently. But you quickly develop an intuition about the effect of the various operations, and that distinguishes it from simply generating random patches. Grab the time-limited demo and give it a whirl.

OPTION-CLICK By David Battino

iTouch Music

Discover cool features lurking inside popular software products.

The multitouch interface of the Apple iPhone and iPod touch offers lots of unexpected potential for musical control. Darwin Grosse of Cycling '74 noticed that secondary images in the Bowls Tibetan bell app (oceanhousemedia.com; $1.99) also trigger sounds. "The sound is great—and appropriately haunting," he reports. "That plus a [Korg] Kaoss Pad is a gig, man." Swiping your finger sideways under the main image switches among instruments; do that fast enough and you can play arpeggios, as the Jordan Rudess MP3 on Oceanhouse's site demonstrates.

Keep the Effects window open in Bebot (normalware.com; $1.99) and you can get Kaossilator-style phrase looping, as well. Simply crank the Echo Repeat slider to maximum and back with your right thumb while playing notes with your left hand. In SurfaceDJ (vectorform.com; $1.99), double-clicking a loop will mute it. —*David Battino, Batmosphere.com*

FIG. 1: The iPhone Bowls application synthesizes bell tones when you stir the main image with a finger, but the smaller images trigger sounds too.

—For more on iPhone/iPhone touch apps, see the "iPhoning It In" feature on page 26.

This Month on Emusician.com

A VIDEO TOUR OF THE CRYSTAL METHOD'S STUDIO
Ken Jordan and Scott Kirkland show you around their new digs Crystalwerks.

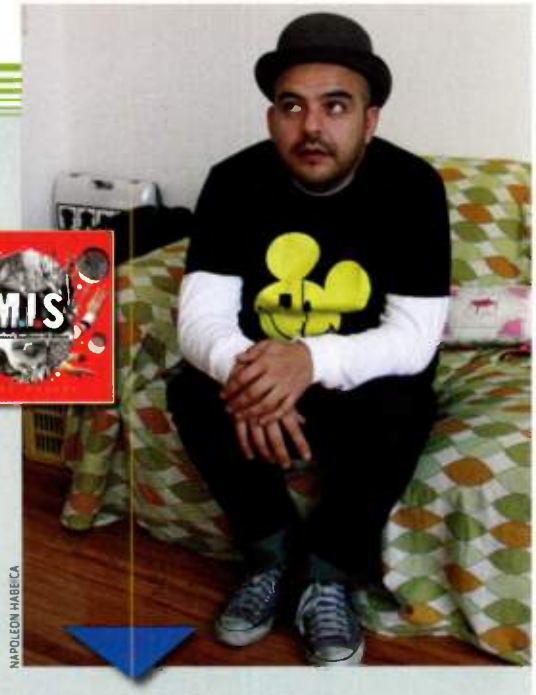
EM CAST: JOHN MEDESKI
Medeski, Martin and Wood's keyboardist talks about recording and vintage keyboards.

THIS MONTH'S SOUNDTRACK

These releases range from jazz to indie rock to world-music-influenced electronica, and represent a range of production methods.

S. HALL

JOHN SCOFIELD: *PIETY STREET* (EMARCY)
Backed by a killer band that includes John Cleary, George Porter Jr. (of Meters fame), Ricky Fataar, John Boutté, and Shannon Powel, Scofield dishes up New Orleans–tinged gospel and blues with a jazzy flourish.



NAPOLEON HABECA

MEXICAN INSTITUTE OF SOUND: *SOY SAUCE* (NACIONAL)
Camilio Lara is the Mexican Institute of Sound, and here he teams up with producer Holger Beier to once again blend electronica and hip-hop with traditional Mexican music.

SEBASTIAN MLYNARSKI

AKRON FAMILY: *SET 'EM WILD SET 'EM FREE* (DEAD OCEANS)
Imaginatively produced, deeply textured rock with folk, psychedelic, and numerous other influences. The more you listen, the more you like.

GRAVY

SHOUT OUT OUT OUT OUT: *REINTEGRATION TIME* (NORMALS WELCOME)
The six-piece Canadian electronic/dance/rock outfit features two drummers and multiple bassists, and uses all analog synths.

ARIEL BESOR

OMER KLEIN: *HEART BEATS* (SMALLS)
The Isreali pianist, who now resides in New York City, offers up a tasty set of solo jazz pieces that incorporate Middle Eastern melodic influences.

JASON VALLEAU

ONLINE EXCLUSIVE: JOHN HASSELL

A preview from *EM*'s July-issue interview with the visionary trumpeter and master of ethnic-ambient fusion.

WHAT'S YOUR FAVORITE IPHONE MUSIC APP?

Tell us what you think is cool, innovative, or just plain fun.

WHAT'S NEW

By Len Sasso

DIGITECH TIMEBENDER

TAP YOUR FOOT

TimeBender ($299.95) from DigiTech (digitech.com) puts a diverse complement of delays under foot. Its ten delay types cover analog and digital models, moving and fixed-tape head, ducking, reverse, and time warping. Each type features tone control, modulation, tap tempo, and ping-pong patterns. Use TimeBender's footswitches to program up to six taps to create custom rhythm patterns on the fly based on your guitar strumming. More than 100 preset chord voicings—octaves, fifths, thirds, and so on—let you add harmonies to your delays and create otherworldly effects. Finally, you get four memory buffers, a 20-second looper, and both tempo-synched and millisecond delay settings.

MODARTT PIANOTEQ 3

A DIFFERENT MODEL

Modartt (pianoteq.com) has released Version 3 of its physical-modeled acoustic-piano virtual instrument, Pianoteq (Mac/Win; approximately $340, free update). Major improvements include a new acoustic model to simulate the sound radiation of the soundboard and cabinet, user positioning of up to five mics with individual levels and delays, and a head-modeled binaural mode for headphone use. Along with two new grand-piano models—C3 for classical and M3 for jazz and rock—you get demo versions of the new Rhody and Wurly electric-piano models (available as an add-on for $63). Pianoteq comes stand-alone and in Audio Units, VST, and RTAS plug-in formats. Download the slightly hobbled trial version from Modartt's Website and find out for yourself.

SPECTRASONICS STYLUS RMX XPANDED 1.7

IT'S ABOUT TIME

Spectrasonics (spectrasonics.net) has released the much-awaited Stylus RMX Xpanded 1.7 (Mac/Win; $399 [MSRP], free update) Audio Units, VST, and RTAS plug-ins. The big news is Time Designer, which lets you adapt any RMX or compatible third-party loop to any time signature, lock loops to the groove of other loops even while browsing, and simplify and rearrange loops on the fly. The other big news is the addition of the full complement of effects from Spectrasonics' new plug-in, Omnisphere. Much requested operational enhancements include improved Favorites management and Suite Editing with the new Edit Buffer Suite. And, at last, you can sync RMX to the plug-in host's transport controls.

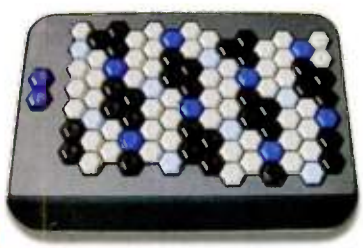
MUSE RECEPTOR 2

The new and affordable Receptor 2 ($1,999) from Muse Research (museresearch.com) offers performance paralleling the previous generation's top-of-the-line model. It boasts a sleek new look, a single-core AMD processor, 4 GB of RAM, and a 250 GB internal SATA 2 hard drive. Receptor 2 has prized advanced features such as fast-loading Z-Load technology, snapshots, and Unified Preset Access. Receptor is compatible with most manufacturers' virtual-instrument and effects plug-ins, and comes with a six-instrument collection from Plugsound to get you started. Preloaded and authorized software bundles for IK Multimedia Total Workstation, Native Instruments Komplete 5, and the Receptor 2 Spirit (created specifically for houses of worship) are also available.

MORE RECEPTIVE

C-THRU MUSIC AXIS-49

C-Thru Music (c-thru-music.com) has just released the baby brother to its AXiS-64 harmonic-table-based USB MIDI control surface. The AXiS-49 (Mac/Win, $495) has 98 hexagonal, Velocity-sensitive buttons arranged in two identical sections of 49 notes. With transpose-up and -down buttons, the full range is four octaves. The harmonic-table layout keeps specific intervals and chords in the same relationship: vertical for a perfect fifth, diagonally up-right for a major third, diagonally up-left for a minor third, and so on. The controllers are designed for composition, arranging, and experimentation, and the 11.2×1.6×7.3-inch, 3-pound AXiS-49 is ideal for travel.



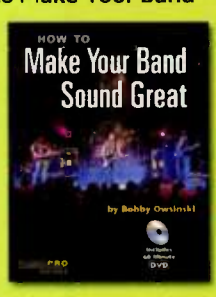
OFF-AXIS

GET SMART

Focal Press' Web Marketing for the Music Business

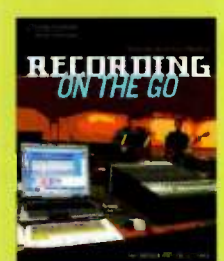
Marketing your music and promoting yourself on the Internet requires special expertise. In *Web Marketing for the Music Business* from Focal Press ($31.95, focalpress.com), marketing professor Tom Hutchison guides you through Website development with money-saving tips to get it right the first time. Hutchison has worked with a variety of artists including Faith Hill, the Dixie Chicks, Sonic Youth, and Beck, and he has done market research for major distributors like Sony and MCA/Universal. Beyond site development, the book covers increasing traffic and using social-networking sites like MySpace and Bebo. You also get access to a dedicated Website with a variety of online resources.

Hal Leonard's How to Make Your Band Sound Great



Bobby Owsinski's *How to Make Your Band Sound Great* from Hal Leonard ($29.99, halleonard.com) deals with all aspects of putting a band together and extracting the maximum performance from it. Owsinski brings years of experience as a musician, producer (Jackson Browne, Billy Gibbons, and others), and engineer to the book and accompanying 60-minute DVD—a step-by-step analysis of a working band. Topics include creating an impact, songwriting and arranging, performance technique, using backing tracks, stage lighting, and audio problems. Check out the author's descriptive video on the Hal Leonard Website.

Course Technology PTR's Recording on the Go



In Course Technology PTR's *Recording on the Go: The Definitive Guide to Live Recording* ($44.49, courseptr.com), authors Gary Gottlieb and Paul Hennerich IV take you through the basics, the gear, and the process of live audio and field recording for television and film. More than an overview, the book is a comprehensive guide to every step in the process—from planning to setting up to editing the results. Along the way, the authors talk about satisfying client needs and overcoming surprises at the gig. They also offer best practices, insights, and humorous anecdotes from their years in the audio trenches.

SOUND ADVICE

Loopmasters' Puremagnetik Injection Bundles

Loopmasters (loopmasters.com) has teamed up with sound-developer Puremagnetik (puremagnetik.com) to release theme-based bundles of Puremagnetik's Micropacks for Ableton Live, Native Instruments Kontakt, and Apple Logic. Each downloadable Injection Bundle (approximately $35 per host) combines several Micropacks devoted to a single instrument type such as keyboards, guitar, analog synths, and so on. The price is a considerable discount to buying the Micropacks individually. Injection Bundles typically contain virtual-instrument and effects presets and samples, and they often have accompanying MIDI and audio loops. Check out the details and listen to audio examples at Loopmasters' Website.

Tonehammer's Kontakt Libraries

Tonehammer (tonehammer.com) has added four downloadable sampler libraries to its offerings. Two of these, *Waterphone* ($99) and *Lakeside Pipe Organ* ($59), are multigigabyte collections of underrepresented instruments. The organ—from The Lakeside Temple in Oakland, Calif.—is a hybrid analog and electric beast with a wide range of timbres. The Waterphone is a 1960s invention of Richard Waters (richardwaters.com). In this collection, it is bowed, struck with mallets, and subjected to various forms of torture. *Forgotten Voices: Francesca* ($99) is a compendious collection of vocal textures, chanting, phrases, and effects by alto Francesca Genco. *Cylindrum* ($49) extracts a broad range of percussive effects from giant PVC pipes and corrugated plastic tubes.

Sony Creative Software's Evolver

Evolver: Distinctive Electronica ($39.95) from Sony Creative Software (sonycreative.com) comprises 513 ACIDized WAV files (609 MB) spread across ten construction kits and a batch of bonus content. Created by American electronica group 3kStatic and guest musicians including Kevin Max, David Manion, and Robert Bond, the collection promises to "open wormholes to electronica's storied past and...possible futures." You'll find six-string wails, 808s, synths, basses, processed percussion, and evolving pads. The material is tightly organized and well documented, making it easy to mix and match between construction kits and the bonus material. A companion audio CD shows off songs created from each construction kit.

VIRSYN FDELAY—THE RHYTHMISER

BETTER LATE

Fdelay—The Rhythmiser (Mac/Win, approximately $215) from VirSyn Software Synthesizer (virsyn.com) takes the latency-free, linear-phase multiband processing introduced in the company's frequency shifter, Prism, and applies it to digital delay. Each band has its own delay time, feedback, and output-level settings that you create graphically in the frequency-band display. Other global controls let you shift the band frequencies, add a bipolar offset to the band delay times, and adjust the mix. Free and note-based, linear or exponential delay scales let you home in on the exact delay you need. Fdelay—The Rhythmiser comes in Audio Units, VST, and RTAS formats.

NOTEFLIGHT LLC NOTEFLIGHT 1

WHAT'S THE SCORE

Cambridge Massachusetts firm Noteflight LLC has opened its online notation platform for free access by the music community. The Noteflight Score Editor is designed for creating and sharing music-notation documents. With it you can import MusicXML files and export MIDI and audio files. It offers an intuitive, drag-and-drop approach to entering and editing music, and it supports lyrics, dynamic markings, and automatic part transposition. A commercial edition for educators (prices vary) integrates with popular course-management systems like Blackboard, Moodle, WebCT, and Haiku LMS. Students use it to enter scores, which educators can then review and mark up, all without any up/downloading. em

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*Suggested street price

Home base: Los Angeles
Sequencer of choice: Digidesign Pro Tools LE
Go-to keyboard: Korg Triton Extreme
Web site: www.jupiterrisingmusic.net

COURTESY JUPITER RISING

Tracking *The Quiet Hype*

Jupiter Rising's new CD is fueled by preproduction done at home.

Though Jupiter Rising's latest release, *The Quiet Hype* (Chime, 2009), was recorded mainly at House of Blues Studio in Encino, Calif., producer, arranger, vocalist, and instrumentalist Spenser Nezey developed the songs for the project in his Digidesign Pro Tools LE–based home studio. "I'd have the whole arrangement done before I went in the studio," he says. "I'd have the hooks mostly done, and the vibe. Most of the instruments that we had on there [the ones recorded in his studio] we usually kept."

By Mike Levine

Besides Nezey, Jupiter Rising's other principal is vocalist Jessie Payo. Nezey describes the group's material as "electro-rock/electro-pop with hints and elements of hip-hop." He says it's "very organic, but still has elements of club, and [also] lots of live instruments." However you classify it, it's extremely catchy. The song "L.A. Girls," which features a speeded-up Nezey vocal in the intro ("Prada bags, Gucci shoes..."), was recently used in the MTV show *The Hills*.

In Nezey's home setup, he runs Pro Tools LE on an Apple Mac Pro quad-core computer and uses an Mbox 2 audio interface. His keyboards include a Korg Triton extreme, a MicroKorg, a Roland Fantom X8, a '73 Fender Rhodes, and a Clavinet. Among his virtual instruments are Native Instruments' Pro-53, MOTU's Mach Five, and Applied Acoustics' Ultra Analog VA-1.

When he was constructing the tracks for *The Quiet Hype*, Nezey would typically start with drum parts. He credits his methods to techniques he learned by observing others. "I had some good teachers to watch from, [including] Jason Villaroman, who was an engineer for will.i.am."

Nezey also had a chance to work with will.i.am directly. "Will doesn't use an MPC [to build beats], it's just amazing. I saw how he did it; he just basically takes samples—he finds a library of kicks, snares, hats, or whatever—and he does it by hand, just plugging it into the grid. I learned how to do that, so I've been making my beats like that. And it's kind of cool, you can go anywhere you want to. I don't need an MPC; I don't need anything. I'm like, 'Give me a microphone and Pro Tools, and I can make you a beat.'"

Nezey actually does start many of his drum parts by recording a multipart, beatboxed rhythm. "Then I'll layer the kicks and snares and everything on top," he says. After that, it's melody parts and basslines. "Usually, after I put the drums down, I start with some sort of riff to build on top of."

Many of the tracks he recorded at home ended up on the album. "I keep all my MIDI tracks," he says. "And some of the ones that I like, I'll print it right away. And then with some of the stuff, it's not necessarily about the sound but [rather] about what I played, so we'll keep the MIDI and go in [the studio] and we'll find better sounds."

The vocals were mainly cut at House of Blues Studio, and many were tracked with a Sony C800, a high-end tube mic. "It's awesome, just great sounds," says Nezey of the mic.

Most of the songs on the CD were mixed at Pacifique Studios in North Hollywood by Nezey's friend Greg Ogan, who had also been heavily involved in the earlier phases of the production. Additional mixes were done by Peter Mokran (Michael Jackson, Whitney Houston), but Nezey wanted Ogan to do the bulk of it due to his familiarity with the project. "I just wanted to keep everything really organic," says Nezey. "He knows all the intricate parts and what needs to be brought out because he was there from day one." em

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BONNIE WRIGHT

Bass and Circuitry

Lisle Ellis discovers new electro-acoustic pathways.

New York City has always been a hotbed of experimentation, especially when it comes to avant-garde jazz. For bassist Lisle Ellis, who has worked with certified heavyweights (Cecil Taylor, Paul Bley) and contemporary rebels (John Zorn, Peter Brötzmann), the legacy of the city's arts and music scenes has been a near-constant source of inspiration going back to the late '70s, when he lived in the city and studied at the Creative Music Studio in Woodstock.

By Bill Murphy

Ellis recently relocated to New York after spending more than two decades in Canada and California. During that time, he co-founded two key collectives and released a string of studio albums.

Toward the end of the '90s, Ellis turned almost exclusively to painting, which, in an unexpected way, ended up pushing him in a new musical direction. "With visual art, because you work alone, you tend to have music in your environment, so I started listening to electronic music on the radio late at night," he says. "I got so excited by it that I just decided, 'Well, I've got to learn how to do that.'"

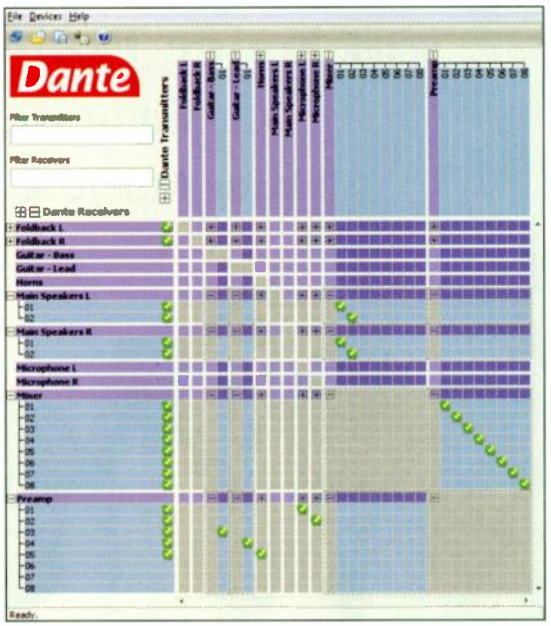
As Ellis incorporated electronic influences into his music, his playing setup evolved into what he now refers to as "bass and circuitry." His current rig features an Eminence upright bass outfitted with dual pickups: a magnetic String Charger, which feeds a laptop running Ableton Live and Native Instruments Reaktor, and, at times, Kenaxis software; and a piezo that comes standard with the Eminence. The piezo unit "has the [more] natural bass sound," he says, "which goes directly into the mains."

Last year's *Sucker Punch Requiem* (Henceforth, 2008), conceived as an homage to painter Jean-Michel Basquiat, demonstrated his hybrid approach. Tracked with a seasoned ensemble featuring Oliver Lake (sax), Holly Hofmann (flutes), George Lewis (trombone), Mike Wofford (piano), Susie Ibarra (drums), and Pamela Z (voice/electronics), the album captured the immediacy of acoustic jazz, but with electronic overtones.

The album was largely edited in Digidesign Pro Tools, but the most overtly processed moments occurred in the track "Summonings" and in the three "Perishables," which Ellis put together in Ableton Live. At times, the musicians seem to mimic electronic sounds acoustically, with Ellis acting as the conduit. (He also supplemented the atmospherics with synth pads built with Native Instruments Absynth and Korg's Wavestation plug-in.)

"For me, bass playing is a very tactile experience," he explains, "so I needed to find that with electronic music—something visceral, something I could touch. And then I thought about how pushing a fader relates to how much I love pulling on a string. It's not just about being able to write code and program. You can engage hardware, and that was an epiphany for me."

Ellis continues to explore his bass-and-circuitry paradigm in new contexts; he's working on a recording with his trio Audible Means, and has also been collaborating with Matmos and Baltimore-based Jason Willet. "I've been fortunate enough to work with some amazing, creative people," Ellis says. "And a lot of these connections I'm talking about—whether it's to Basquiat or to bass playing through string circuitry—it's all flowing in some direction. I guess I started it with my artistic life. Where it's going, I don't really know, but I'm very excited by it." em



COURTESY AUDINATE

FIG. 1: Audinate's controller software provides matrix routing of all audio signals on the network.

Easy Does It

Digital audio networking made simple. | By Scott Wilkinson

As all electronic musicians know by now, digital audio has transformed nearly all aspects of modern music production. But one area remains largely analog: signal distribution within recording studios and live-performance venues. Audio distribution systems are prone to all the analog bugaboos, such as signal degradation over long cable runs, electromagnetic interference (EMI), and ground loops.

Several companies have developed various solutions to this problem based on the concept of digital audio networking. However, these systems suffer from several limitations of their own. For example, setting up the network is often quite complicated. In addition, most of these systems can support only one sample rate and bit depth, and clock errors lead to loose timing between networked devices.

An Australian company called Audinate (audinate.com) has thrown its hat into the ring. In 2006, the company was spun off from the National Information and Communication Technology Australia (NICTA) research institute to commercialize a digital audio networking system called Dante.

The Audinate system uses standard IP (Internet Protocol) messaging on 100 Mbps and 1 Gbps switched Ethernet networks and offers much more flexibility and ease of use than earlier systems. Audio and control data can easily coexist on the same network, along with traffic such as email, Web browsing, and other office data, allowing it to be implemented using an existing network infrastructure. In addition, PC and Mac applications can be connected to the audio network using the computer's built-in Ethernet port.

Multiple sample rates and bit depths can share the same network, and all clocks on the system are synchronized to a master clock independently of the audio data, allowing sample-accurate playback from different devices on the network. Latency can be as low as 82 µs, and it can be fixed or variable for different devices and pathways. For example, an audio channel might travel over a gigabit switch to a monitor speaker with sub-millisecond latency while also being sent from the stage over a 100 Mbps venue-distribution network with a latency of 4 ms.

Perhaps most important, Dante is truly a plug-and-play system. Thanks to Audinate's Zen technology, all Dante-enabled devices on the network automatically discover each other and configure themselves. Also, each audio channel can be labeled with a logical, descriptive name instead of an incomprehensible number, and the assigned names are stored in each device and retained even if the power is turned off.

With no other traffic on a 100 Mbps network, Dante can carry up to 32 channels of 96 kHz/24-bit audio or 96 channels of 44.1 kHz/16-bit audio with a latency of 1 ms; a gigabit link can carry at least ten times as many channels. A switched Ethernet environment with a gigabit backbone can accommodate even more channels, especially when the data is unicast from one device to many. To be fair, real-world networks require at least 30 percent of the available bandwidth to allow some headroom and support a reasonable amount of control traffic, reducing the number of channels that can be practically conveyed.

Currently, there are more than 25 licensees of Dante technology, including PreSonus, Dolby, Peavey, Symetrix, and Whirlwind. In addition, Audinate offers a software implementation called Virtual Soundcard for Windows or Mac, which lets you use software tools such as DAWs with no additional hardware required. All Dante products also come with controller software to route signals as needed (see Fig. 1).

Dante clearly points the way toward a future in which digital audio can be easily sent wherever it needs to go without the hassles of nonstandard networking systems or the pitfalls of analog distribution. I look forward to watching it grow as companies introduce products that avoid the flames of networking hell. em

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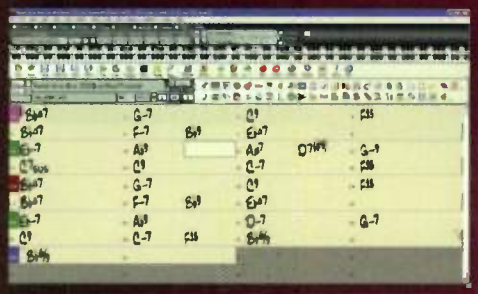

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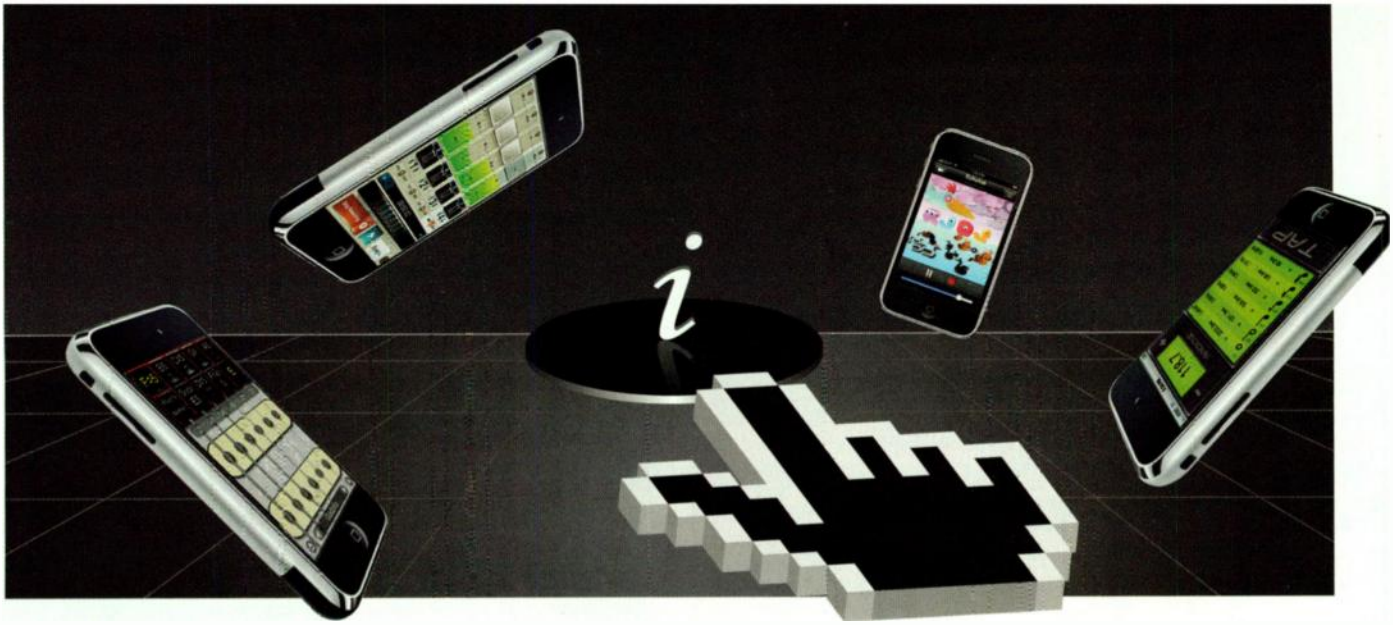

iPhoning It In

Music apps are plentiful for the iPhone and iPod touch—but which ones are worth buying?

By Mike Levine

Software developers are taking advantage of the audio, visual, and touch-sensor capabilities of the Apple iPhone and iPod touch to crank out a steady stream of music applications for those devices. The apps, which are distributed through Apple's iTunes Store, are compatible with both units' operating systems, and are typically quite inexpensive; most cost less than $10, and many are less than $5.

Although the majority of these apps are designed primarily for fun rather than music production, there are some serious musical tools available, including recording, beat-programming, controller, and utility programs. Many of these apps offer relatively frequent free updates (as compared to conventional computer software), which can be downloaded easily right into your phone.

ONLINE BONUS MATERIAL

The number of music apps is constantly expanding. When I started researching this story, there were 35 pages of 20 apps each in the music category on the iTunes Store. As I write this four weeks later, there are now 41 pages. By the time you read this, there will surely be many more.

One of the dilemmas you face when contemplating purchasing one of these apps is that there's often no way to know for sure before buying it how useful it will be. So my aim here was to scout through this jumble of applications, looking for ones *EM* readers might find beneficial. I mainly focused on apps that have at least some practical utility, although I couldn't resist including a few of the purely fun ones, as well.

Hitting Record

There are plenty of mono audio-recorder apps, and all the ones I've tried record uncompressed WAV or AIFF files at 16-bit, 44.1 kHz quality. Many also have lower-fidelity settings to save disk space. Note that while the recording apps are compatible with both the original and 3G iPhones, they only work with second-generation iPod touches, not the first-generation models.

You can record directly into the iPhone through its built-in mono mic, and it provides serviceable sound for voice recordings or for capturing song ideas or rehearsals. You could also use the mic on the Apple headset that comes with your iPhone, although the sound quality is not as good. The iPod touch has no built-in mic, so you'll need a third-party model such as the Alesis ProTrack or the Blue Mikey to get audio into your device. These mics, which can also be used with the iPhone (see sidebar "Take Two" for more information), plug into the dock connector and support stereo recording, assuming you're using recording software that does, as well.

Most of the recording applications offer Wi-Fi synching to transfer files to and from the computer, which is typically an easy process. A number of the programs require that you install a Helper application on your computer for file transfer. Some let you email files up to a certain size. As this story was going to press, Apple announced Version 3 of its OS for iPhone/iPod touch, and one of the features is built-in voice memos with file-trimming and emailing capabilities. Version 3 is scheduled to be released sometime this summer.

Probably the most feature-rich recording app is iProRecorder (V. 1.3, BIAS; $4.99; see **Fig. 1**). Not only does it support stereo recording (when used with compatible hardware), it offers location stamping, a scroll wheel, and the ability to append to an existing recording. It also lets you attach photos to recordings, organize your files into categories, email files up to 100 MB, sync using Wi-Fi, and send files directly to BIAS' Peak audio editor (Mac). It also has a record timer, accurate stereo meters, variable playback speed, and more.

If you just need a simple recorder for mono voice recordings and to use as a musical sketch pad, Recorder (V. 7, Retronyms; $0.99), which also offers Wi-Fi sync and emailing of files, is both inexpensive and easy to use. Just hit the big, red Record button and go. A good free option is iTalk Recorder (V. 1.04, Griffin), which also is

designed for fast-and-easy recording. It gives you three quality settings, offers an Append feature, and transfers files using Griffin's free iTalk Sync app for Mac or Windows.

Multitrack Recorders

A number of 4-track recorder apps are now available. All let you record four separate mono tracks (stereo recording isn't supported) and offer Wi-Fi export of the individual files to your computer. Although you wouldn't want to track your new CD on one of these apps, they're useful as scratch pads for songwriters on the go.

My favorite of the bunch is FourTrack (V. 1.2, Sonoma Wire Works; $9.99; see **Fig. 2**), which provides solid functionality and is the only one of the 4-track apps with pan controls. It also lets you upload tracks to your computer as WAV files (or directly to the company's RiffWorks software for Mac and Windows) using Wi-Fi sync. FourTrack has no internal bounce-to-disk function (none of the 4-track apps I found do), but Sonoma Wire Works is planning one for a future update. I really like the simplicity and responsiveness of FourTrack's controls. It has meters that seem fairly accurate, which is important because the iPhone's built-in mic has no gain control so it's easy to overload it. FourTrack even lets you do manual punch-ins. Right now, it doesn't have a metronome, so you'll have to do a spoken count-off if one is needed, but a click-track feature is planned for an upcoming release.

FIG. 1: The BIAS iProRecorder provides a wide range of features including stereo support (when used with a compatible stereo mic).

A low-priced newcomer to the multitrack space is GigBaby! (V. 1.3, ioMetics LLC; $0.99), which has a surprisingly robust feature set considering its price. You get four tracks of recording (no punch-in, though) and a metronome that can be used with the recorder or as a stand-alone, and also features some nice graphical indicators. A small library of drum loops is provided, which could be useful for songwriting inspiration, and a setlist manager for gigs is also included.

Instrumental to Success

There's no shortage of instrument apps for the iPhone/iPod touch. However, many suffer from fairly substantial latency delay between when you hit the touchscreen with your finger and when a note actually sounds. Instrument apps with high levels of latency can be very frustrating to use if you're trying to play in time with a beat. One way to lessen latency is to restart your iPhone or iPod touch before launching an app. Restarting your device is a good first step if your app is giving you problems of any type. Some apps prompt you to restart, but many don't.

Some of the most responsive instrument emulations come from Moo Cow Music, whose entries include Bassist (V. 1, $2.99), which lets you trigger electric-bass sounds from a virtual fretboard with a variety of articulations; and Guitarist ($3.99), which offers several different ways to play a virtual electric guitar, and includes delay, wah, and fuzz effects. The company also makes piano, organ, and full-band emulations. On the percussion side, I really liked Frontier Design Group's percussion app Cowbell Plus (V. 1.2, $1.99) and DigiDrummer (V. 2.7, Magnus Larsson; $1.99), which gives you eight drum pads and a range of kit sounds.

On the synth side, perhaps the most fully featured app is Noise.io (V. 1.2.2, Amidio Inc.; $9.99; see **Fig. 3**), which is both a synthesizer and a sequencer. It has a cool "kaos"-style controller in addition to a virtual keyboard (which is small and limited). It allows you to record and overdub parts (it has three types of sequencers), and has a snap-to-grid feature. Noise.io sounds quite good, and its synthesis and editing capabilities are surprisingly deep. It has three tone generators, three LFOs, six effects, and WAV export. Its biggest drawback is a cryptic and complex user interface. That said, if you're willing to spend the time to learn it, you'll be impressed.

FIG. 2: Sonoma Wire Works' FourTrack gives you multitrack recording capabilities.

Get With the Programming

Apps that allow you to program instrument parts, rather than play them, are more successful because latency isn't an issue. There are many such apps, but here are my favorites.

BeatMaker (V. 1.3.2, Intua; $19.99; see **Fig. 4**) gets my vote as the most comprehensive music-production app on this platform. It turns your iPhone or iPod touch into a full-featured, loop-based, trigger pad–equipped production environment. It even works as a sampler and lets you edit the start and end points and place your samples—or imported WAV files—onto trigger pads. (File import/export is supported through the free BeatPack software for Mac and Windows.) It has two effects buses, a pattern-based sequencer and step sequencer, and a passel of included content kits from such artists as Richard Devine. It too requires some time to learn its UI, but it's surprisingly intuitive and powerful (see **Web Clip 1**).

A fresh approach to step sequencing is offered in the cube-like interface of iDrum (V. 1.0.2, iZotope; $4.99). It comes in several editions, which offer genre-specific sample sets for rock, hip-hop, house, and more. You can edit its existing song collections or program your own beats. In addition to drum sounds, you get one-shot bass, guitar, synth, and effects samples. When you're finished, you can send your creations to your computer, but only as M4a-format ringtone files. However, if you own iZotope's iDrum app for Mac or PC, you can export your patterns directly into that. If not, you could, as a workaround, export your pat-

FIG. 3: One of the many edit screens in Amidio's Noise.io.

tern as a ringtone, open it in a waveform editor on your computer, and convert it to a WAV or AIFF for use in your DAW.

The next five apps sound good and offer a variety of programming options. The one thing they don't offer, though, is a way to transfer files to your computer, other than patching a cable from your device's headphone output into a line input of your computer audio interface.

iSyn (V. 1, audioMIDI.com/VirSyn; $4.99) is an impressive new app that arrived on the market just as I was finishing this story. It gives you two monophonic synth tracks and a drum track that can be programmed into patterns on a grid-style sequencer with a slick-looking interface (see Fig. 5). You can store up to 32 patterns per Project, and up to 32 Projects all told. There are eight drum kits (mostly electronic) and 32 synth patches available, and you can tweak, program, and save your own sounds. Each synth has three oscillators, a lowpass filter, and an amp/distortion module. Either phaser, flanger, chorus, or delay can be added to each track. Other features include an X/Y controller that provides you with additional real-time control options and Live mode, which gives you either a keyboard to play the synth sound or a swirly looking, 8-pad drum controller. The drum pads have a bit too much latency to be really useful, however.

If you're looking for a programmable app that emulates the classic Roland TR-808 and 909 drum machines, and the TB-303 bass synth, you'll love TechnoBox (V. 1.9, AudioRealism; $9.99). It does a good job of emulation and has a deep programming interface.

BtBx (V. 1.1, Pure Profit; $3.99) is a very flexible app with a step-sequencer interface that gives a sampled electronic drum kit, synth basses, trumpet, percussion, and keyboard. Each sound can be reversed on any sequence step and can have its volume, cut-off frequency, and resonance adjusted. There are also simple distortion and delay effects available for each sound. You can store up to 16 patterns.

For a nice array of good-sounding electronic drum samples, try IR-909 (V. 1, roventskij; $4.99). It has a Roland-style step-sequencer through which you can trigger sampled kits from the TR-909, 808, 707, and 606 drum machines, among others. You can edit several sound parameters and store up to four patterns.

Randgrid Synthesizer and Drum Machine (Retrolink HB; $7.99) provides another take on pattern programming for electronic drums and bass synth. It's feature-rich, but its user interface is vexing.

Control Freaks

If your computer has wireless connectivity or is hardwired onto a wireless network, there are a number of apps that allow you to control your DAW or MIDI plug-in.

> There are a number of apps that allow you to control your DAW.

ProTransport (V. 1.0.3, Far Out Labs; $7.99; see Fig. 6) handles a variety of transport functions for Ableton Live, Digidesign Pro Tools, and Apple Logic and Soundtrack Pro. To make it work, you must first download and install the free ProRemote Control application for your Mac (Windows is not supported). In Pro Tools, you can you control transport features including scrub and shuttle, and you can also zoom the timeline and jump to and add markers. In the rest of the supported DAWs, the transport functions work fine, but, depending on the DAW, some of the other features don't work. Still, for $7.99, you get remote transport control, which is a heck of a deal. If you want to get even more serious, Far Out Labs also makes ProRemote (V. 1.0.3, $99.99) and ProRemote Light Edition (V. 1.0.3, $35.99), which combine transport functions with channel-strip control of 32 and eight channels, respectively, for the same supported DAWs.

Another controller solution is ITM MCU (V. 1.0.7, Silicon Studios; $5.99), which gives you eight channel strips with volume, mute, solo, and record-enable, as well as transport controls. It supports Ableton Live and Mackie Tracktion, officially, but also works with Apple Logic and MOTU Digital Performer. Additional functionality for Live users includes separate Clip and Scene launching and navigation controls. You need to run the iTouchMidi MCU software (a free download) on your Mac or Windows machine to make it work. The virtual buttons respond very nicely, but the faders can be difficult to engage. According to the developers, this problem was introduced on a recent OS update and will be addressed on the next update of ITM MCU (which should be out by the time you read this).

Silicon Studios also makes remote MIDI-control apps that run with its iTouchMidi OSX or iTouchMidi Win software (which are free downloads). There are several available, but my favorite is ITM Keys (V. 1.2.1, $5.99), which gives you a MIDI keyboard that, although not velocity sensitive in the conventional sense, does output differ-

FIG. 4: The Pad screen and a pad's volume control from Intua's BeatMaker.

ent velocities depending on how high (vertically) your finger strikes a particular key. Interestingly, latency is not a major problem with ITM's MIDI controllers, especially compared to many iPhone instrument apps.

Feed the Meter

While many iPhone software developers try to balance utility and entertainment value, Studio Six Digital has taken a decidedly more serious approach with apps that cater to the engineering side of music production. One that's very handy is SPL (V. 1.4, $5.99; see **Fig. 7**), which is a full-featured decibel meter that uses the iPhone's built-in mic or an external one. Studio Six Digital also makes the lower-priced SPL Meter (V. 1, $0.99), which is designed to emulate a familiar, budget-priced, analog decibel meter from a popular electronics-store chain.

Another Studio Six Digital product is RTA (V. 1.2, $9.99), a real-time analyzer that has calibration settings for either the iPhone's built-in mic or an external measurement mic. (It plans to release its own iPhone measurement mic soon.) The company's other apps include Generator (V. 1.3, $5.99) signal generator and FFT (V. 1.3, $19.99), an audio-analysis tool.

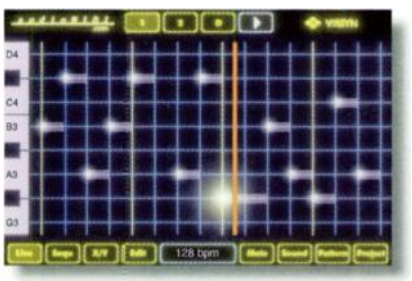

FIG. 5: The Sequencer window in iSyn offers intuitive operation and flashy graphics.

Reference and Learning

For those who are learning jazz standards or just like to play them, iReal Book (V. 1.2, Massimo Biolclati; $7.99) gives you chord changes for 550 tunes. Due to copyright restrictions, no melodies or lyrics are included. It's probably just as well, because they'd be very tough to read, considering the size of the screen. One big advantage this electronic version has over its paper predecessors: a Transpose button.

There are several music education apps in the iTunes store, but my favorite is called Karajan (V. 1.2.1, Holger Meyer; $14.99). It's a little pricey (relatively speaking), but it takes advantage of the iPhone/iPod touch's audio capabilities to present a series of interactive ear-training and theory exercises with four levels of difficulty.

Fun, Fun, Fun

Finally, here are some music apps that don't necessarily have serious utility but are fun to use.

Probably the most enjoyable iPhone app I've tried so far (and I've tried a lot) is RjDj (V. 0.6.5, Reality Jockey; $2.99 for each of its

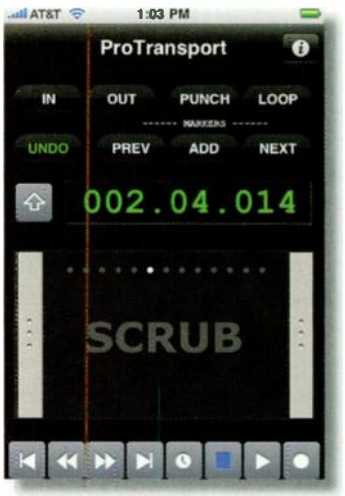

FIG. 6: Far Out Labs' ProTransport lets you turn your iPhone or iPod touch into a remote DAW-transport controller.

two editions, with a limited free version also available). Put on your headphones and select a "Scene," which is actually a preprogrammed chain of effects that sometimes includes music tracks. When the sounds in the room or the sounds you're creating musically come through the microphone, they interact with the processing to create all sorts of interesting and unusual soundscapes with a wide stereo image (see **Web Clip 2**). The developers call it a "reactive" process. You can also record your RjDj session for later playback. The version I tested had no

Take Two

At the time of this writing, the Alesis ProTrack ($199.97, see **Fig. A**) and Blue Microphone's Mikey ($79) are the only two stereo-mic options for the iPod touch and iPhone. Both will give you stereo results when used with an app that supports stereo recording, such as BIAS' iProRecorder.

The ProTrack and the Mikey both use the iPhone/iPod touch's dock connector (unlike the iPhone's headset mic, which plugs in through the headphone jack), but have a different physical approach. The ProTrack, which is more full-featured, surrounds your iPod touch or iPhone like an extended case, and has a pair of built-in condenser mics in an X/Y configuration, as well as XLR/¼-inch combo jacks for connecting your own mics.

The less-expensive Mikey, which is aimed primarily at the consumer space, has stereo mics that are located inside of its case. It swivels for optimal positioning, and has a sensitivity control for adjusting incoming volume, and a speaker for playback (which is designed for conventional iPods, which don't have speakers).

Owners of the iPhone should note that neither mic is officially approved by Apple for the iPhone. However, that's more of a formality than an issue of compatibility. Although I didn't get a chance to test them out for this story, industry sources have confirmed to me that both will work just fine, as long as you put your iPhone into Airplane mode. Doing so shuts off the phone operation, which otherwise could interfere with the audio stream.

FIG. A: The Alesis ProTrack can be used with an iPod touch or iPhone, and provides X/Y stereo miking.

Tuning Up and Keeping Time

How would you like to carry around a tuner and metronome in your pocket at all times? Apps for the iPhone and iPod touch make that a reality, and there are plenty of options from which to choose. Because the tuners need a mic, iPod touch owners will need an external microphone to use the tuning applications.

Of all the tuner apps, my two favorites are Cleartune (V. 1.3.2, Bitcount; $3.99; see Fig. B) and OmniTuner (V. 1.55, Mauvilla Software; $5.99). Cleartune offers excellent pitch detection, support for tempered tunings, and a pitch pipe mode. OmniTuner also has outstanding pitch detection, and offers several types of tuning displays, including Fretboard mode, which lets you choose presets for a variety of guitar open tunings, as well as for other stringed instruments (including mandolin, banjo, violin, viola, and cello).

FIG. B: Bitcount's Cleartune gives you excellent performance and support for tempered tunings.

My top metronome pick, which combines both features and accuracy, is Metronome TS (V. 1.31, Thezi Studios; $3.99). It provides visual (a virtual baton) and aural reference (with a choice of tones), multiple selectable rhythms, tap-tempo, and more. A free alternative is Metronome-iTick (V. 1.3, Music Motion), which has a digital-style visual display, adjustable time signatures, and user-changeable sounds.

Although not a metronome per se, BPM Tap Tempo (V. 1, Audiodog; $0.99) is very handy. It allows you to tap in the tempo of a song you're listening to and get the associated delay times for that tempo, along with the corresponding LFO frequencies for synching up with a synth patch.

export feature, but Reality Jockey is planning one for its next update (which will also allow users to download additional Scenes). I experimented with playing instruments into RjDj and got some pretty cool results. It could be a useful tool for sound designing.

Guitarists and non-guitarists alike will love iShred (V. 1.41, Frontier Design Group; $4.99). It turns your iPhone or iPod touch into a cool-sounding virtual electric guitar that you play somewhat like an autoharp. Buttons on the top let you choose chords or scales from a collection of classic songs (e.g., "Highway to Hell," "Godzilla"), and you strum or tap the virtual guitar strings and play away. Depending on the song you've loaded, you get either a clean or distorted sound. You can add a bunch of nifty virtual stompbox effects, too. Frontier also makes Guitar (V. 1.4.1, $3.99), which has a similar interface but with acoustic guitar samples.

The samples in Harmonica (V. 1.1, Benjamin McDowell; $0.99) sound quite realistic. Like a real harmonica, this instrument

is designed to be played by mouth. (You can also play it with your fingers, if you'd rather.) Put your mouth up to the harmonica on the screen and inhale and you get a "drawn" note; exhale and you get a "blown" note. Its biggest drawback is that you can't bend notes. Still, it's a remarkably accurate simulation. Just don't drool on your iPhone while playing it.

The Looptastic Series of apps from Sound Trends LLC offers a cool and intuitive remixing environment, featuring a grid-like interface where different instrument and vocal loops—represented as cubes—can be dragged into the mix, raised and lowered in level, and crossfaded. A touchpad-controlled resonant filter lets you do global, real-time filter effects. There are seven different versions of Looptasic, most of which are tailored to specific dance-music genres. The Producer edition (V. 1.1) lets you import your own loops wirelessly from your computer and the program time-stretches them so they work together. Most of the apps come with ten songs and 100 loops, and cost $4.99 each. A 1-song Electro Lite edition is free and is a good way to check out the interface.

Bebot (V. 1.4, Normalware; $1.99) is one of my favorite apps. It comprises an animated robot that responds to movement on the touchscreen and belts out robotic notes. It's even polyphonic, responding to multiple finger touches at the same time with "harmonized" notes. Amaze yourself and others (although you might annoy them after a while) with this wild app.

FIG. 7: SPL from Studio Six Digital turns your iPhone (or iPod touch with an external mic) into a fully featured decibel meter.

Download Here

It seems clear that music software for the iPhone/iPod touch platform will become more and more sophisticated as time goes on. As the iPhone/iPod touch operating system advances, such as with the imminent release of V. 3, there are sure to be additional ways for music app developers to take advantage of it. Also, you can be that there will be more microphones and other peripherals released that will be capable of interacting with the apps. So keep your eye on the iTunes Application Store; things are changing every day.

(See Online Bonus Material for a list of URLs to contact the various app developers mentioned in this story.) EM

When he's not messing around with iPhone apps, Mike Levine is EM*'s executive editor and senior media producer. He hosts the monthly Podcast, EM Cast (www.emusician.com/podcasts).*

Scott Kirkland (left) and Ken Jordan in Crystalwerk's control room

PHOTOS: MITCH TOBIAS

Crystal Palace

The Crystal Method ditch the Bomb Shelter for a gleaming new recording space.

By Mike Levine

For years, Ken Jordan and Scott Kirkland, better known as The Crystal Method, recorded their big-beat electronica from a studio they called The Bomb Shelter, which they built in a converted 2-car garage attached to a 1950s-era house in Glendale, Calif. That studio was where they produced such albums as *Vegas* (Outpost, 1997), *Tweekend* (Interscope, 2001), and *Legion of Boom* (V2, 2004). The Bomb Shelter had a lot of funky ambience, but, according to Jordan and Kirkland, it was not a perfect recording environment.

"The first couple of years were wonderful. We were able to create this sort of science-fiction-looking pod surrounded by keyboards," Kirkland recalls. "We were really happy there. And we used to live there early on. But as with most places that are the size of a shoebox, you eventually get that feeling of being confined."

"It was very difficult to have anyone come over and do overdubs or to have vocalists come over," Jordan recalls. "There was just nothing set up for it. We really wanted to be able to do that." And considering that Jordan and Kirkland use guest singers for all of their songs that have vocals, it became a real issue. The Bomb Shelter's sub-par air conditioning and ventilation also contributed to their decision to start looking for a new place to call headquarters.

About two-and-a-half years ago, Jordan and Kirkland began searching and eventually settled on an industrial space in North Hollywood. There, with the help of a studio design firm, they built their striking new facility, Crystalwerks, a multiroom complex stocked with Apple Macintosh computers and monitors, Digidesign Pro Tools hardware and software, a Digidesign D-Command console, and an eye-popping collection of vintage synths and processors. The main control room (**see Fig. 1**) has hardware synths on both walls—all wired into the patchbay for easy availability. On the floor along the walls are even more vintage keyboards and drum machines, and a center island contains synths and outboard gear. To the left of the room is a soundproofed machine room that houses the computers and the Pro Tools hardware. On the right—behind sliding double-glass doors—is a live room. A second studio, currently used only for storage, is beyond that.

I had a chance to sit down with Jordan and Kirkland there, and talk about the studio, their production methods, and their new CD, *Divided By Night* (Tiny e Records, 2009; see Fig. 2), the first one recorded in the new facility. The CD features a rich list of guest vocalists including Justin Warfield, Matisyahu, Emily Haines, and Meiko, among others.

FIG. 1: A view of the Crystalwerks control room. The glass doors on the left open to the machine room.

When you were still in The Bomb Shelter, did you put vocalists in the same room with you?

Jordan: In the living room. In the kitchen.

Kirkland: What was the funniest was when we had Tom Morello [of The Nightwatchman and Rage Against the Machine] over for a [guitar] session and production work. This is a guy who's probably used to working in beautiful studios. And we set his stack up in the kitchen; it was a really bizarre setup.

Has having this big new space with its improved ergonomics made the production process smoother for you?

Jordan: You never know what's going to happen when you're trying to make art. You get everything set up and art still has to be inspired. But it's much more enjoyable to come here, where everything works and everything's on a patchbay. Yeah, that's a true joy. So I think it's helped a lot.

So you haven't missed the vibe of The Bomb Shelter?

Jordan: I've never felt that.

Kirkland: Yeah, I never missed the vibe of the last six odd years at the place, but [I did miss the way it was] early on, when everything was kind of hard wired without a computer. You could just run a DAT and you could get an idea without having to bring up a sequence and figure out the tempo; that kind of stuff that just sort of happened spontaneously. Obviously, we made some great music in that studio so there are those memories. But as far as what we've been able to create here, and our work environment now, it doesn't compare.

Was it challenging to produce so many different singers on *Divided By Night*?

Jordan: Working with different vocalists, overall it's just fun. On this album, it was half, or less than half, that cut the vocals here, though. We wanted everyone to come here, but due to where people lived, or because people were more comfortable in their own studio, we ended up talking with them or meeting with them, and sending them tracks. And they would cut the vocal either in their studio or at a studio near them.

So you didn't get to actually produce them when they were singing.

Jordan: We did with Sign Language.

Kirkland: And with LMFAO, and Meiko.

Jordan: Also, Meiko's track, "Falling Hard." With Matisyahu ["Drown in the Now"], there was a lot of going back and forth. But with "Kling to the Wreckage," Justin Warfield recorded at a [different] studio, but we were talking with him and working with him.

Kirkland: On the Matisyahu track, Matis was working with David Kahn at the time on Matis' album. And both of them made time in their schedule to fit in this track, to do the vocals for us. David did a really great job of producing the vocals and some really great

things on the mix side of the vocals.

Do you typically write a song with a certain artist in mind, or do you find someone who will fit after you've written the music?

Jordan: Yeah, it's more the song develops along, and then we start thinking of who it might work for.

Kirkland: On "Falling Hard," we had this really, really beautiful track that we were very happy with as an instrumental, but we felt it could be that much better if we could get the right vocalist on it. And we found Meiko and she just had this really beautiful voice, and the things she had done, the things that we had heard, didn't sound anything like the stuff that we were doing, or even the track that we had sitting there. And she came by and we had a really great conversation. And we played her a few things, and she was really comfortable with that track, and she came in and gave it a really beautiful vocal that sort of has the feeling that everything was created at once.

What would you say has been the biggest challenge of doing the album?

Jordan: I don't know. Everything always is sort of a natural development. Certainly involving so many different vocalists and still maintaining a band identity on the record.

Kirkland: The hardest thing is not to get wrapped up by looking at the clock. We sort of wear both hats when we're in the studio. The producer side of us wants us to get the songs done and get an album out and move forward, and the artistic side of us wants to take the time and let songs develop and get the most out of our album or out of each song.

Did you use live drums at all on this record?

Kirkland: We did on two tracks.

Jordan: Samantha Maloney played.

Kirkland: We used lots of live bass and a

Crystal Synths

When you look around Crystalwerks, synthesizers are everywhere. They're mounted on the walls, sitting on the ground along the walls, on the table on the island in the middle of the control room, and even on shelves in the machine room. Vintage, modern, analog, digital—you name it, they've probably got it. And that's just the hardware synths. Jordan and Kirkland also use a large variety of software synths. When I asked them which they used more of on *Divided By Night*, Jordan said that it was "60-40 for the virtual synths. This is the first time it has broken the 50-percent barrier."

And which virtual ones did they favor? "The ones we used a lot of on this record were the [Arturia] Jupiter 8V and [Arturia] CS-80V plug-ins," Jordan says. "Also, a couple of the ARP 2600 things," Kirkland adds. The G-Force Oddity and impOsCAR were used a lot, as well, as were Native Instruments' Absynth, Electrik Piano, FM-8, and Reaktor. "There's some great Reaktor stuff on this record," Kirkland says. "Also, funny enough, [we used] the McDSP synth, Synth One. On the track called 'Black Rainbows,' there's this really beautiful, big, big synth. I was really surprised how good that one sounded. Also some of the Korg stuff has been really helpful. The Mono/Poly and the WaveStation [plug-ins] sound really great."

When Jordan and Kirkland are tracking with one of their vintage hardware synths that predate MIDI, they'll obviously record live audio right to Pro Tools. When using more modern hardware synths, they'll sometimes record a MIDI track rather than audio, and work on a final sound later. "Well, if it's something with really good MIDI implementation, we'll go ahead and record MIDI," says Jordan. "But, like with the Memorymoog [see **Fig. A**], even though it has limited MIDI, we're generally always recording audio with that."

"On this record, we got into a lot of using some of the quantize features in Pro Tools," adds Kirkland. "Stuff with more swing. We did more of that and sending it through some of the Nords or the [Alesis] Andromeda. But it's been a good combination.

"A lot of the stuff on this record was just me sitting in front of [the synth], hitting Record, and doing a bunch of takes," Kirkland continues. "That's what we're sort of familiar with from not having great control over some of our analog synths, and having limited audio tracks to record to." In the band's early days, Kirkland says, "We would record 20 or 30 minutes of DAT, left and right, drum signal on one side and synths on the other, and go in and cut it up and do a lot of sampling."

With all the synths they have, both virtual and hardware-based, which one is their top choice? "If there was, God forbid, some sort of disaster when someone said, 'Grab your favorite,'" says Kirkland, "definitely the [Roland] Jupiter 6 would be the first one out the door. It's always been the warmest, edgiest synth in our arsenal. It's all over this record.

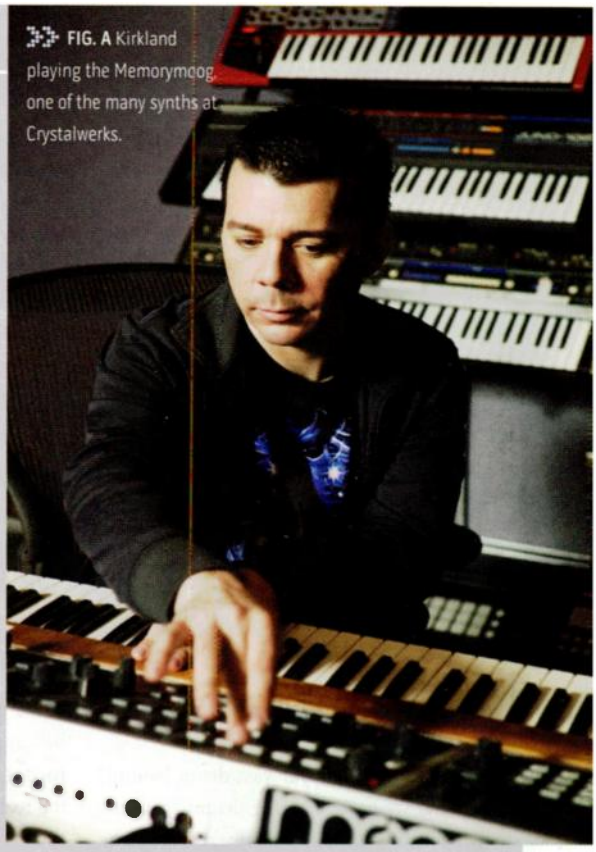

FIG. A Kirkland playing the Memorymoog, one of the many synths at Crystalwerks.

little bit of live guitar.

What about drum loops?

Kirkland: There are still some loops. We've got a vast loop library that we've collected over the years that we manipulate before they go into [a track]. There are very few perfect loops out there that haven't been overused to the point that the next time you hear them, you just want to turn the radio off.

In what way do you manipulate them?

Kirkland: Some we'll just EQ or pitch up or pitch down. But for the most part, it's been a lot of stuff in [Ableton] Live and [Propellerhead] Reason—using Redrum in Reason.

Do you ReWire Live to Pro Tools?

Kirkland: We have, yeah, to dig deep into our loop library with all the various effects that exist inside Live, change the dynamics of the sound, the texture of some of the loops. But for the most part, we use our vast drum [sound] library that we have, creating drums from the start. Kick, snare, hat. And we're using the MIDI tools within both Reason and Pro Tools to get the different feel out of the loops and drums that we create.

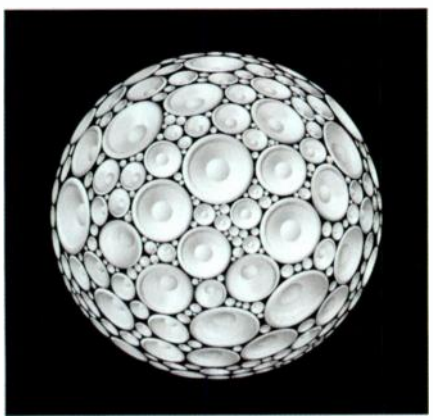

FIG. 2: The cover of *Divided By Night*, the Crystal Method's new release.

You both play keyboards, right?

Jordan: Scott plays them well, though. [Laughs.]

Kirkland: A lot of stuff was played by me. But we both have the idea of what we want it to sound like and what we want to get out of the gear we have, and, like I said, things that are played in, rarely ever stay the same. We love cutting things up and sending things back out to some other programs. There's one that's called Effectrix [Sugar Bytes]. So we'll send these sounds through some of the programs that don't have the RTAS or the TDM license [so they can't be used in Pro Tools]. For example, we'll bring up Live first and then bring up Pro Tools so it's not synched, and then just get the tempo and transfer stuff over and listen to it. It's sort of like what we used to do when we would manipulate a lot of stuff within a sampler, the E-mu sampler. Send things over, dice it up, send it through different internal effects, and then feed it back through and find something great. Sometimes you'll have 15 or 20 different takes of a loop being manipulated, and then you'll send it back in and then you'd find slivers and pieces of those 15 different takes that would create a 4-bar loop. I mean it's that kind of stuff that is sort of the basic Crystal Method sound.

You previously used MOTU Digital Performer, but now you've switched over to Pro Tools. Was it a big change for you?

Kirkland: It wasn't, but it was a change because we had been using the TDM audio side so we were comfortable with the plug-ins.

Digital Performer and Pro Tools do have a lot of similarities.

Kirkland: They're very similar, so we adapted really well and we started to create from very early on when we got things set up.

Have you been happy with the MIDI editing in Pro Tools?

Jordan: Yeah, we have been. We use a lot of the real-time properties. We do still keep MIDI tracks running a lot, especially when we're using a lot of the plug-in synths. So those will stay MIDI almost until the end before we finally bounce them. There's still a lot of control over it. We are coming from the Digital Performer world, so that's really our only real comparison outside of Reason or something like that. So I don't know, apparently there is more stuff on others like [Apple] Logic and whatever but...

Kirkland: I'm not saying that Pro Tools is in any way simple. They've really made leaps and bounds from 5 to 6 to 7. And now that Version 8 is out, like I was saying earlier, we're really excited to finish this album so we can install 8 because you never want to install a new system in the middle of a project. But, yeah, the audio side of it is really where everything happens. Ninety-five percent of it is running audio that was recorded or manipulated in some way. To us it sounds superior to any system that we've used in the past.

With the new system that you have, with your new console and all your synths wired into the patchbay, have you been running a huge amount of tracks per song on this album, or are you starting to say, "Oh, we better pull it back a little"?

Jordan: We actually are used to running tons of tracks.

What's the highest track count you've had on a song?

Jordan: We're using every voice on a few of them. There are like 96 voices, but that's only 48 stereo tracks. But every time we introduce some thing or return or plug-in or something, it's getting used up.

Kirkland: We've had some vocals that have been recorded outside the studio, [such as] the tracks that we did with Emily Haines from Metric. She did the vocals in New York, with direction from us. And they sent us, it was probably 18 vocal tracks with layers. There are quite a few voices being consumed on most of the mixes on this.

Talk about how you got all those cool bass sounds, the kind of legato, distorted ones on the new CD.

Kirkland: On "Kling to the Wreckage," that bass is from the Alesis Andromeda sent through various different plug-ins. On the track that's tentatively called "Cobalt" now, there's a 2600 plug-in from Arturia. And there's also the [Roland] Jupiter 6 that comes in with a bass sound.

So you don't have a particular synth that you use to go for that kind of sound usually.

Kirkland: No, it's more the saturation and the

> Always EQ and mix with compression on.

processing that we put it through that gets us to a sound that we're comfortable with. But like on "Slipstream," that's the [G-Force] Oddity that has that sort of long, modulated bass sound. Like I said, we used lots of live bass on this record.

And then you process the heck out of it.

Kirkland: Yeah. And it goes between live bass and synth bass. For us, it's a perfect marriage of analog and digital.

Let's talk about your mixing procedures. Do you mix as you go and then just tweak it, or do you pull everything down and start over?

Jordan: We always mix as we go. So we never just say, "Okay, today is mix day on this song," bring it up from scratch and mix it. So it's always mixing on the go, trying to get it better and better all the time.

So your mixing process isn't a separate entity.

Jordan: It hasn't ever been like that.

Kirkland: Because most of the time, on the early records, what we sort of got used to was just Ken and I working on everything from sound development to song structure to writing to playing to producing to engineering. It was just the two of us in that little Bomb Shelter, without any sort of recall system. When we first started, it was eight tracks of audio with maybe some ADATs coming in. So you would never pull all the faders down [and start over]. Especially with all the sends and returns that we had. We did it a few times, and it was like, "Uhh, it doesn't sound as good."

So you had to work on one song at a time from tracking through mixing?

Kirkland: In the early days.

Jordan: One at a time, yeah. [Laughs.]

Kirkland: The first album that's how we worked, one song at a time.

So how long would it take you to do a complete song?

Jordan: Sometimes it was quick, sometimes really long. [Laughs.]

Kirkland: It's weird having to think about doing that now.

Jordan: Yeah, recall is such a gift.

I did notice that when you were showing me how you got that bass sound on the Memorymoog [see Web Clip 1], your assistant had digital pictures of the knobs. Are those what you use for recall sheets now?

Jordan: Yes.

Kirkland: You can never trust some of the old gear to save properly or maintain its memory. You never know when that battery is going to die or something's going to happen to it.

How do you make your drums sound so big? Do you use parallel compression?

Jordan: Generally, when everything is in the box, and this is usually how we're mixing now, generally all the drums get bused to one drum bus, and then we do some lighter stereo-bus compression on that drum bus. We always try to do that so they're kind of always in the same room. Instead of things just jumping out of left-field, level wise and stereo-field wise, [it's more cohesive] if everything sort of gets the same treatment. Like, if you're using any verb, kind of have a general send from your drum tracks going to the same verb or verbs, and then everything gets the same sounds. We probably will do some soft compression and then some hard limiting. But the hard limiting is always a very little bit of gain reduction, just to try to even it all out and keep it loud.

So when you're compressing them, are you typically using a hardware outboard compressor?

Jordan: We haven't done that on this album. But we used to do that a lot. One tip is always get your compression in early and mix from that. A lot of people I talk to still wonder, "Okay, when do you put the compressor in?" At the very beginning. If you add a compressor or a limiter, then your levels, your dynamic range, and your frequency all change kind of radically. Always EQ and mix with compression on, because you can't just add it like some magic plug-in that's going to fix your track later. You have to be mixing with it the whole time.

But if you notice a track is jumping out in spots, later you could throw something on it, no?

Jordan: I'm talking about stereo-bus compression. Either on auxes for groups or your overall stereo bus.

What's your opinion about the issue of the "loudness wars," and how people are complaining about CDs being overcompressed?

A number of the bass parts on the new CD were played on a Fender bass and then heavily processed.

Pitch Shifting in Pro Tools 8

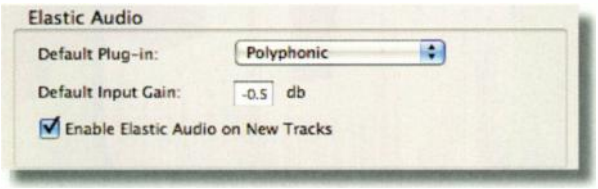

FIG. 2: Elastic Audio preferences let you choose which of the real-time plug-ins will be the default for new Elastic Audio–enabled tracks. This preference is linked to the plug-in chosen for preview in a browser.

in region names. Once you've satisfactorily pitch-shifted a loop, you should immediately rename it to reflect its new pitch. If it's already selected, press Command+Shift+Option+R (Control+Shift+Alt+R); if not, double-click it with the Grabber (not the Separation Grabber) to open the Region Name dialog. If you've retuned individual notes, you'll first want to consolidate the loop by pressing Shift+Option+3 (Shift+Alt+3).

With vocals, you'll need to do more manual editing. When there's a clear break between words or syllables, you'll have no trouble finding an edit that allows a natural-sounding pitch change, but trying to hide tuning edits in a legato phrase is more difficult. Always cut on zero crossings to prevent clicks. Short crossfades can help smooth the transition—because the waveforms are coherent, use the equal gain curve to prevent a volume bump. Tuning across a legato transition may simply be impossible with Elastic Audio. Win or lose, you'll quickly discover why auto-tuning software often struggles with such transitions (and why the so-called Cher effect is so easy to create with those plug-ins).

Once you've properly separated your regions, select the first region that requires tuning and press Option+5 (Alt+5) on the numeric keypad to open the Elastic Properties window (see Fig. 3). To audition the start of the region in context, press Command+Option+Left Arrow (Control+Alt+Left Arrow). Pro Tools will begin playback by the pre-roll amount before the region and continue past the region start by the post-roll amount. Pre- and post-roll do not need to be enabled, but they must be set to appropriate non-zero values. To audition the end of the region in context, press Command+Option+Right Arrow (Control+Alt+Right Arrow).

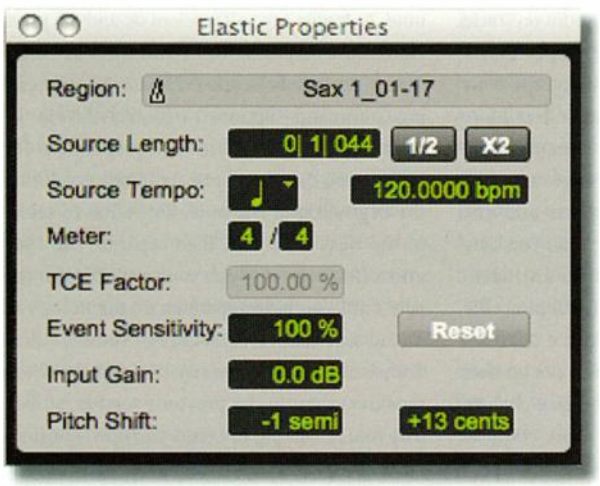

FIG. 3: Pitch shifting is controlled from the Elastic Properties window. You can raise or lower the pitch of a selected region by as much as two octaves in hundredths of a semitone (cents).

Enter the desired amount of pitch adjustment in the Elastic Properties window and then audition the results. If you use the mouse to drag the pitch-shift fields up or down in value, the cursor will remain focused on the track, allowing you to select the next region by pressing Control+Tab (Start+Tab). The workflow then becomes audition with the shortcut, tune with the mouse, audition to confirm, advance with the shortcut, and repeat. Because the Elastic Properties window floats, the mouse remains focused on the pitch-shift fields.

Establishing fluid procedures like I've described here allows you to work efficiently, saving you time and allowing you to remain focused on the creative judgments instead of the technical process. Pro Tools has always been designed to take maximum advantage of keyboard shortcuts—if you find yourself clicking around the interface a lot, you're making life harder than it needs to be. Study the keyboard shortcuts and analyze how they can help you.

One more shortcut introduced in Pro Tools 8 that will come in handy during this process is Shift+S to solo the current track. (Note that Shift+M mutes the current track.) Critical tuning requires being sure that the pitch sounds right in context with the other tracks, as well as being sure that the tuning didn't cause any artifacts or awkward transitions, so you'll want to solo each pitch change to confirm that it's clean.

Name That Tuning

You can also transpose regions on an Elastic Audio–enabled track from the Event Operations window. However, transposing by key or to a single pitch is not allowed, as these would require Pro Tools to know the original pitches. Looped regions cannot be transposed, although transposed regions can be looped. A quick workaround to transpose all looped iterations by the same amount is to press Command+Option+U (Control+Alt+U) to unloop the regions, which automatically flattens and selects the looped iterations. Transpose them as necessary, and then press Command+Option+R (Control+Alt+R) to reloop them.

> Study the keyboard shortcuts and analyze how they can help.

The process of changing the pitch of a region can sometimes cause an increase in the region's highest peaks. Although this is not ordinarily audible, if it causes the peak to clip, then the resulting distortion can be quite disruptive. When that happens, a clip indicator appears to the left of the region's warp indicator (see Fig. 4). To mitigate this, the Elastic Properties window has an Input Gain field that allows you to adjust the region's gain prior to pitch processing. If you work with very hot samples on a regular basis, you can set a nega-

> Always EQ and mix with compression on.

processing that we put it through that gets us to a sound that we're comfortable with. But like on "Slipstream," that's the [G-Force] Oddity that has that sort of long, modulated bass sound. Like I said, we used lots of live bass on this record.

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What's your opinion about the issue of the "loudness wars," and how people are complaining about CDs being overcompressed?

A number of the bass parts on the new CD were played on a Fender bass and then heavily processed.

Jordan: Yeah, that's a big discussion with us all the time. Because everything we've done has lots of peaks and valleys. We like how loud records are, so I don't know. We've been using Brian Gardner [for mastering]; we really like the sound he gets, and he doesn't really do that wall-to-wall limiting thing. But it's going to be interesting mastering [*Divided By Night*] because we do want it loud, and we're aware that if you play a track with a lot of dynamics next to another track that's just like totally pegged, if you're A/B'ing them, you might say about the one with more dynamics, "What's wrong with this one? It's not as loud." That's going to be the discussion and we're going to deal with that. Because we do want it loud, but we do want dynamics, for sure.

Kirkland: The way we write, we're always aware of that. Our goal is to make an album that you can listen to from beginning to end and have that experience of listening to a piece of art that has those different emotions and that different dynamic sound to it. A lot of our tracks are big, bombastic tracks, but there are moments in each one where it does get down, it does get quiet, or the track is sort of stripped down to a sound that allows it to breathe a little bit.

> I find quarter-note delays are a little too long and eighth-notes are sometimes a little too short.

Do you have signature effects techniques you like to use? Like for delays, for example?

Jordan: Delay-wise, overall, a dotted-eighth delay is generally available on every song.

Because a straight value is not as interesting sounding?

Jordan: Yeah, it's always a little funkier, a little cooler with a dotted-eighth. And it's not too long. I find quarter-note delays are a little too long, and eighth-notes are sometimes a little too short. We really like the tape-emulation delays. They're warmer, and you get that weird sound they have, especially adding wow and flutter, it's not quite as mechanical.

One last question: How would you say *Divided By Night* differs from your previous work, musically?

Jordan: Certainly, there are more vocals than we typically have on our albums. It's much more musical, it's more song oriented; it has more chord changes and more instrumentation than all of the other ones.

Kirkland: Like Ken said, it's much richer tapestry of musicality and warmth and the songs develop in different ways. A lot of people [ask], "Does it still sound like Crystal Method, that sort of distorted, edgy, big sound?" And I think a lot of the songs do have that. Some of the songs don't seem to have that, and then all of a sudden there will be a song that really rips into that and opens it up. I think it's just the natural development of where we've come from. We never want to sound like the last record.

((To see a video tour of Crystalwerks with Jordan and Kirkland, go to the Online Bonus material section at emusician.com)

Mike Levine is EM's executive editor and senior media producer. He hosts the monthly Podcast, EM Cast (www.emusician.com/podcasts).

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Pitch Shifting

Exploring Elastic Audio's new dimension.

By Brian Smithers

Digidesign introduced Elastic Audio in Pro Tools 7.4, offering powerful and flexible time correction within its industry-leading DAW. In Pro Tools 8, Elastic Audio sprouts a new ability to change the pitch of an audio region. Transposing a loop or tuning a vocal is just a few clicks away.

Don't put away your Melodyne just yet, however. Elastic Audio has no intelligent algorithm for determining pitch—there's no *auto* to this tuning. You can change a region's pitch by as much as two octaves in either direction in increments of a cent, but it's up to you to decide how much tuning is required. Furthermore, pitch changes are applied only to entire audio regions, so to change the pitch of a syllable you must first separate that syllable from the rest of the word.

Still, even as we wait and hope for the wizard to grant Elastic Audio a brain for tuning, we can get a lot of creative and corrective mileage out of its existing capabilities. In this "Master Class," I'll share some techniques I use to make quick work of pitch manipulation in Pro Tools 8.

Elasticity

As with time correction, Elastic Audio pitch correction requires first that the track in question be declared an Elastic Audio track. Of the four available Elastic Audio plug-ins, only Polyphonic and Rhythmic allow pitch manipulation independent of time manipulation. Varispeed, of course, ties the two together, but it's counterintuitive that Monophonic doesn't work. If you have X-Form installed, it can be used for pitch manipulation, but not in real time. Given a fast processor, that may not be a problem as the rendering of a short phrase takes only a few seconds. If the delay is a problem, you can always work in real time with the Polyphonic or Rhythmic plug-in and then change the track to X-Form when you have it tuned. Polyphonic and Rhythmic can both operate in either real-time or rendered mode, and you can toggle that behavior by Command+Control-clicking (Control+Start-clicking on Windows) on the Elastic Audio plug-in button (see Fig. 1).

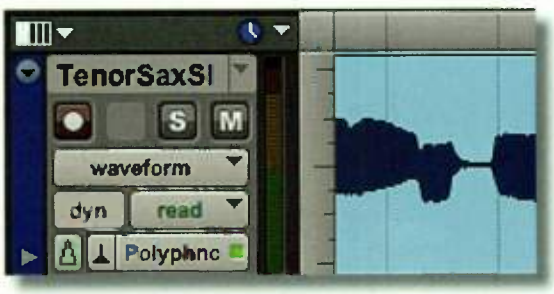


FIG. 1: The Elastic Audio plug-in button shows the name of the current plug-in, and the green light indicates that it is processing in real time. Command+Control-click (Control+Start-click on Windows) on the button to toggle between real-time and rendered processing.

Whether Polyphonic or Rhythmic is best for a particular source is something only your ears can judge; no description I could offer would be a worthy substitute. X-Form, however, is better than either under almost any circumstance. You can set a default real-time Elastic Audio plug-in in Pro Tools' Preferences under Processing (see Fig. 2). Unfortunately, no third-party algorithms can be assigned for use by Elastic Audio. Given that the TCE Trim tool can use third-party plug-ins, I hope that Elastic Audio will eventually follow suit.

When using Elastic Audio for time correction, it's standard to make the track tick-based, but this may not be the best course for pitch correction. If you make the track tick-based, then Elastic Audio will automatically adjust to tempo changes, but you may not want your precisely edited and tuned lead vocal to do that. If not, make the track sample-based to preserve its timing regardless of tempo tweaks. For pitch-shifting loops, tick-based is still probably best.

Two caveats related to Elastic Audio pitch manipulation might affect your workflow when comping tracks. First, in Pro Tools HD you cannot use Elastic Audio on tracks with explicitly assigned voices. Elastic Audio tracks must use dynamic voice allocation. (This does not affect LE or M-Powered as they always use dynamic voice allocation.) Second, although region groups can include pitch-shifted regions and you can crossfade pitch-shifted regions, you cannot group crossfaded regions on an Elastic Audio–enabled track. Instead of grouping edited regions on a comp track, create a duplicate playlist and consolidate them. You can go back to the unconsolidated playlist to make changes if necessary; it's only one step more complex than grouping and ungrouping the regions.

ONLINE BONUS MATERIAL

Care in Carving

Because tuning is a region property, the first step is to separate the parts that need tuning. To change individual notes of a bass loop or any other part with clearly defined attacks, try using Tab to Transient to move the cursor from note to note. To toggle Tab to Transient on and off, press Command+Option+Tab (Control+Alt+Tab). Turn Commands Keyboard Focus on by pressing Command+Option+1 (Control+Alt+1). To separate an individual note in preparation for tuning, you can then press Tab until you locate the beginning of the note, Shift+Tab to select to the next note, and B to separate the note into a new region. Work your way through the part until you have separated all the notes you intend to retune. Note that in Pro Tools 8, Tab to Transient is much more sensitive (some say too sensitive) than in the previous version, so you may find it locating to events you don't consider transients.

Unlike AudioSuite processing, which names processed regions to reflect the process used, Elastic Audio does not reveal itself

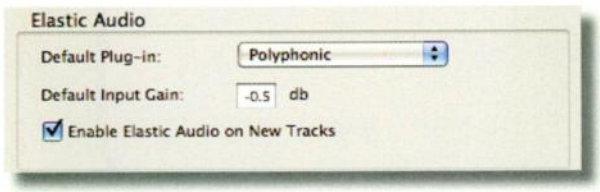


FIG. 2: Elastic Audio preferences let you choose which of the real-time plug-ins will be the default for new Elastic Audio–enabled tracks. This preference is linked to the plug-in chosen for preview in a browser.

in region names. Once you've satisfactorily pitch-shifted a loop, you should immediately rename it to reflect its new pitch. If it's already selected, press Command+Shift+Option+R (Control+Shift+Alt+R); if not, double-click it with the Grabber (not the Separation Grabber) to open the Region Name dialog. If you've retuned individual notes, you'll first want to consolidate the loop by pressing Shift+Option+3 (Shift+Alt+3).

With vocals, you'll need to do more manual editing. When there's a clear break between words or syllables, you'll have no trouble finding an edit that allows a natural-sounding pitch change, but trying to hide tuning edits in a legato phrase is more difficult. Always cut on zero crossings to prevent clicks. Short crossfades can help smooth the transition—because the waveforms are coherent, use the equal gain curve to prevent a volume bump. Tuning across a legato transition may simply be impossible with Elastic Audio. Win or lose, you'll quickly discover why auto-tuning software often struggles with such transitions (and why the so-called Cher effect is so easy to create with those plug-ins).

Once you've properly separated your regions, select the first region that requires tuning and press Option+5 (Alt+5) on the numeric keypad to open the Elastic Properties window (see Fig. 3). To audition the start of the region in context, press Command+Option+Left Arrow (Control+Alt+Left Arrow). Pro Tools will begin playback by the pre-roll amount before the region and continue past the region start by the post-roll amount. Pre- and post-roll do not need to be enabled, but they must be set to appropriate non-zero values. To audition the end of the region in context, press Command+Option+Right Arrow (Control+Alt+Right Arrow).

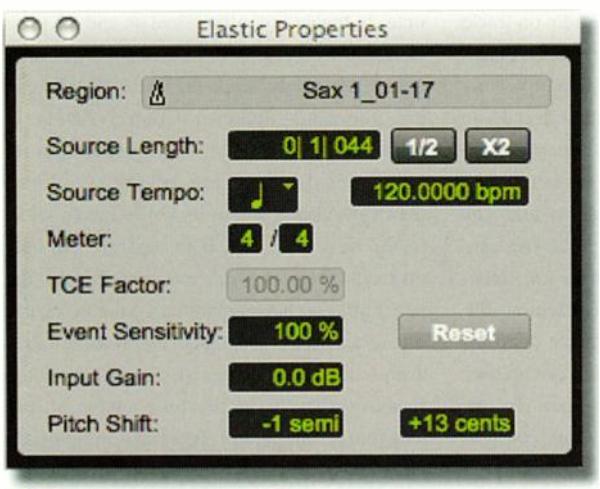


FIG. 3: Pitch shifting is controlled from the Elastic Properties window. You can raise or lower the pitch of a selected region by as much as two octaves in hundredths of a semitone (cents).

Enter the desired amount of pitch adjustment in the Elastic Properties window and then audition the results. If you use the mouse to drag the pitch-shift fields up or down in value, the cursor will remain focused on the track, allowing you to select the next region by pressing Control+Tab (Start+Tab). The workflow then becomes audition with the shortcut, tune with the mouse, audition to confirm, advance with the shortcut, and repeat. Because the Elastic Properties window floats, the mouse remains focused on the pitch-shift fields.

Establishing fluid procedures like I've described here allows you to work efficiently, saving you time and allowing you to remain focused on the creative judgments instead of the technical process. Pro Tools has always been designed to take maximum advantage of keyboard shortcuts—if you find yourself clicking around the interface a lot, you're making life harder than it needs to be. Study the keyboard shortcuts and analyze how they can help you.

One more shortcut introduced in Pro Tools 8 that will come in handy during this process is Shift+S to solo the current track. (Note that Shift+M mutes the current track.) Critical tuning requires being sure that the pitch sounds right in context with the other tracks, as well as being sure that the tuning didn't cause any artifacts or awkward transitions, so you'll want to solo each pitch change to confirm that it's clean.

Name That Tuning

You can also transpose regions on an Elastic Audio–enabled track from the Event Operations window. However, transposing by key or to a single pitch is not allowed, as these would require Pro Tools to know the original pitches. Looped regions cannot be transposed, although transposed regions can be looped. A quick workaround to transpose all looped iterations by the same amount is to press Command+Option+U (Control+Alt+U) to unloop the regions, which automatically flattens and selects the looped iterations. Transpose them as necessary, and then press Command+Option+R (Control+Alt+R) to reloop them.

> Study the keyboard shortcuts and analyze how they can help.

The process of changing the pitch of a region can sometimes cause an increase in the region's highest peaks. Although this is not ordinarily audible, if it causes the peak to clip, then the resulting distortion can be quite disruptive. When that happens, a clip indicator appears to the left of the region's warp indicator (see Fig. 4). To mitigate this, the Elastic Properties window has an Input Gain field that allows you to adjust the region's gain prior to pitch processing. If you work with very hot samples on a regular basis, you can set a nega-

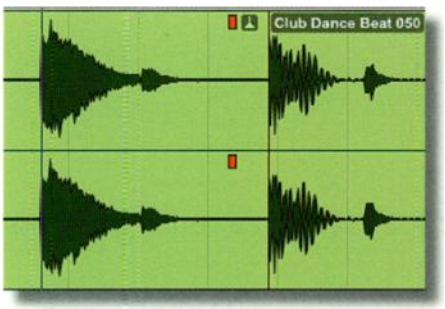


FIG. 4: The clip indicator, to the left of the warp indicator, shows clipping caused by Elastic Audio processing. To prevent this, lower the input gain setting in the Elastic Properties window.

tive default input gain for all Elastic Audio processing in the Elastic Audio preferences.

Elastic Audio does not work with Sound Designer II (SDII) files. You should really be using Broadcast WAV (BWF) files anyway, as those have become the de facto industry standard. If you are working with an older SDII session or loop library, though, you'll need to force the audio to the session format. Fortunately, Pro Tools 8 allows LE and M-Powered sessions to use mixed file formats if necessary, something that was previously limited to HD systems. Don't mix formats unless you have to, however, as performance will suffer.

Pro Tools 8.0cs2 has a reported bug involving Elastic Audio and the Clear Selected command. When you select unused regions to clear them from your session, the underlying audio for Elastic Audio regions can sometimes be selected and subsequently deleted if you use the Clear, Delete command. Of course, with hard drive space getting ever cheaper, you have very little reason to be deleting files at any point. It's better to waste space on takes you think you'll never need than to risk losing something of value.

Although you may wish for an intelligent pitch-detection algorithm, Elastic Audio's pitch-manipulation capabilities offer a great deal of power. Wielded wisely, its toolset allows you to retune loops and massage vocals efficiently and with results that sound good. The key, as with any tool, is finding a workflow that lets Pro Tools do the work while you remain focused on the creative decisions. em

Brian Smithers is department chair of workstations at Full Sail University and the author of Mixing in Pro Tools: Skill Pack *from Cengage Learning.*

Creative Submixing

Use subgroups for better track management and effects processing. | By Brian Smithers

It's a fundamental notion of arranging and orchestration that any group of musicians can (and often should) be subdivided into smaller groups. Common groupings include the rhythm section, the horn section, the string section, background vocals, and so forth. Each section has its own collective individuality, tending to enter and leave the arrangement together, follow the same dynamics, and play either unison or harmonized parts of the same lines.

Mixing, as the progeny of arranging and orchestration, also deals with groups of tracks. The dozen or so tracks that comprise a typical drum kit are commonly grouped so you can treat them as the single musician they represent. Similarly, you might group several background-vocal tracks for processing with the same delay and reverb.

The term *group* is used in mixing to mean two different things. A *fader group* simply gangs the faders and other channel controls of selected tracks together so that moving one moves the rest. An *audio subgroup* (or just *subgroup*) routes the outputs of selected tracks through a common bus, returning them to a single track for manipulation and processing (see "Step-by-Step Instructions" for creating a subgroup in Cakewalk SONAR). Either a fader group or a subgroup can thus control the collective volume of a set of tracks, but you can also use a subgroup to process the tracks as a unit and then print them.

ONLINE BONUS MATERIAL

Stem-Wear

One common use of audio subgroups is to organize numerous tracks by bringing them all under the control of a few returns. In a musical context this is often called a *submix*, whereas in film and video work it's more often called a *stem*, but this distinction is not dogmatic.

By routing music, effects, and dialog each to its own stem, you greatly simplify making changes to the overall balance of these three groupings at the final mix (see Fig. 1). Because all of the source tracks are still available, you retain the ability to go to any individual track and make an adjustment. You can route subgroups to other subgroups, too. The effects stem might be made up of large and small effects subgroups; large effects might include explosions, wind, traffic, etc.

You can use the same technique to print submixes. In SONAR, choose the desired bus in the Export Audio dialog box. In Digidesign Pro Tools, simply route the bus to an audio

STEP-BY-STEP INSTRUCTIONS

Step 1: Create a new stereo bus and name it for the subgroup.

Step 2: Select all tracks to be included in the subgroup.

Step 3: Click on the output selector of one track and choose Selected Track Outputs.

track and record it there. (See **Web Clip 1** for more on stems and submixes in Pro Tools.) You can recombine the resulting files in a new session to reduce track count. Some engineers like to take such submixes—typically at least drums, guitars/keys, and vocals—to the mastering engineer to guarantee greater flexibility with any balance problems. Be careful, however, to include effects returns such as reverb and delay when printing submixes.

Group Hug

When working with insert effects such as dynamics processors (as opposed to send/return effects like time-based processors), use a subgroup to combine multiple tracks on a single track that you can compress with one plug-in instance. With a multitrack drum kit, for example, compressing each track individually lets you shape and control them, but reigning in the kit requires that the threshold of a single processor analyze the kit as a whole.

There are different schools of thought regarding whether to include the overheads and room mics in the subgroup. If you do, you'll have even more room sound in the mix when the kit is compressed. Some engineers do that to compensate for a particularly small or dry drum room. Omitting them from the subgroup lets you leave them uncompressed for a more natural sound or squash them extra hard for a more dramatic effect.

If I don't have time to double-track a horn section, I will sometimes subgroup the horns to two identical returns (buses in SONAR, auxes in Pro Tools) to create a mult. I then either delay one copy slightly or process them differently (using EQ, tape sim, or another timbral effect) and then pan them to opposite sides. Because Pro Tools features independent left- and right-pan on stereo tracks, I will sometimes flip the orientation of one aux track, so the left-right order of the horns on the left side of the mix is right-left on the right side. The net effect is of a larger, thicker section that is present in both speakers but doesn't clutter the middle of the mix. Try this technique on background vocals or strings.

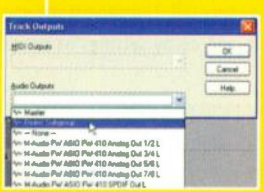
It's not that often that you find a tool that both makes your job more manageable and gives you more creative options, but subgroups are like that. Once your left brain has the basic procedures down, your right brain will start seeing more and more imaginative ways to apply them. em

FIG. 1: Here, multiple tracks of dialog, music, and effects are made into subgroups (stems) to organize the session and make it more manageable.

> Submixing makes your job easier while expanding your creative options.

Brian Smithers is Department Chair of Workstations at Full Sail University and the author of Mixing in Pro Tools: Skill Pack *from Cengage Learning.*

Step 4: Choose the new bus and click OK.



Step 5: To process the subgroup, insert a processor in the FX Bin of the bus.

Step 6: To mult the subgroup, create a new post-fader send. It will be created on all selected tracks. Right click on the pan widget and choose Follow Track Pan.

FIG. 1: In this Reason 4 Combinator, audio is routed through the DDL-1 and RV-7 to the Vocoder Carrier input. The dry signal is also merged to mono and used for the Modulator input.

VocoVerb

Use your vocoder to tame unruly reverbs and delays. | By Len Sasso

You can create unusual reverb- and echo-like effects by following extreme reverb or feedback delay with a vocoder and using the dry signal as the vocoder's modulator. Of a vocoder's two inputs, the carrier is the signal being processed, whereas the modulator (sometimes called the program) is analyzed for its harmonic content. That analysis is used to filter the carrier so that only matching harmonic content gets through.

ONLINE BONUS MATERIAL

In the classic example of vocoding—robotic-sounding singing—speech is the modulator and a harmonically rich sound such as strings or a lush pad is the carrier. But vocoders are now put to all kinds of uses in sound design. I'll use the built-in vocoders in Propellerhead Reason 4 and Ableton Live 8 for my examples and provide templates from both applications in **Web Clip 1**.

The Hook-Up

In Reason, create a Combinator and insert a BV512 vocoder, a DDL-1 delay line, a RV-7 reverb, and a Spider Audio module. Create all modules with the Shift key held down because Reason's automatic wiring is not helpful here. Connect the Combinator's To Devices outputs to the Spider's Splitter inputs and then create a chain from a pair of the Spider's Splitter outputs through the DDL-1, through the RV-7, and into the vocoder Carrier inputs. Cable another pair of the Splitter outputs to two of the Spider's Merger left/mono inputs to create a mono mix of the incoming signal and cable that Merger output to the vocoder's Modulator input (see **Fig. 1**).

In Live 8, create an Audio Effects rack in an effects-return channel, insert Live's new Vocoder module in the default chain, and name that chain *Modulator*. Create a second chain, insert Simple Delay and Reverb modules in series in that chain, and name it *Carrier*. Set the vocoder's Carrier input to External and choose the Post FX (not Post Mixer) output of the Carrier chain as its source. You will ultimately want to mute the Carrier chain to suppress the dry signal from the output, but for setting up the delay and reverb, temporarily unmute the chain and deactivate the vocoder. (I set up a Macro knob to let me quickly toggle back and forth.)

The Tune-Up

You might use the delay, the reverb, or both to process the carrier. For choppy material such as a percussion or rhythm track, try the delay by itself and with no feedback. Set the delay time so as to shift the beat by an 8th- or 16th-note or the corresponding triplet, depending on the material. Then bring in some delay feedback or add some reverb and adjust the reverb tail to dial in the effect you want (see **Web Clip 2**). With drums, instead of using the whole track as the modulator, try just the kick drum or the snare.

The three critical vocoder settings in Reason (Live) are Shift (Formant), HF Emph (Enhance), and Decay (Release). Shift offsets the carrier bandpass filters relative to the modulator analysis bands. For example, if you're using only the kick drum as modulator, then a negative shift will bring out higher-pitched percussion. In Reason, you can also flip to the rear panel and remap the bands manually. HF Emph boosts the high-frequency end of the carrier, which often adds clarity. Decay refers to the envelope followers (virtual or real) used in the modulator frequency-band analyses. Increasing decay allows more of the carrier to ring through, an effect similar to increasing a reverb tail. Finally, the number of vocoder bands has a dramatic influence, and more is not necessarily better. Tweaking each of these settings will make its effect obvious.

For denser material such as long chords, pads, and ambient sounds, try delay times of 100 ms or less without reverb. Delays of a few milliseconds combined with high feedback produce resonator effects that add subtle color once they are masked by the vocoder. Automating the vocoder's shift or manipulating it in real time with a mod wheel is especially effective with resonator-like settings (see **Web Clip 3**).

To create a choral effect for vocals and instrumental tracks, use a tempo-synched delay with different settings for the left and right channels, and use a reverb with a fairly long tail. Then adjust the vocoder band count, shift, and decay settings as necessary (see **Web Clip 4**).

Finally, experiment with other effects along with or instead of delay and reverb. Distortion, flanger, chorus, phaser, frequency shifter, and beyond are all fair game. The purpose of the vocoder is to tame their more extreme aspects while retaining the original flavor. EM

Len Sasso is an associate editor of EM. *For an earful, visit his Website at swiftkick.com.*

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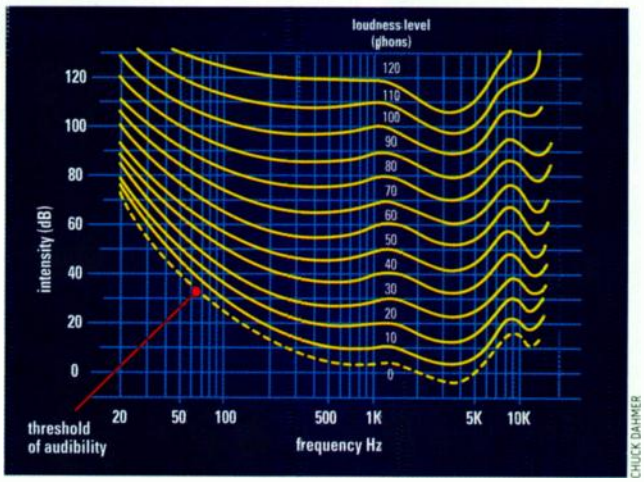

FIG. 1: The Fletcher-Munson Curves, or equal loudness contours, show the degree to which our ears are nonlinear with regard to frequency. They favor upper-mid frequencies and struggle with quiet lows and highs.

Can You Hear Me Now?

Why the Fletcher-Munson Curves are so significant. | By Brian Smithers

The human auditory system is a fascinating and complex affair. As sound reaches you, it is in various parts deflected, absorbed, and otherwise filtered by your shoulders and head. It is then collected by your pinnae (the external part of your ears), whose dimensions and geometry further affect the sound on its way to the inner ear. There, vibration is translated into neural signals, which are interpreted by your psyche. In the 1930s, two scientists at Bell Labs tried to objectively measure the linearity of this elaborate affair, and what they discovered has profoundly affected everything from the design and measurement of audio gear to the development of audio data-reduction codecs.

Dangerous Curves

Harvey Fletcher and Wilden Munson discovered that our hearing is decidedly nonlinear with respect to frequency and perceived loudness, and they mapped this data at various levels to produce what have come to be known as the *Fletcher-Munson Curves*, or more generally the *equal loudness contours* (see **Fig. 1**).

The two researchers asked subjects to compare the loudness of sine waves at different frequencies, identifying those that they felt were comparable in loudness to a 1 kHz sine wave at a fixed reference level. In general, tones at the high and low ends of the audible spectrum had to be significantly more powerful than the reference tone to be perceived as the same loudness. For example, to be "as loud as" a 40 dB SPL 1 kHz tone, a 10 kHz tone needs to be about 50 dB SPL, and a 100 Hz tone must be more than 60 dB SPL. The curve actually dips between 1 kHz and 5 kHz, with its nadir between 3 kHz and 4 kHz, depending on the reference level.

At lower SPLs, the variation is greater, while at higher levels, the variations are less significant, coming closest to leveling off at around 90 dB SPL. This is why wise mix and mastering engineers monitor at levels in the 85 to 90 dB SPL range, where our hearing is particularly flat.

The ways in which this nonlinear sensitivity is demonstrated in our audio experiences are myriad. Consider the sound of AM radio, low-bitrate audio codecs and public-address systems, all of which favor the overtones that give clarity to speech above all else. The Loudness button on consumer stereo receivers is an equalization circuit that boosts the highs and lows as the volume is lowered so the music will sound the same whether soft or loud. Noise-shaping circuits filter dither and quantization noise into the extreme upper range, where we will simply notice it less.

More Equal

To describe the concept of equal loudness regardless of frequency, the unit *phon* was developed. Each curve of the equal loudness contours defines a single phon level. For example, the curve that is 40 dB SPL at 1 kHz is defined as 40 phons; 40 phons at 10 kHz is therefore approximately 50 dB SPL and at 100 Hz slightly more than 60 dB SPL. Phons and decibels SPL are the same for a 1 kHz tone—an increase of 10 phons is equal to an increase of 10 dB at 1 kHz, but it may be more or less at other frequencies.

Many audio measurements are made using *weighting curves* that attempt to skew the results in favor of the way we actually hear. For example, the signal-to-noise ratio of a microphone preamp might be listed as 108 dB A-weighted, or sometimes just 108 dB(A). This means that the noise was filtered before measurement to exclude the extreme lows and highs to approximately the same degree our ears do at 40 phons. The rationale is that if we listen to the device at that level, then we will perceive the noise floor to be very low, even if there is significant noise in the low end of the spectrum because our ears are too insensitive to notice it. It's a reasonable proposition, except manufacturers sometimes use A-weighting for measurements at which a 40-phon reference level is of debatable relevance. Other weighting curves exist, but only C-weighting, whose curve resembles the 100-phon contour, and Z-weighting (zero-weighting), which is really no filter at all, are in common use.

Since the 1930s, other scientists have validated Fletcher and Munson's work, most notably D. W. Robinson and R. S. Dadson in the 1950s. The collective wisdom has been codified by the International Organization for Standardization as ISO 226:2003. em

Brian Smithers, author of Mixing in Pro Tools: Skill Pack, *from Cengage, teaches at Full Sail University in Winter Park, Fla.*

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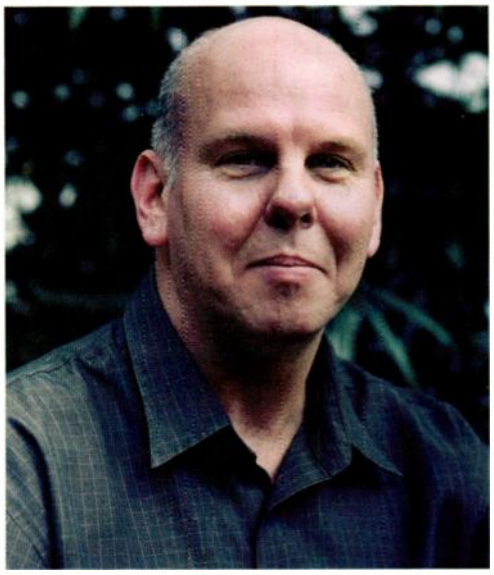


VICKIE VAUGHAN

Sherrill Blackman is a successful music publisher and award-winning independent songplugger based in Nashville.

Q&A: Sherrill Blackman

Songpluggers are essential for getting your songs placed in Nashville.

On recording projects for major acts, country music uses more "outside" songs—those not written by the recording artists or producers—than any other genre does. And when a major-label artist in Nashville records an outside song, it has usually been placed due to the efforts of a songplugger. A songplugger is someone who pitches songs for a songwriter or publisher to get them placed with a recording artist or in a film or television project.

A good songplugger won't pitch just any song. The plugger acts like a filter for label A&R staff, producers, managers, and artists by bringing them only the best songs in the catalogs that they represent. Because of their track record for finding hits, veteran songpluggers are heavily relied on by decision-makers and can often arrange meetings to play songs for them in person. As a result, writers who have a songplugger

By Michael Cooper

pitching their songs have an advantage over those who are hawking their own wares.

To learn more about songpluggers and how they can turbocharge a songwriter's career, I talked with Sherrill Blackman, owner of sdb music group, a music-publishing and independent songplugging company. Blackman was named Songplugger of the Year by *Music Row* magazine in 2004, 2005, and 2006.

You're an "independent" songplugger. What exactly does that mean?

There are two different types of songpluggers: in-house and independent. In-house songpluggers work for publishing companies. They're on staff, they get paid a salary, and they work with the writers who are signed to those publishing companies. Independent songpluggers don't really work for a company per se. We have our own companies. We hire ourselves out to writers and publishers to try to get their songs recorded.

How do you pursue getting a song cut?

We use our connections to get the song as close to [the people involved with] a project as we can, pitching directly to the artist, manager, producer, and record company A&R. Or to anyone else that may be connected to the artist: an accountant, hairdresser, housekeeper, or whoever.

What makes you decide to represent a songwriter or publisher's work?

Finding songs I believe in, am passionate about, and feel will fit a certain project. Most independent songpluggers will sift through a whole catalog of songs and cherry-pick out what they feel they can

run with and get activity on. Even if the catalog has 200 or 300 songs, they may only come away with ten or 15 or 20 they feel they can run with across the board.

Do independent songpluggers ever work on a single-song basis instead of representing an entire catalog?
It takes a catalog of songs to make [our services] cost-effective. Most of us are going to charge hundreds of dollars per month to represent a writer or a publisher. Representing only one song wouldn't be cost-effective for them. A plugger who is legitimate and honest will not take advantage of a writer or publishing company like that.

That raises another question: How can a songwriter know if a plugger is legitimate and won't just take their money in return for empty promises?
I would ask the plugger what their track record is. More importantly, ask who can they get in to see and play songs for. There are some pluggers who haven't had a lot of success but they can get in to see just about everybody. Access is very important.

I would also be really careful about someone who just hypes and blows smoke. Most legitimate pluggers are going to be pretty humble. [Scammers] hype and drop big names, almost like a carnival barker. That's a red flag.

Can you be more specific about how much songpluggers charge for their services?
The retainer is based on the size of the catalog that's being worked. For a handful of songs, you're probably talking $200 or $300 per month. [For a large catalog,] it would be close to $1,000 per month. It's not cheap to do this. We have expenses to pay: Blank CDs, printing, phone calls, postage, and all the other expenses of running a business come out of our pocket. That's what the monthly retainer helps take care of.

Are there alternatives to paying a monthly retainer?
There may be some pluggers who will consider working in exchange for a percentage of the publishing [income].

Even with a songplugger pitching your songs, there's no guarantee you'll get songs placed. What should a songwriter expect in return for hiring a songplugger?
Most pluggers are going to provide a monthly pitch report that details the song title, the day the song was pitched, who it was pitched to, [what artist] it was pitched for, and the label. Also, any pertinent comments [from the contact]: whether the outcome was a pass, a hold, "close but not quite," or, "I like this but it doesn't fit any artist right now." If a plugger isn't willing to provide a report, they may not be the one you're looking for.

Does the songplugger call the shots on which songs will be pitched for a specific project?
We're all open to pitch ideas that come from the writer or the publisher. But I've found that most writers are not good at casting their own material. The bottom line is we still have to use our own judgment on whether the song fits a particular project or not because our reputation is at stake. A good reputation is what grants you access and keeps you in business. That's all we have: our reputation and the quality of the songs we represent.

Do independent songpluggers represent more than one songwriter or publisher at a time?
Absolutely. We have to represent enough catalogs to make a living. But I try not to duplicate catalogs. For example, I've got one catalog that is real traditional, another that's contemporary, and another that's heavily oriented toward female artists. I try to keep catalogs from overlapping as much as I can. I wouldn't want two [very similar] catalogs because one of them might not get worked as much as the other.

> I would be really careful about someone who just hypes and blows smoke.

I know some writers who are signed to publishing companies that have in-house songpluggers. Yet these writers have also hired an independent songplugger. Why?
A huge company like Sony/ATV or Warner/Chappell has dozens of writers, yet they may have only three or four pluggers. If you're writer #48 [signed to one of those large companies] and you're not getting your songs pitched, you may feel like you need some outside help. So you'd hire an independent plugger to augment what the in-house pluggers are doing.

What about a songwriter who doesn't have a publishing deal? Can they just skip that step and hire a songplugger to pitch their songs?
If you're an [unsigned] writer but you feel you've got material worth pitching, maybe you would consider hiring a plugger. But in my experience, a writer is not ready for that unless they've already been through the system and have a history of cuts and hits. There are some pluggers who will take them on, but I don't work that way. I only represent very successful hit songwriters.

Does anyone offer a list of songpluggers that songwriters can use to shop around?
As far as I know, no plugger list exists. A songwriter is just going to have to do their own research. By asking around, a writer could come up with plenty of names.

Can a songwriter bypass publishers and pluggers and pitch their songs themselves?
They can, but if they're not known, they're not going to get any kind of attention. It's a "people" business. Due to the volume of material that comes in, the producers, managers, and record companies only pay attention to those people and companies they recognize. If it's an unknown writer, [they feel] they're wasting their time. That explains why prominent publishers and songpluggers get the vast majority of cuts.

There are thousands and thousands of writers in Nashville who are self-published. Everyone thinks, "I'm going to beat the system and do it my way." There's a chance it can happen, but it's very, very remote. EM

EM contributing editor Michael Cooper owns Michael Cooper Music, a music publishing company. Go to www.myspace.com/michaelcooper recording to hear some of his songs.

iZotope

Ozone 4 (Mac/Win)

A feature-packed mastering plug-in at a modest price.

>> PRODUCT SUMMARY

mastering processor plug-in
$249.99 MSRP

PROS: Excellent audio quality, metering, and documentation. Multiple processor modules. Rock-bottom price.

CONS: Can't deactivate paragraphic filters independently in mid and side channels. No dedicated level controls for mid and side channels. Maximizer often doesn't prevent digital overs. CPU hog. Steep learning curve.

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

iZotope
iZotope.com

>> In our reviews, prices are MAP or street unless otherwise noted.

ONLINE BONUS MATERIAL

GUIDE TO EM METERS

5 Amazing; as good as it gets with current technology
4 Clearly above average; very desirable
3 Good; meets expectations
2 Somewhat disappointing but usable
1 Unacceptably flawed

By Michael Cooper

Ozone is widely regarded as the cost-effective stereo mastering solution for the masses. The software plug-in supports RTAS, AudioSuite, VST, MAS, Audio Units, and DirectX formats, and combines six independent processing modules: paragraphic equalizer, mastering reverb, loudness maximizer (with dithering), multiband dynamics, multiband harmonic exciter, and multiband stereo imaging.

Ozone 4 adds dozens of new features and workflow refinements to earlier versions. Additions include mid-side processing, parallel compression, new Maximizer and Exciter modes, automatic gain compensation, and a new Preset Manager with more than 50 new presets. You also get MacroFaders that adjust several parameters at once and a bevy of new meters.

Ozone features 64-bit processing throughout and incorporates both analog modeling and digital linear-phase algorithms. It supports sampling rates up to 192 kHz. I reviewed Ozone 4.03 as an Audio Units plug-in in Digital Performer 6.02, running in Mac OS 10.5.4 on an 8-core 2.8 GHz Mac Pro.

The Big Picture

Ozone opens with a view of its new, detachable Preset Manager, which organizes 140 factory presets inside folders according to music genres and various applications (for example, to use on individual instruments). Use a preset as a starting point for mastering or select the default setup to null all settings and start from scratch.

As you select each of Ozone's six modules in turn, their controls and meters are displayed alone in the GUI. Three of Ozone's six modules offer multiband processing. You can split the dynamics, harmonic exciter, and stereo-imaging modules into as many as four frequency bands and adjust the bands' crossover points. This allows you to, for example, compress only the bass frequencies, add harmonics to just the midrange, and widen the stereo image solely for the highs.

Four of Ozone's six modules (all but the stereo imager and maximizer) can be set—independently of one another—to process either the stereo or mid and side (M-S) channels of your mix. The mid channel comprises everything that is panned to the center of

FIG. 1: Ozone's Paragraphic Equalizer module in M-S mode shows the EQ curve for the mid and side channels in orange and blue, respectively. Note the analog-modeled highpass filters' overshoot. The I/O meters are showing M-S levels here.

your mix (typically, kick drum, snare, bass, and lead vocals). The side channel contains all elements of the mix that are dissimilar in the left and right channels, such as hard-panned instruments and reverb returns.

You can use M-S processing to compress only center-panned tracks (the mid channel), for instance, without affecting the dynamics of hard-panned tracks. Or add Ozone's mastering reverb to the side channel to soak hard-panned guitars in a wash of ambience while leaving tracks in the center untouched. You can toggle Ozone's I/O meters to read either stereo or M-S levels.

Master controls allow you to increase or decrease the overall amount of processing independently for each module and for the entire plug-in. You can also bypass individual modules and change their order in the signal chain. More than 370 parameters in Ozone can be automated (assuming your digital audio sequencer supports effects automation).

Drilling Deeper

Ozone's Paragraphic Equalizer module lets you mix and match eight bands of bell-curve, highpass, lowpass, and high- and low-shelving filters (see Fig. 1). Choose either linear digital filters or analog-modeled ones that emulate vintage tube gear. Adjust the frequency, gain, and Q (bandwidth) of each band to taste. You can also capture the frequency spectrum of a favorite mix and make your current mix mirror that response.

Ozone's Mastering Reverb module offers both plate and room reverbs. You can control the reverb's size (tail decay), pre-delay, width, high-frequency damping, bandwidth, and wet/dry mix.

The Multiband Harmonic Exciter module can be set to emulate transistor, tape, or tube saturation. A new, fourth saturation mode generates only quickly decaying even harmonics. You can separately adjust the amount of harmonics and the wet/dry mix for each band. You can also delay each band by separate amounts to compensate for group delay; for example, delaying the low-frequency band slightly can make a flabby kick drum sound tighter.

A separate compressor, limiter, and expander in each band of the Multiband Dynamics module have their own threshold, ratio, attack, and release controls (see Fig. 2). The expander can produce either upward or downward expansion. You can defeat the module's automatic makeup gain and choose either RMS or peak detection for the common sidechain. You can also adjust the balance of processed and unprocessed sound in each band to create parallel compression effects, thereby preserving transients.

Ozone's Multiband Stereo Imaging module can make your mix's stereo width either wider or narrower in each of up to four frequency bands. For example, I could collapse the bass frequencies to mono to add focus to a mix's bottom end and simultaneously widen the highs for a bigger soundstage.

The Loudness Maximizer module gives you a choice of four different types of digital and analog-modeled limiters. Adjust the threshold, margin, and release controls to reduce peaks and increase the average loudness of your mix (see **Web Clip 1**). Ozone provides an assortment of dithering and noise-shaping options, too.

FIG. 1: The Q8 is the latest and most affordable member of Equator Audio's Q Series of coaxial active monitors.

Equator Audio Research

Q8

Big sound from a coaxial cube.

By Brian Smithers

>>PRODUCT SUMMARY

powered monitor speaker	$1,500 each
Equator Room Analyzer software with calibration microphone	$495

PROS: Balanced sound. Good stereo imaging with exceptionally wide sweet spot. Available room-correction and secondary-reflection-compensation kit.

CONS: No digital input. Volume control is inconveniently buried in the control applet. Unimpressive bass response.

	1	2	3	4	5
FEATURES				4	
AUDIO QUALITY				4	
VALUE			3		

Equator Audio Research
equatoraudio.com

ONLINE BONUS MATERIAL

Equator Audio Research's Q8 active monitor features an 8-inch woofer coupled with a 1-inch titanium-compression driver horn (see Fig. 1). Equator claims its coaxial "zero-point reference" design aids in imaging and widens the sweet spot by aligning the high- and low-frequency drivers in all three spatial planes. Two-hundred watts of continuous power into each driver allow the Q8s to achieve a maximum output level greater than 110 dB SPL, according to Equator's specifications. The shielded bass-reflex enclosure is a 34-pound, 13-inch cube built of ¾-inch, 13-ply Baltic birch and 1-inch high-density fiberboard. It features dual bass ports on the front.

Balanced XLR and TRS connections are the only audio inputs. No digital inputs are available, which surprised me because the Q8s digitize the incoming audio to perform crossover and room-correction processing. The "zero-slope" crossover is fixed at 2 kHz. Equator says the onboard DSP also applies corrective filters to match the transducers' output to a factory standard.

You can manage the onboard DSP with your computer via a USB connection using the included Equator Control (Mac/Win) application or the optional Equator Room Analyzer package (Mac/Win; more about that soon). Equator Control allows you to tweak the speakers' EQ curve, and it even calculates appropriate correction for your room's primary modes based on room measurements. The speakers communicate with each other via Ethernet cables.

I was at first concerned at the lack of volume controls. If your interface also has no volume control, you would have to either adjust your monitor level at your master fader (which is not good practice) or monitor through a console or other monitor controller. Fortunately, digging deeper into Equator Control reveals up to 12 dB of attenuation in the Tone Contour tab and another 18 dB in the All Speakers tab—not as convenient as a volume control, but it's not a setting you should be adjusting daily anyway.

Over the course of three months, I used the Q8s regularly for my own projects, including writing, recording, and mixing. It took no time at all to acclimate to them, as their sound is so neutral and natural. I rarely had occasion to question their accuracy, but when I did it was to wonder if they were perhaps a bit weak in the

bass for speakers rated down to 38 Hz. To try to pin down their characteristics in more specific terms, I set up a controlled comparison with my regular monitors.

Side by Side

I set up the Q8s right next to my JBL LSR4328Ps, solid performers costing about half as much. I ran my Hammerfall DSP Multiface's analog outputs into the Q8s and its S/PDIF output into the JBLs, and then matched the volume as closely as I could by ear. I set up a session in Cakewalk SONAR to switch instantly between the two sets of monitors and started with both set to their defaults, with one exception. I find the JBLs to have a very "happy" high end, so I always engage their high shelf (-2 dB at 2 kHz). A convenient side effect of the Q8's coaxial design is that its high-frequency horn is almost a foot lower than the JBL's high-frequency driver, making it easier to set them up at ear level.

I started by listening to a live recording I had done with the Borealis Wind Quintet, and I immediately preferred the sound of the Q8s. I was impressed by the immediacy of the sound. Before every classical recording, I stand onstage in front of the group with my eyes closed to find the best spot for my main mics, and the Q8s came very close to matching that feeling. My JBLs sounded like first-rate speakers, but the Q8s sounded more like the actual performance.

Listening to a commercial release of Marianne Thorsen playing Mozart (the CD version of a new DXD recording from 2L) reinforced my feelings. The Q8s have a very balanced sound, with a top end that is open without a hint of edge or hype. The imaging is very natural, with a depth that reveals the ambience of the recorded space. It's easy to accept Equator's assertion that this is the result of the wide-dispersion, high-frequency horn and coaxial design.

Contemporary Spin

I was generally more ambivalent about the Q8s on contemporary music. The hard-edged piano on Sara Bareilles' "Love Song" was actually easier to listen to on the Q8s because the JBLs seemed to exaggerate its edge. On the lead vocal, however, the lack of that edge allowed the peripheral distortion that is so trendy to shine through, making it less pleasant to hear on the Q8s. Had it been my song to mix, the Q8s would have helped me hear and fix that before it went out.

The instrumental balance throughout the track was quite even, although the bass sounded weak next to the JBLs. Given that the specs appear to give the Q8s a 12 Hz advantage over the JBLs, this was unexpected. On closer inspection, I saw that Equator rates the Q8's frequency response as 38 Hz to 22 kHz, -3 dB, whereas JBL rates the 4328s as 50 Hz to 20 kHz, ±1.5 dB. Digging deeper into the specs for an apples-to-apples comparison reveals that the -3 dB point is 43 Hz for the 4328, leaving a difference of just over a whole step. Still, on listening to Marcus Miller's version of "Frankenstein," I was able to hear the bottom of the kick drum and lower octave of the bass much more distinctly on my JBLs.

The Q8s' imaging continued to be their strong suit on contemporary music. The phantom image was more convincing, sounding less like two speakers working together and more like an independent sound source. Lead vocals and other center-panned elements sounded solid, clear, and natural. On Donald Fagen's "H Gang," the group vocals blended together the way all good singers accustomed to working in good acoustics like to hear themselves. Their sound was rich and exceptionally well integrated.

If I could combine the Q8s' imaging with a frequency response right between theirs and the JBLs', I think I'd be very happy. Equator Control's Tone Contour page offers high- and low-shelving filters with adjustable corner frequencies to achieve such fine-tuning. You can save all the room-correction and tone-contour settings as presets for convenient retuning of the system to suit particular genres or clients.

Tuning Up

The Equator Room Analyzer package includes a microphone and automated room-response-compensation software (Mac/Win; see Fig. 2). In addition to a tone sweep to find and compensate for your room's primary standing waves, Analyzer emits a series of short noise bursts to identify secondary reflections. These reflections, such as those from a console or computer display, are strong enough to interfere with the direct sound, impairing your monitors' frequency response and blurring their imaging.

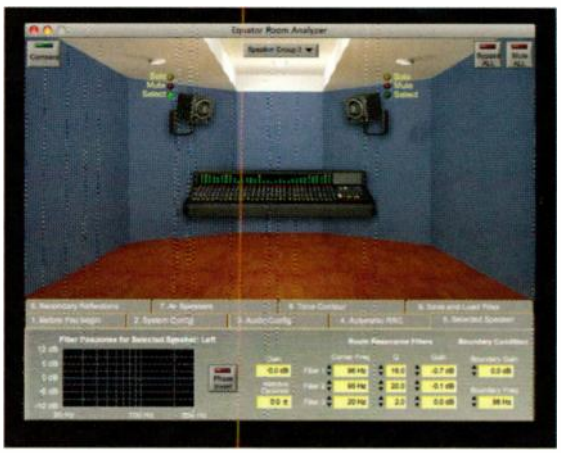


FIG. 2: Equator Room Analyzer automatically compensates for the room's primary modes and secondary reflections. It can save settings as presets to tailor the monitors' response to different circumstances.

Because my JBLs also offer integrated room-response compensation, I ran both sets of monitors through their respective calibration routines to see how much difference either made. To my surprise, neither made a big difference. Equator's analysis found only two small bumps worth fixing, one of 0.7 dB at 96 Hz and the other of 0.1 dB at 95 Hz. Likewise, it found only one secondary reflection that was worth compensating for.

On my PC, Equator Room Analyzer didn't get along with my Hammerfall, so I had to do the analysis on my Mac. Although Equator was very helpful in trying to resolve the conflict, it remains an unsolved mystery. Luckily, once I had the analysis complete on the Mac, I was able to save the settings to the monitors' flash memory (and to a file for backup) so my PC was able to take advantage of the room correction. One word of caution about the Equator analysis procedure: Wear earplugs! For setting the microphone gain, the speaker emits a pink-noise test tone that's 104 dB SPL (C-weighted) at 4.5 feet with unity gain.

Although I can't extrapolate too much from calibrating a single room, the room-correction kit worked exactly as advertised on my Mac. For a more troubled room, however, it might prove invaluable. After calibration, my impression of the Q8s was unchanged: They still sounded very even and natural, with good imaging and a wide sweet spot. I recommend them to anyone who places a high value on neutrality and imaging.

Brian Smithers is department chair of workstations at Full Sail University.

FIG. 1: The two-space Mynx is a smaller, more affordable alternative to the X-Rack, SSL's eight-space modular rack system. The Mynx can house the same modules, but it lacks the X-Rack's MIDI I/O and Total Recall.

Solid State Logic

Mynx

Classic console processing in a modular desktop system.

PRODUCT SUMMARY

modular signal processor enclosure $525

PROS: Excellent audio quality. Affordable entry price. Modular approach allows for customization. Small footprint.

CONS: Total Recall unavailable. Enclosure maxes out at eight inputs for summing.

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

Solid State Logic
solidstatelogic.com

By Eli Crews

Solid State Logic (commonly known as SSL) is in the upper echelon of audio gear manufacturers. The company's E- and G-Series consoles became the standard mixing desks in large commercial studios throughout the '80s and '90s. Today, it's necessary for even the most high-end manufacturers to cater to small home and project studios, as well—hence, the 2005 introduction of SSL's modular X-Rack system, which enables engineers on a budget to incorporate small, handpicked SSL modules in their signal paths. The Mynx is the newest member of the X-Rack family, providing an even lower entry fee into the SSL club.

Shell of Its Former Self

The Mynx XLogic SuperAnalogue Desktop Mini X-Rack is a tabletop aluminum enclosure that accommodates two X-Rack modules or a single double-wide module (see Fig. 1). Inside the enclosure's rear panel are female multipin connectors that provide power and busing capabilities to the modules. The Mynx itself has no I/O connectors; rather, each X-Rack module has its own connectors providing the balanced I/O it needs (see Fig. 2). The only port on the Mynx's surface is the power jack, which connects to the external +5VDC lump-in-the-line-type power supply.

Because the Mynx doesn't do much on its own (other than provide your desktop with the austere Solid State Logic logo), SSL furnished me with seven X-Rack modules. Every module could warrant its own review, but I'll give you the simple lowdown on each. (For more thorough descriptions, see the Online Bonus Material section at emusician.com.)

Choose Your Modules

The Mic Amp module ($975) is a very clean, open mic preamp with 75 dB of gain, phantom power, polarity reverse, and a 20 dB pad. It also offers variable input impedance, a high-quality direct input, and continuously variable highpass and lowpass filters. The VHD Input module ($1,055) gives you more tonal variance than the Mic Amp by adding a Variable Harmonic Drive distortion circuit. The legendary SSL Listen Mic Compressor also finds a home on the VHD Input module.

ONLINE BONUS MATERIAL

The Channel EQ module ($975) is a 4-band EQ. The middle two bands are fully parametric, and the high and low bands are semiparametric, with shelf-to-bell switching capabilities. The Dynamics module ($975) is split into two sections: the compressor/limiter and the expander/gate. It has standard dynamics controls, including an external (key) sidechain input and multiple-module linking.

The two-space Stereo Bus Compressor module ($2,595), the only double-wide of the bunch, is based on the highly acclaimed stereo-bus compressor from the SSL G-Series console's center section. This module adds a key input and a few more ratio settings to the classic.

SSL provides two different modules for line-level summing. The Four-Channel Input module ($1,055) provides level control, panning, and inserts on each channel. The Eight-Channel Input module ($975) accepts eight line inputs in four stereo pairs. Both summing modules work only with the Master Bus module, which means that the Mynx can house a maximum of eight inputs for summing. If you want more inputs to sum, you have to graduate to the pricier eight-space X-Rack chassis ($2,045), but then you'd also get Total Recall, which remembers all knob and switch settings for easy resetting.

The Master Bus module ($1,255) works only with other modules. It provides control over the two potential buses coming off the input modules. This module has many features, but because it's more suitable for turning a full X-Rack chassis into a mixer, I don't think it makes the best use of the Mynx enclosure's valuable real estate.

An SSL in My Studio

It was fantastic to have the Mynx in my studio for a few weeks. Swapping the modules out often got a little tedious—there are four small Allen screws per rackspace (an Allen wrench is included)—but most users will have only as many modules as they have spaces for them. I used the preamps for vocals, strings, horns, and guitars through condenser, dynamic, and ribbon mics, all to great effect. The detail and clarity of the Mic Amp made me feel like I was in the room with the various instruments. Changing the impedance setting made for subtle tonal variations, but I usually heard the greatest clarity from the default impedance. The DI on the Mic Amp sounded really good on electric bass—full, round, and warm.

Although I didn't use the VHD circuit much for tracking, it was just the ticket for distorting drums during a mix. I ran a drum sub-bus into the mic input, enabled the high-impedance mode, and put the VHD control about two-thirds toward the third harmonic setting. Using the trim control, I brought the output level down enough to crank up the gain without overloading my console's channel. I engaged the LF filter at about 40 Hz to get rid of some of the distorted sound's low-end rumble, and put the Listen Mic Compressor on at about 20 percent for good measure. This effect, mixed low in my overall drum sound, added an energy to the performance that really made the drums pop. One small quibble with the LMC circuit is that it doesn't produce makeup gain, so the bypassed signal can get significantly louder than the compressed signal.

I used the EQ and Dynamics modules for tracking, but they impressed me most when paired up as a mixing channel strip. Among other uses, they helped me wrangle a questionably miked bass drum into a quite pleasing sound. The variability of the midrange Q controls allowed me to really target the frequencies I wanted to cut in the low mids and boost in the upper mids, especially when emulating the E-Series consoles. I also loved the ability to turn the high and low bands into bell shapes; I often prefer that to shelving when equalizing bass drum as it allows me to bring out a specific resonance or overtone more clearly.

Using the gate, it's clear why gating drums came into fashion about the time SSL consoles became ubiquitous—the gate actually sounds good on drums. I'm not much of a drum-gater in general, but I might become one if I had a rack of these pups. It's surprisingly easy to find the spot at which the gate is transparently doing its job—keeping the chocolate out of the peanut butter, so to speak. The compressor sounds excellent on drums, too. It excels at controlling the dynamics without producing any compression artifacts. If artifacts are what you want, though, you can easily push the Dynamics module into overdrive, as well. I'm usually not a big fan of auto-makeup gain—I like having a knob to make up my gain—but SSL does it pretty well, bringing the compressed signal close to the same level as the bypassed signal for easy A/B comparisons.

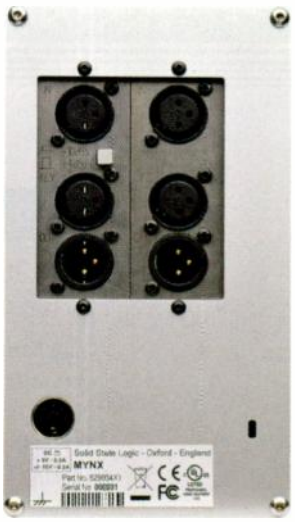


FIG. 2: The only connection on the Mynx's barebones rear panel is the power jack. Audio I/O is on whatever modules are installed.

As much fun as I had with the other modules, the clear heavyweight champion is the Stereo Bus Compressor. I normally employ a Manley Variable Mu, which I still adore, on my stereo bus, but the SSL has its own sound—a bit punchier and tighter than the tube Variable Mu, especially in the low end. The Variable Mu sounds a bit pillowy by comparison. I've been favoring the SSL on my stereo bus about 3-to-1 during the past few weeks, but I'm aware it may be just a honeymoon period.

Decisions, Decisions

The only true problem I see with the Mynx is deciding which modules to outfit it with. Just about any studio owner would be thrilled to have two channels of the preamps, EQ, dynamics, or bus compressor, whereas the Channel and Master modules are better suited for the larger X-Rack. In any case, you're looking at around $2,500 to $3,000 for a fully loaded Mynx. That's not cheap, but it's certainly fair for the quality you'd be getting. If you do pick up the Mynx, it might be a stretch to start advertising yourself as an SSL studio, but you'd be two channels closer to such lofty claims.

Eli Crews employs both valve and solid-state logic at New, Improved Recording (newimprovedrecording.com) in Oakland, Calif.

BEHRINGER USA

UMA25S

By Marty Cutler

Crazy Eddie was an iconic New York City electronics store famous for promoting its inventory at prices far below its competitors. Behringer must be the music-instrument industry's equivalent. It is quite a feat to produce the UMA25S—a combination MIDI control surface and USB 2 audio interface—for $189.99. Adding a turnkey recording system for your computer and a gig bag to carry it all must surely be driving the competition crazy.

There are few compromises other than a limitation to 16 bits (32, 44.1, and 48kHz sampling rates are supported) and the absence of XLR or ¼-inch inputs. (Analog I/O is RCA only.) The controller is a terrific value for entry-level musicians, podcasters, and professionals in need of a compact, mobile system.

Constructed of high-impact plastic, the fire-engine-red UMA25S derives power from the computer's USB port or an optional AC adapter. It's a solidly built keyboard, with two octaves of full-size, velocity-sensitive, half-action keys. The keys offer less throw than I would prefer, but you can create a Velocity curve to mitigate that problem. Keys are not wired for after-touch. Although you can assign Aftertouch to another controller, I miss the tactile feel of key beds with pressure sensors. In addition to sending notes, keys perform programming duties. The topmost 11 keys handle numerical values, with the highest serving as an Enter key. Those below perform a variety of functions.

The compact UMA25S puts everything you need at your fingertips.

BUTTON DOWN

There's nothing cheap about the feel of the buttons, wheels, slider, or knobs on the UMA25S; everything responds positively with none of the wiggle room of cheap, poorly fitted hardware. The spring-loaded, knurled pitch-bend wheel sits at the top left of the instrument with a slight ridge in the center that makes it easy to catch with your thumb. The modulation wheel is similarly designed, but without a spring, and its action feels smooth and continuous. The buttons have a neoprene-type coating, which helps buffer them against ham-handed impacts.

The bright, red LED immediately reflects parameter values for each control, and the white legend of functions stands out nicely in contrast with the instrument. I'd have no qualms about using the unit on a darkly lit stage. The visibility is particularly appreciated when editing with keys.

The lower-left section of the UMA25S starts with octave buttons. The Edit button and the Edit key let you choose between octaves and semitones. Just above, there is a Mute button with a button to its left to toggle MIDI Machine Control (MMC). MMC worked like a charm in Apple Logic 8.02 and MOTU Digital Performer 6.02.

There are several ways to load a preset. Hitting the Preset button lets you use any knob or button to select the preset of your choice. Alternatively, use the plus or minus buttons below the display screen. There are no presets for different software packages so you will need to program your own.

There is little you can't program the UMA25S to control. Eight freely assignable knobs sit above eight transport buttons, and the modulation and pitch-bend wheels, and the volume slider can take on additional chores. You program controls for software instruments in one of two ways: Use the synthesizer's Learn function to adapt it to the controller or adjust a parameter on the synth and program the UMA25S to capture that parameter. Snap TX is another handy feature: Press Edit and then hit the key to send the current state of all knobs and sliders. That's a great feature for embedding MIDI data in sequencer tracks.

HOW MUCH WOULD YOU PAY?

The included headset with mic connects to the rear with a stereo ⅛-inch jack for the headphones and a mono ⅛-inch jack for mic input. Once I adjusted its placement and toyed with the input level, the mic was eminently suitable for scratch vocals or spoken-word podcasting.

A ton of software for Mac and Windows is included in the package. You get Behringer Energy XT2, a modestly featured, cross-platform digital-audio sequencer; Sourceforge Audacity audio editor; a couple of bare-bones plug-in hosts; and more software instruments than I have room to list.

Beyond the aforementioned compromises, I have a few other quibbles. There's no MIDI In, which would let me plug my MIDI guitar

through the controller. Adjustments for the microphone input level are on the rear, making access a bit difficult. The documentation, though comprehensive, sometimes lacks clarity. Still, the UMA25S is a terrific bargain, and the ideal companion to my Macbook Pro when I want something to schlep on the road or to work in the next room.

Value (1 through 5): 4
Behringer USA
behringer.com

ADOBE

Creative Suite 4 (Mac/Win)

By Geary Yelton

In creative fields ranging from photo retouching and video editing to print design and Web development, Adobe's applications have become de facto standards for producing content digitally. Almost anyone who owns a digital camera and a computer knows about Photoshop, and the Web would not be what it is today without Dreamweaver, Flash, and FireWorks. Like thousands of other publications, *EM* uses InDesign to lay out the magazine you're reading now.

Creative Suite 4 (CS4) comprises the latest versions of those applications and more. Several bundles are available, including CS4 Web Premium ($1,699), Production Premium ($1,699), and CS4 Master Collection ($2,499). Which bundle is best for you will depend on your budget and the kind of work you do. Adobe maintains a consistent user interface across all CS4 apps. Although no paper manuals are included, you can access searchable help files, printable PDF files, and online training videos directly from the applications.

CS4's audio-editing program, Soundbooth CS4 2, is included in those three bundles, or you can purchase it alone for $199. I'll concentrate on Soundbooth here and cover other CS4 applications on emusician.com (see the **online bonus material** "Adobe CS4 Master Collection").

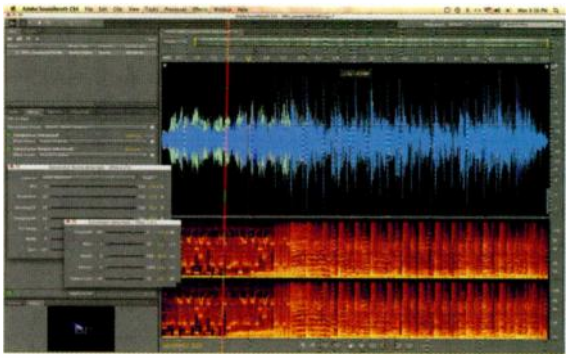
CS4 is cross-platform, but Mac users should be aware that some applications require an Intel processor. If you have a PowerPC-based Mac, you can install some apps but not others. That's why I installed Soundbooth on my MacBook Pro running Mac OS 10.5.6 rather than my Power Mac G5.

TASK-DRIVEN AUDIO

In 2003, Adobe acquired Syntrillium Software, makers of Cool Edit Pro, and shortly thereafter released Audition, a sophisticated audio editor for Windows. Soundbooth—a slightly scaled-down, task-specific cross-platform editor—is explicitly geared toward working with audio for video or rich media for the Web, especially when used with other Adobe CS4 software. Rather than furnishing Audition's large assortment of tools, Soundbooth lets you perform a more limited number of functions by clicking on tabs to open various panels.

The Editor panel contains a traditional waveform display, a color spectral display, or both. You can view stereo or surround channels either separately or layered atop one another in different colors. Soundbooth allows you to display, edit, and mix multitrack files you've assembled from numerous mono or stereo audio files. You also get a Video panel for viewing video clips as you edit their audio tracks.

The Files panel functions as Soundbooth's browser window, from which you can open audio and video files in a good variety of formats. The History panel makes it easy to undo and redo several steps at a time. Though you can add and move markers in the Editor panel, the Markers panel gives you greater functionality; you can work with all the markers in a list, and if you're working in Flash, markers can automatically sync to cue points.



Soundbooth CS4 is organized into panels you can move and group according to your preferences. You can save and recall preset panel layouts called Workspaces, which are optimized according to task.

For seamlessly editing sound and picture at the same time, Soundbooth links with Flash, Premiere, and After Effects, and all four apps can share Adobe Sound Document (ASND) files.

You can easily specify a file's overall loudness, normalize it, or insert breakpoints (called *keyframes*) that control its loudness over time. You can almost instantly fade a sound clip's beginning or end and then manually change the fade's shape. For reducing noise—a crucial task when you're editing sound for video—you can isolate a segment of the sound file containing nothing but hiss or hum (called a noise print) and then selectively reduce anything that matches that signal from the remainder of the file.

Opening the Effects panel gives you access to Effects Rack presets, each containing a maximum of five effects ranging from compression and distortion to convolution reverb and 30-band EQ. I was pretty impressed by the quality of Soundbooth's effects, though their GUIs are sliders only, very much like the graphics on some Apple and Cycling '74 plug-ins.

THE COMPLETE PACKAGE

Taken as a whole, Creative Suite 4 can't be beat for producing print or online content. Though Soundbooth makes it fast and easy to perform

selected tasks for which it's designed, Adobe Audition is more tool- than task-oriented, and it supports VST instruments and effects, MIDI tracks, batch processing, CD burning, and more. Soundbooth doesn't come with a large library of audio files like Audition does, but it does allow you to download sound effects and audio tracks called Scores from the Web without opening your Internet browser. Like all of the applications in CS4, Soundbooth is a well-designed, well-executed program, but if you have serious audio-editing needs, you may outgrow it rather quickly.

EM HOT PICK

Value (1 through 5): 3
Adobe Systems
adobe.com

U-HE

Uhbik (Mac/Win)

By Len Sasso

Uhbik ($199) is a suite of DSP effects plug-ins from Urs Heckman (u-he.com) in Audio Units and RTAS format for the Mac and VST for both Mac and Win. The bundle currently comprises eight effects with more on the way, and upgrades are always free. All but one of the plug-ins are designated by a single letter reminiscent of its function: Uhbik-A (ambience and reverb), -D (delay and echo), -F (flange and chorus), -P (phaser), -Q (semi-parametric EQ), -S (frequency shifter), and -T (tremolo). Runciter, the digital filter, is named after the main character from the Philip K. Dick novel *Ubik*, from which the bundle also derives its name.

AT FIRST TWEAK

My first reaction when I look at one of the Uhbik control panels is that I want to get my hands on it. The knobs look good enough to tweak, and there aren't so many dials, buttons, and menus that you don't know where to start. Appearances are deceiving, however. Under the hood, you'll find a lot more going on than the names on the front panel suggest. Fortunately the manual is not only clear, but it also usually provides background on the history and evolution of the effect, along with some suggested outside-the-box applications.

A quick spin through the presets reveals two more important things: These effects sound great, and they don't drive your CPU meters into oblivion. A lot of attention was paid to optimization, and that will be especially important when the next plug-in, Uhbik-X, arrives (probably by the time you read this). Uhbik-X is a rack to house four plug-ins with flexible signal routing and a variety of built-in modulators.

A HAAS OF A DIFFERENT COLOR

ONLINE BONUS MATERIAL

One of my favorites in the bundle is the tremolo effect, Uhbik-T. It uses a souped-up version of the LFO common to several Uhbik modules to modulate volume (standard tremolo), lowpass filter cut-off frequency (a smooth alternative), and a very short delay applied separately to each audio channel. That alters the perception of position owing to the Haas effect.

What makes the Uhbik-T LFO special is a 16-step pattern generator that holds 11 patterns, which you spread across multiple audio channels using the LFO's channel offset. (All Uhbik plug-ins support eight input and output channels for up to 7.1 surround mixing.) Changing patterns is especially effective applied to rhythmic parts (see **Web Clip 1**).

Both Uhbik-F and -P—the flanger and phaser, respectively—incorporate the same LFO without the pattern sequencer. The flanger provides both through-zero and stomp-box-style delay-based flanging, and its delay time extends into the chorus range. By contrast, the phaser uses allpass filters to create a comb filter with seven, 14, or 21 bands. Unlike modulating delay time, modulating the comb-filter frequencies produces inharmonic intervals resulting in the familiar metallic sound (see **Web Clip 2**).

SHIFTY BUSINESS

Three other effects are designed to mangle your tracks. Uhbik-S is a frequency shifter (aka, single-sideband ring modulator). The amount of shift is set as a percentage of the chosen frequency range, which you set in Hz (1, 10, 400, or 4,000) or relative to whole- or 16th-notes at the host tempo. Three unusual controls—Channel Offset, Feedback, and Phase Shift—take you beyond the typical realm of frequency shifters.

Uhbik-D is a five-tap feedback delay with individual volume, pan, and feedback on/off settings for each tap. The tap delays are set in hundredths of a 16th-note within a range of 0 to 16, and the global Speed knob adjusts all delay times up or down as much as 50 percent. You can modulate that knob's value with a sine-wave LFO or random flutter, the latter being useful for simulating tape delays. In another nod to tape-style delay, the feedback circuit features soft clipping, as well as low- and high-shelf filters (see **Web Clip 3**).

Runciter is a combination overdrive-distortion effect and resonant multimode filter. You use the built-in envelope follower or a variety of MIDI messages to modulate the cut-off frequency of the filter.

The Uhbik-S (frequency shifter) GUI has large dials and features only essential controls, as is typical of the series.

BREAD AND BUTTER

The remaining two effects present a clean and simple approach to reverb and EQ. Uhbik-A takes the unusual step of combining early reflections to dial in room size and shape with a plate reverb for sculpting the reverb tail. It is subtle and transparent, and it takes a light CPU bite.

Uhbik-Q is an analog-modeled, 2-band semi-parametric EQ (meaning there is no Q

control). You can configure each band as a high- or low-shelf, or choose among three bell shapes: narrow, wide, and flex (gain determines Q). In addition to the two bands, you get very steep high- and low-cut filters with a choice of four frequencies.

The eight plug-ins in this expanding collection could easily become the core of your effects palette, and they'll add a lot of color to your tracks. Download the occasionally crackling demo from the Web site and hear for yourself.

Value (1 through 5): 5
U-he
u-he.com

GARRITAN

Authorized Steinway Basic 1.03 (Mac/Win)

By Len Sasso

Several grand-piano virtual instruments have come to market since *EM*'s "Software Eighty Eights" round-up in the October 2006 issue (available at emusician.com). The Garritan Authorized Steinway Virtual Model D Concert Grand Piano was among the most anticipated, in no small part because it was developed in partnership with and authorized by Steinway. It comes in three editions: Professional ($399), Standard ($199), and Basic ($99). The primary difference between them is the number of miking variations (called Listener Perspectives)—five, two, and one, respectively. Garritan promises there will be an upgrade path between editions at a slight premium to the original purchase price. Here I'll cover the Basic edition, and it is no slouch.

ARIA

The Basic edition is downloadable and comes in Audio Units, VST, and RTAS plug-ins, as well as stand-alone formats. It uses the new Aria sample-playback engine. The GUI, custom designed by Steinway's chosen graphic design firm, is compact and, with its four tabs, easy to navigate. On the Main tab you choose the polyphony, velocity curve (five choices ranging from concave to convex), level of pedal noise, and Listener Perspective (only one choice for Basic).

The Space tab is where you apply sustain and sympathetic resonance, 3-band EQ, and an ambient reverb with 12 room types and the full spectrum of controls. You can toggle each effect on or off. Not surprisingly, both resonance options gobble up some CPU, but the EQ and reverb consume almost no power. With all effects on, I was able to play sequences of block chords with the recommended 64-voice polyphony setting without choking my somewhat underpowered PPC Mac.

Use the Space tab to dial in resonance, tone, and ambience settings.

ONLINE BONUS MATERIAL

The reverb sounds quite good and is especially welcome in the Basic edition because that is close-miked and, therefore, provides no room ambience of its own. You might not choose to use the built-in reverb for tracking, but it is very handy for performance. Like the reverb, the EQ might be useful in performance, but you'd likely avoid messing with the tone of this beautifully sampled piano whenever not absolutely necessary.

PEDALS AND RESONANCE

The two resonances are turned on individually and are adjusted on a 99-point scale. Both are DSP modeled, and although neither is absolutely natural sounding, they're both good enough to be useful. Sustain resonance applies only when the Damper (aka, Sustain) pedal is held down, which, in the real world, raises all dampers and allows all the piano's strings to vibrate in response to played notes. Sympathetic resonance applies only when the Damper pedal is up (dampers down). In that case, only the strings of currently held notes can resonate with newly played notes.

I found sustain resonance to be very realistic with settings in the 15 to 30 range. It even supports half- (proportional) pedaling with sustain pedals that offer a continuous range. Most sustain pedals act like switches, but you can still make use of half-pedaling by assigning a continuous controller such as an expression pedal or mod wheel to MIDI CC 64.

The sympathetic-resonance algorithm is less convincing, but still very usable at settings below 50. The problem is that there is a slight, and to my ear unnatural, resonance even when no other keys are depressed. The Sostenuto (middle) pedal implementation accurately simulates the effect of suspending the dampers of only those notes being held when the pedal is pressed. Lightly pressing a key (Velocity = 1) simulates raising the damper without sounding the note, a technique often used for sympathetic-resonance effects.

One of the biggest drawbacks to the Basic edition is the lack of soft-pedal samples. As a result, the Una Corda (aka, Soft) pedal doesn't have any effect. You can upgrade to the Standard edition to solve that problem.

TUNE UP

Naturally, the Steinway as sampled is perfectly tuned in standard 12-tone equal temperament. But because it is sample-based, you have the luxury of using other tunings, and the Aria player supports the standard Scala tuning format. (For more information on Scala, see the "Square One" column in the May 2009 issue of *EM*, available at emusician.com.) Fifteen tuning files come with the instrument, and the manual contains an outstanding description of tuning systems by Wendy Carlos. In addition to alternate tunings, you can transpose the keyboard in semitones and fine-tune it in cents.

At $99, the Basic edition of this sampled piano is an outstanding bargain and possibly all the acoustic piano you'll ever need. Except for its placebo Una Corda pedal, it compares favorably to each of the modern, 9-foot grand pianos in the aforementioned round-up. **Web Clip 1** is made from the same MIDI file used in that round-up, and you'll also find those Web clips online.

Value (1 through 5): 4
Garritan
garritan.com

ADAM AUDIO

A5

By Michael Cooper

The Adam Audio A5 is an active, close-field monitor suitable for a variety of stereo and surround applications. Its diminutive footprint and magnetic shielding allow use where space is limited, such as in cramped control rooms, mobile recording rigs, and post-production edit bays. The A5 measures 11.2×6.8×7.9 inches (H×W×D) and weighs only 11 pounds.

Like other monitors made by Adam, the A5 uses a proprietary A.R.T. (Accelerating Ribbon Technology) folded-ribbon tweeter. The 5.5-inch Rohacell/carbon-fiber woofer employs a more conventional design and is protected by a fixed metal grille. The crossover frequency for the two drivers is 2.2 kHz. A 25W (RMS) amplifier powers each driver.

ON THE FACE OF IT

The monitor's front has radiused and beveled edges to reduce diffractive effects. Two front-firing bass-reflex ports extend the frequency response (cited to be 55 Hz to 35 kHz, ±3 dB) at the bottom end. Each monitor sports a power switch, power-status LED, and detented volume control (which attenuates to total silence at the bottom of its travel). The detachable AC cord is roughly six feet long.

Balanced XLR and unbalanced RCA analog inputs are provided on the A5's rear panel. The XLRs don't latch. An additional pair of unbalanced RCA jacks—labeled Stereo Link—allows setups wherein you can control the volume of two speakers at once using either unit's volume control. An example setup would be to patch the left and right channels of your mix to the respective analog and Stereo Link RCA inputs of the left monitor, making it the master. Then route the supplied 6.5-foot coaxial cable from the left monitor's Stereo Link output to the right monitor's Stereo Link input. A white LED on the master monitor's front panel lights when you plug a cable into its Stereo Link output.

On the A5's back panel, three rotary controls—trimmers you turn using a slot-head screwdriver—have multiple detents that enable precise adjustments. One control adjusts the tweeter's volume level as much as ±4 dB. If your control room has a lot of absorptive acoustic products installed, boosting the tweeter's level should yield a better spectral balance.

Two other trimmers provide a maximum 6 dB of shelving-equalization boost or cut above 6 kHz and below 150 Hz, respectively. You can use low-frequency cut, for example, to decrease bass boost resulting from placing the A5 too close to a wall.

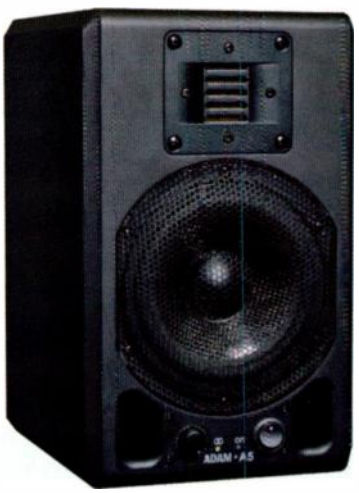
NOW HEAR THIS

I set up a pair of A5s on top of Primacoustic Recoil Stabilizers (outstanding acoustic decouplers reviewed at emusician.com), situated on the shelves of an Omnirax workstation. An Acoustic Sciences Corporation Attack Wall (a modular arrangement of tube traps) at the front of my control room further optimized imaging and impulse response.

> Imaging, detail, and reproduction of transients sounded very good.

The A5s require burning in after purchase. After a couple days of playing music continuously on the pair I received for review, I was ready to listen intently. With all rear panel controls set flat, the upper bass sounded slightly pronounced. The midrange was also a tad understated, pushing vocals, fiddle and pedal steel tracks back into the mix. The overall effect was a slightly veiled but unfatiguing sound.

Boosting the tweeter level on both monitors a couple clicks, or about 1 dB, brought vocals and midrange instruments back into proper perspective. I didn't need to use the shelving filters. Imaging, detail, and reproduction of transients all sounded very good after that, although not the best I've heard in a mini monitor in this price range or even cheaper. Low-frequency extension was also very good considering the A5's tiny size, but the bass was also ever so slightly flabby (a common tradeoff with ported monitors). You'll need a subwoofer or alternative full-range reference monitors to evaluate the extreme bottom end of your mixes.



The Adam Audio A5's small footprint permits placement in crowded quarters.

The A5's stereo-linking feature worked great when I used the master A5 to control both monitors' levels. Control of both monitors' volumes from the slave A5, however, was not very symmetrical at low levels. Stereo linking doesn't work at all with the XLR inputs, which means you'll have to sacrifice balanced inputs if you want to use stereo linking.

The A5 costs $799 per pair with a matte black finish, or $879 with a glossy black or white coat. That's more costly than roughly two-thirds of competing mini monitors (some of which also offer digital inputs, which the A5 lacks). But despite my criticisms, the Adam A5 is a high-quality monitor with a unique sound and definitely worth an audition. em

Value (1 through 5): 3
Adam Audio
adam-audio.com

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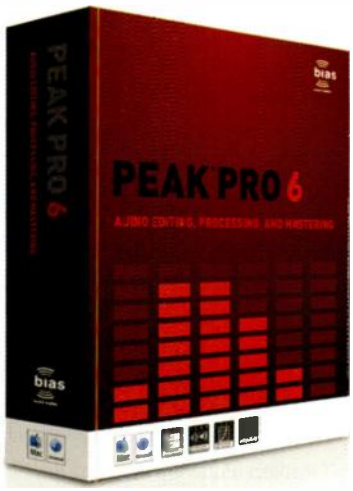

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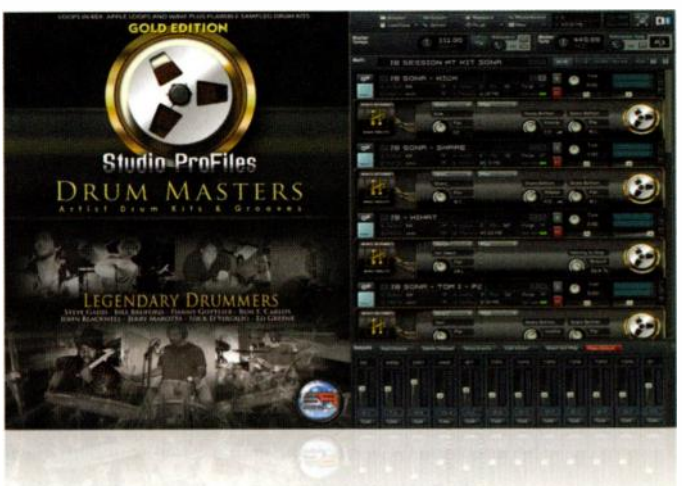

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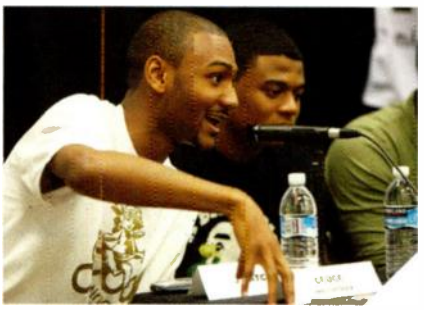

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Why Not Give it Up?

By Nathaniel Kunkel

During the last couple of months, I've had the good luck to mix a bunch of different projects. They varied tremendously in genre, but many shared a unique attribute: When I finished and I presented my client with their hard drive containing my mix sessions and printed deliverables, I was met with amazement. Why? Because I returned my mix sessions to the client.

I thought I was supposed to do that. They pay me, I give them their work. How is giving my client my Pro Tools session data any different than giving them an SSL 9000J automation disk and a documentation package? The session data has always been the client's property. But from what I have been hearing, many mixers won't give it to their clients.

I cannot for the life of me understand it. I know what people say when they are justifying it. I just don't get what is so special about your EQ settings or signal path? Weren't the EQ, limiter, and plug-in settings derived from your analysis of the source material anyway? Don't clients pay mixers to mix *their* material?

I can honestly say I have never used the same EQ setting twice. Isn't that true for everyone? Isn't using the same setting on a piece of gear or plug-in, and never changing it, kind of like saying, "I don't know enough to make this thing sound good more than once?"

The truth is that if you have my session settings, you won't mix like me. And if I have your session settings, I won't mix like you. Our mixes and our settings are the logical output of our artistic vision for the song. But without ownership of the vision, the settings have no value.

There is a reason that photographer Greg Gorman gives his students access to his Adobe Lightroom image settings. It's not because they will take work from him if they have the settings. It's most likely because his color-mixing and contrast data represent only a sliver of the skill that makes him who he is.

And we haven't even addressed the obvious: When was the last time you opened a session of yours on another rig and all the plug-ins you needed were there? Has that *ever* happened to you?

Another reason I like to give back all my data is actually quite selfish. I don't want to be responsible for the migration and retention of it. For instance, presumably mixers hold back session files so that the client will have no choice but to return if they want changes. What if the changes are requested two years later? Why do you want to be on the hook for that data? There is something nice about being able to say, "Hey, man, I gave you everything. I have no idea where it is now." Your clients should return because they like you, not because you're holding their data hostage.

Another justification I have heard for not giving back the session files is that mixers worry that clients will change the mix without their approval and then leave their name on it. Okay, let's pretend that has happened, the record is a huge hit, and you get all the credit. Do you care? Now pretend that it's a huge flop and no one ever hears it. Do you care then?

So let's relax a little about all these "proprietary" session files. If someone can take your plug-in settings and do your job better, you probably need to step up your game anyway. em

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Nathaniel Kunkel (studiowithoutwalls.com) 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, I-Nine, and comedian Robin Williams.

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Matt Hirt – TAXI Member

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Now, all I have to worry about is making great music. The people at TAXI do an amazing job of hooking me up with opportunities that I would never uncover on my own.

I've already cut deals for more than 70 of my songs, and they're getting used in TV shows like Dateline, Law and Order SVU, and The Osbournes. And yes, I'm making money.

I was kind of surprised that the recordings I make in my little home studio were good enough. I guess size really doesn't matter;-)

Want to know what does matter? Versatility. Being able to supply tracks in different genres makes you even more desirable for Film and TV projects. I didn't know that until I became a TAXI member and started going to their members-only convention, the Road Rally.

If you joined TAXI and never sent in a single song, you'd still get more than your money's worth just by going to their convention. It's three days of incredible panels loaded with some of the most powerful people in the music business, and the cool part is that it's FREE!

Unlike some of the other conventions I've attended, the panelists at the Rally are friendly and accessible. I've never been anywhere that gives you so much great information, and so many chances to meet people who can help your career.

If you've needed proof that a regular guy with ordinary equipment can be successful at placing music in TV shows and movies, then my story should do the trick.

Don't let your music go to waste. Join TAXI. It's the best service on the planet for people like you and me – they really can turn your dreams into reality if you're making great music.

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