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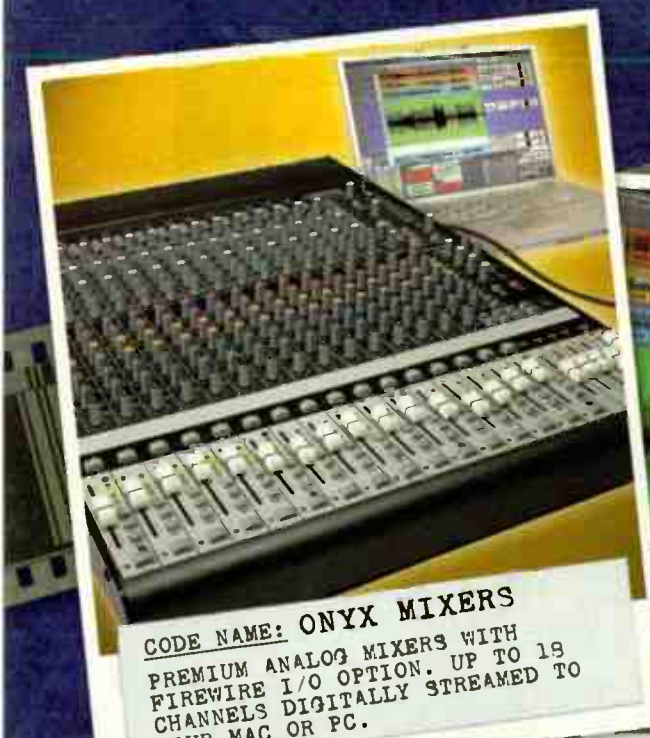

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Cover photo by Jessica Miller

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cakewalk

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Talk Box

WHY WE ARE SO GREAT. AND HANDSOME. BUT MOSTLY JUST GREAT.

"I don't know karate, but I know ka-razor." – James Brown

Exactly.

Except in this instance the razor of ka-razor fame might be accused of belonging to Occam and so it goes: simplicity is the watchword of the day. At least today.

That is: scratching your left ear without having to get dressed up to do so. So whether it's personages from the pantheon of great production like JACK JOSEPH PUIG, MALCOLM BURN, or JIMMY DOUGLASS, or trenchcats who cut their teeth on making do with making great sound without the sometimes necessary millions behind them like Studio G's JOEL HAMILTON, ALEX OANA, or FUGAZI's IAN MACKAYE, this issue is chockfull of what might arguably be called the wisdom of the age of trying to do it all a little bit better, faster and cheaper. Call it the science of old dogs and new trickery or new dogs and old trickery, THE EQ GUIDE TO GETTING IT and its ONE HUNDRED tips from all the aforementioned and sundry staffers, is a kitchen sink factotum that'll help you do almost all of what you'll need to do—from tuning your room (thanks to BOB HODAS) to getting high (thanks to LES CLAYPOOL)—to get it happening in studio.

And if that's not enough we've also got the THIEVERY CORPORATION stealing everything that's not been nailed down in their effort to share and show how much complexity went into simplifying their very simple sound. Toss in our eight searing product reviews and you've got a February to remember.

Enjoy yourselves. We did.

P.S. I'm sorry. I almost forgot to introduce myself what with Mitch having done such a good job of it last issue. My name is Eugene...and I'm an audioholic.

Cheers,

The BAND STAND

If you could magic wand away one element of the current recording set up, what would it be?

Mitch Gallagher, Editor
While I prefer to have as little gear in the studio as possible, I'd most like to get rid of the room itself. With the spaces most of us deal with, it's almost impossible to get them acoustically perfect.

Craig Anderton, Editor at Large
Anything with moving parts, especially motors and fans — solid-state storage and passive cooling all the way! The result would be a quieter, more reliable, more environmentally friendly studio.

John Krogh, Technical Editor
Cables. Even in modest recording setups, there are too many cables — TOSlink, coax S/PDIF, USB KVM switching, USB hubs, Ethernet, MIDI, XLR and 1/4" analog — it never stops. Besides creating clutter, cables can quickly turn your setup into an unwieldy beast.

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Editor in Chief: Eugene Robinson, erobinson@musicplayer.com
Editor: Mitch Gallagher, mgallagher@musicplayer.com
Managing Editor: Debbie Greenberg, dgreenberg@musicplayer.com
Editor at Large: Craig Anderton, canderton@musicplayer.com
Technical Editor: John Krogh, jkrogh@musicplayer.com
Group Copy Chief: Kevin Owens, kowens@musicplayer.com
Contributors: Lynn Fuston, Garrett Haines, Kevin Madden, Lisa Roy, Barry Rudolph, Jeff Szymanski, Todd G. Tatnall

Art Director: Doug Gordon, dgordon@musicplayer.com
Staff Photographer: Paul Haggard, phaggard@musicplayer.com

Publisher: Valerie Pippin, vpippin@musicplayer.com
Associate Publisher/Northwest Advertising Sales: Dan Hernandez, Tel: 650-513-4253, Fax: 650-513-4646, dhernandez@musicplayer.com
East Coast/Europe Advertising Sales: Joe McDonough Tel: 212-378-0492, Fax: 212-378-2158; jmcdonough@musicplayer.com
Southwest Advertising Sales: Pete Sembler Tel: 650-513-4544, Fax: 650-513-4646; psembler@musicplayer.com
Northeast Advertising Sales: Gary Ciocci Tel: 603-924-9141, Fax: 603-924-9209; gciocci@musicplayer.com
Manager of Specialty Sales: Joanne McGowan Tel: 650-513-4376, Fax: 650-513-4646; jmcgowan@musicplayer.com
Specialty Sales Asst.: Darlene Labrecque
Production Manager: Amy Santana
Imaging Technicians: Joe Ging, Martin Ruiz

MUSIC PLAYER NETWORK
Vice President: Louise Rogers
Editorial Director: Michael Molenda
Marketing Manager: Laney Erokan
Sales Administration Manager: Lauren Gerber
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Newsstand Sales & Marketing Manager: Pam Santoro
Assistant Circulation Managers: Rosario Perez, Maribel Aleman
Reprint Coordinator: Cindy Zauss, Tel: 909-698-1780

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CMP Information, Inc.
President: Tony Keefe
Controller: Doug Krainman

Please direct all advertising and editorial inquiries to:
EQ, 2800 Campus Drive, San Mateo, CA 94403
(650) 513-4400; Fax (650) 513-4661; eq@musicplayer.com

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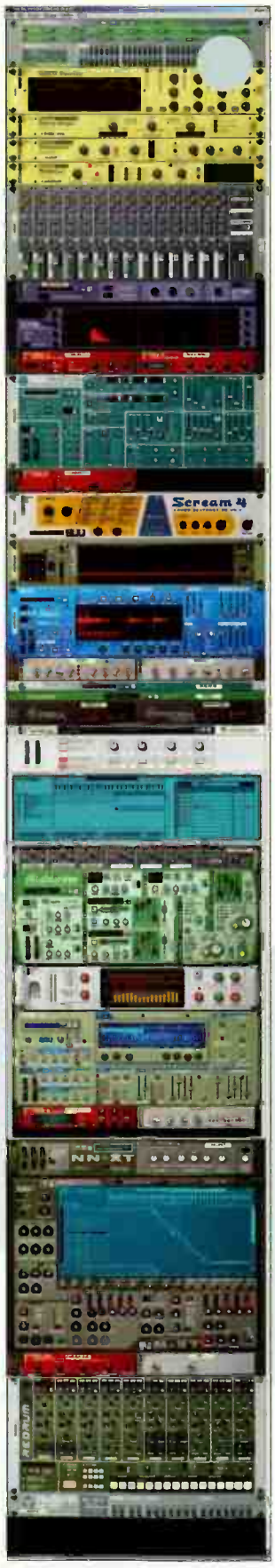

Tool Box

BY KEVIN OWENS

Propellerhead Reason 3.0

Music production software

We scooped the world on this in last issue of *EQ* and the world was glad for both the leg up and **Reason 3.0 ($TBA)**, a pretty major update to its flagship music software system. Claims for the new version, up to and including the better-than-sliced-bread boast, nimbly take Reason "from the studio realm to the stage," and feature the Combinator, a new module that lets users build chains of Reason instruments, effects, patterns, and so on, and save them as combi patches. Other new features include 1-step loading of customizable instruments, out-of-the-box compatibility with most major control surfaces, an expanded soundbank, an optimized browser, and the MClass mastering suite. Cool.

Propellerhead, www.propellerhead.se

Native Instruments NI Komplete Care 2005

Update package

NI Komplete Care 2005 ($279) is a flat-fee, all-inclusive update package for the NI Komplete 2 bundle. KC 2005 subscribers will receive all major Komplete 2-related product updates released in 2005. Each new product version will be shipped at no additional cost and at the earliest possible date. Komplete Care customers also receive a "Care Card" with a unique serial number that qualifies them for special offers. For like haircuts. And stuff.

Native Instruments, www.native-instruments.com/komplete-care.info

M-Audio Ozonic

FireWire audio/MIDI interface

The FireWire bus-powered **Ozonic ($599.95)**, outside of having one of the cooler outerspacesonic names, is an audio interface/MIDI controller that has a 37-note, velocity-sensitive, synth-action keyboard with three zones and assignable aftertouch. Which is to say: it's completely outerspacesonic. Its complement of 40 assignable MIDI controllers includes a joystick, eight knobs, nine sliders with drawbar mode, nine buttons, pitch and mod wheels, and sustain and expression pedal inputs.

M-Audio, www.m-audio.com

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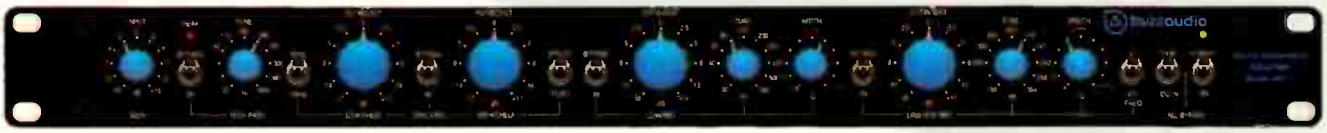
Buzz Audio MPE1.1

Mono parametric equalizer

The **MPE1.1 ($1,250)** is an outboard EQ that's based on the EQ section of Buzz's new ARC1.1 and has a variable highpass filter, high and low shelving sections with selectable tunings, and two sweepable mid-band sections with continuously variable Q. Other highlights include a real choke (inductor) for the low shelf section, and selectable "tight" or "broad" high shelf curves. The MPE1.1 can be fitted with optional Sowter input and output transformers.

Buzz Audio, U.S. dist. by Atlas Pro Audio, www.atlasproaudio.com



AMS-Neve 1073 DPA and 1073 DPD

Microphone preamps

AMS-Neve is bringing the way-out wild hi-fi vibe of yesteryear to the age of NOW. How? By pumping the coveted 1073 sound of the 1970s to a whole new generation of audio engineers with the release of two new preamps. The **1073 DPA ($2,799)** features two 1073 class-A preamps in a 1U rackmount box; the 1U **1073 DPD ($3,399)** also features two 1073 pres but adds professional A/D converters, and supports digital sampling rates of up to 192kHz.

AMS Neve, www.ams-neve.com

Primera BravoPro

Professional grade CD/DVD publishing system

Designed for hands-free, automated production of up to 100 CDs or DVDs per job, the **BravoPro (CD Publisher $3,495; DVD Publisher $3,995)** uses an advanced robotic mechanism that both destroys your enemies, as well as automatically transports discs into the built-in 52x CD-R (or optional DVD-R) recorder. Well, mostly just the latter, but after recording, the discs are transferred to an integrated, full-color printer with up to 4,800 dpi print resolution. BravoPro ships with Mac- and PC-compatible duplication software and can burn, print, and transport up to 50 discs per hour.

Primera, www.primera.com

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Acon Studio Time

Time scale modification plug-in pack

Are you ready for **Studio Time ($119)**? It's a DirectX-compatible plug-in pack that includes Acon's StudioTime and StudioPitch time scale modification tools. StudioTime lets you slow or speed up material from 50–300 percent of its original duration, and StudioPitch makes it so you can shift the range from one octave down to one octave up while preserving the original tempo and timbre. Both plugs support multichannel formats (up to eight channels), as well as 8-, 16-, 24-, and 32-bit sample formats.

Acon Digital Media, www.acondigitial.com

AudioWarrior Acoustic Strummer

Acoustic dreadnought Reason Refill

Designed specifically for Reason's NN-XT sampler, **Acoustic Strummer ($129)** lets users strum or pick guitar chords — and control their timing, feel, and intensity — using a MIDI keyboard. Acoustic Strummer lets you map as many chords as your keyboard can handle from its half-gig library of 24-bit acoustic samples. Sounds include individually sampled open strings and fretted notes, hammer-ons, wood slaps, string scrapes, plinks and sweeps above the tuning pegs, muted notes, and harmonics sampled at the 5th, 7th, and 12th frets. 440 harmonics will be available as a download for registered users.

AudioWarrior, www.audiowarrior.com

ASKVideo Cubase SX3 Level 1

Introductory level tutorial DVD

Designed to get novice and first-time Cubase users up and running quickly, **Cubase SX3 Level 1 DVD ($39)** is the first in a new series of tutorial DVDs. The disc contains 28 professionally shot videos for a total of over two hours of instruction. Topics include MIDI and audio setup, new projects, VST connections, recording audio, looping, audio and MIDI editing, and the mixer. Instruction is also included on using key commands and macros, preferences, workspaces, and managing audio. The DVD is compatible with Mac OS X and Windows 98/ME/2000/XP. Level 2 and Level 3 volumes for experienced and advanced users will be available soon.

ASKVideo, www.askvideo.com

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Steinberg Virtual Bassist VSTi

Using licks and phrases based on (stolen from . . . in a good way) performances by top studio players, Steinberg's completely cool **Virtual Bassist ($249.99)** offers a variety of bass samples in genres ranging from rock to reggae to metal to hip-hop. The playable library includes a range of intros, fills, and variations that can be tweaked to taste using the MIDI Key Editor feature, and further shaped using Virtual Bassist's amp, cabinet, effects, and microphone models. The program also offers GrooveMatch, a tool that molds Virtual Bassist bass lines to any existing drum groove.

Steinberg, www.steinberg.de

Oram Digital Developments Hi Def 4T

Memory EQ

The first product from John Oram's latest venture, Oram Digital Developments, is the **HI-Def 4T Memory EQ ($5,985)**, a digital version of Oram's Hi-Def EQ. The unit features a digitally controlled, pure analog signal path, as well as 105 memory slots for all control-panel functions. The 4T is made in the U.K. and ships with a two-year warranty.

Oram Digital Developments, www.tridentaudio.co.uk

Sonoma Wire Works Sonoma 7 VST

Effects plug-in

Sonoma 7 VST ($199) combines seven effects, count 'em, each of which can be enabled or disabled separately, in one plug-in. The effects are: Attaq (pictured), a wah effect with manual, envelope, and sequence modes; Tripwire, a 3-band compressor and distortion; Tempest, a modulation effect with selectable wave shapes; 4x4, a multi-tap delay with four discrete delay lines; Supertanker, which allows the selection of reverb type and tank size; Stamina, an optical style compressor; and Nonequal, a traditional British EQ. A fully functional demo is available for download at the company's website.

Sonoma Wire Works, www.sonomawireworks.com

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Waves'
Convolution Revolution
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Introducing IR-360

The world's only editable Surround Convolution Reverb

The new IR-360 Reverb is the highly anticipated surround version of IR-1, the only convolution reverb that can be tweaked with familiar controls such as pre-delay, room size, and density—controls that don't just filter the sound, but actually shape the underlying sample itself. Need the sound of the Sydney Opera House in 5.1 but a little smaller? You got it.

Introducing IR-1 Version 2

Now create your own impulse response samples

Version 2 of Waves' IR-1 Convolution Reverb now lets you capture your own impulse response samples from acoustic spaces and hardware devices.

Winner of the 2004 TEC Award for Outstanding Technical Achievement

Introducing IR-L

Convolution Reverb Light

For streamlined use, IR-L is our light version. You get the same exquisite samples but without the extensive controls of IR-1 for efficient, simplified use.

Introducing www.Acoustics.net

The download source for convolution samples Now IR Series Reverbs come with even more pristine samples of the most revered venues in the world, from London's Wembly Stadium to Manhattan's Birdland jazz club. Recorded under the guidance of renowned acoustics professor Angelo Farina, the samples feature new micing options for even more control. These samples—as well as samples contributed by Waves' IR Reverb users—are available at www.Acoustics.net, a new Waves website dedicated to impulse response sampling.

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Success Story

COMPANY: DDMusic LLC
CONTACT: www.duanedecker.com
LOCATION: Woodinville, WA
KEY CREW: Duane Decker

by Mitch Gallagher

Think that game soundtracks are all fun and, well, games? Well, they're *not*. Leastways not according to Duane Decker, who's been composing and producing game soundtracks for over a decade. As an in-house composer at Microsoft Game Studios and elsewhere, Decker created soundtracks for everything from pinball games and location-based entertainment to PC and Xbox games. He's also scored several AAA game titles, and commercially released the soundtracks for two games (including the first game soundtrack ever released in 5.1 surround).

But as game development shifted toward the film and television production model where music is contracted out, he saw the writing on the wall — it was time to go freelance. So he launched DDMusic, his own music production company. The move has had additional benefits. "As a freelance composer, I can not only continue to score game titles, but also branch out into areas that aren't available to an in-house composer," says Decker.

Since opening DDMusic, Duane has worked on TV and film production music and advertising projects in addition to continuing to score games. "While there are some critical differences between the linear nature of film and non-linear nature of games, there are also similarities with regard to production and enhancing the emotions conveyed in the story line. Making the transition from one to the other is both logical and advantageous for producers and directors in both media."

Decker already had a home studio rig in place when he opened DDMusic. "I have a passion for music technology. I designed and co-built my first synthesizer when I was in college and I spent several years as a Product Specialist for Kurzweil and Emu Systems. So I always tried to keep my home studio current, even when working in-house. I've been using [MOTU] Performer since version 1 and continue to use Digital Performer because of its powerful integration of MIDI and audio. A MOTU 2408mk3 and two 24i interfaces provide I/O for the system. This yields 72 ins and 34 outs; more than enough to allow my system to be hooked up and ready to play at any time without repatching."

A TC Electronic PowerCore provides additional plug-in power. Digital Performer is locked picture using QuickTime, which streams the video to a separate TV screen. Soft instruments such as TASCAM GigaStudio, MOTU MachFive, and Spectrasonics Atmosphere find regular use, as do his trusty Emu E4K, EIV, and e64. A cadre of hardware synths are on hand if more polyphony or sounds are required.

Because he offers surround production, he upgraded to a Blue Sky 5.1 monitor system. A Mackie Universal Control Surface provides hands-on mixing, while a DrumKat DK-10 allows for real-time entry of drum and percussion parts. For maximum productivity, studio layout was of paramount concern. "I laid out the racks in an ergonomic way so that the most used items are within reach and the rest reside underneath the desk."

When the project calls for it (and budget allows) Decker records live players in commercial studios in Seattle. "While my studio can record one or two players at a time, it's more efficient to book a commercial studio to make the live recordings come to life." Secure FTP is the preferred delivery method for finished projects, although CD, DVD, and tape delivery are also offered.

"It's great to be living in a time when the technology allows artists to create and produce high quality music on their own terms. It opens up the world of music to everyone who has an interest. The benefits of the arts reach beyond simply listening to music to touch our collective soul." EQ

Are You a Success Story?

Listen up EQ readers: Have you found a unique way to run your home or project studio into a profitable business? If so, we want to feature you in a Success Story. Send an email telling us know why you should appear to [illegible]

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Still the Best

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www.steinberg.net
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World Radio History

THE LOW-TECH SPARKS

by John Krogh

Some artists toil for years in relative obscurity, hoping for that elusive "big break" from a major label. And then there's Rob Garza and Eric Hilton, collectively known as Thievery Corporation, whose success flies in the face of the conventional music industry wisdom (which is never usually that wise *or* conventional). But rather than wait for that Schwab counter moment of discovery, this Washington, D.C. duo started a label, Eighteenth Street Lounge (named after a favorite club-hang). And with virtually no distribution or backing, released the critically acclaimed *Sounds From The Thievery Hi-Fi* in '95, which helped lay the foundation for what would eventually be known as "down-tempo" or "lounge." Call it musical wallpaper, mood music, whatever. Thievery Corporation was there at the beginning. Often imitated, but never quite duplicated, Thievery's sound is a neo-post-modern pastiche of sounds, layers of sounds both found and appropriated, and deceptively simple production all aswirl in ways that scream "underground" and "sensation".

"I think a lot of people who make electronic music are trying to copy other electronic artists," says Garza. "Their influences come from *other* electronic musicians. But with us, we're going back to jazz, Jamaican, reggae, Brazilian, Indian, Hindu soundtrack, dub . . . for us, these are the styles we like to listen to more than electronic music. It's a very different angle."

While other artists turn to electronic-tinged textures to concoct their own brand of down-tempo, Thievery remains true to their organic ethos. "We're scared of using sounds that come off as too modern," Garza admits. "Take the '80s, for example. We always joke about the 'Axel F theme' from *Beverly Hills Cop*. I'm sure at the time, that song sounded cool and modern, but now it just sounds stupid. That's the danger with technology. It always has the novelty of being new, but in the end does it stand the test of time? That's what affects us — records that were produced 30 or 40 years ago, but that still sound cool."

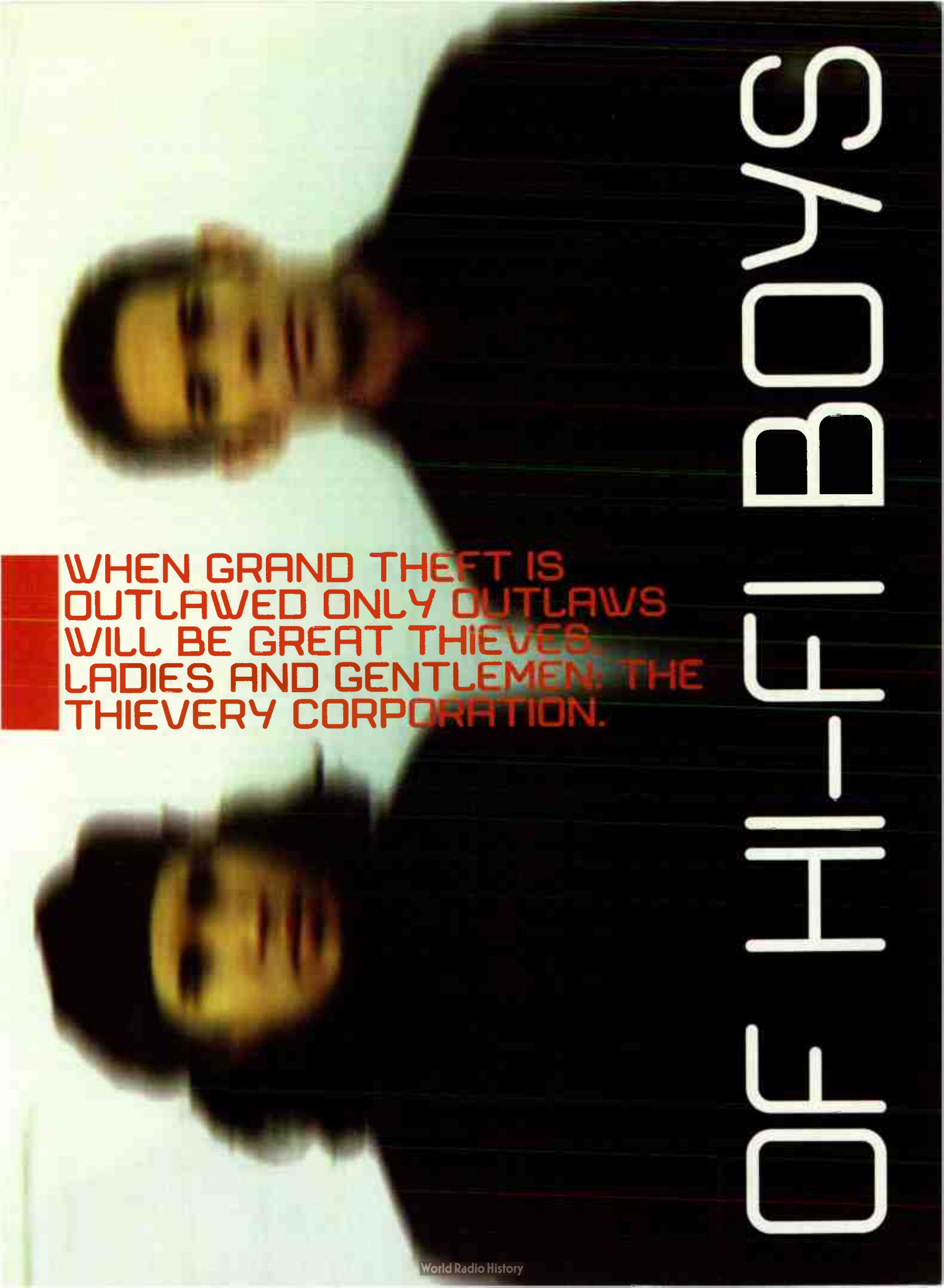
Arguably, it's the lack of following the constant ebb and flow of commercial trends that has kept Thievery Corporation's success relegated to underground status, which is just fine by them. "That's the way we like it," Garza quips. "We're always concerned about going above the radar too much. We like being in a zone, flying just below the radar, where people respect what we're doing. It hasn't become gimmicky or determined by a fad."

"It helps that we're on a small label," adds Hilton. "I mean, it's our own label. (laughs) We don't really have a marketing machine behind us, other than one very good friend in LA who tries to get the word out. We don't have to sell a lot of records, or as *many* records, I should say, to have a good career. If we were signed to a major label and trying to do this kind of music, we'd be considered a complete failure."

But they're far from failure. Their latest record, *Cosmic Game*, is host to three marquee collaborations and is poised to exceed the critical and international commercial success of Richest Man in Babylon, which was released in 2002. This time out, Thievery enlisted the lyrical and vocal aid of Talking Heads former lead singer David Byrne, the Flaming Lips, and former Jane's Addiction front-man Perry Farrell.

"Rob and I wanted to do something a bit different," notes Hilton. "We talked about exploring some of our 'rock' influences on this record. But of course with us, *rock* is a relative term. We knew the Flaming Lips from a couple of years ago, when we opened for them in Iceland. With David Byrne, we had done a remix for him, so there was a relationship there, and he was an obvious choice because we really respect him. And as we were starting to work on this record, we heard from a friend who was at a conference in L.A. where Perry Farrell was speaking and he went on and on about us. So things developed from there."

World Radio History


OF HI-FI BOYS
WHEN GRAND THEFT IS OUTLAWED ONLY OUTLAWS WILL BE GREAT THIEVES. LADIES AND GENTLEMEN: THE THIEVERY CORPORATION.

World Radio History

HI-FI BOYS

On the heels of their popular sophomore effort, Thievery went into *Cosmic Game* with the recording jitters often associated with standing in the shadow of previous success. According to Hilton: "We thought it was going to be a lot harder, because we were thinking, 'How do we follow up *Richest Man in Babylon*?' But then we got into the studio, and ideas just started to flow. For us, we sort of follow the path of least resistance in the studio. It's a very intuitive process. For instance, if bass and keys were working, then we went with that. Often times I'd pick up the bass and Rob would play a keyboard, and see what happened. But we never struggle at it, because as soon as you start struggling, whatever comes out isn't going to sound great, I think. At this point in our career, we feel very secure in our music making abilities to the point where we know we're capable of coming up with grooves and songs, so the process was easier for us."

In keeping with their laid-back demeanor, Garza and Hilton took an approach of experimentation as opposed to working out arrangements in preproduction. There was no worrying about ticking clocks and bottom lines. Consequently, they were free to let ideas bubble up and develop on their own. "We usually sat around playing and programming a beat or different grooves, and that's how our songs happened," Garza explains. "We tried to go in every day of the week, and even if we didn't come up with a song a day, we made it a point to come up with *something* — a loop, at least.

"It's like a work ethic, which is important — mentally we already had the intention of committing our time to creating new music. It's like that cliché, 95% of success is just showing up."

Committed though they were, they had no preconceived concept of the shape their record would ultimately take. With cuts like Perry Farrell's "Revolution Solution," the Lips' "Marching the Hate Machines (Into the Sun), and the harder-edged "Warning Shots," which features Sleepy Wonder and Gunjan, the die was cast. Themes developed, and Cosmic Game hardened into a reggae dub-style protest record.

"We set out to make some new [Thievery] music," recalls Garza. "And when it came time to put down lyrically what was on our mind, those themes are what surfaced. Interestingly, the people we collaborated with were feeling the same way as us, so when we heard their tracks. We were pleasantly surprised that they were on the same wavelength, lyrically.

"These are all artist who we respect immensely, especially lyrically," he continues. "So we didn't want to inhibit what they were going to do in any way. We didn't give any of them any lyrical direction. We pretty much gave them free reign to do whatever they wanted. When we got the files back with their vocal tracks, we were sort of scared to hit Play, because we didn't know what we were going to get. But when we heard Perry on 'Revolution Solution' and the Lips on 'Marching the Hate Machines', it tied in with our own feelings and mood for this record."

So by happy accident the D.C. kings of lounge ended up with a politically charged record that still manages to retain a relaxed vibe complete with the Corporation's trademark Wurlitzer piano riffs, diggable bass, dusty beats, and dubbed out delays. There's talk of adding *Cosmic Game* to modern rock radio playlist rotation, and even taking it on tour with a live band. But as with all things Thievery, these things will be determined not by boardroom committees or forced decision, but by whatever natural forces seem to guide them on their path of least resistance.

recording technology

Thievery Corporation's Consulate studio, where the bulk of *Cosmic Game* was recorded, resides in a four-story brown stone. Decidedly low-tech, the Consulate is more about creativity than cutting edge recording technology. You won't find racks of high-end outboard or specially designed acoustics.

For this record, Hilton and Garza relied on their engineer, simply known as "Stone," who jokes about the Consulate's design. "Our 'isolation chamber' is a framed in bathroom with carpeting on the walls. We do have a little problem with reflections in that room, but if you face the singer into the corner, it's not a problem."

According to Stone, everything was recorded into Logic running on a 1GHz dual-processor G4 outfitted with a MOTU 896 FireWire audio interface and a Universal Audio UAD-1 card. On Logic, Stone relates: "We end up using instruments and effects that come with Logic simply because they work so well within the program. For example, we use the EXS24 sampler – it's a seamless integration with the program. It's easy to use, sounds great, the filters in particular . . . we also use the EVP88, not in place of a real Wurlitzer but for a different-sounding tine-type piano. Of course, the tape delay gets heavy use, with many, many layers of automation."

For tracking, Consulate's mic closet consists of an AKG414, Shure KSM109, and Octava M319. A Peavey VCL2 compressor gets frequent use. And for mic preamps? Thievery depend on their trusty Mackie mixer with XDR preamps.

World Radio History

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EASY DOES

The devil is in the details. And the details both large and small are obscured under more detail — most of which can help, some of which may hurt.

ENTER THE EQ GUIDE TO GETTING IT

100 tips

by everybody who's anybody in modern music to help you dig your way out of the morass of music production ephemera. Everybody complains about the rain. We're just doing something about it.

DIG IT.

GETTING IN

ITCHING TO GET YOUR PROJECT STARTED? YEAH. WE BET YOU ARE. AND YOU CAN. RIGHT AFTER YOU DO WHAT WE TELL YOU. YUP. DO WHAT WE TELL YOU AND NO ONE WILL GET HURT.

TRIP THE TUNING FANTASTIC

BOB HODAS (rhymes with YODA's) knows more about tuning rooms than any one individual has the right to. He's analyzed and corrected studios for everyone from Sony Music Entertainment to Abbey Road Studios and his most recent projects include an acoustic renovation of The Record Plant's SSL-4 and Flea's home studio. He had wanted us to call this "6 Cheap Sirloin Tips" but we decided that while they *were* free they were in no way cheap.

1. BUILD YOUR ROOM AROUND THE BEST SPEAKER/LISTENER SETUP FOR YOUR SPACE. Why are you in this business? Audio! A studio should be a listening space, not a gear showcase. Clients will not come back to you if you have the coolest gear but their CD does not translate when they take it home. Many of a room's serious bass problems can be solved just by getting the speakers and listener in the right position. Finding the proper positions can be difficult and time consuming even with good measurement gear, and the process is too long to explain here. An inexpensive alternative ($100) that can achieve, at a minimum, a 75% solution is RPG Inc.'s Room Optimizer program. It can help calculate the proper speaker placement for rooms with parallel walls (your basic home studio).

2. SYMMETRY. If you don't set your speakers up symmetrically in a room, they will wind up with different frequency responses due to speaker/boundary interference. Your speakers are fairly omnidirectional below 200Hz. So a lot of low energy is coming off the back and sides of the speaker. The signals that bounce off the walls and ceiling are going to mix in with the direct speaker signal. This delayed bounce will cause comb filtering. The time delay and thus, frequency of interaction is dependent on the speaker distance from the walls. If the left and right speakers are different distances from the walls, the cancellations will occur at different frequencies. Different frequency responses means that the speakers will sound different and also mess with your imaging. Bass is the foundation of building any mix so it has to be correct, and boundaries significantly affect a speaker's bass response. Symmetry also applies to your equipment setup. Low frequencies are sensitive to gear placement. For example, if all of your gear is piled up on the left side, the left speaker will have a very different bass response than the right. So try to distribute your gear evenly around the room.

World Radio History

3. FIND AND TREAT YOUR FIRST ORDER REFLECTIONS. High frequencies will act the same as the bass described in Tip #2. The difference is that they are more directional and above 400Hz will be subject to simple geometry. This means that you can use a mirror to find the reflection points. Invest $30 in a 2'x2' plastic mirror. Have a buddy sit at the mix position while you place the mirror flat against the walls and ceiling. Move the mirror around until your buddy sees the left and then the right speaker reflected in the mirror. Have your buddy slide side to side across the console to cover the entire mix area when looking in the mirror. Mark these areas so you can treat them. For the side walls and ceiling an inexpensive solution is a 6 lb. density, 2" compressed fiberglass, such as Owens Corning 705. The fiberglass should be covered with a fabric that is acoustically transparent. Go to a fabric store and pick out something with a very open weave. You should see some light pass through and if you hold it over your mouth you should be able to easily blow through it. Only treat the areas where you saw the speakers, or slightly larger, and don't over do it. An over-damped room will sound like the life has been sucked out of it since you will disproportionately damp the high-end reverb time.

4. PUT YOUR SPEAKERS ON STANDS, NOT ON THE CONSOLE. At this point I want to mention the evils of console reflections. The console and worktable are subject to the same reflections as your walls. Now I realize that you can't do this if you have one of these all-in-one workstation pieces of furniture, but you should be aware of these tight reflections bouncing into your face. If you have the freedom, move the speakers back on stands. Use the mirror again for this. If you sit at the console and can see the tweeters in the mirror, you're in trouble. Move those speakers back so you see no reflection in the mirror (usually about 8" behind the console).

5. BASS TRAPS CAN HELP OR HURT YOU. There is no rule of thumb for bass traps. Many times trapping a corner is just what you need to control a room bump, but I've also seen corner traps put big holes into a room response. Sometimes you would do better to cut the corner off with a hard surface or leave the corner as is. In some cases the trap should be in the ceiling and in some cases on the back wall. I personally believe in measurement and experimentation to get the best results. I don't think you can do it just with tones so I'll recommend renting an RTA and a flat microphone (don't use your favorite vocal mic). Experiment with treatments and do some listening too! The ears are the final judge in all of this.

6. GATHER AS MUCH KNOWLEDGE AS YOU CAN. This space is too short for any in-depth advice. The NARAS Producers & Engineers wing just published a guideline for setting up 5.1 mix rooms. While not perfect, there is a lot of good information in there. Read the articles on my website at www.bobhodas.com. I am way behind on getting current articles up there but I'll be putting more up as we get into the new year. Read your trade mags. You may get frustrated by conflicting opinions in the studio design trade the deeper you get into this, but hey, it's not a perfect world.

7. **GET A LEG UP ON IT.** There are probably certain setup things you do with any sequencer each time you use it. So why do them every single time you start a certain kind of project? Outside of bad home training? Use a program's "template" feature, and if it doesn't have one, then just save certain basic projects according to type

8. PRE-PATCH. Nothing kills inspiration like waiting for the engineer to set up the recording chain (or taking time to patch things in yourself, if you're wearing the artist *and* musician hats) So plan ahead. If you're going to be overdubbing electric guitars, set up any DIs, re-amping boxes, tuners, and so on, ahead of time, so all you have to do is plug in and hit record.

12. POWER UP OLDER GEAR PERIODICALLY. We all have them: Those pieces of older gear we once loved, don't use, but can't bear to sell. However, if you want them to continue to exist, power them up from time to time, work the controls, plug things into the jacks, you know: do the do. Moving parts like to move, and corrosion can build up in connectors unless they get some exercise.

10. **SCRATCH OUT A PASSWORD/AUTHORIZATION CODE FILE.** If you lose a password or authorization code for your software, don't expect much sympathy from the manufacturer. Create a file that contains all this crucial information, along with info like passwords to user update areas, then place this file in a folder that contains any other needed files (like HTML files used to register software). Make this folder "Copy Protection Central" with all the data you need to install and authorize software. Save this to CD, and buy a USB thumb drive that's dedicated to holding this data. Print out the file of passwords as an additional safety measure. You'll be glad you did

11. DO SOME DRY RUNNING. During a mix or recording session with the client sitting over your shoulder is not the time to learn how a new piece of gear works. Take time in between sessions to practice with it — run a variety of tracks (drums, guitar, vocals) through that re-issue "vintage" compressor at different settings, feed a guitar cab with a direct "reampable" signal while repositioning a new microphone, or whatever, and be sure to record the results so you have an audio record of how things sound at different settings.

RUN AND GET BACK UP.

If you have a piece of hardware with an internal fuse, you know that it will go at the worst possible time. Make life a little easier by attaching a replacement fuse inside the case, so that when you open it up to access the fuse, there will already be one there. If the equipment doesn't run too hot, you can just tape the fuse to the side with duct tape. If you're concerned about the fuse coming lose and wreaking havoc, then drill a hole, attach a dummy fuse holder with a screw, and insert the replacement fuse into the holder.

World Radio History

100 tips

ALEX OANA'S TRIBUTE TO THE PAINFULLY OBVIOUS

Well when they say "somebody has got to say it," pretty often it goes unsaid. Call it the fear of the obvious, the fear of the redundant, or the fear of the nose on your face. ALEX OANA (Mudvayne, SPY MOB), it could be said, is absolutely fearless in this regard. Forthwith his FIVE tips on stuff you probably know (but can't hurt to be reminded of).

13. KNOW YOUR BANDS. Not frequency bands either. Get to know the artists as well as you can. Collaboration is about people — the better everyone knows everyone the more honest everyone can be in the process. If you're on an out-of-town session, stay with the band. Share toothpaste.

14. THE BUCK STOPS HERE. Going back and forth over decisions can be a huge time-suck. Figure out who the producer is to avoid any power struggles. One person calling the shots can streamline any process. Stiff upper lip, soldiers.

15. I MIX ALONE. Mix the song until you love it, without anyone looking over your shoulder. Then email an MP3 to all the band members, A&R, and so on. Have the band elect one member as the liaison to communicate their wishes to you. Tell the A&R to get a real job.

16. COMPUTERS MAKE MUSIC. The biggest blessing and curse is the ability to endlessly rework a song. Make sure it's a good song in the first place — that'll save time!

17. AND TO CYNICALLY SIMPLIFY, REMEMBER TO: not get creative, develop presets for your recording, mixdown, and mastering phases so you can get through a lame project as quickly as possible, and if the band is no good and you're not looking forward to the session, get someone else to do it. These might make me sound horrible, but they are eminently practical.

19. REPLACE BATTERIES. A battery that's leaked all over your gear will likely ruin it, because the chemicals inside batteries are highly corrosive. If they just attack the battery connectors, that's bad enough; but if a PC-mounted battery (*e.g.*, for backup) leaks over the board, that board will die a premature death and will be almost impossible to fix. When equipment isn't going to be used for extended periods of time, remove the battery. Your gear will thank you for it.

20. IF YOU'RE NOT GOING TO PAINT THE TOWN, AT LEAST PAINT YOUR PLUGS. Buy a set of enamel paints with a wide variety of colors at a hobby store, and put a dab of paint on each end of your patch cords. Ideally, each cord would have its own color. This makes it sooooo much easier should you need to troubleshoot which connections are going where.

21. SO HOW OLD IS THAT BATTERY? With battery-powered gear (including remotes), write the date you replace a battery on a removeable sticker, and affix it to the outside of the gear (preferably somewhere near the battery compartment). This gives you an idea of how often batteries need to be changed, but more importantly lets you know if a battery is really old and should be replaced just to make sure it doesn't leak or cause other problems.

22. GOT PDF? A lot of companies post their manuals online as PDF files. Download these and save them to a CD. Not only will this let you get rid of the paper version if you need to save space, but the document will probably be searchable — great when you need to look up a specific term to remind yourself of how it works.

23. REALIZE THAT NONE OF THESE TIPS WILL HELP YOU. AT ALL. JACK JOSEPH PUIG (John Mayer, GREEN DAY, Goo Goo Dolls, NO DOUBT) says "none of these tips matter. They matter but they don't matter. There's a balance. A perfect example is I once did a session in a studio I had never worked in before and I wanted to prove to myself that it didn't matter what gear I used, but that the real talent was in being creative, breaking the rules, thinking out of the box and trying something you may have thought would never work. We were tracking drums and I told the assistant to grab the first 12 mics on the left and put them up . . . it ended up being the most amazing session and the song went on to be a massive hit. The SM57 is the most commonly used mic on a snare drum or guitar amp. But it's more about what you do with that microphone. These tips are important, if they inspire you to go down creative paths. Hopefully your interpretation of these tips will inspire you and that is what really ends up making the difference."

18

GET... OUCH! CUSTOM CABLES!

Do you have a piece of gear that depends on some weird cable that's made by the manufacturer and no one else? Buy a replacement, now, and put it in a safe place.

World Radio History

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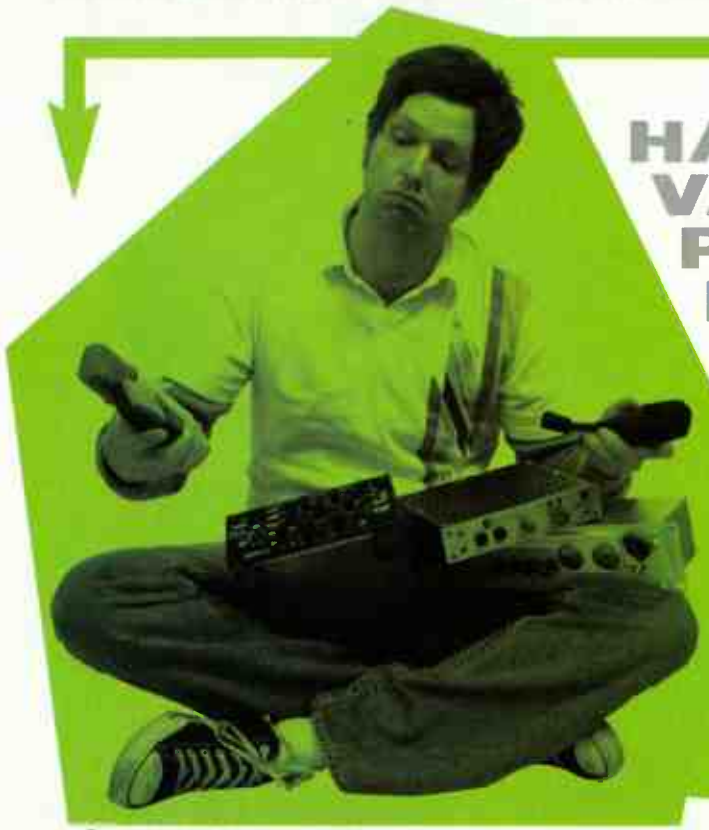
World Radio History

100 tips

GETTING IT UP

YOU'VE GOTTEN ALL OF THE BACK STORY TAKEN CARE. ALL THE HOMEWORK'S BEEN DONE. NOW ON TO THE SETUP.



HAVE A GOOD VARIETY OF PRE-AMPS AND MICROPHONES ON HAND,

even if they're not all Class A pieces, they'll all add character to your tracks and add dimension to your recording. Having tube gear helps!

ROBBY TAKAC'S 7 CENTS

We love saying his last name around here. It's like firing a machine gun. Dr singing that Billy Joel song. Anyways Takac, taking some time off from The Goo Goo Dolls and opening his three-room facility called Chameleonwest Studios in downtown Buffalo, NY is going to help us with our Tip Travelogue. He helps with Tips 24 through 30 and all we have to do is mention that his joint has three Pro Tools rooms with a small o.d. studios, and with each featuring NEVE, TRIDENT and a variety of outboard Pres, EQs and compressors. And what of The Goo Goo Dolls? Well, they're going to pitch a tent with a remote system in an old Masonic hall in Downtown Buffalo to record through the Summer of '05. Gotta be nice.

25. Drum rooms are simply pleasant-sounding cavernous spaces. These cavernous spaces exist all around us. Don't feel restricted to tracking in a studio room; explore other places for remote recordings. Room microphones on your drum set are your key to a "pro" drum sound. Use your room sounds!!

26. Great guitars, amps, and microphones are a must.

27. Crappy guitars, amps, and microphones are another must.

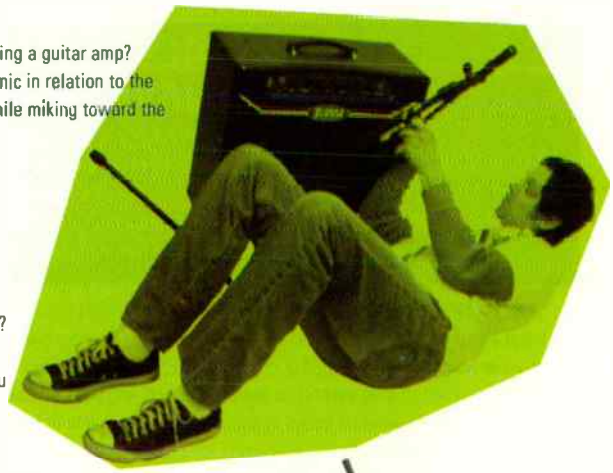
28. Amp Farm, AmpliTube, and Sansamp are useful on just about everything but guitars.

29. Bass amps are generally a phase-wrestling match reserved for the mix room; a good D.I. is always best to track with.

30. GET A REAL DRUM TECH !!!!!!

World Radio History

31. IT'S ALL WHERE YOU PUT IT. Miking a guitar amp? Experiment with where you put the mic in relation to the speaker. Closer to the center gives more bass and a "looser" sound, while miking toward the edge of the speaker sounds "tighter" and has a bit less low end.



32. GET A DIGITAL CAMERAS AND USE IT. They're really handy. Done a great mic setup? Shoot it, and you'll find it much easier to duplicate the setup in the future. Set up a piece of hardware and want to remember the control settings? Sure, you can write down where the dials point — but a few shots of the front panel might be easier. Recording an instrumentalist? Take a picture. Then, when *Guitar Player* interviews you and asks "Hey, what guitar was The Edge playing when you recorded U2?," you'll remember. Digital photos are the best, because you can store them in the same folder as other project data.

33. AVOID OPTION ANXIETY. It may feel satisfying to marvel at racks full of gear, but having too many choices — whether it's umpteen varieties of tube compression, duplicate types of plug-in effects, soft synths, sample libraries, microphones, or whatever — can become overwhelming and prevent you from actually getting anything done. If you suffer from option anxiety, limit yourself to a small subset of tools to work with. Do this at the beginning of a project, before things get out of hand. Chances are, you'll find creative ways to get more from less gear.

35. HUNTING FOR UPDATES. These days, it's not uncommon to have a bunch of incremental "bug fix" updates for every piece of software in your virtual studio. Hunting these down online after you've already downloaded them can be frustrating and time consuming. So keep all update installers in a single location, and back this up to CD-R. If the computer crashes, or you migrate to a new machine, pop in the disc, run the installers, and get on with your life.

36. BACKUP FOR THE TERMINALLY LAZY OR PRESSED FOR TIME. You probably have separate drives for your system and data (if you don't, you should — consider that another tip). And admit it, you probably get a little lax on backing up from time to time. If you don't have the time to burn to a CD or DVD, then at least create a folder (and preferably a partition) on your system disk called "Safeties." Copy the file(s) you want to back up over to this folder. Although this isn't as secure as having your backup in a separate physical location, at least if your data drive fails, you'll be ablo to pull a copy off the system drive.

37. DON'T TOUCH . . . OR SHOULD YOU? Manufacturers tell you never to touch a CD drive's laser lens. So I'll tell you the same thing. But I'll also tell you that wiping the lens with a soft, lint-free cloth has bailed me out a few times when my CD drive said "CD? What CD? I don't see a CD . . ."

THAT @#$%^& COMPUTER

Having problems with mysterious freezes, long bootup times for some programs, and general instability? Better make sure there isn't any cracked software on your hard drive. Aside from the ethical considerations, remember that cracked software by definition leaves out some of the original code. This can come back and bite you in various ways.

World Radio History

100 tips

PRO TOOLS TIPS THAT COULD SAVE YOUR LIFE

TAL HERZBERG (Black Eyed Peas, NELLY, Johnny Lang, CHRISTINA AGUILERA, Counting Crows), the Pro Tools guru of all mankind, between crafting genius and throwing us out of his place, gave us some must-do tips. Ignore at your own peril.

38. ASSET MANAGEMENT: When I talk about data management I'm really talking about asset management. This includes track and playlist management, clear labeling of all production elements, disk management, and data backup. Consider this Engineering 101. If your assets are damaged or non-retrievable it doesn't matter if you're the world's greatest sound engineer or mixer, you're failing the very tedious and initial mission of data retrievability.

39. BASIC PROPER BACKUP PROCEDURES ARE: Always keep AT LEAST one (preferably TWO). And an additional Running Copy of the main data drive (updated daily using backup software).

40. THE RIGHT STORAGE MEDIUM? Acceptable storage mediums include cloned drives, data tape, and CD/DVD.

41. COMPING: When we're dealing with comping (creating composite performances from multiple takes), we live and die by our ability to seamlessly crossfade between audio segments that we are cutting between. Pro Tools offers a wide pallet of crossfade forms, and knowing how to choose the right crossfade for a given cut between two takes dictates the seamlessness of the transition. When I'm comping between multiple vocal takes, I'll use one kind of crossfade between vowels and a different kind between consonants. Other examples are: Use wider and longer crossfades when dealing with low frequency instruments such as bass and keyboard pads, versus short crossfades when dealing with percussive instruments such as drums and percussions.

EASY STREET & HOW TO FIND IT

JIMMY DOUGLASS (Timbaland, THE NEPTUNES, Mary J. Blige, MISSY ELLIOT, Justin Timberlake) gives you highly detailed directions, scribbled on the back of a napkin, to the avenues of ease.

42. SIMPLE MICS, SIMPLE MIKING TECHNIQUES, MINIMAL EQ, AND COMPRESSION. And if you must marry the effects you love on something, go back and record it on a separate track because where its ends up being mixed may not have the plug-in or gear you used to get it.

43. GETTING THE BEST PIANO SOUND IN THE WORLD: Start with two U87s and go through the Neve pre amps on the board. Put each mic through an 1176 and a Pultec EQP1A. Run back and forth to move the mics around the various holes in the piano to see what kind of sound's coming out of the top and bottom. I get the optimum sound near one of the holes. This is my roll n' roll sound that I really like. I use the 1176s and just do basic compression going in. For the EQ I use something I picked up from the British guys a while ago... on the top mic I add a little bottom, at around 60 to 100 cycles. On the bottom mic I cut the low end and add a little top end... about 7 to 10k. This gives me a psycho acoustic illusion because the low end is now bright and present whereas the high mic is now a little warmer and richer, not brittle, so it smoothes the high lo, left right thing. I play with the compression on both sides to see which one I need. And that's what I do if I have time to really play around with the piano and get an amazing sound. I would also set up two U47s in the room. Place them far away left and right room, and then super compress those as well. When possible put them on separate tracks, and blend them later to taste at the mix.

GETTING IT ON

IT'S MARVIN GAYE TIME. THEY'RE LOOKING AT YOU. YOU'RE LOOKING AT THEM. SOMEONE'S GOING TO BREAK FIRST. SINCE IT'S YOUR JOB, WHY NOT MAKE THAT YOU, WISEGUY? YEAH, YEAH: START IT UP.

44. DELAYING TACTICS FOR THE DIRECT APPROACH. Taking a direct and miked signal from the same source? Don't forget that the miked signal will be delayed a bit, because sound had to travel through the air to hit it. Remembering that ome-foot delays sound by about 1 millisecond, nudge the direct sound a little bit late to compensate.

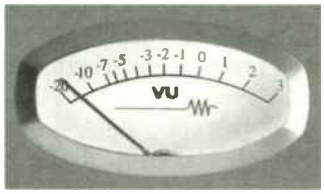
45. REVERB DIFFUSION: GOOD FOR DRUMS. Percussion sounds get along best with reverb if the diffusion setting is relatively high. Otherwise, you'll hear discrete echoes that can give the dreaded "marbles bouncing on a metal plate" sound.

46. TIME SURE FLIES WHEN YOU INTERNALIZE. If your synthesizer or digital keyboard part isn't sitting well in the mix, use the instruments' internal EQ or effects to help shape the sound to suit the other tracks.

47. HYPE THAT VOCAL PERFORMANCE. When you feel a singer is really starting to hit a groove and that the next take might be *the* one, bump up the volume in the singer's headphones a tiny bit — like one dB. This will hype the sound just a tiny bit, and might bring out an even better performance.

48. WARMING UP THE OLD STUFF. Run any vintage keyboard or any sampled vintage keyboard through a tube amp such as a Fender Twin or through a tube preamp before going to tape. This will add warmth to digital samples and will make a real vintage keyboard part sound more musical.

49. THE RIGHT METER FOR THE RIGHT JOB. If your metering has a choice between average and peak settings, use peak when recording drums, percussion, acoustic guitar, or anything with strong transients. These instruments have a relatively low average signal level, but high peaks that can distort if you're not careful.



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100 tips

50. CHOOSE METER DYNAMIC RANGE APPROPRIATELY. If your meters have adjustable dynamic range, use a really high dynamic range for tracks so you can see if there's any low-level noise or crud. Use a lesser dynamic range for your master bus so you can see what's going on in that all-important top 10-20dB of the dynamic range.

51. THE CHEAPO HARDWARE CONTROLLER. Haven't checked out the joys of using a hardware controller? Don't forget that a lot of gear in the typical studio can generate MIDI control signals suitable for realtime control over a sequencer, plug-in, and whatever else. For example, a synth usually offers more than just a mod wheel, like foot pedal control, one (or maybe more) assignable data slider, and so on. These will provide at least some degree of realtime control until you move up to a serious hardware controller.

52. DOUBLE-CLICK TO DEFAULT. Quite a few software programs have "knobs" that will return to their default positions if you double-click on them.

53. DON'T DRIVE MORE THAN NECESSARY. Enabling lots of drivers within a host program for multichannel sound cards wastes a lot of computer resources. If you're recording a stereo instrument and don't need more inputs, turn off the unused ones. Ditto for outputs.

WHEN TO PUSH "EJECT" WITH DIGITAL TAPE. If you still use digital tape like ADAT or DAT, always eject a tape at the beginning, the end, or in a space *between* songs. Should any tape damage occur while threading or unthreading, your song will be spared.

MALCOLM IN THE MIDDLE

MALCOLM BURN'S work with DANIEL LANOIS, EMMYLOU HARRIS and now THE STRING CHEESE INCIDENT has marked him as the go-to guy for SPARSE. Steph Jorgl corrals Burn for his Tip take on taking it easy

55. THINK SMALL. The current trend is to record a lot of tracks and then when you go to mix, deciding what not to use in the mix. When I first started recording in the late 1980s, I was given the opportunity by a couple of people to work within a very limited format. It was a 1" 8-track Studor machine, with a rack of fine pre amps, a very nice Neve 12-channel broadcast board, and a grab bag of microphones. It really taught me the principle of simplicity.

56. OLD DOG, OLD TRICKS. I was recording this band called Crash Vegas in the late 1980s. We'd already filled up seven of the eight tracks and we still wanted to do a vocal and some background vocals. But we only had one track left to work with. I didn't know what to do. Then one of my mentors — who came from the 4-track world — said, "In the old days, we would bounce the bass and the tambourine track together." And I said, "Yeah, but what if you want less tambourine later?" And he said, "Well, that's easy. You just cut the top end out, because that's really not going to effect the bass. And the same goes for if you want more bass." It was this kind of pragmatic minimalist approach.

The experience sort of led me to believe further in this certain mentality that it is a good thing to commit yourself to something and stay with it, rather than come back to it a second or third time. That way, you come up with a real piece of work, rather than a bland kind of mix — which is unfortunately what I've heard a lot of in music. To be honest, I think that things have improved over the last few years, but there was a point in the mid-1990s where every rock record was mixed by like two people. And all of it sounded the same because they were all using the same EQs and the same compressors. That all didn't go down very well with my revolutionary nature.

Even with the band I'm recording now, The String Cheese Incident, their manager was like, "Why are you only using 24 tracks? We have

JOEL HAMILTON IS NAILS

Working out of Studio G in Brooklyn, with everyone from Sparklehorse, Frank Black, and Ludacris to Swiss strongman Rollie Mossiman, Hugh Masakela and Lubricated Goat, Hamilton takes neither crap, nor prisoners. Forthwith his...

TOP 10 THINGS TO NEEDLESSLY COMPLICATE YOUR LIFE

64. PUTTING 2 MILLION MICS ON ANY GIVEN SOURCE. Nothing makes a simple rock recording really get unmanageable quicker than overprinting every single sound. Use your judgement. Will you really use the CB mic through the distressor and the LA2A on this roots rock band? Was that decision for the band or you?

65. HAVING CRAPPY WIRING. I am constantly amazed at what passes for wiring in a "studio." Wiring is easily the most boring thing to buy for the studio, and yet it makes an ENORMOUS difference in the sound of your room. A good patch-bay, well done with decent wiro, will get all the sonic goodness you hoped for from your new snazzotron 2000 to the listener! You can always patch up 30 feet of cheap mic cables to the pre-fader insert point on your console if you miss the wheezy, squeezed grain of the old wiring you had....

66. PRINT WAY TOO HOT TO TAPE. For some reason, every engineer I know (including me) goes through a renegade cowboy phase where doing things TO THE EXTREME becomes the norm. If you think that transient information is just for suckers, then by all means keep on rockin' the crap out of the JH24's output electronics. But when you chill a little and hear how punchy the snare gets, and how much oomph the kick drum has when it is not pasted to tape, you go "oh, wow." Tape is an amazing thing, and should be preserved at all cost for many reasons, but use it wisely.

67. GET REALLY SCARED ABOUT EQ, COMPRESSION, OR REVERB. Amazing how certain clients come in and you would swear their big brother used to beat them with an 1176 when they were kids. Maybe it was an EQ, or a Lexicon 480 bit them when they were young.... People have all sorts of hang-ups about certain techniques used to make them sound good. Used with good judgment, and good taste, under the right circumstances, these things actually HELP them, and you, get a good mix happening. Try to be as diplomatic as possible, and show how good it can be. If you make someone look great, they always come back.

68. USING ADVERTISING AS A GUIDE FOR USAGE. I see so many people using the mic that is "FOR THE BASS" and it sucks. Listen to what something gives you when it is at the edge of acceptable parameters. That seems to be whore "character" really lives. I swear that is what makes something a classic or not, how it

Joel Hamilton photo by Brendan Walsh

World Radio History

52 inputs..." And my answer was, "I'll tell you why — because we're only going to 4 tracks for drums. If we have 6 vocals—we're going to comp them together and put them down to one track. And when we go to mix the record, it's gonna sound *done*. That's why." I'm still immersed in that same simplistic mentality that is far more concerned with creative decisions than technical nonsense.

57. COMPRESS? OR NOT? I'm a firm advocate of using good, clean analog pre amps and going straight to tape. And I don't use a lot of compression or EQs while recording.

58. BEST = LEAST. With SCI we're using the RADAR format. I'm still a huge fan of tape — that's the format I prefer. But the location we're recording at is a beautiful house in the middle of the hills. So it wasn't practical to drag a tape machine all the way up here. The RADAR functions very much like a tape machine. It has a 24-channel transport, you can arm tracks that you're recording. . . . You don't have to stop recording to punch someone in on another track. It doesn't distract me from what I consider the ultimately important thing in the song: the performance.

59. LEAST = FEWEST. One thing that I've got an opposition to these days — not just in music, but in the modern world — is this emphasis on having lots of options. My attitude is that I firmly believe I'd rather have one piece of equipment that does its job passionately than 10 things that it does *not* do very well. A computer is a multi-tasking format. And there's this whole corporate push to get people to multi-task. But this multi-tasking is not something I want to be involved in. I want to use *one* machine that does *one* thing and that is: record music *really well*.

A great guitar only does one thing: it's a great guitar. So why have a recording environment that's any different. *I* don't get it.

60. FUTURE SHOCK. I'm fairly worried about the way things are going now because, I mean, *everybody's* got Pro Tools. ...*everybody's* got an Mbox. My concern is that the aesthetic is getting lost. I find that one of the places where a strong aesthetic still exists is with rap music. It's the one area that I find kind of exciting in that they've gone the other way. They don't try to fill every track that's available. Instead they'll do like five tracks, and a couple with vocals. I mean *that's* where the rock and roll still exists for me.

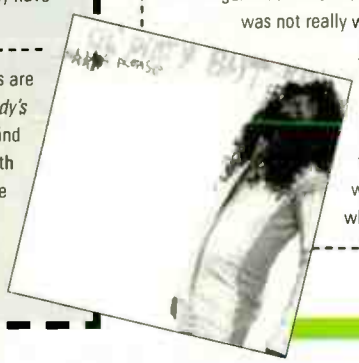
MR. MACKAYE'S RULES OF ORDER

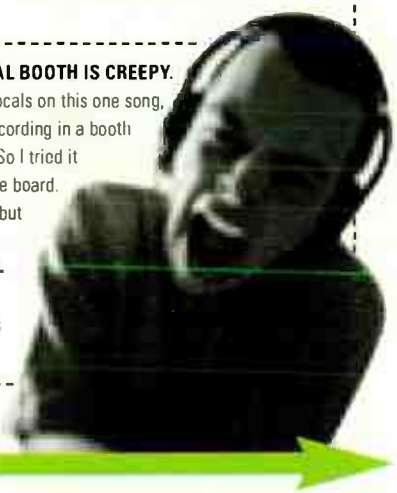
IAN MACKAYE (Rollins Band, FUGAZI, Minor Threat, THE NECROES), producer, player and founder of DC's seminal DISCHORD Records has been recording with DON ZIENTARA at INNER EAR STUDIOS for the better part of the last 25 years. Notoriously direct, MacKaye's advice on getting the sound that's informed everyone from BLINK 182 to GREEN DAY was not much different.

61. DO NOT LAUGH AT YOUR BANDS. When we were 17, we started recording with Don because he was the first guy to take us seriously. We were in one other studio before then and the guys at the board were laughing at us WHILE we recorded. Yeah, we weren't great, but we were serious. AND we were paying them.

62. DO TRY ABSOLUTELY ANYTHING. When we started recording with Don, all he had was a half-inch 4-track reel-to-reel and a homemade board. The control room was a boiler room. We only had the most basic separation schemes, and would run two snakes up the stairs into the backyard. HR from the BAD BRAINS did all the vocals in the backyard. You could hear neighborhood kids asking him "what are you doing mister?" The fidelity wasn't there but it was PUNK, and good songs and power were there and what mattered.

63. RECORDING VOCALS IN A VOCAL BOOTH IS CREEPY. I was having a real hard time recording vocals on this one song, "the Argument." I started thinking that recording in a booth was not really working for me. So I tried it just sitting at the board. It's awkward but singing live is awkward sometimes and it wurked. So that's what I do now.





IN THE STUDIO & HOW TO DO THEM...EVERY SINGLE TIME.

reacts to being abused or used for something the ad would have never led you to. There is a lot of useful information about your gear that lives just south of "acceptable usage."

69. LET AN INEXPERIENCED BAND DICTATE YOUR PACE. This will negate any of the hard-earned lessons you have learned about when and how to do things every time. Stay focused. Try not to let the guitarist standing over your shoulder psychically make you keep pushing the guitar faders up.

70. TALK ABOUT A FOUR-MINUTE SONG FOR 30 MINUTES. What a nasty trap to fall into. Forget about getting a great take by analyzing the snare part for 30 minutes solid. Why not hand out brochures about "what rock sounds like" as well? Doing another take of the song with a few little key points in mind takes four minutes (duh). It is easy to get caught up in a very academic discussion disguised as "important" to the session. In my experience, this leads to boringly dutiful takes.

71. OVERTHINK THE PROCESS OF RECORDING AT LARGE. I talk to people all the time about this. People analyze every tiny little aspect of recording, and then play me some sterile, crappy, one-dimensional recording with no character and certainly no life. Have a plan, but don't be afraid of deviating as the situation calls. Let the music dictate your every move, rather than the neurotic pianist or the spastic guitarist or the drunk drummer.

72. HAVE LOTS OF PRE CONCEIVED IDEAS. If you can't shake what you THOUGHT would work, it is hard to get to what ACTUALLY does work! Be prepared to do things you never thought would be good, because every single session is different. Start with your way of doing things, of course, but be ready to back track and re-evaluate your position. When you can't do this anymore, get a Zildjian jacket and a fanny pack with gaff tape on it and start blaming "kids these days."

73. DON'T MAKE A DECISION. Don't decide anything. Let every one of these "easy-to-go-along-with" things carry you into a world of hell, where the sounds are pretty lame, and the process is no fun for you or the client. Making decisions requires experience and know-how, two things that cannot be purchased at your local retailer. Try and be dutiful to the band or client but be true to your own goals as well. After all, they are paying you to make them sound good.

World Radio History

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ACTION ADVENTURE AUDIO

Movies without music are slideshow curiosities. Pretty pictures minus the sound and the fury. Which is why they invented JEFF RONA (Philip Glass, Hans Zimmer, Brian Eno). With fingers in everything from the design of new electronic instruments and music software to his film work (*Traffic, Black Hawk Down, The Thin Red Line*), Rona, with writer Steph Jorgl, covers the waterfront of making music for the movies.

74. HOW TO MIX A FILM SCORE... When you mix a film score, you want the orchestra on a set of tracks, the bass and the percussion on a set of tracks, your synths on a set of tracks, and your high percussion and your low percussion split up on anywhere from 8 to 32 tracks. When I deliver these stems, they should just be able to put their faders in a straight line and hear my mix exactly as I heard it. That way, if a helicopter is drowning out the percussion, they can bump it up. Or if a guitar or other solo instrument is making a line of dialogue hard to hear, they can pull it down a little bit. So I print in stems using an environment I set up in Logic.

75 ...*WELL:* When Hans Zimmer asked me to write some music for *Black Hawk Down*, I made just one limitation for myself for the project: no synths, no samplers, only Logic, no outboard mixers, and no outboard effects. I would write the music entirely inside of Logic. It was the first time that I had done a virtual studio project. And it was probably the first big movie to have music done entirely without any physical instruments. The music never passed through an external wire. I just mixed it inside of Logic, generated a 24-bit music file, then put it on an iPod and took it over to the music editor's room and off it would go."

76. WHAT TO USE TO DO WHAT NEEDS TO BE DONE: For the movie *Traffic*, I wrote a ton of [Cycling '74] Max apps that ended up creating a lot of the textures and rhythms in the film score. I kind of built this DJ system inside of Max using Max and the virtual Virus software instrument. But with a lot of projects, I'll sketch something out in Reason. I can be on my laptop at my dining room table, building some rhythms and bass lines. Then I'll solo each track, bounce it out and import the whole lot into Logic. Then I'll start chopping, flipping, flanging, and stuttering, and then start organizing it. After that, I'll put it up to picture and look at ways to have elements move in and out, or to stop, start, or shift around. Sometimes I'll pitch shift something. You can come up with your own ways of taking one whole system of working — like in Reason — and going in a direction that it couldn't go once it's in there in Logic.

77. USING SOUNDTRACK AS A SAMPLER: I've been using Soundtrack a lot. It's so quick, dirty, easy, simple, stupid, great. I'll know the tempo and key that I want and I have one Mac lightpiped to the next, so I'll just put together combo platters. I'll mix a tabla with a guitar and together they'll create this cool thing. And I'll build a little sampler of ideas — two- or four-bar ideas. Then they all port over to Logic and get chopped up into bits. I use it like a live sample library, like a sample library that doesn't exist until I click on a button. I find it very useful.

GETTING IT DONE

THIS IS THE LIGHT AT THE END OF THE TUNNEL PLACE. THIS IS THE MAGICAL SPACE WHERE EVERYTHING IS SUPPOSED TO BE FIXED. THIS IS "IN THE MIX."

78. THE FREE WINDOWS SPECTRUM ANALYZER. To analyze how a song's energy is distributed over the audio spectrum, open Windows Media Player and go *View > Visualizations > Bars and Waves* for three spectrum analysis screen options. There's also an oscilloscope view. (Note that to see visualizations, you need to check "Digital Audio" under Playback Settings at *Tools > Options > CD Audio*.) None of this is calibrated; still, it's useful to see how your music compares to commercially available CDs. And if the bars stay at the top a lot, you know there's a ton of compression being used.

80. SENDS: DON'T JUST SET AND FORGET. A person commented after hearing a mixes that used a lot of delay on voice, that the delay never seemed to "step on" the vocals or muddy things up. This is because we like to vary the send control in real time to pick up just the end of phrases, so that when the phrase stops, the echoes continue — but just before the vocals return, the send goes back down. This is an ideal application for a control surface, but the patient among you can draw in curves for the send level.

FIXING DOUBLED VOCALS.

With doubled vocals, sometimes the overdubbed vocal will "fight" the original vocal on an occasional word or two. Rather than recut the doubled vocal, copy the same section from the *original* (non-doubled) vocal. Paste it into the doubled track, but delay it by about 20-30 ms. Short segments (a few words) will sound fine; longer segments will sound echoed. This may work, but won't sound as much like two individual parts being played.

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81. SPEAKER SWITCHING. Set up two or more monitor systems so you can easily switch among them during mixdown. That way, you don't have to wait until you *think* you've finished a mix and burned it to a test CD, only to realize it doesn't translate to other systems.

82. MONO GOOO. When you start mixing, pan everything to center, and sort out the levels and EQ. Then deal with the stereo placement. You'll find that if the mix works in mono, then it will work even better in stereo. Also check the overall mix in mono to make sure there aren't any phase cancellations going on.

83. DOUBLE YOUR (METERING) PLEASURE. Want to monitor peak and average levels at the same time on your master bus? If your metering doesn't allow this option, there's a simple workaround, assuming your host has assignable buses. Assign all the tracks to be mixed down to a bus, set its level to 0, and adjust its metering to average (RMS) response. Now assign that bus to your master bus, and adjust its metering to peak. Arrange your window so the two sets of meters are close together, and you'll be able to see what's happening in peak-land and average-land at the same time.

84. PARALLEL EFFECTS WITH DAWS. Even if you don't have an effects matrix like BIAS Vbox, don't worry. Make two copies of the track you want to process, then add one line of effects to one of the copied tracks. If the effects have wet/dry mix controls, set *all* of them to wet (processed sound) only. Next, add a parallel line of effects to the *other* copied track, again with all effects set to wet only. The original track serves as the dry signal; use the DAW's mixer to set the correct mix of the three tracks.

85. PRESET MANAGEMENT FOR EFFECTS. Preset files take up virtually no space at all — typically a couple kilobytes, if that. Because there's no penalty in saving lots of them, any custom preset I use in a song gets saved under the name of the song. I find it's easier to remember a sound that's associated with a song rather than just giving it a name like "BrightTelePreset" or whatever.

86. WHY TWO MEASURE LOOPS ARE BETTER THAN ONE MEASURE LOOPS. When you create loops, avoid one-measure loops and do at least two-measure loops. Make the second measure a variation on the first measure. That way, if you want a loop to keep repeating and sound the same, just split the loop in half, and copy the first measure repeatedly. When you want the variation to come in, use the full loop so it plays through the second measure.

87. LATENCY AS A TOOL. When it comes time to mix, increase the latency on your computer a bit, say from 5 to 10ms. This will let you use more plug-ins during the mixing process.

GETTING OUT

END GAME. THIS IS WHERE YOU WAVE YOUR PROJECT GOODBYE IN THE FULL BLOOM OF KNOWING THAT WHEN YOU SEE IT AGAIN IT'LL BE ALL GROWN UP.

88. WHY MASTERING LOVES PRESETS. When mastering with a digital audio editor, if possible, save the setup you use (plug-ins, levels, etc.) as a preset. Then if the client wants to make some changes, you can make a few tweaks rather than having to start over from scratch.

89. ALWAYS THINK 24 BITS.

Save your final mastered versions in 24-bit resolution, even if the target playback medium is a standard 16-bit CD. Then apply dithering to the 24-bit file to create the best-sounding 16-bit file.

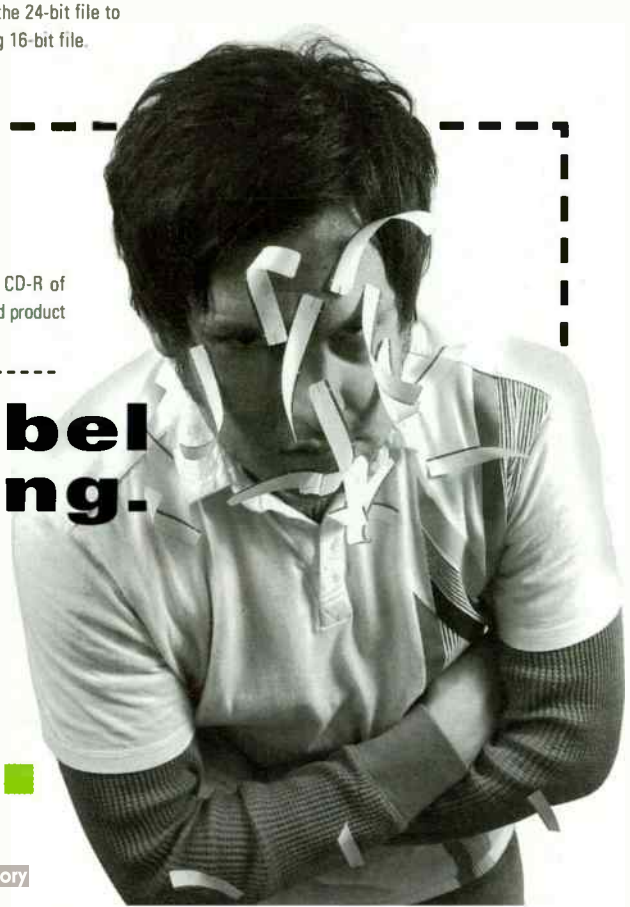
THE GOLDEN YEARS

JOHN and JJ GOLDEN are the *pere et fils* dynamic duo of adventurous Left Coast mastering. Yeah yeah, Bernie Grundman's good but for bands like CALEXICO, PRIMUS and SONIC YOUTH, Golden's is the choice for making the most of mastering. But they're FED up. And to that their 8-point...

MAKE YOUR MASTERING GUY HAPPY GUIDE

90.

MAKE A MOCK UP. A mock-up CD-R of the correct sequence of the finished product will save us time and you money.



Label everything.

91.

92. COMPRESSION? NOOO. People will want to know if they should give us a mix with or without compression. And mixers are under pressure to make the mix sound competitive with a mastered version of something and so they compress. Don't. When we say "compression" we mean bus compression over the whole mix that when once done can never be undone. Give us one without. And one with if you can't help yourself.

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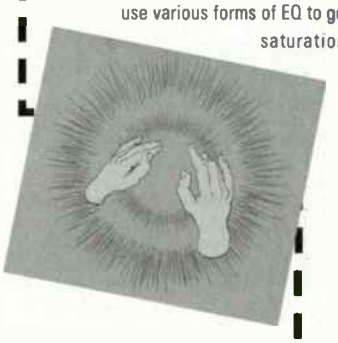
93. LEAVE MIXES UNFADED. And if needs be, include an example of a fade you do like because if the mixes have the ends faded out when we bring up the volume, the fade is shot and we have to refade.

95. DON'T SEND IN YOUR MIXES IF YOU KNOW THEY HAVE PROBLEMS. Avoid the "fix it in the mastering" phase.

96. LESS IS MORE. You want more detail out of your mix? Try not having four layers of guitars there.

97. CHOOSE FORMATS. CAREFULLY. GOD SPEED YOU BLACK EMPEROR mixed to half-inch after they had recorded to analog 24-track. But it had major problems with tape hiss. It was louder than the music. They should have mixed down to digital format or recorded it digitally. We had to use various forms of EQ to get rid of the hiss. If you want that tape saturation sound, well, we have tape machines in the studio and we can do that.



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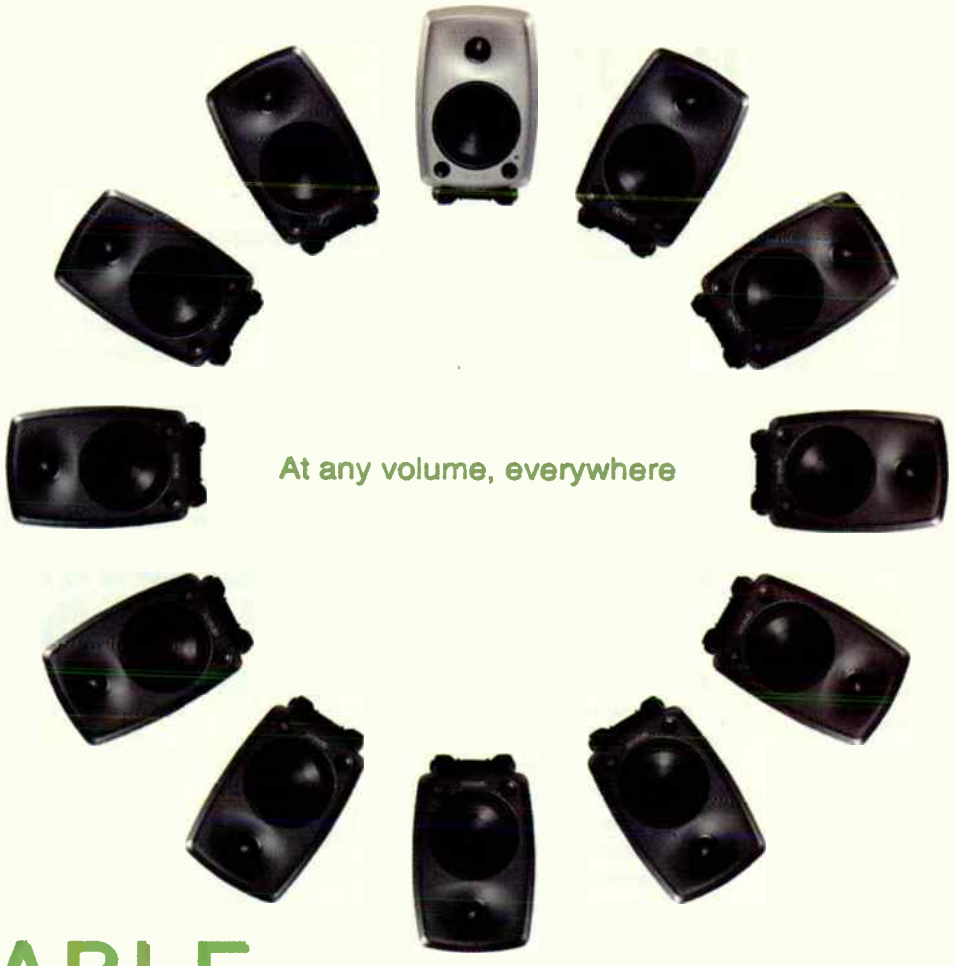

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100 tips

98. **MAXIMIZE YOUR TAX DEDUCTIONS.** If you're running your home studio as a business, file a Schedule C, and have clients come in from time to time, be on the lookout for additional deductions. For example, if your studio has a bathroom and you have to replace the hot water heater in your house, then the percentage you claim for the studio can also apply to the hot water heater. Same with a lawnmowing service if you're trying to keep your house (and studio) looking nice. *Caution: Consult with a qualified accountant or attorney before taking any deductions to ensure that they apply to your situation.*

99. **DISCLAIMERS ARE A GOOD THING.** If you're like many studios, you archive the work of your clients as well as provide them with backups. But make sure you give them a form letter stating that this is done as a convenience, that you don't guarantee your archives will always be accessible, and that it is ultimately the client's responsibility to ensure that all backups are functional and to create additional safety backups.

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Do We Dig Distortion?

Tube warming trends continue

by Lynn Fuston

Last month we talked with noted tube designers about the common perception of tube warmth. This month let's dig into why tubes are perceived as warmer, and the effects different types of distortion have on our perception.

Myth #1: The main reason tubes sound warmer is because they have more distortion than solid-state components. More importantly, tube distortion emphasize even harmonics, making things sound more musical.

Doug Fearn: The even-order harmonic distortion in tube amplifiers (especially in triodes) is generally considered more musical since, in good designs, the primary distortion product is the second harmonic. The second is one octave above the original sound. This adds body and fullness to the sound. It's the harmonic that is dominant in most musical instruments.

Aspen Pittman: It's easy to measure that tubes are higher in Total Harmonic Distortion (THD) than solid-state. But the difference between 0.01% THD and 0.001% THD may be difficult to perceive. On the other hand, it's difficult to measure dynamic distortion quantifiably but you can definitely hear it. Solid-state electronics exhibit much more dynamic distortion than tubes. That's part of why tube mics make recordings sound more lifelike.

Key to this discussion is that digital recording significantly increased the dynamic range, allowing us to better hear what was coming into the system. Digital recording gave us the means of hearing differences we didn't hear before, such as the fact that tubes are dynamically truer than solid state. Dynamic distortion refers to the accuracy or transparency of a circuit over time, particularly critical regarding the transient at the beginning of a sound. Accuracy in reproducing dynamics can make the difference between something sounding full and 3-dimensional or flat and 2-dimensional.

Hutch Hutchison: To me, distortion sounds like distortion. There are countless types and some sound cleaner or more realistic, some sound old or vintage, some are useful as an aggressive effect, and many that aren't pleasant. We can get any of them with any technology. Tubes are quite linear and tend to suggest simple low feedback designs and tend to use transformers and high-quality components. The key word is "simple" and that shouldn't be underestimated for capturing the inherent warmth in live music.

It depends on the circuit topology. A simple single inverting gain stage, with little local feedback, whether tube or solid state generally will have predominantly even harmonic distortion and more importantly low-order distortion. However in real life, many products have two inverting stages in series or push-pull, which tends to cancel even harmonic distortions and tends to make symmetrical odd-order distortions predominant.

Perhaps the biggest reason that many presume that tubes have more distortion is that most designers using tubes tend to use fewer gain stages and less overall negative feedback to reduce gain, distortion, and noise. One of the unfortunate usual properties of negative feedback is low distortion until the clip point is reached, then the distortion is not only odd-order, but also abrupt so that it is perceptibly high-order and unpleasant. And once past clipping, the negative feedback is no longer "valid" and may cause some instability or typically a longer time to recover. Raw audio has a huge dynamic range, and clipping is almost inevitable so how a circuit clips is important. Perhaps it is a good thing that low feedback tube circuits gently increase THD as the signal gets louder, which not only adds to our "loudness cues" in hearing but probably is similar to some of the volume related distortions that our ears exhibit.

I am uncomfortable with the stated generalization because there's such a variety of tubes, FETs, and BJTs, [transistors]. In general, tubes are the most linear of those raw choices for voltage gain and offer the biggest voltage swings and respectable slew rates. This is why tube circuits are okay with less negative feedback, and why we can design with fewer gain stages — one should never underestimate the potential benefits of keeping it simple when it comes to music reproduction. Wasn't it Einstein who said, "Make everything as *simple* as *possible*, but not simpler"? The real challenge is designing simple audio paths that include the array of features expected today without stepping on the sound.

Oliver Archut: Audio tubes were designed to have mostly even-harmonic distortion. They also have a rounded curve that imposes a slow rising of distortion when overdriven. Transistor-based circuits produce the same amount of even and odd harmonics, and have a sharp cut-off regarding distortion; if they're overloaded the full amount of distortion kicks in at once.

Mitch Margolis: It's true that a single stage of single-ended common-cathode audio-triode vacuum tube audio amplification, operated at an optimum quiescent current point with all negative feedback removed, including cathode degeneration resistors, *will* have more measured distortion then a monolithic op-amp set up to provide the same amount of voltage gain as the tube stage. But don't forget these points:

1. The single-ended zero-feedback tube stage distortion will be predominantly 2nd, 3rd, and

Myth-busters and Truth-seekers

Our cast of experts for this installment of "Myths Revealed" includes:

Oliver Archut
AMI/Tab-Funkenwerk
www.tab-funkenwerk.com

Doug Fearn
D.W. Fearn
www.dwfearn.com

Hutch Hutchison
Designer, Manley Labs
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Mitch Margolis
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perhaps a trace of 4th overtones, which are musically benign, versus the smaller measured but more dissonant higher-order harmonic distortion content of the op-amp and its associated class-B output stage.

2. The op-amp's inherent internal distortion mechanisms are vastly greater in number, as is the fundamental complexity of the semiconductor-based circuit elements comprising the op-amp itself. Many of the op-amp's distortion mechanisms are stronger then the tube's, and are kept under control only by the application of heavy-handed amounts of negative feedback.

3. The onset or build-up of these low-order distortion products in the tube amplifier tends to happen gradually over the top 2/3 of the available stage dynamic range, depending on associated circuit design details. Below about 1/3 modulation depth of the tube's space current, the tube is a spectacularly linear beastie, and is nearly impossible to beat for simplicity and low-distortion voltage gain without much feedback!

This "soft-knee" distortion-onset is the domain of low-feedback circuits built out of amplifying elements whose innate linearity permits the amp designer to use more moderate amounts of negative feedback. This, in part, accounts for the sonic "bloom" effect that tube gear can deliver versus the sudden abrupt crunch produced by hard-clipping a high-feedback solid-state design as the drive level rises. As a result, some listeners report that the artifacts produced by the circuitry in a given tube amp are complementary to the musical program material flowing through it. The gear plays along, during louder musical passages, to a certain degree, in a modest and musically pleasing way.

4. Conversely, there are some forms of early simple discrete solid-state single-ended microphone amplifier design that do have appreciable amounts of 2nd-order harmonic content, and are popular for that and other reasons. For example, the venerable Neve 1073 or Universal Audio 1108 modules are quite capable of some of the harmonic generation behavior of single-ended tube gear, although without the extreme dynamic range that tubes can provide.

5. Bluntly stated, there is a great deal *not* happening to the flow of charged particles inside the confines of a vacuum tube that *is* happening to the charges flowing within a semiconductor crystal lattice. The vacuum tube, when used in audio production applications, remains as the most simple and basic structure for control of current flow, and as such is relatively free of unwanted residual behavior from parasitic mechanisms, especially when compared to a typical bipolar transistor used as a voltage amplifier.

THE FACTS:

1. Tubes emphasize even-order distortion, which sounds more pleasing to our ears.
2. Tubes distort in a smooth, gentle fashion compared to solid-state devices.
3. Tubes are capable of great linearity and dynamic range.

MYTH #2: Anyone can distinguish the warm sound of tubes from the hard sound of solid-state.

Oliver Archut: I have to disagree, I gave a V72t (transistor version of the V72) to people to test and they came back to me and told me all about the warm

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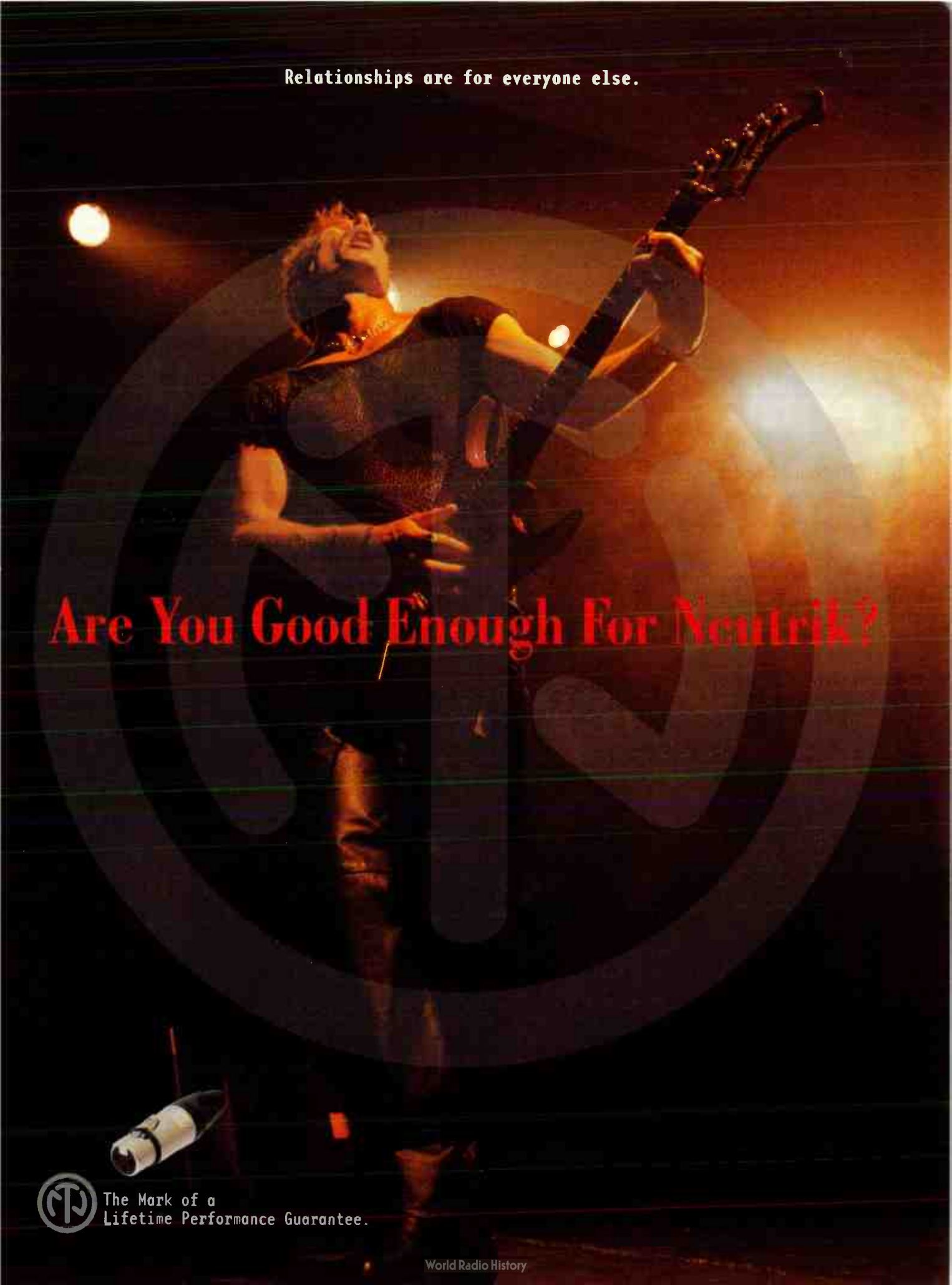

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beautiful tube sound . . . the unit looks like a V72 so it must sound like it.

Doug Fearn: In many circumstances, well-designed solid-state amplifiers can sound as warm and pleasant as tube amplifiers. It seems that the primary practical benefit of tubes is realized when the tube amplifier is interfacing with a transducer (*e.g.*, with a microphone or loudspeaker). Since the transient output level of many microphones at a typical placement is very high (over a volt peak-to-peak in many situations), almost any mic preamp will run into high levels of distortion on those initial peaks at the start of percussive sounds. If a solid-state preamplifier clips those transients, a burst of odd-order harmonic energy is added to the transient, which tends to "cloud" the sound. Often this effect is subtle. It could even be desirable if the goal is to add attention-grabbing energy to the sound. Tube preamps under the same conditions will add even-order harmonics, which most often make the sound "bigger."

Hutch Hutchison: Many can easily distinguish good sounding gear from bad, hard from soft, warm from cold, but there are plenty of examples from both tube and solid state of each extreme. Maybe we recognize certain aspects that are typical of each technology. For example, we might associate the sound of zero-cross distortion, plus low THD at nominal levels, plus hard clipping with solid-state, but that doesn't mean all solid-state has those traits. Similarly, we may associate the opposite with tubes, only because of what we have been exposed to. Certainly some of the ways that people characterize a tube "sound" has more to do with the transformers and simple topologies, plus more attention to premium passive components.

There is also some market-driven aspect where designers try to meet the expectations of potential customers. For example, while we can build a tube-based recording product that sounds like solid-state, we recognize why people come to us for tube gear and particular sounds. Manley also builds tube-based audiophile gear that's designed to be clean and "straight-wire-with-gain" as is practical. In that market, tube gear competes with solid state for transparency and often wins.

Mitch Margolis: The sonic differences can be discerned most readily when a comparison is made between the two types of systems as they are driven closer to clipping or overload.

If the two systems have, at low levels, truly equal bandwidth and rise times, flat frequency and phase response, equal distortion types and amounts, and equal noise floors, then it will be more difficult to distinguish between them by listening alone. The differences will become more evident as the whole dynamic range of the two systems are explored and compared. Or when someone taps on each chassis, and the tube-based system is revealed by microphonics! EQ

THE FACTS:

1. Ultimately the sound of a circuit depends on its design. Solid-state circuits can provide tube-like behavior. Tube circuits can compete with solid-state for transparency.

2. The differences between tube and solid-state become most apparent when the circuits are driven to distortion.

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The Art of Recording:

Meet Mr. Freeze

It's not just for refrigerators any more

The "freeze" option in sequencers and DAWs has become a . . . uh . . . "hot" topic. The reason why it's important is because of the rise of a new generation of software virtual instruments that, although they sound wonderful and have a fistful o' functions, suck computer resources faster than SUVs eat gas.

by Craig Anderton

And the problem isn't confined to instruments — high-quality, "mastering"-type audio processing plug-ins also stress CPUs to a level that if they were human, would cause them to take to the streets in protest. Even if you have the latest multi-GigaHertz pet brain from Intel, AMD, or IBM, a project that's loaded with plug-ins is asking for trouble, particularly with low system latencies. What's more, soft samplers often cram their samples into RAM, leaving less for system functions. If they instead stream samples from disk, then they're placing more demands on the hard drive. Dilemma . . .

The freeze function is designed to preserve the audio that results from using these plug-ins, while dramatically reducing CPU resource consumption. It's a clever trick, but interestingly, the ability to freeze has been available since long before companies decided to make it into a "one-click" operation. So let's examine how the freeze function works, how to freeze with just about any host, and *"à la carte"* freezing for customized freeze functions.

WHY AM I FREEZING?

Simple: It's February, and the window's open. Seriously, though, you want to do the freeze thang because your computer's audio is showing signs of overload: Gapping, crackling, and maybe even a complete audio engine meltdown.

The freeze process takes advantage of the fact that, thanks to high-speed/density hard drives, modern hard disk recording programs can run dozens (even hundreds) of audio tracks without breaking a sweat. So, the freeze function implements a two-step process: Convert the soft synth's output to a hard disk audio track, then "disconnect" the soft synth from the CPU.

Different programs handle this differently. For example, some programs can't really do anything with the frozen track, while others let you move it, or perhaps let you change signal processing being applied to the track, even though it's "frozen."

Those with older host versions that don't freeze, or even newer programs that don't have a freeze option, can nonetheless enjoy the benefits of unloading soft instruments from the CPU — and still be able to edit them later if needed. Here's the general procedure.

1. If audio processing plug-ins follow the soft synth, decide whether to freeze these too, or insert them in the frozen track later so you can edit their settings and process the frozen audio. If the former, leave the processors alone. If the latter, bypass any instrument track processing plug-ins. However, if the signal processors consume a lot of resources, you might consider freezing the instrument/processors combination.
2. Solo the soft synth (this usually requires soloing the audio track that the instrument plays through, as well as the MIDI track driving the instrument). With a multi-timbral synth, decide whether you want to freeze each instrument separately, or a mix of all the instruments. If you want to freeze individual instruments, solo the MIDI track feeding an instrument, freeze it, then move on to the next instrument.
3. Play back the soloed track all the way through the song, and adjust its level to

Fig. 1: In Ableton Live 4, the MIDI track (2) is playing back a loop on the Arturia MiniMoog V. The Audio track (3) gets its audio from the MIDI track's instrument, and records this to a hard disk track.

Fig. 2: Like many hosts, Sonar 4 has a "one-click" freeze function. In this example, SampleTank 2 (which is playing a bunch of percussion parts) is about to be frozen from the Synth Rack view. You can also freeze from a pop-up menu when you right-click on a track.

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The Art of Recording:

Meet Mr. Freeze

Fig. 3: Cubase has a freeze function that, when applied, causes frozen tracks to be grayed out.

the maximum level short of distortion.

4. Bounce the soft synth to an audio track. If there's no obvious bounce function, then send the synth output to an audio track and record it. Another possibility is to assign the synth out to a bus, then use that as an input to a track that can record the bus out.
5. Play back the bounced or recorded track to verify it sounds the way you want.
6. If you didn't freeze processing along with the instrument and want to process the frozen track, copy the processor from the original track and insert it into the bounced track. If you can't copy it, then save the processor settings as a preset, insert an instance of the processor into the bounced track, and load it with the preset parameters.

Now that our processor-leeching soft synth track is a lean, efficient hard disk audio track, we need to disconnect the instrument from the CPU. Bypassing/muting the instrument isn't good enough, because most programs assume that you want the instrument to play back *instantly* if you disable bypass or mute, so they leave it "attached" to the CPU. Sonar versions prior to 4.0 (which added freeze) can use the "archive" function to disconnect the instrument, but in most other cases you'll need to do the following.

1. Save the patch and any samples for the soft synth whose output you bounced.
2. If possible, write-protect or lock the MIDI track that drives the synth. You'll need it again if you want to do additional editing. Note that MIDI tracks consume virtually no computer resources, so don't worry about leaving them intact.
3. Remove the instrument plug-in from its track. ➤

World Radio History

4. Document which instrument you used, which patch, and which MIDI track drives it. Your host program may have a "notepad" function for this, or you may be able to save this information in a track (*e.g.*, as part of the name). You'll want this info if you change your mind later and need to edit the track.

TIME TO THAW

If you want to thaw ("unfreeze") the track and do additional editing, re-insert the soft synth into its audio track, load the appropriate patch (and samples, if applicable), and make sure the companion MIDI track is assigned to the instrument. Mute the "frozen" hard disk audio track you bounced previously (or delete it altogether if you're feeling brave, as you're going to be changing it anyway), make your tweaks to the soft synth's MIDI track, and if needed, freeze again after doing your tweaks.

A REAL-WORLD EXAMPLE

Ableton Live 4.0 currently doesn't offer a freeze function, but you can still freeze with ease. Assuming you have an instrument set up in conjunction with a MIDI track and the instrument is producing audio, start the freeze process by inserting an audio track. Set its "Audio From" field to the track playing back the instrument (*e.g.*, if the MIDI track is named 2 MIDI, set Audio From to "2 MIDI"). Mute all other tracks, then record the instrument output into the new audio track (Fig. 1). When the track is recorded, you can remove the soft synth. The new audio track has essentially "frozen" the synth track.

A potentially simpler approach is that many host programs now offer what's called a "one-click" freeze, because all you have to do is click on a freeze button, and all the work is handled for you automatically. For example, Fig. 2 shows a track being frozen in Sonar 4. Click on the Freeze button, and Sonar does the rest. Fig. 3 shows what happens when you freeze a track in Cubase: It's grayed out in the VST Instruments window and the Mixer so you're aware that it's frozen.

Even if your host program has a freeze function, sometimes you might want to do *à la carte* freezing — like freezing the instrument without processors, or with selected processors. In any event, now you know enough to adapt the concept to your own needs, so I guess the appropriate signoff is — stay cool! EQ

World Radio History

Apple Logic Pro 7

A new breed of native-based DAW

by John Krogh

Type: Multitrack audio and MIDI recorder
Price: $995
Contact: Apple, www.apple.com

Plug-in Formats: Audio Units
Resolution: 32-bit/192kHz
Software Version Reviewed: 7
Minimum System Requirements: Mac: G4 with OS 10.3 or higher, 512 MB RAM, 4GB free hard drive space
Tested with: dual processor 1.25GHz G4, OS 10.3, 2.5GHz dual processor G5 OS 10.3.5

It should comes as no surprise to anyone, but for long-time Logic users, it may be a bit sad to see the latest rev of Logic is now an entirely Apple-branded program. Gone is any mention of Emagic. Starting with Logic version 7, now dubbed "Logic Pro," the program is officially brought into the Apple Pro Application fold, which includes other media-creation heavy weights such as Final Cut Pro, DVD Studio Pro, and Shake.

Whether this actually makes any significant difference to Logic aficionados is a matter of opinion. Putting emotional attachment to our studio tools aside, however, the new branding is more than just a mere switcheroo of manufacturer names. There are tangible, impacting changes (both pro and con) in this new version that are clearly the influence of Apple design. For example, the look and feel of Logic is now very much like that of Final Cut. It's more refined — there's more "3D-ness" with an emphasis on darker grays, smaller iconography, and similar fonts. In a word, elegant.

More than just a facelift and UI tweak, though, Logic Pro 7 represents a major leap forward in DAW development. On technological and inspirational levels, there are features that no other program can touch.

HIGHLIGHTS

Where to begin? Logic Pro 7's feature set boasts numerous enhancements on existing features, as well as all-new instruments and effects that will certainly win fans among musicians and engineers alike. Apple's website (www.apple.com) does a great job of enumerating all of the big-ticket items, so rather than regurgitate these *ad nauseum*, I'll concentrate on the highlights (as I see them), and why they matter to project studio denizens such as myself.

■ **Project management enhancements.** The Project Manager now lets you organize and archive all project-dependent audio

ONE OF SEVERAL NEW EFFECTS, GUITAR AMP PRO OFFERS DETAILED GUITAR AMP/CABINET MODELING, COMPLETE WITH OPTIONS FOR CHOOSING MICROPHONE TYPE AND POSITION. BUT MORE IMPORTANTLY, IT ROCKS.

World Radio History

files into a single project folder/location. This includes any impulse responses, EXS24 samples, and QuickTime videos referenced in the session. Forget about tedious, time-consuming backup sessions, or hunting down random audio loops and files. Project Manager makes it painless and effortless.

You can also create a project folder at the start of a project and have all imported media automatically copied or moved into this folder in the background while you work. In practice, this works very well, and allowed me to move projects from one machine to another without any of the usual hassle involved with migrating sessions.

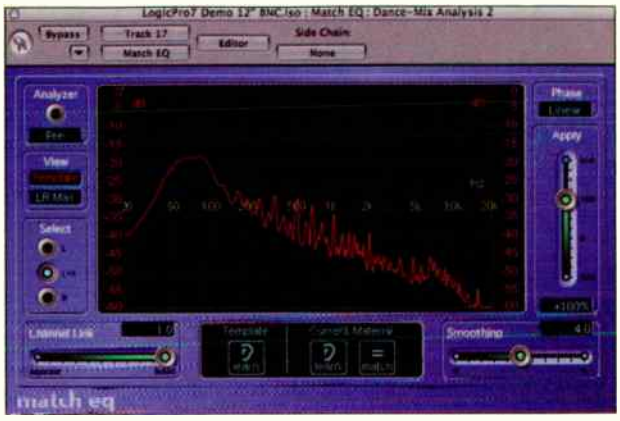
■ **Channel Strips.** One of the major benefits of working with hardware effects processors and synthesizers is the ability to store loads of sophisticated multi-effect routings, along with EQ, compression, and more, as presets, so all you have to do is load and go. Right out of the gate the presets are designed to sound great. In most software studio environments, combining and working with groups of effects isn't nearly as convenient. The process goes something like this: First, insert all the necessary effects, then set wet/dry levels, tweak specific plug-in parameters, and then . . . well, we all know the drill. This tedium can be avoided, thanks to Channel Strip preset management.

Any combination of plug-ins inserted on an audio or software instrument channel can be saved as a Channel Strip preset. To get you going there are hundreds of factory presets, which employ Logic's included effects, and of course, you're free to create your own — and yes, you can mix and match among third-party and Logic effects. Having this kind of recallability is a huge time saver, and helped me get the kinds of sounds I was looking for much faster than if I had to build effects chains "from scratch."

Many of the Channel Strips sound fantastic and were clearly designed by folks who know how to coax professional results from Logic's plug-in stable. One gripe: You can't recall Audio channel Channel Strip settings on Instrument tracks, which means if you come up with a killer preset for electric bass and you want to use it on a sampled electric bass sound, you'd have to re-insert each plug-in, copy and paste their parameter settings, and then save it as an Instrument Channel Strip. There ought to be a way to recall effect-only configurations on Instrument tracks. Hopefully this will be addressed in a future update.

That said, the benefits of Channel Strips far outweigh this minor inconvenience, which comes nowhere close to being a deal breaker.

■ **Apple Loops support.** For the uninitiated, Apple has its own loop format, Apple Loops, which includes embedded tempo, key, and other information such as instrumentation. In Apple Loops-compatible programs, most notably Garage Band and Sound Track, loops automatically sync to song tempo. The underlying technology works very well and is virtually artifact free, so long as you're making changes within sensible limits — slowing tempo more than 30 BPM may start to sound strange, depending on the material. With version 7, Apple Loops support has been added to Logic, giving its loop-related feature set a much -needed shot in the arm.



YOU CAN NEVER HAVE ENOUGH EQ — MATCH EQ, SHOWN HERE, LETS YOU "STEAL" A SONG'S EQ CURVE AND APPLY IT TO YOUR OWN MIXES. EVIL? PERHAPS. BUT TRY IT AND YOU'LL BE HOOKED.

You can still work with audio loops as you would in previous versions, but Apple Loops offer some distinct advantages. For starters, they're searchable by a variety of predefined criteria ("Electric Guitar," "Relaxed," "Distorted," "Intense," and so on). Searches are performed from within the Loop Browser, and when you click on a loop, it automatically plays in the right key and tempo. When you find a groove you like, simply drag and drop it onto a track.

Apple Loops can be audio or MIDI data, and when you drag a MIDI loop onto an instrument channel, the track data along with the software synth/sampler and any effects associated with the loop are automatically loaded. If you drag a MIDI loop onto an audio channel, the loop is automatically rendered as an audio file. Very cool.

You can't turn a MIDI sequence into an AL, but you can convert your own audio samples into AL format using the Sound Track Loop Utility (free download from Apple), which does a respectable job of auto-detecting tempo, and can even batch-process whole folders of loops. You're free to assign tags for mood, style, and whatever else, and you can even add user comments.

Unfortunately, user comments aren't included in the search routine. This wouldn't be that bad if it were possible to edit or create your own tag criteria, or at the very least be able to search by sample library title, but you can't. This makes it virtually impossible to search for, say, an entire collection of samples from a particular library within a specific folder on your hard drive. Thus, making the Loop Browser of questionable use if for those of us with third-party sample collections. This is a big oversight on Apple's part, but I'm hopeful that it will be addressed in the very near future.

■ **Global tracks.** As their name implies, Global tracks are used to view and edit general song parameters such as key signature, tempo, and markers. Some tracks are extensions of existing functions. For example, the tempo track picks up where the Tempo Operations window leaves off, allowing you to make tempo changes in a more musically intuitive

World Radio History

Apple Logic Pro 7

fashion by inserting and dragging automation points. This isn't anything ground breaking, but what's cool is that you can create up to nine tempo alternatives, which can be a big help for composers trying to work out timings for their cues.

Replacing the Reclock function of previous versions is the Beat Mapping track, which can be used in a couple of ways. First, beats and barlines can be dragged with the mouse, making it possible to apply a beat/bar map to performances that weren't originally recorded to a click. Additionally, the Beat Map track can generate timing information from an audio or MIDI file to create a beat map. This works by analyzing an audio track's transients or by following a MIDI guide track.

This sorta-kinda works. I tried generating a map based on an 8-bar stereo drum track, and while Beat Map's analysis did a good job of finding clear transients, the resultant tempo map was constantly changing within each beat, even though the performance was generally solid. This made it impossible to add a sampled loop and have it follow along with the live track.

I had much better luck by manually dragging beats and barlines. My only gripe here is that beat markers can't be overlaid on top of an audio track's waveform display, which makes it difficult to line up beats with transients within an audio file. File this under Missed Opportunity.

■ **New instruments.** Two new instruments — Sculpture and UltraBeat — have been added to Logic's already formidable arsenal of software instruments. These are two serious noisemakers worthy of their own reviews, but I'll cut to the chase.

On the basis of physical modeling, Sculpture models the vibration of a variety of materials (strings, glass, steel, wood), with a full complement of synthesis parameters for molding these raw models into organic-synthetic hybrid textures. Describing sound is like dancing about architecture, or something like that. Suffice to say, Sculpture is nothing short of awe inspiring, and I'm sure film composers, ambient electronic artists, and sound designers will be mining its sonic palette for years to come.

Next up is Ultrabeat, which is part pattern-based beat box and part drum synth. It uses sample-playback and analog-modeled synthesis for sound generation, which can be combined for each of its 25 voices. On the synthesis side, you'll find a healthy set of features including ring mod, bit crushing, FM, multimode filtering, and more.

A good cross-section of well-programmed kits organized by style are on hand, along with factory drum patterns, plus you can add your own grooves and samples. We're not talking multisampled drum kits, mind you. It's strictly a one-sample-per-note affair. But this doesn't limit Ultrabeat's usefulness, and besides, the included EXS24 sampler offers an impressive collection of multisampled kits, so between the two, your drum source needs are covered.

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Apple Logic Pro 7

■ **Distributed processing.** I've saved the "how cool is this?" feature for last. Distributed audio processing allows you to expand the DSP capacity for Logic by offloading calculations for software instruments and effects to additional gigabit Ethernet-equipped G4s and G5s connected via Ethernet. In essence, extra machines can be added to your music production system as dedicated DSP "farms."

How it works is, any machine running a small application called Logic Node (installed with Logic Pro; distributable to as many machines as desired) that's networked to the primary Logic computer shows up within Logic's Audio Preferences as a "Node" machine. Within the program, each audio and instrument track has its own Node button, so when you want to move a track's plug-in processing over to a node machine, you simply enable the button.

Officially, node computers must be a single processor G5 or better, but I was able to use my 1GHz dual processor G4 as a node without any problems. It was truly a joy to behold a spiking CPU performance meter drop to acceptable limits when I offloaded several DSP-intensive synths and effects. Hats off to Apple for pushing the envelope of native-based DAW functionality.

WAIT, THERE'S MORE

There's a lot to love about Logic Pro 7, and I feel like I've just scratched the surface. What I've covered here are, in my view, the stand-out features that directly affect productivity and help inspire musical ideas. And while I cited several significant shortcomings, allow me to take a step back and put things into perspective. Logic Pro has all of the great features mentioned above, and many, many more — convolution reverb, analog modeling synths, vintage Hammond B3 and Rhodes clones, multiband compression, and the list goes on. It's an entire suite of pro-quality music making tools bundled into one program that costs less than a grand. No other professional DAW on any platform offers as much for the price. Bottom line: Whether you're into recording band projects, producing electronic dance music, remixing, or scoring for film, Logic Pro 7 is a powerful, professional, self-contained environment capable of taking you from the idea stage to final mix in a way that no other program does. EQ

STRENGTHS:

- Wealth of included software instruments and effects
- Supports Apple Loops
- Distributed processing
- Channel Strip preset management

LIMITATIONS:

- Plug-in delay compensation on audio and instrument tracks only – not bus or aux tracks
- No sample-level editing resolution in the Arrange window
- Loop Browser doesn't allow searching by user-defined criteria

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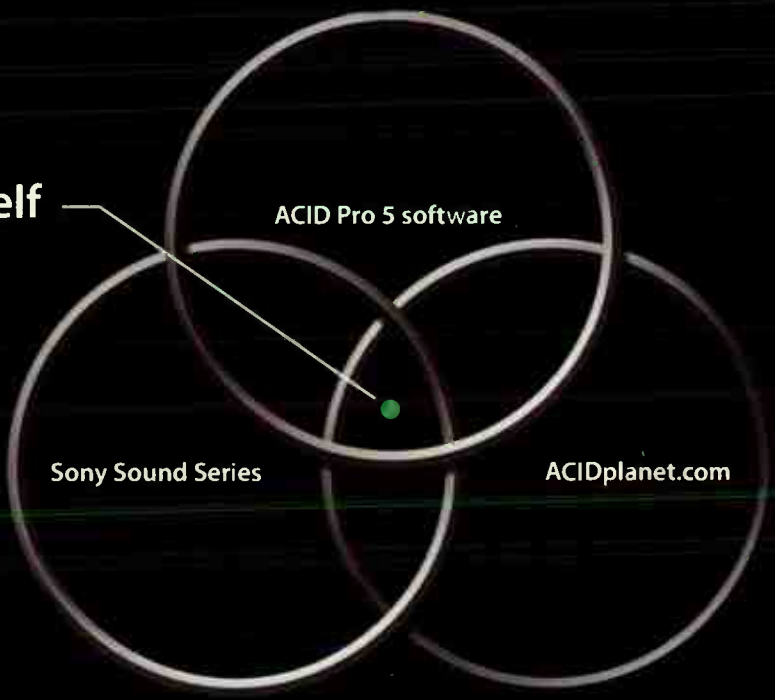

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World Radio History

by Craig Anderton

Steinberg Cubase SX3

Now with more stretching than a yoga class

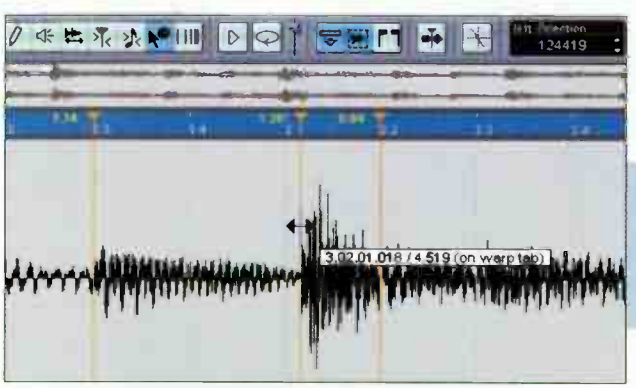
The company that pioneered the virtual studio has made it far easier to integrate external hardware.

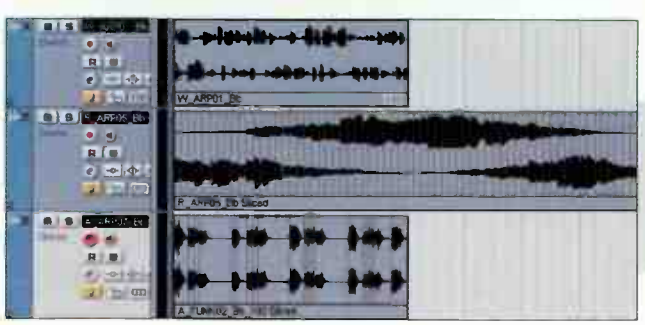
I must admit, sometimes when I check out the Cubase user forums, I want to slap some of those people upside the head. First up: The people who go on about how much Cubase sucks – then you realize they're using a cracked version. Second: Those who like to debate whether Cubase is a "professional" application.

True, Steinberg painted themselves into that corner when they created Nuendo as a "pro" application. So what did that make Cubase? But Nuendo is a post-production solution, while Cubase is for making music. Does that make Cubase any less "professional"? I guess only if you make unprofessional music.

Rant off; back to the review. Cubase VST was ahead of its time by pioneering the virtual studio concept, and made decent computer audio a reality with ASIO audio drivers. In fact, Cubase was well on its way to becoming an audio powerhouse when the audio engine's chief architect, Mark Badger, died of natural causes at an early age. Not only did the music industry lose a cool guy, but Cubase started lagging in audio just when the industry was transitioning from MIDI to hard disk recording.

Cubase never really caught up until Cubase SX appeared, which was more stable than VST and had a revamped audio engine. SX2 solidified those gains — but still left out some important elements, like acidized file support.





THEN THERE WAS THREE

Now we have SX3 ($799.99, upgrade from SX2 $149), which remains cross-platform for XP and OS X, and still uses the Syncrosoft protection dongle. The biggest two changes: SX3 is *aces* for anything involving time-stretching; and interestingly, the company that pioneered the virtual studio has made it far easier to integrate external hardware.

Like last issue's reviews on Acid 5 and Sonar 4, we'll let Steinberg's web site (www.steinberg.net) give you the specs and we'll cover the new stuff.

THE TOP TEN NEW FEATURES

■ It's a track . . . it's a playlist . . . it's a way to define regions, then try out different orders of these regions. If you like a particular order, "flatten" it to rearrange all the track data to follow the playlist you created. Remixing, anyone? And yes, you can create and audition multiple play order tracks.

■ This is like Ableton Live's "elastic audio," and it's a welcome addition. Use warp markers to bring out-of-time beats into rhythmic correctness, or the reverse — the screen shot shows moving a rhythmically perfect snare hit a bit behind the beat to give it more "feel." You can now generate warp markers from hitpoints, too.

■ Drag "acidized" files in, and SX3 stretches 'em to fit tempo (very well) and pitch (about as well as can be expected). But unlike Acid or Sonar, there's no way to edit slice markers to compensate

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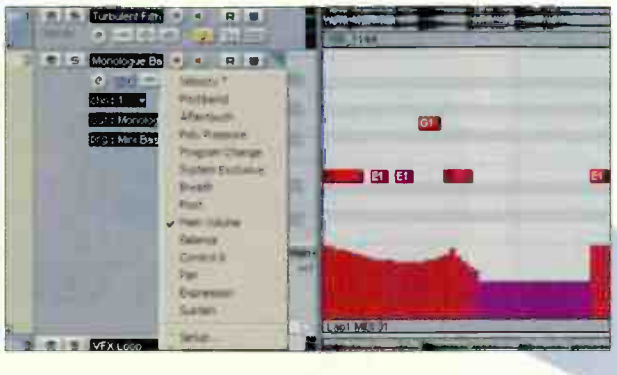
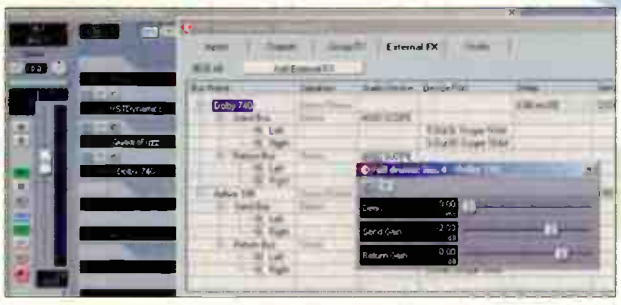
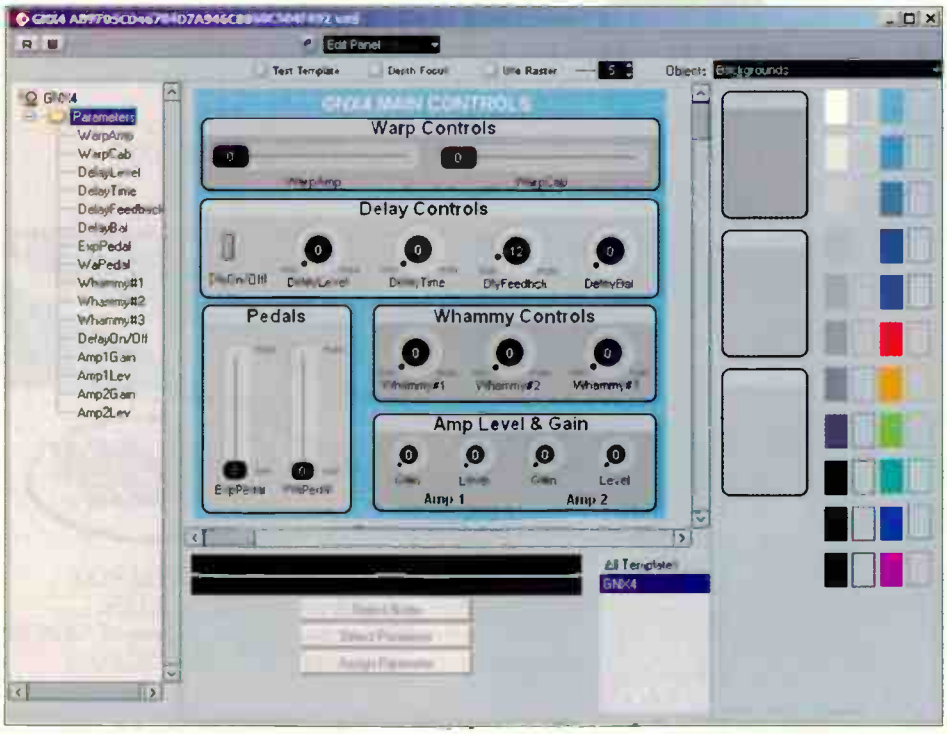




for poorly acidized loops. You can, however, use warp markers to at least clean things up a bit. The screen shot shows an Acidized file, REX 2 file, and AIFF file time-stretched with SX's "hitpoints" feature — all living together in temporal harmony.

■ You don't have to open up a separate Key Editor screen any more for MIDI — click a MIDI track's Edit In Place button, and the track turns into a mini editor, complete with controller pane and optional toolbar for various MIDI editing functions. Earth-shaking? No. Convenient? Yes, particularly when you're lining up MIDI data with audio.

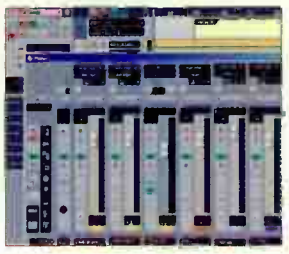
■ If your external gear responds to MIDI continuous controllers or sys ex, you can create "panels" within SX3 that send out messages to control your gear. Better yet, automating the panel controls automates the external gear. Making panels is not intuitive, but with MIDI controllers, the process is fairly simple. The screen shot shows a panel I whipped up in about 15 minutes to control several crucial DigiTech GNX4 parameters.



■ Sure, you could always integrate external hardware processors with software, if you had a multi-channel audio interface — send an output to the effect, then bring the effect out back into an input. SX3 takes things one step further, by having any external unit show up just like any software plug-in insert effect. There's latency compensation too, although you need to enter the value manually.

■ A small but useful change, Volume Envelopes, allows altering level without having to resort to automation tracks. These envelopes "travel" with events as well.

■ You can now have politically correct "tracks of color." Track colors are reflected in the clips, as labels in the mixer, and as background for track names in the Inspector. You can also "colorize" individual clips; this overrides the track color. Another useful ergonomic tweak: The workspace function now remembers scroll bar and zoom settings. ➤



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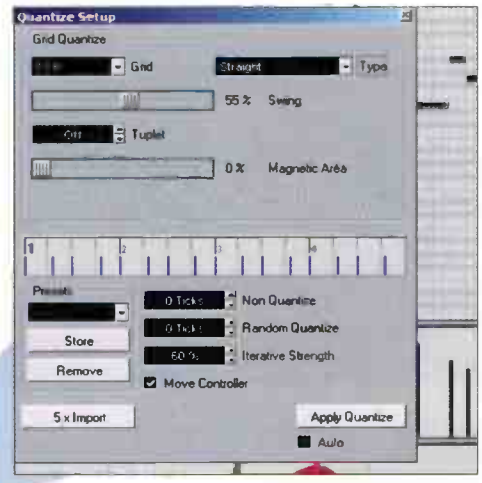
Steinberg Cubase SX3



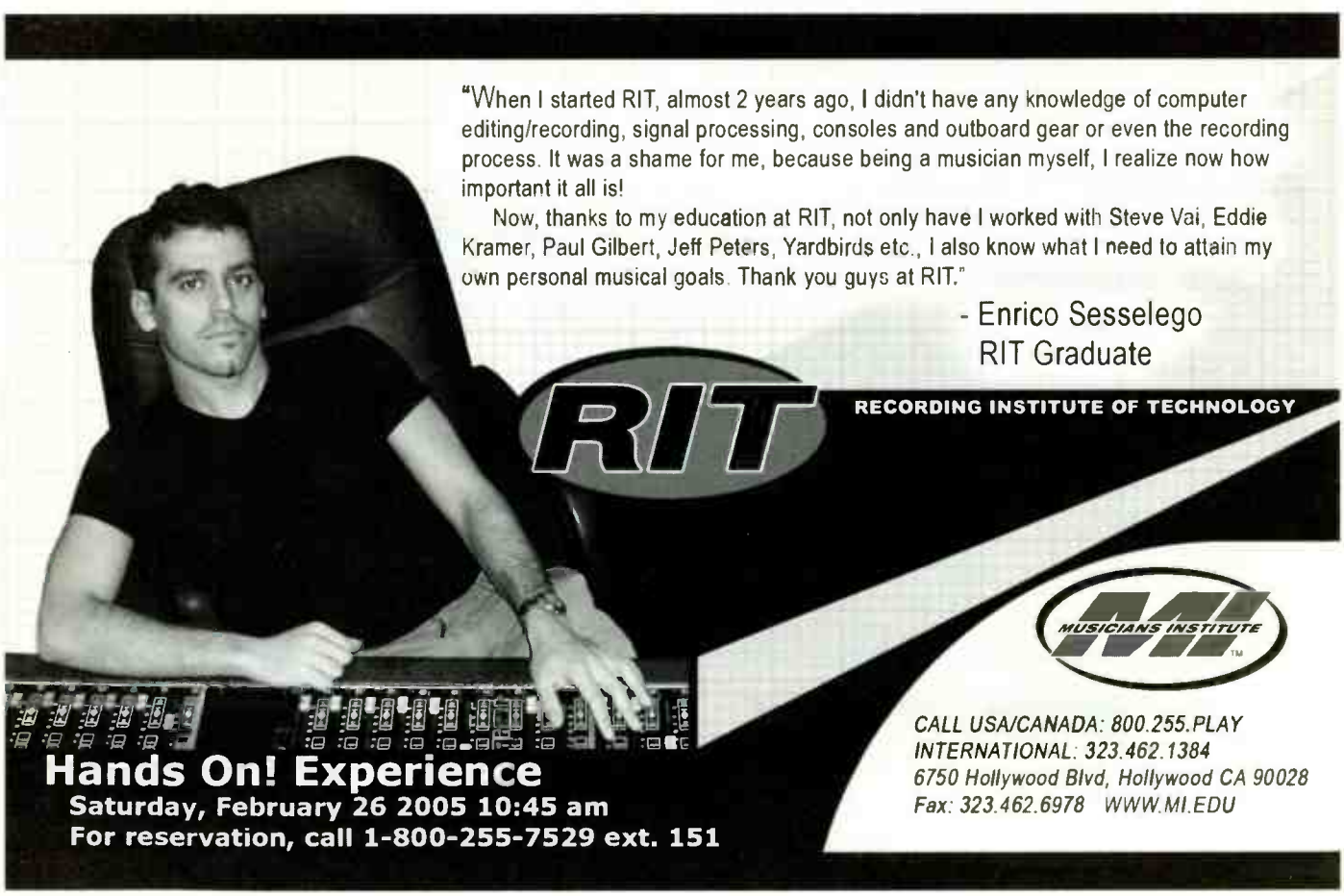
■ "Freeze" instruments with or without pre-fader insert effects — you can save RAM by freezing the instrument, yet still tweak effects during mixdown. Of course, you can still freeze audio tracks too.

■ That innocent-looking "Move Controller" button in the Quantize Setup menu is extremely helpful, as it will move controller data associated with a note along with the note when it's quantized . . . no more dragging, re-drawing, or swearing is needed to get the controllers and notes to line up.

SO WHERE DOES THAT LEAVE US?

There are quite a few other additions, one of the most notable being the Studio Connections functionality designed in conjunction with Yamaha. I didn't have anything to test it with, but I'll take their word that it works. And SX3 also supposedly works with Windows XP 64-bit Edition so it can access 4GB of RAM . . . not that I have a 64-bit OS for testing, and I bet you don't either!

There are also two new instruments, one optimized for single-note lines (bass,



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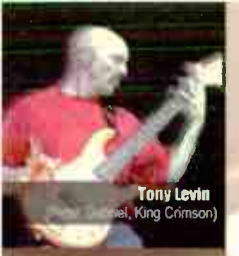

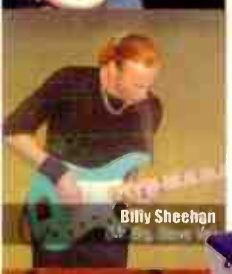

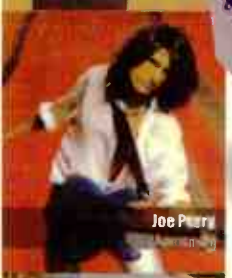

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Radial J48 Active DI - suggested list $199 US
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Radial JPC Stereo DI - suggested list $199 US
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Steinberg Cubase SX3

lead, and so on), the other for pads. Both are very capable, if unspectacular, instruments that add value to the package — as do two new effects. Another useful feature: Dummy plug-ins, so that if you open a project in a different environment that lacks a particular plug, SX3 puts in a "placeholder" (but remembers the original settings for when the proper plug-in is available again).

Cubase SX3 is in large part about exceptional time-stretching options and hardware integration. The time-stretching is indeed impressive, because you can choose so many ways to stretch — as well as just resize a piece of audio to fit the desired length. And, you can do the equivalent of "freezing" a time-stretched piece of audio using the high-quality Prosoniq MPEX2 algorithm. You can't unfreeze again, nor can you stretch after freezing. But as you start mixdown and the song is set, this is a great way to improve a loop's audio quality. Excellent.

The flexible stretching also gives some serious audio-for-video mojo when you need to line up tempos and hits with picture. If you can't make things fit with SX3, it probably can't be done.

Finally, the hardware integration may not seem that important, until you start bringing outboard processing back into the picture because SX3 makes the process a whole lot easier. It's worth it.

POWER VS. PATIENCE

Cubase SX3 is one *powerful* mutha, but the price is that it sometimes seems you have to execute more steps than should be required. Panel construction could have a smoother workflow, as could stretching. Because the stretching options have evolved over several versions, the user interface for them feels unfocused, rather than leading you through the process.

The additional power also demands plenty of pixels. With a standard 1028 x 768 monitor, some windows simply won't fit — I couldn't find one important tool until I realized I had to move the window so it would be visible. 1152 x 864 resolution is better, but the real story here isn't so much about SX3; today's host software just about demands a dual monitor setup.

SX3 has continued along a path that maintains its rep as an app that pretty much does everything you need, as well as some things you didn't realize you needed. Overall, SX3 is without a doubt the most stable and comprehensive version of Cubase yet. I suppose I could get worked up about loose ends in SX2.2 that will never be addressed by an update to that version now that SX3 is here. But when you look at what SX3 delivers, it's hard to begrudge Steinberg the upgrade fee.

In any event, Cubase fans can keep the faith, knowing that their application of choice is pulling together rather than unraveling. For me, the bottom line is that it was a pleasure to do this review. For a complex host program, that's quite a compliment. EQ

World Radio History

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ION is for Invention Imagination Analog artistry Thirty endless analog knobs, for flawless precision and effortless tweakability. Sixty nine buttons to leave no parameter out of reach. And a high resolution graphic display, so there's no aspect of the sound that you can't see, shape, and sculpt

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Mackie Onyx 1640

Split personality, or master of disguise?

by Craig Anderton

Type: Analog mixer with optional digital FireWire interface
Platforms: Windows XP, Mac OS X.3.5 for digital I/O
List price: $1,539 (optional FireWire card $499)
Contact: www.mackie.com

Inputs (all 1/4" phone jacks except as noted; all references to stereo use two mono jacks, one left and one right): 16 XLR mic ins with phantom power, paralleled by two instrument jacks and 14 balanced line ins; 16 TRS inserts, XLR talkback mic for internal/external talkback system; four stereo aux returns; two RCA tape inputs
Preamp: 60dB gain
Low cut filter: -18dB/octave rolloff starting at 75Hz
EQ: Four bands for all 16 input channels, all with ±15dB boost/cut controls. Low shelf (80Hz), sweepable low mid (100Hz – 2kHz), sweepable high mid (400Hz – 8kHz), high shelf (12kHz)
Aux buses: Six mono buses
Other channel strip controls: Phantom power switch, solo button, mute button, panpot, 60mm fader, four signal level indicators, three assignment buttons (submix 1-2, submix 3-4, or main mix)
Outputs (all 1/4" phone jacks except as noted; all references to stereo use two mono jacks, one left and one right): XLR main outs (with mic/+4dB output switch and main insert jacks), stereo outs, mono out (with level trim), six mono aux outs, two stereo sub outs, stereo control room outs, RCA tape outs
Digital connectivity: Optional FireWire board for mixer
FireWire board resolution: 24 bits, 44.1/48/88.2/96kHz
Supported hosts: Windows XP (ASIO/WDM) or Mac OS X.3.5 Core Audio hosts
Bundled software: Drivers for Windows XP, cross-platform Tracktion DAW software
Tested with: Apple dual G5 Mac

The Onyx 1640 is an analog mixer that fulfills traditional mixer functions, whether for studio or live use. No! Wait! It's not really a mixer, but an audio interface for your computer with a whole lot of inputs, EQ, sends, and mic pres. Okay, it's both . . . or is it?

The traditional mixer is at a crossroads. With all the talk about a mixerless studio, it seems that mixers are an endangered species. But for live use, trying doing *anything* without a mixer — and that goes for recording, where if you're, say, miking a drum kit, you need multiple ins and preamps you can send to different channels. And for those who like to record "live in the studio," a mixer is not an option, but a necessity.

In a parallel development, audio interfaces are getting more complex. Initially just seen as card to get a few channels of audio in and out of a computer, today's multichannel audio interfaces often communicate with your computer via USB or FireWire. They've been sprouting lots of I/O, displays, and even controls.

ENTER THE ONYX

The Onyx lives in the mixer *and* interface worlds, thanks to an optional FireWire card that installs in the mixer and talks to your PC or Mac. With the Mac, you don't need drivers; with the PC, use the drivers supplied on CD-ROM (as compensation, you can run more than one FireWire-equipped Onyx with PCs; Mac users will have to wait for OS X.4). There's no discernible latency, as the drivers go down to 64 samples.

When using the 1640 as a computer front end, FireWire carries direct outs from the 16 channels as well as pre-master fader left/right outs. Mackie thoughtfully provides a hardware gain trim control for the master out, making it independent of your house mix fader. There's also a stereo return to the mixer for monitoring the computer out. Remember that this can be happening while you're mixing in the DAW with minimal latency, which is impressive.

However, you can't route DAW track outputs into the Onyx. As someone who doesn't like mixing with a mouse, I want to be able to feed DAW tracks into a Real Mixer and move Real Faders. But that's not what Onyx is about; it's a front end for your DAW, not a control surface for mixing tracks.

Where a FireWire-savvy Onyx really shines is for live performance, when teamed with a laptop or stand-alone hard disk recorder. Being able to record a complete performance, separated into individual tracks, into a computer while mixing a band's set is pretty appealing. Take the recorder back to the studio, do some judicious editing, mix it down, and *voilà* — concert CD. ➤

INSTALL THE FIREWIRE OPTION IN THE 1640, AND YOU CAN SEND AUDIO VIA FIREWIRE INTO YOUR MAC OR WINDOWS COMPUTER, AS WELL AS RECEIVE TWO CHANNELS BACK FOR MONITORING.

THE ONYX LINE REPRESENTS A NEW CONCEPT IN MIXERS, AS IT COMBINES AN INTERNAL ALL-ANALOG SIGNAL PATH WITH OPTIONAL FIREWIRE I/O.

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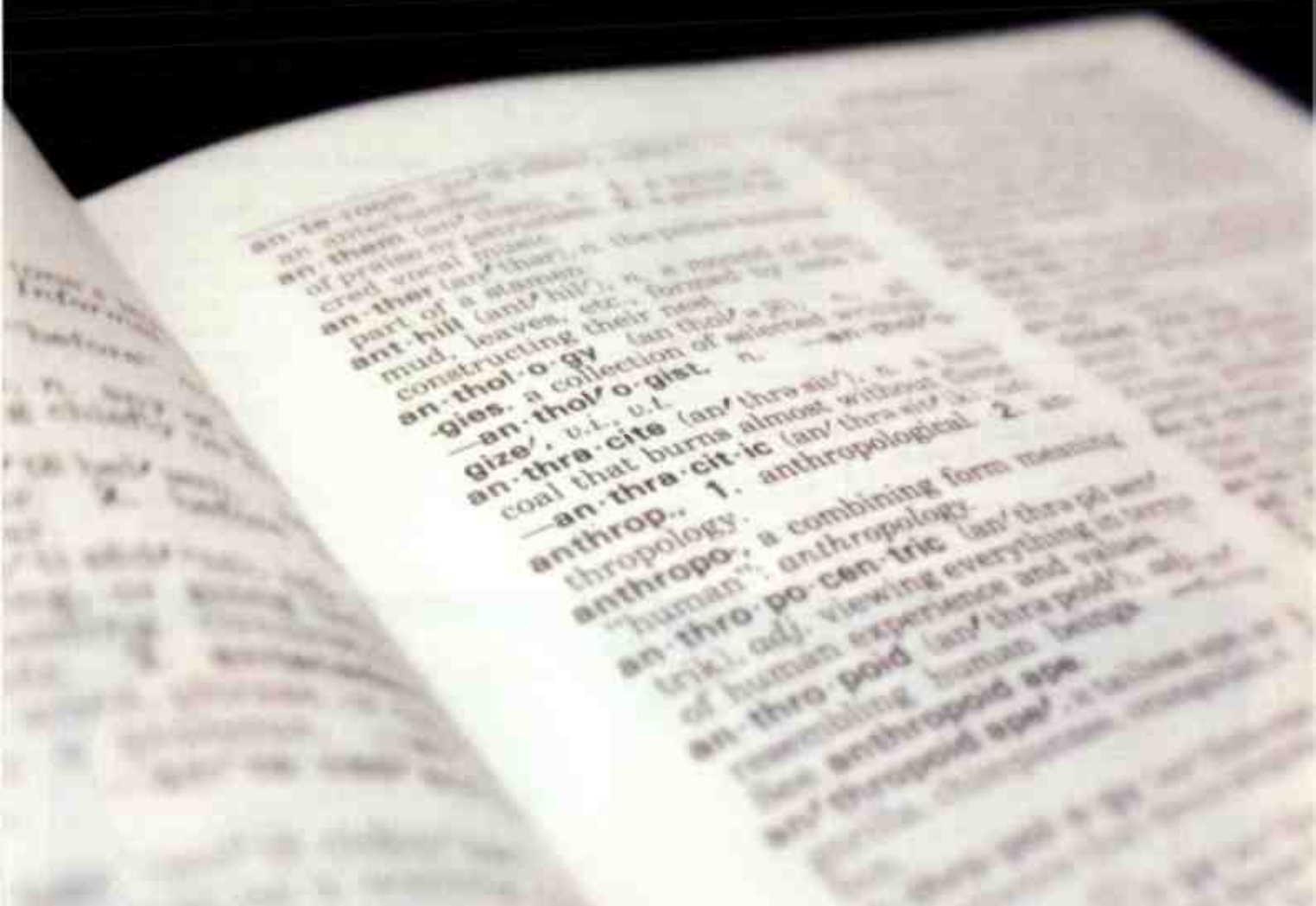
Anthology (an thol′ə jē), *n.*

definition: The complete collection of all nine Eventide TDM plug-ins for an incredibly low price.



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*List price $1195. Combined list price if purchased separately $2875. Estimated US street price $995. Upgrade price for owners of two or more Eventide plug-ins $599.

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World Radio History

Mackie Onyx 1640

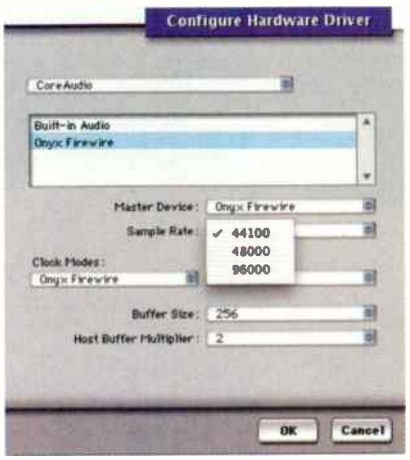
MIXER BASICS

At this price, you might be expecting some cut corners. But the Onyx line is built in China, which takes advantage of low labor costs *and* an ever-escalating build quality. No, the controls aren't held on with nuts; they protrude through holes in the panel. And the faders are 60 instead of 100mm. But overall, the 1640 feels substantial, and is a serious piece of gear.

One nifty hardware aspect is the "rotopod" construction, which allows you to rotate the section with the I/O. The input and output connections can face the rear, face the bottom (ideal for rack mounting, as the unit takes up only 12 rack spaces), or with an optional-at-extra-cost bracket, face the top of the mixer so you can do your patching without leaning over. *Very* clever.

GOZINDAS AND GOZOUTAS

So how do they fit all those input and output jacks on such a compact rear panel? They don't. The balanced analog direct outs (which parallel the digital FireWire direct outs) terminate in two female DB-25 connectors. Ugh, but there is a mitigating factor: It's easy to patch into a stand-alone hard disk recorder because the pinout is compatible with TASCAM's DB-25 analog connectors for their DTRS recorders, so you don't have to settle in for an evening of soldering — just buy some off-the-shelf cables if FireWire outs aren't your only mode of operation.



MOTU'S DIGITAL PERFORMER IS BEING CONFIGURED TO WORK WITH THE ONYX I/O.

All inputs except for the first two have balanced XLR, balanced 1/4", and TRS insert jacks. The others can switch between XLR mic and instrument (1Meg input impedance).

MINDING YOUR PRES AND EQS

So the Big Questions are: "Are the mic pres any good?" and "How does the EQ sound?" As far as I'm concerned, there are only four kinds of mic preamps: Cheap ones that sound cheap, affordable ones that sound cheap, affordable ones that sound good, and big-bucks preamps that sound *really* good (assuming the rest of your gear can reveal these differences). The Onyx pres are of the affordable-that-sound-very good persuasion, and carry on the Mackie tradition of providing surprisingly good pres in their mixers.

As to the four-band EQ, I was expecting not to like it because I can't imagine

	PHONIC POWERPOD1860 Deluxe	Behringer PMX3000
Power Output	2 x 400W	2 x 400W
Mic/Line Input Ch.	8	8
St. Line Inputs	4	4
Mic preamp	10	8
Ch. EQ	3-Band	3-Band
Aux Mix	4	3
Phantom Power	Individual, +48V	one master
Channel Inserts	8	8
Effect	16multi-effects +one main parameter and tap delay	99 preset
Graphic EQ	St 10-Band	St 7-Band
Metering	2 x 13 LED	2 x 11 LED
Speaker connectors	Speakon & 1/4"	Speakon
Mini-stereo in/out	Yes	Na
Protective cover	Yes	Na

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Mackie Onyx 1640

midrange EQ without a bandwidth control. But the Onyx EQ is gentle, giving a solid lift or cut without the sound getting "constricted." Although this is more common with EQ designs that don't allow a lot of boost/cut, this design provides ±15dB of boost/cut.

Although the upper midrange control tops out at 8kHz, due to the mid control's gentle bandwidth, anything over 8kHz can pretty much be handled by the high shelf. There's also an additional low cut filter, which rolls off at 18dB per octave below 75Hz. *Bonus feature:* The hardware bypass switch takes the EQ completely out of the circuit.

IS THIS THE START OF THE NEXT GENERATION . . .

. . . or the end of the old one? Well, I'd say both. As a regular mixer, the Onyx is cost-effective and functional. Six aux buses is cool (given the price, I expected four), and the four crucial components for sound quality — mic pres, EQs, low noise, and high headroom summing — are well-implemented.

For live recording, the ability to send 16 direct feeds (plus stereo master) to a DAW via FireWire is hot. However, I do think that the master out should have been available on SPDIF or AES/EBU for feeding into something like a MasterLink. Sure, analog works, but it is the digital era.

As the centerpiece of a digital studio, the Onxy is halfway there: It gets inputs to your DAW, but can't mix the DAW tracks. Granted, that didn't seem to be the design goal and would have upped the price big-time, but I'd like the next generation of mixers to double as a control surface/stems mixer for a digital studio *and* do traditional live performance mixer functions.

So, the bottom line is simple. If you're in the market for an analog mixer but want to go beyond the normal analog world into the world of DAWs, think Onyx. If you fit the target audience, nothing else will address your needs this efficiently — especially at this price point. EQ

MEET THE FAMILY

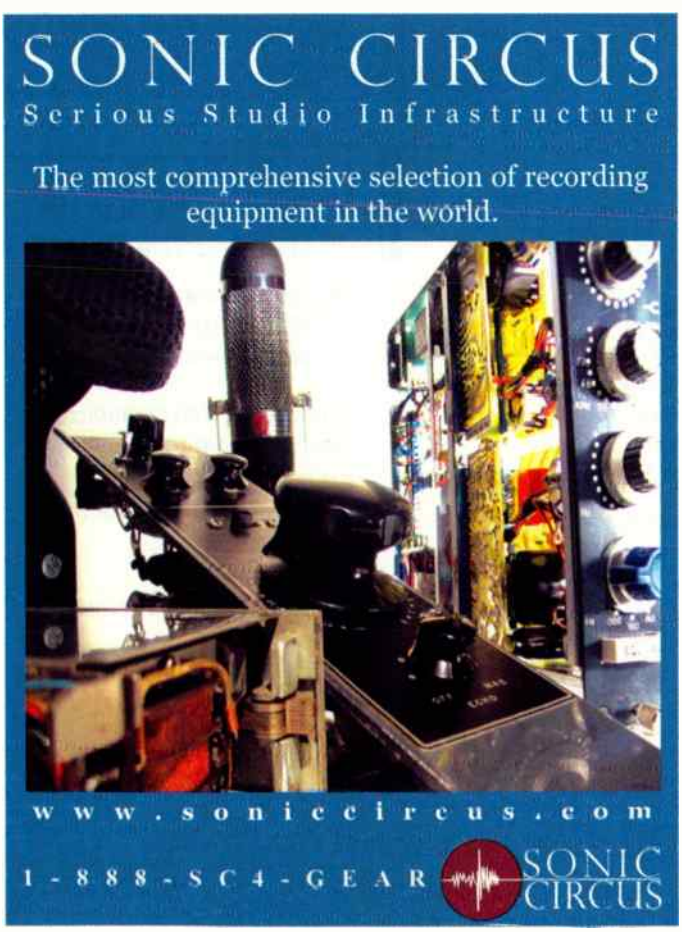
The 1640 isn't the only member of the Onyx line. The 1220 ($639) is similar to the 1640 but offers 12 channels, four mic pres, 3-band EQ, two aux sends with pre/post switches, and four stereo line-level inputs. The 1620 ($919) is a little brother to the 1640 with eight mic pres instead of 16, four aux sends instead of six, and fewer I/O options (no tape in/out, only XLR main outs, and so on).

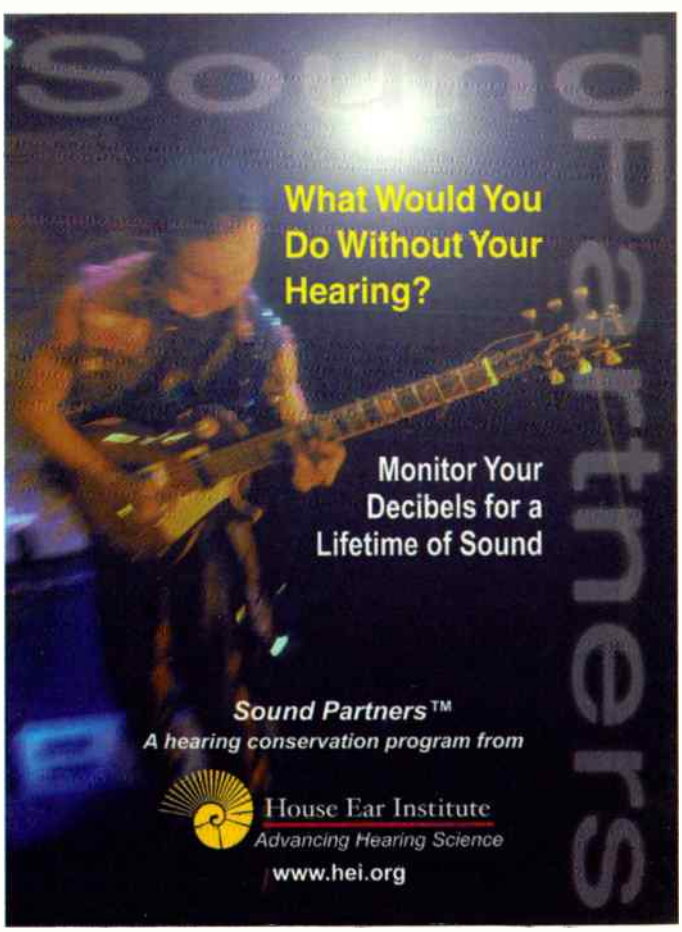
Strengths:

- FireWire connectivity
- Good build quality
- Very smooth-sounding EQ
- Fine mic pres
- Two switchable mic/instrument inputs
- Six aux sends, two dual mono subs

Limitations:

- 60mm faders
- DB-25 connector for analog recording outs





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by Craig Anderton

Spectrasonics Stylus RMX

This tweaker's delight adds real feel to grooves and loops

Type: Groove/loop oriented instrument plug-in
Price: $299 ($99 web upgrade from Classic Stylus)
Contact: Spectrasonics, www.spectrasonics.net

Platform: Windows XP/2K, MacDS X 10.2.6
Minimum system requirements (multitimbral operation): 1GHz P4/G4/G5, 1GB RAM, 8GB free disk space, DVD-RDM drive
Copy protection: Serial number on installation, web site authorization
Version reviewed: 1.0.8
Supported sample rates: Up to 96kHz
Plug-in support: Windows VST, Mac VST/AU/RTAS
Tested with: Dual AMD Athlon, XP Pro, Creamware PowerPulsar interface

As another killer groove poured out of my speakers courtesy of this virtual instrument, I started to wonder if Stylus RMX was really as great as it seemed — or had I missed some "fatal flaw"?

So I went to the Sound, Studio, and Stage forum and asked if anyone had found problems with Stylus RMX. This comment from a forumite in Los Angeles pretty much sums it up: "I've been using it for a month or so but I first saw Stylus RMX at NAMM last year. If, on my way back to my car, a spaceship landed and little green men got out dressed in grass skirts singing Milli Vanilli tunes in Russian, and someone asked me what the most unbelievable thing I saw at NAMM was . . . I would have said Stylus RMX."

THE STYLE OF STYLUS

So what is it about this "drum library" that evokes this kind of response? First, it's not a drum library. Stylus RMX is a virtual instrument plug-in with a huge core library of sounds (7.4GB), but also has hooks for "SAGE Xpanders" (see sidebar) so you're not limited to what ships with version 1.0. As many of the stock drum sounds are processed and gravitate toward "remix' genres, the Xpanders open up Stylus's potential to accommodate any style that Spectrasonics sees fit to adapt to the SAGE (Spectrasonics Advanced Groove Engine) format.

The library includes a large number of "Suites," which are families of related loops called "Elements" (*e.g.*, the entire loop, just the percussion, the loop without a kick, and so on). As you browse, you can play the elements from a MIDI keyboard. This is good not only for auditioning sounds, but for playing an arrangement into a sequencer. Triggering can be quantized (like Ableton Live), or happen immediately.

Also onboard: The loops from Classic Stylus for backward compatibility, as well as "groove elements" — phrases of different instruments (bongos, congas, snare, tambourines, and so on) that are ideal for making custom loops out of multiple elements.

In addition to being able to work with loops as self-contained

THE CHAOS DESIGNER ADDS VARIETY AND INTEREST. NOT ONLY CAN EACH PART CAN HAVE ITS OWN DEGREE OF CHAOS, BUT CERTAIN BEATS CAN BE EXEMPTED FROM, OR AFFECTED BY, CHAOS REGARDLESS OF WHAT'S HAPPENING WITH THE REST OF THE LOOP.

THE EDIT SCREEN APPLIES SERIOUS PROCESSING TO ANY OF THE EIGHT PARTS, WHICH CAN BE LOOPS OR INDIVIDUAL HITS. NOTE THAT THESE PARAMETERS ARE CONTROLLABLE BY A HARDWARE CONTROL SURFACE, OR AUTOMATABLE WITH A HOST SEQUENCER, TO ADD REAL-TIME EXPRESSIVENESS.

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Spectrasonics Stylus RMX

FIG. 1. THE MIXER IS A FAIRLY STRAIGHTFORWARD WAY OF BALANCING THE VARIOUS PARTS, AS WELL AS USING EFFECTS SENDS.

entities that you can trigger from a keyboard or sequencer in "groove menu" mode, you can also work with them in a "slice menu" mode (the loops use the Groove Control protocol, which is very similar to REX files in that they "slice" digital audio; see the July 2004 *EQ* for info on loop basics). Therefore, you can process these loops to a high degree via filtering, enveloping, signal processing, and much more, as well as change tempo without doing significant damage to the sound quality. Also in this mode you may use your keyboard to play each slice, but can also drag a companion MIDI file that triggers the slices into a MIDI track in your host sequencer. If you leave the MIDI file "as is" it plays back the groove, but of course, you can edit the MIDI data to modify playback.

Still not flexible enough? Then create drum kits out of 10,000 individual hits, and drive the sounds via MIDI, just as you would with a standard drum module. And, unlike the original Stylus, you can create your own libraries from converted REX files, and/or loops from Groove Control products issued on Akai and Roland CD-ROMs.

ARCHITECTURE

The Mixer screen (Fig. 1) should help make the architecture clear. There are eight "parts," which in "multi" mode can hold a complete loop (each can be treated as a groove, or as sliced audio). In "kit" mode, each part holds a single hit, or set of hits triggered by different keys. You'll find all the usual mixer suspects: Level, pan, four aux sends, mute, and solo.

The Edit screen affects whichever part is selected. Yes, *each* part can have an envelope for the amp, filter, and/or pitch, while multi-waveform LFOs mutate the level, filtering, or pan. The "power filter" has multiple responses, as well as a tasty drive control when you want to rough up the sound a bit. Pitch, additional filtering, pan . . . they're all there, plus sample start time and reverse. Want to automate these? Sure. Click on a parameter, hit MIDI learn, then tweak a control surface or play back a controller envelope from your host sequencer (Stylus RMX also supports standard VST automation).

The only bummer is that the Mixer solo buttons aren't able to "learn," although as others report the function works, the problem may be unique to my particular combination of host and wrapper. Also, you can't use notes to trigger buttons or control extremes (*i.e.*, flip between all the way off or all the way on). If I could trigger the mixer solo buttons with keyboard notes, that would be truly wonderful.

The filter has a twist: It can impart woody or metallic qualities at high resonance. Turning a kick into a log drum is a good example of what this can do. The cutoff isn't too smooth — you'll hear the quantized gradations if you sweep with high resonance. Normally I'd complain, but the resonant qualities are cool enough that I'll just shut up.

World Radio History

FIG. 2. STYLUS RMX HAS A FINE SET OF EFFECTS, INCLUDING VARIOUS TYPES OF DYNAMICS, EQ, DISTORTION, PHASER, FLANGER, DELAY, AND REVERB. HEY — HOW ABOUT ADDING A RING MODULATOR?

EFFECTATIONS

If Stylus RMX stopped here, it would still be impressive. But actually, we're just getting started.

The 24 effects are excellent and musically useful, but it's the routing that makes things interesting. There are inserts for *each* part, four aux buses, and master effects. *Each* of these has three slots for up to three series effects. In other words, you could have three effects on your kick, three different effects on your snare, route the kick and snare to any of four aux buses, each of which can have three effects, then process the whole mess with three more master effects.

But there is a caution — when you start piling on the loops and effects, your CPU will complain, and Stylus RMX is not shy about chowing down on CPU cycles. You can always increase the latency a bit to free up some "performance headroom," or use a host's freeze function. Often, though, careful effects assignments (*e.g.*, use buses instead of inserts if you want to process multiple parts with the same effect) can reduce CPU usage a lot.

CHAOS DESIGNER

Now we enter the realm of the seriously twisted. Chaos Designer adds variations to a loop that affect timing, the order in which slices play, slice reversal, pitch, and dynamics. This happens in what sounds like at least a semi-intelligent way, although for my tastes, setting low probabilities of change produced the most satisfying results. The drag/rush timing option is particularly effective for changing "feel," while changing pitch is great for electronica weirdness.

Now, not all chaos is necessarily going to sound cool, especially with higher probability settings. But if you hear some improvised chaos you like and the part is in slice menu mode, hit the Capture button, and Stylus RMX captures the last 16 loop iterations as MIDI data. You can then drag this into a host, and of course, edit it as well. Or, export some of this chaos as a separate MIDI file. You *can* use chaos with a part in groove menu mode, but it's real time only — no capturing. You'd have to capture it as audio, then edit the audio file.

THE BEST 'TIL LAST . . .

So far, we've acted as if all these editing operations — chaos, effects, filtering, and more — happened on the part as a whole. But I've been holding back a bit because I didn't want your head to explode.

Stylus RMX has what's called an Edit Group mode, which is initially hidden behind a virtual panel so that casual users won't be exposed to megatons of explosive loop mutating power. Click on the panel, though, and the innocent-looking Edit Group appears.

Here you select groups of notes to be affected individually — downbeats, back-

capture the warmth

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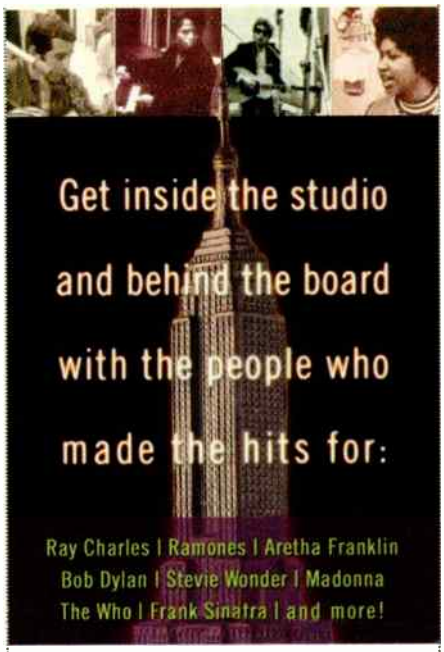

FOR MORE THAN 30 YEARS New York City reigned as the place where the great records were made. *Studio Stories* takes you on a journey inside those magical moments of recording history when astonishing expertise, brilliant improvisation, and serious eccentricity combined to create classic records for the greatest pop, rock, soul, jazz, and folk artists of the 20th century.

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Spectrasonics Stylus RMX

SAGE Xpanders

As we go to press, Spectrasonics announced five groove-controlled Xpanders for SAGE format. Each is distributed on a DVD-ROM and sells for $99 list.

The Xpanders focus on additional grooves; the first five are based on Spectrasonics' Backbeat, Retro Funk, Liquid Grooves, Burning Grooves and Metamorphosis collections. Aside from Metamorphosis, the new packs go heavy on acoustic drum sounds, which should please those who feel Stylus RMX needs more of these.

Of course, you can also expand Stylus RMX yourself (assuming you have REX files available of the sounds you want to use, or have Propellerheads ReCycle to make REX files), as REX files can be converted and added to the RMX Core library.

beats, upbeats, just the first 16th note of the loop — 23 options in all. These are mutually exclusive, so this feature can also exempt particular sections from processing; for example, keep the downbeats and upbeats rock steady, but add chaos to everything else. Or, add rude distortion to four-on-the-floor kick patterns, while leaving everything else untouched . . . you get the idea.

Whoa! Serious stuff — and in the right hands, pretty close to magical.

WHAT'S NOT TO LIKE?

So there you have it, a loop-based plug-in whose main mission in life seems dedicated to making loops sound like they're *not* loops. And it succeeds beyond all reasonable expectations. Stylus RMX also lends credence to the conspiracy theories that believe alien technologies have been appropriated for use here on earth, but that's a whole other subject.

The original Stylus drew fire from some who felt the sounds were overly-processed, and useful mostly for hip-hop and perhaps electronica. As someone who works in both genres, hey, no problem. Stylus RMX has a similar sound palette, but with more adventurous percussion, and sounds that work well for world music. However, the ability to accept Xpander packs and REX/Groove Control files pretty much removes any musical limitations. If you have some great rock loops in REX format, they're welcome in RMX-land.

The only complaint I have is the exclusive reliance on video tutorials (aside from an installation guide) for documentation. The problem isn't that they're not helpful — essentially, you get Eric Persing and some other folks from Spectrasonics sitting down and giving you a one-on-one. That's cool, and gives a welcome, personal vibe. But for random access, it doesn't fly. Want to learn about automation? You'll have to wade through a bunch of videos in the hopes you'll find the info. And nowhere did I find out what sample rates Stylus RMX supports, although I tested it at both 44.1 and 96kHz and it worked. Nor is there info on internal bit resolution. (However, as we go to press Spectrasonics has posted searchable PDF file indexes for the Video Tutorials, which helps.)

Anyway, the point is probably moot because Spectrasonics will be making a PDF reference manual available on their web site, which will likely be there before this hits print. Besides, it's still worth watching all the videos if you want to be a power user.

BEAM ME UP, SCOTTY

Stylus RMX is a wild ride; this tool is just begging to be put in the hands of creative crazies who want to take loops to places that no one, and I mean *no one*, has ever taken them before. Speaker-thumping sounds, sure; and if all you want are some superb loops, that alone justifies RMX's existence. Then throw in lots of ways to use them – great. Fantastic effects? Even better. But when you can drag and drop MIDI files into your host sequencer, introduce chaos that essentially lets loops improvise (and capture chaotic effects that spin your crank), then set up edit groups to micromanage editing on a super-detailed level — the only option is an EQ Award. EQ

Strengths:

- Great sounds from core library, great grooves
- Trigger kits via MIDI
- Import REX and Groove Control files
- Highly editable
- Excellent effects
- Flexible operation
- Expandable with SAGE Xpanders

Limitations:

- Inconsistent documentation
- CPU-hungry

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Aviom Personal Monitor Mixing System

Can you hear me now? What about now?

by Randy Poole & Mitch Gallagher

Contact: Aviom, Inc., www.aviom.com

AN-16/i
Type: rackmount line-level input module
Price: $899.95
Channels: 16
Inputs: 16 TRS 1/4" or EuroBlock
Outputs: A-Net Out (CAT-5), A-Net Expansion (CAT-5), 16 TRS 1/4" audio thru

AN-16/i-M
Type: rackmount mic- and line-level input module
Price: $1,999.95
Channels: 16
Inputs: 16 combo XLR/TRS 1/4" mic/line
Outputs: 2 A-Net (CAT-5), 16 XLR mic thru
Inserts: 16 TRS 1/4" send, 16 TRS 1/4" return

A-16II
Type: personal mixer
Price: $499.95
Mixer channels: 16x2
Inputs: A-Net (CAT-5)
Outputs: 1/4" headphone/line, A-Net (CAT-5)
Presets: 16

A-16R
Type: rackmount personal mixer
Price: $799.95
Mixer channels: 16x2
Inputs: A-Net (CAT-5), TRS 1/4" aux stereo mix input, A-Control (CAT-5)
Outputs: 1/4" headphones, stereo XLR and TRS 1/4"
Inserts: stereo balanced TRS 1/4"
MIDI: in, out, thru
Presets: 16

A-16CS
Type: control surface for A-16R
Price: $399.95
Inputs: 1/4" footswitch (for preset selection)
Output: A-Control (CAT-5)

Musicians are a strange lot. For some reason they like to *hear* themselves when performing. It's even worse when they're recording. Then they want to not only hear themselves, but to have a decent mix of the other musicians in their headphones. And since each musician is *special*, they want to have their own independent headphone mix to reference. What a bunch of *prima donnas*. . . .

But if you're recording musicians in your studio, sooner or later you're going to actually *need* to provide them with a dedicated monitor feed. If you only want one headphone mix, most mixers and DAWs are capable of creating a cue mix and feeding it to an aux send or output. But if you need multiple, independent headphone mixes, and you want to provide each musician with control over what they hear in their phones, then you need a more powerful solution. Aviom manufactures their modular Personal Monitor Mixing System to address exactly this situation (among others, such as creating a digital snake or splitter, a distributed audio system, and so on).

The Aviom system uses a Local Area Network (LAN) protocol called "A-Net" as the means for transmitting up to 16 channels of digital audio to an unlimited number of outputs. At its most basic level, here's how it works: an AN-16/i input module accepts up to 16 channels of line-level analog audio from your mixer or DAW, via 24-bit/48kHz analog-to-digital converters. The digitized audio signals are sent via CAT-5 cable to A-16II Personal Mixers. Each A-16II can independently mix the 16 channels of audio down to stereo, which can then drive headphones, in-ear monitors, or other monitors. The A-16II provides control over the level, pan, mute, and solo for each channel. There's also master volume, bass, and treble controls. Pairs of channels can be linked for stereo inputs, and channels can be grouped. Sixteen presets store and recall mixer settings. Multiple Personal Mixers can be connected, so each musician can have their own A-16II, and therefore control over the mix they hear in their

AN-16/o
Type: rackmount output module
Price: $899.95
Channels: 16
Inputs: A-Net (CAT-5)
Outputs: 16 TRS 1/4" or EuroBlock, A-Net Out (CAT-5), A-Net Expansion (CAT-5)

A-16D
Type: A-Net distributor
Price: $349.95
Inputs: A-Net (CAT-5)
Outputs: 8 A-Net (CAT-5)

A-16D Pro
Type: rackmount A-Net distributor
Price: $999.95
Inputs: A-Net (CAT-5)
Outputs: 8 A-Net (CAT-5)
Other: one power supply input, eight power supply outputs

AN-16SB
Type: A-Net system bridge
Price: $249.95 per pair
Channels: up to 64, in groups of 16 channels
Connections: 4 A-Net (CAT-5), one 4-stream A-Net (Cat-5)

Aviom-16/o-Y1
Type: Yamaha output card
Price: $549.95
Format: mini-YGDAI
Channels: 16

MT-1
Type: mic stand mount for A-16II or A-16CS
Price: $24.95

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Aviom Personal Monitor Mixing System

phones. The A-16II can either sit on a tabletop or be mounted to a mic stand with an optional MT-1 adapter.

The Aviom system can be expanded from there, in modular fashion. The rackmount **A-16R** mixer and a complementary remote control surface, the **A-16CS**, are offered as an alternative to the "desktop" A-16II. The **AN-16/i-M** input module can accept either mic- or line-level inputs. The **A-16/o** output module acts as a digital-to-analog "breakout" box, converting the A-Net signal back to 16 line-level analog outputs.

The **A-16D** is a 1-in/8-out A-Net distribution box, allowing one A-Net input module to feed up to eight mixers or output modules. It can also provide power for eight A-16IIs. Any number of A-16Ds can be chained together to create a massive system. For really big systems, the **AN-16SB** System Bridge allows up to four 16-channel A-Net streams to be carried over a single CAT-5 cable for a total of 64 channels of bidirectional audio. For example, you could create a digital snake with 48 "sends" and 16 "returns."

For users of Yamaha digital mixers, the **Aviom-16/o-Y1** mini-YGDAI card allows 16 mixer signals to directly feed an A-Net system in the digital domain. The 01V96, DM1000, 02R96, DM2000, PM5D, and PM1D are supported.

Each device in an A-Net system can be located up to 500 feet from the next device. Aviom specs A-Net as having "sub-millisecond" latency, so audible delays aren't a problem. Because A-Net is carried as digital audio over CAT-5 cables, ground loops aren't an issue.

IN USE

For this review, we took an Aviom system to Nashville's Dark Horse studio, replacing the facility's normal headphone distribution system. The system we installed consisted of an AN-16/i Input Module, an A-16R rackmount mixer with A-16CS Control Surface, three A-16 Personal Mixers and two A-16II Personal Mixers (the A-16 was

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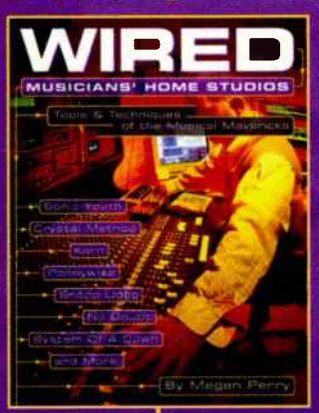

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"I used the ADK TC microphone to record vocals for one of my artists I usually use a Neumann® U87 or a Telefunken® 251 on. It blew me away. I love the "proximity effect" of this microphone. The body of the sound, the presence in the midrange, the smooth top end; I couldn't believe it! If this is any indication of the quality of the rest of the ADK line, you have a serious hit on your hands!"

-Bob Rosa, Grammy®-Winning Mixer/Engineer: Whitney Houston, Mariah Carey, Ednita Nazario, Paulina Rubio

---

"After hearing the TT, I was not surprised that Ray Charles and Johnny Matthis selected two of the TT Tube mics for their vocals. That the TL Decca-Tree set up-up works well on Grand Piano was a nice bonus. But what surprised me most was how many uses we found for the original model A-51s. Tracking Guitars for James Taylor to Drums and Horns. ADK Mics were everywhere on our 80 piece live orchestra sessions. Most mic companies have one or two good microphones. With ADK, you get an Arsenal!!"

-Terry Howard, Producer/Engineer: Ray Charles, James Taylor, Michael McDonald, Willie Nelson, Barbra Streisand, Duran Duran, Merle Haggard, Ellis Hall

---

"The Vienna is an absolutely beautiful sounding microphone! It has all the warmth of a rare vintage mic, but adds a slight presence boost in the high end that just screams 'expensive'! A producer could have a closet full of ONLY ADK mics, and still be ready to record ANY session in ANY style! How many mic manufacturers can say that?"

-Ted Perlman, Producer, Arranger, Composer: Ron Isley, Bob Dylan, Burt Bacharach, Young MC, Chicago, Kellie Coffey

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"ADK Commemorative Tube Mics are a Gas! We used them with the Cincinnati Pops Orchestra and our Vocals Really Soared!!"

-Tim Hauser, Vocalist, Manhattan Transfer

"I've now used the ADK Model "S" on almost everything including vocals, guitars, and drums. They remind me of very expensive German mics I have tracked with before."

-Adam Kasper, Producer/Engineer, Cat Power, REM, Pearl Jam, Soundgarden, Foo Fighters

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Aviom Personal Monitor Mixing System

an earlier version of the A-16II), and an A-16D A-Net Distributor.

From the beginning, the Aviom system was easy to implement. The fact that it uses CAT-5 cables for interconnect instead of analog audio lines made cable runs simple — a godsend in a studio like Dark Horse, where the recording rooms are quite spread out. The various modules are well thought out, although in certain instances it would be nice to have A-Net distribution built-into the input module, rather than in the A-16D. The system was immediately put to use on a tracking session consisting of drums, bass, piano, percussion, and two guitar stations with excellent results.

On a "traditional" headphone distribution system, there are faders for adjusting the levels for each channel of audio on each musician's mixer. On the A-16II, settings are adjusted by selecting the desired channel, then changing the parameter you want. The session musicians had no problem adapting to using the Personal Mixers, although some found having to select a channel before adjusting channel volume slowed them down a bit.

The original A-16 Personal Mixers weren't powerful enough to drive headphones to the levels required by some musicians. The newer A-16II Personal Mixers were much more powerful; only one hearing-challenged individual was disappointed with the levels he could achieve in his Fostex T-20 phones. The A-16II worked fine with all other headphone models we tried.

The sound quality of the system was good; there were no complaints from the session musicians. Even better, the system has proved to be durable and completely reliable. It's been in constant use at Dark Horse for four months at this writing without a single problem.

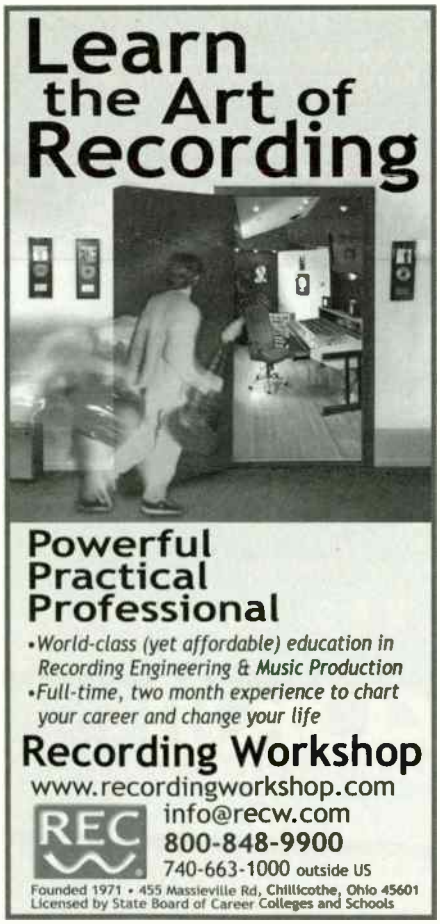
When all was said and done, the Aviom Personal Monitor Mixing System performed exactly as advertised. The fact that it's modular and configurable makes it useful in a wide variety of applications, and scalable for use in small to large studios. Long cable runs, easy expansion, and tons of flexibility mean that it will work almost anywhere. Unless your cue/headphone monitoring needs are limited to a single basic feed, the Aviom system is a solid solution. EQ

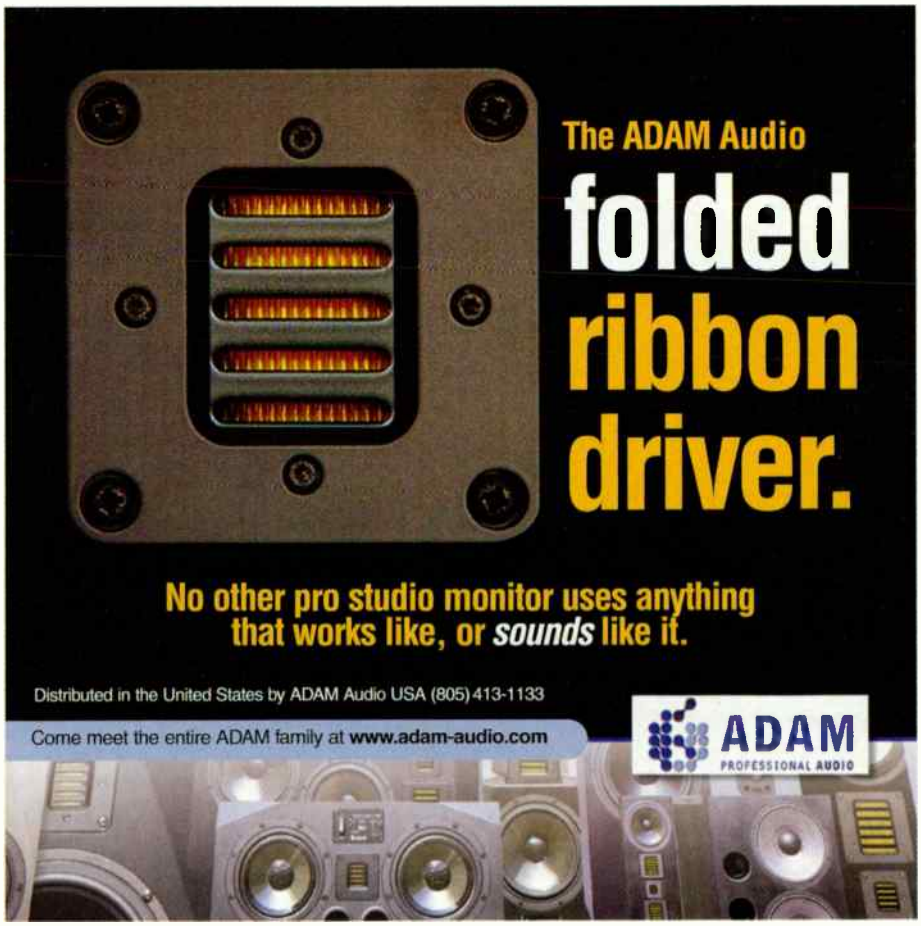
Strengths:

- Flexible modular system design
- 16 channels
- Unlimited number of personal mixers
- Supports long cable runs
- Convenient CAT-5 interconnect
- Easy to install and use
- Plenty of headphone-driving power
- Stereo-linking of input channels
- Cost-effective compared to "traditional" systems (especially when considering cabling)

Limitations:

- Not quite as fast as a system with a fader for each channel





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"Slammin'!"

Anthony Roberts, Monitors - Tower of Power

"I'm in the studio with P.O.D and 'knit' the i-5 on guitar cabs. Great punch in the upper mids and perfect for heavy guitars that need that special drive. Also fantastic on snare - it can sure handle some serious SPL's!"
Travis Wyrick, Producer, Engineer, Mixer - P.O.D.; Charlie Daniels, Pillar

"So how does it sound? In a word, impressive. ...and on snare drum, it rocked hard. Overall, there's a clarity and openness to this mic that you don't hear from a lot of dynamics..."
Phil O'Keefe, EQ Magazine

"On the road I use it with The Dead and Phil Lesh and Friends. At home, I use it at the Phoenix Theatre in Petaluma with every axe imaginable. From the top to the bottom, the i-5 sets a new standard!"
Jim DuBois, Monitors - Phil Lesh and Friends, The Dead

"Audix really delivers with the i-5. Performing well in about every application on which I tried it, the i-5 does justice to many sources both on stage and in the studio."
Karen Stackpole, Electronic Musician

"During our recent tour, I was very pleased with the results using the i-5 on guitar cabs. The sound was smooth and clear with great presence in the mix. The i-5 is rugged and solid. It qualifies as THE all-purpose dynamic workhorse in any mic collection."
Gary Hartung, FOH - Crosby, Stills & Nash

"The i-5 is an awesome utility mic—it is much tougher and sounds better than the 'old faithful' I am now able to replace."
Dave Rat, Rat Sound

"I've used the same mic on snare drum for recording and live sound applications for 30 years. I've tried other mics from time to time but always returned to the old favorite. Recently, I tried the Audix i-5. No matter what style of music, the i-5 sounds great and now has become my new choice for snare drum."
Tom Edmonds, Engineer - Lenny Kravitz

"I have dreamed of this day—I can now retire the last of my SM57's. Now that I've been exposed to the future, why would I want to live in the past?"
Eugene "Slim" Mulcahy, Lead Audio Engineer - Mohegan Sun

"This mic is slammin'! And if you're tired of having the cap of your snare mic being blown into pieces from a heavy stick hit—you'll love the i-5!"
Anthony Roberts, Monitors - Tower of Power

"On guitar amps the i-5, compared to the 57, was less hyped in the high mids, but had a fuller overall tone...I'm really digging using the i-5 and will be buying the review mics I was sent, if that tells you anything."
Larry Crane, Tape-Op Magazine

"The i-5 is very impressive as a bass mic. It handles the SPL's and captures the clarity of the notes while still maintaining the warmth of the low end. It's a great new tool."
Dianne Franklin, FOH - Tom Waits

"With the i-5 on my snare drum, there's just no going back. I've just started using it on guitar with very good results there too. The i-5: it's my new little weapon."
Neil Citron, Head Engineer - The Mothership

"The i-5 is truly a multi-purpose microphone. It sounds great on a wide variety of sources, but it particularly shines on snare drums and toms...Sounds like a winner in my book."
Mark Parsons, Modern Drummer

"The i-5 is more than an impressive upgrade to my usual snare and guitar cab mic—it's a big leap forward."
Ed Trew, Studio Engineer - The Spencer Davis Group

"Who needs a condenser when you can get this sound out of a dynamic. Audix has again come up with a winning microphone."
John Gatski, Pro Audio Review

"The best thing to happen to snare drum since Charlie Watts!"
Paul Hagar, FOH - American Hi-Fi

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WILLIAM WHITE, PROJECT COORDINATOR - THE DISCOVERY CHANNEL

"qualifies as THE all-purpose dynamic workhorse in any mic collection."

Gary Hartung, FOH - Crosby, Stills & Nash

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RTZ 9762

Taking a classic preamp one step beyond

by Phil O'Keefe

Type: Discrete solid-state microphone preamplifier
Price: $1,429
Contact: RTZ, www.rtzaudio.com

Channels: 2
Inputs: XLR (mic), 1/4" (DI)
Outputs: XLR and unbalanced 1/4"
Recommended input impedance: 200-ohm balanced
Recommended output load: 600 ohms
Nominal line level output: +4dBm into 600 ohm
Maximum input level: 0dBu
Maximum output level (1% THD): +27dBu bridging or +27dBm into 600 ohms
Maximum gain: 75dB
Frequency response: 20Hz–50kHz, ±1.5dB
Distortion (1 kHz): Less than 0.2% at +4 output at 20Hz
Input sensitivity: –75 dBu to –20 dBu for +4 dBu output

When is a clone not a clone? Why, when it's different of course. And while the RTZ 9762 is based on classic Neve preamp designs, it's not an exact clone, and has some interesting differences in features and sound.

Housed in a single rack-space, the 9762 comes across as a high quality product. The case is solid, the graphics are tastefully done and easy to read, and the knobs and switches have a solid feel. On the front panel, each of the two channels has a stepped input gain sensitivity switch (–20 to –75, in 5dB steps) and a variable output level control. There are switches for 48V phantom power, polarity reverse, mic/DI selection, and two switches that deserve special mention: The first, "Lo-Z," switches the Lundahl input transformer's tap from 200 to 50 ohms; useful for tailoring the preamp to different microphones. The second, "Term," switches the output transformer termination resistor in and out. The preamp is a bit flatter with termination enabled, and has a slight amount of added high-frequency "air" when disabled. I found the effect of the Term switch subtle, while the Lo-Z switch seemed to have more effect on the sonics, depending on what mic I was using. There's a level jump of about 6dB when you engage the Lo-Z switch, which is to be expected when switching taps on a transformer.

Rounding out the front panel is a 1/4" unbalanced hi-Z DI input and a +24V power indicator for each channel. On the rear you get standard balanced XLR I/O as well as unbalanced 1/4" outputs. True balanced 1/4" out capability would be a nice addition.

The ability to switch impedance is nice, though I would have preferred more options, such as 50, 200, 600, and 1,200 ohms. This would allow more flexibility, but it's a trade-off as it would also add to the price.

The metering on the review unit was somewhat of a mixed bag. The inclusion of signal present and input overload LEDs and 2-color, 5-segment LED VU meters is cool, but the VU "ballistics" on the review 9762 were a little goofy. The response was too fast and made setting levels difficult. RTZ tells me this has been addressed on new units. Speaking of levels, this thing has great headroom and high output, and can easily overload other elements of the signal chain if you're not careful. Internal jumpers can be set to knock 6dB off the output level

The 9762 bears strong sonic resemblance to the classic Neve modules such as the 1073 and 1272, but has more sparkle and detail. It retains the classic girth, but adds clarity to the upper mids and highs. Sometimes I missed the slight rounding off of highs that you get with Neves, but I appreciated the added high-frequency reach and extra definition of the 9762 because it just sounds so juicy.

This is a seriously good sounding preamp, folks. Noise was never an issue. Multiple tracks recorded with the 9762 "stacked" well, without the low-mid buildup that you get when stacking lots of tracks through a vintage Neve. The 9762 sounded good with a wide range of mics and sound sources, but it excelled on guitar amps, drums, and vocals. The DI sounded tight and punchy with my Ibanez bass, and worked well for recording keyboards direct.

Available direct from RTZ for $1,429, the 9762 is a good value, and should be high on the audition list for anyone who is looking for a slightly different take on the classic Neve sound.

Strengths:
- Classic tone with extended highs and definition/detail
- Plenty of gain and headroom
- Impedance switching
- Excellent value

Limitations:
- Unbalanced 1/4" outputs

EACH CHANNEL HAS A "TERM" SWITCH THAT AFFECTS THE TERMINATION ON THE OUTPUT TRANSFORMER. TURNING OFF TERMINATION ADDS A BIT OF HIGH-END "AIR" TO THE SIGNAL.

THE RTZ 9762 OFFERS TWO CHANNELS OF NEVE-LIKE PREAMP — WITH SOME NICE EXTRAS — AT A REASONABLE PRICE.

World Radio History

Resource.

B&H Pro Audio

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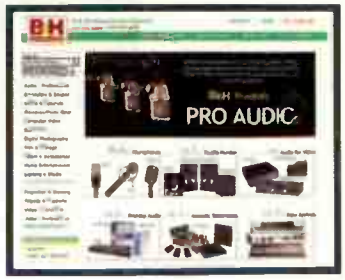

World Radio History

Kjaerhus Audio GCO-1 Compressor

by Craig Anderton

Price: $118
Contact: Kjaerhus Audio, www.kjaerhusaudio.com

Strengths:
- Extremely versatile
- Accurate vintage models
- Multiple envelope types
- Detector controls
- Excellent sound quality

Limitations:
- May be too much for non-tweakers

Sometimes it's smaller software companies that produce the real gems — and this is one of them. For a bit over $100, the GCO-1 ("Golden Compressor") VST plug-in for Windows 2K/XP gives you more than just a kickin' compressor/expander. It's almost a "compressor construction kit" where you can pick the best vintage (or modern) compressor characteristics you like, and create a preset incorporating that particular sound.

For example, there are five envelope types, which emulate the different gain control elements used in various compressors. Each has its use; you even emulate the two-stage release of some opto-based compressors, or make the sound "pump" like compressors did during the psychedelic 60s. Technically, it hits the target too: 64-bit floating point processing, sample rate support up to 192kHz, and a CPU-friendly level of efficiency.

With extra goodies like a subsonic input filter, the ability to adjust curve linearity, variable knee, and 3-band EQ in the detector section for frequency-dependent compression (along with a variable filter to remove ultra-low frequencies), you have a tweaker's dream. In fact, the only possible drawback is that unless you know what you're doing, you'll have a hard time getting the most out of the various options. Fortunately there's good documentation, and the controls are laid out in a hierarchy — the top ones are the essentials, while the lower controls provide the detailed editing — so neophytes can grow into the feature set over time.

Sound interesting? Don't take my word for it. Go to the web site and download the 14-day demo, but don't do it unless you're prepared to spring for the unlimited registration. The more you use the GCO-1, the more you'll realize just how versatile it really is. EQ

IOGear MiniView Extreme KVMP Switcher

by John Krogh

Price: $179.99
Contact: IOGear, www.iogear.com

Strengths:
- Cross-platform compatible
- Switching can be done via key commands
- USB peripherals can be shared
- Small footprint

Limitations:
- Doesn't support digital video monitor connection
- Mouse port not compatible with Kensington USB mouse

These days, it's not surprising to find multiple computers in a modern project studio. But this creates an all-too-familiar problem: lack of surface space. Giving each machine its own dedicated keyboard, video display, and mouse isn't practical in most cases, so what to do? Borrowing a page from their computer-geek brethren, savvy studio cats have discovered the benefits of KVM switchers. KVM being short for "keyboard-video-mouse," these accessories allow multiple computers to share the same video monitor, QWERTY keyboard, and mouse. Thus, precious desktop space is conserved for control surfaces.

Admittedly, I'm part geek, so I'm no stranger to KVM devices. The problem with many of these is that when switching from one computer to another, audio programs tend to hiccup, causing crashes and hangs. Not so with IOGear's MiniView Extreme. Switching among up to four computers is seamless and seemingly unobtrusive to whatever programs are running on each machine. I've been using the MiniView for three months now, and I haven't had a single problem switching among multiple audio programs (*e.g.*, Logic, Reason, Kontakt, and GigaStudio3) running on dedicated computers.

MiniView can be used with as many as four computers, and sports connections for USB and PS/2 keyboards, VGA monitors, mini-jack audio, and USB peripherals (that's where the "P" in KVMP comes from). The two peripheral ports are intended for use with digital cameras, USB hard drives, and such. I discovered these ports also work with iLok USB dongles, which meant I could run iLok-protected software on multiple machines without having to physically repatch the dongle. An added bonus.

Unfortunately, my Kensington Turbo Mouse wasn't recognized through the USB mouse port, which meant I had to connect it through one of the peripheral ports. No biggie, but a bummer nonetheless. On a positive note, switching among computers via key commands worked flawlessly.

Minor compatibility issue aside, the MiniView Extreme has made working with multiple computers much easier and more manageable. If you're short on surface space and have several computers in your studio, the MiniView is a must. EQ

World Radio History

BSW's Total Traveler Laptop Recording Package!

The perfect input package for your laptop computer recording setup!

MOTU

MOTU's Traveler pictured Front, Rear and Side

1 MOTU Traveler Digital Interface NEW!!

The MOTU Traveler turns your laptop computer into a mobile 24-bit, 192 kHz digital audio workstation, with renowned MOTU audio quality. Powered by your computer's FireWire bus, the Traveler easily fits into a travel bag and gives you eight channels of pristine 192 kHz analog recording and playback with four mic inputs, combined with all of the digital I/O you need: ADAT optical, AES/EBU and S/PDIF (both TOSLink and RCA). Expand your system by connecting additional Traveler, 828 or 896 FireWire audio interfaces. No mixer is required, thanks to CueMix DSP™, the Traveler's latency-free, 8-bus digital mixer. Monitor via the Traveler's main outs, headphone jack and/or any other output – even create separate monitor mixes for the main outs, headphones and other outputs. The Traveler provides cross-platform compatibility with Mac OS X (10.2.3 or higher), Windows Me/2000/XP and all of your favorite audio software and host-based effects via WDM/ASIO/Core Audio drivers. Or you can use the included AudioDesk workstation software for Macintosh, with 24-bit recording/editing and 32-bit mixing/processing/mastering. Tres cool!

2 Sony MDR 7506 Headphone

The Sony MDR-7506 headphone is a best-seller at BSW and has been for the last 15 years! It delivers a wide frequency response of 10 Hz-20 kHz in a comfortable, sealed-ear format that provides excellent isolation.

3 AKG C2000 Packages (Two of em!)

The C2000B features a cardioid pickup pattern and is an excellent high-quality condenser recording microphone. It offers almost ruler-flat response providing a crystal-clear, "up-front" sound. Features a switchable bass roll-off filter and 10 dB pad and a built-in pop screen and shock mount. BSW's exclusive package includes the mic, a boom stand and 25' ft. XLR cable!

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ATW2110 Bodypack system List $429.00

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AT831CW Cardioid lapel mic List $120.00
MT830CW Omni lapel mic List $116.00

audio technica

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World Radio History

Sounds

BEST SERVICE
Artist Drums & Artist Grooves

Contact: Best Service, U.S. dist. by East West, www.soundsonline.com
Format: NI Kompakt or Intakt instrument/Kontakt-format library; pop/rock drum loops and multisampled drum kits
Price: $199

Artist Grooves and Artist Drums are perfect examples of tried-and-true concepts in sample library development. Start with four world-class drummers bringing their kits into a top-flight studio. Next, record them performing a bunch of pop, rock, Latin, and shuffle grooves, and then playing each drum and cymbal separately. Finally, edit these raw recordings into a marketable product. And this is where things get interesting, because Best Service decided to program the loops and drum kit elements into NI's Intakt and Kompakt, respectively. This way, you can to manipulate, process, and program your own grooves in your audio/MIDI sequencer. Way more flexible and customizable than a conventional CD-ROM loop library.

The drummers in question? Dennis Chambers, Kenny Aronoff, Simon Phillips, and Mel Gaynor. A veritable super-star lineup whose collective session credits read like a who's who of rock and pop icons: Steely Dan, Mick Jagger, The Who, Tina Turner, Toto, Ricky Martin, Santana, to name a few.

In Artist Grooves, loops and fills are organized by drummer and tempo. The Intakt engine allows you to change tempo effortlessly, and will automatically sync the performances to your sequencer's clock. I found that I could slow the tempo by as much as 25 BPM without introducing artifacts.

For Artist Drums, each drummer's kit is mapped across the keyboard with full kit, hi-hat only, snares only, and so on. This way, you can build hybrid kits that combine elements from various kits. In addition, a number of MIDI file loops and fills are included, allowing you to "recreate" the live sessions. The MIDI tracks are well programmed, and as is, they're a solid resource for songwriters. Because it's MIDI, though, you can customize the grooves to a great extent by applying some creative editing.

Sonically speaking, the samples were expertly recorded, with a fair amount of room tone around the snares, toms, and cymbals, while the kick and hi-hats are drier and tighter. Overall, AD and AG have a slick, "LA" produced, and refined sound. There's nothing punk rock about these samples, so if you're looking for "edge" and close-miked rawness, you should look elsewhere. But if you're looking for a clean, punchy, well-produced set of pop/rock drum grooves and kits, Artist Drums and Grooves deliver the goods. —JOHN KROGH

SONY
Soul Jazz Experience

Contact: Sony, www.sony.com/mediasoftware
Format: CD-ROM (44.1kHz/16-bit Acidized WAV)
Price: $59.95

This is 100% organic, free-range electric piano phrases. Stylistically, think mid-70s Miles Davis, when Herbie Hancock, Joe Zawinul, and Chick Corea punched out concise, funky keyboard lines. Although this CD-ROM migrates back and forth between funk and jazz, it's compatible with a lot of rap, hip-hop, and dance music as well.

Stats, front and center: 452MB of data, 568 files (74 funk and 58 jazz phrases, 246 funk and 190 jazz progressions). The short, melody-oriented phrases don't really lend themselves to endless repetition, but the CD sidesteps this by including variations on most of the riffs, which you can mix 'n' match to create longer phrases.

Sound-wise, I often rolled off some low end and peaked the upper mids so the loops would "speak" better in a track. Acidization seems optimized for slowing down from the original tempos (which hover in the 120BPM range); when speeding up, it's pretty much essential to edit the slice markers for the best audio quality. Generally, this means erasing markers that fall between transients.

This is not a construction kit, and is designed to work with other sample CDs or musicians. In that context, SJE provides a solid slice of soul, with the right combination of grease and bark. It's serving a somewhat limited market — but serves it well. —CRAIG ANDERTON EQ

World Radio History

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World Radio History

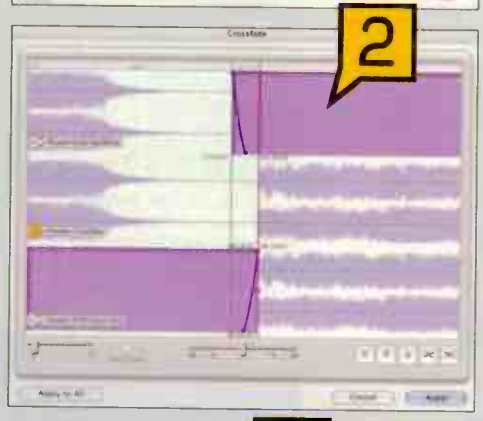
by John Krogh

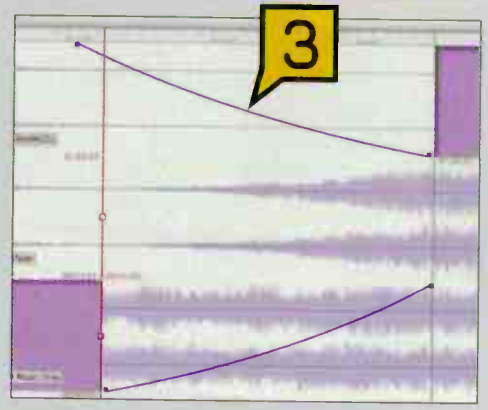
Roxio Jam

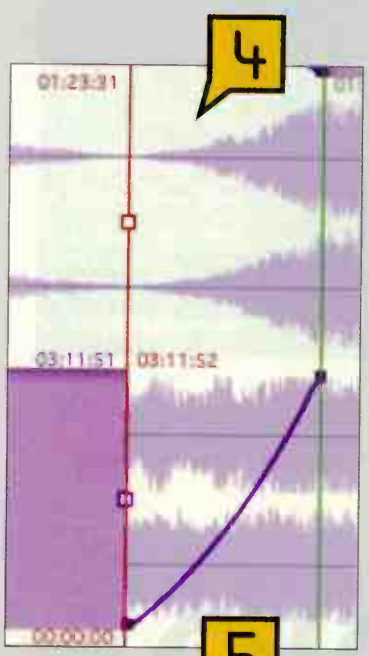
DAO discs with seamless transitions

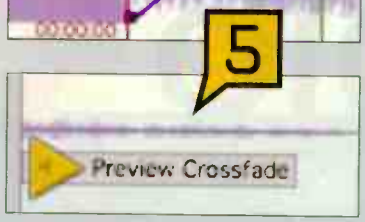
Objective: Create "DJ compilation-style" CDs with tracks that seamlessly flow from one to the next.

Background: When burning CDs, you typically have the choice of burning track-at-once or disc-at-once. If you're trying to create a disc where tracks seamlessly transition or cross-fade from one song to the next, you need to use DAO. Otherwise, there will be a short gap between each track, even if you set the pause time to zero. But choosing DAO is only half of the solution. To tailor the transitions between tracks, you'll need to set the cross-fade time and type for each track, which you can do using Jam's built-in stereo cross-fade editor.









1 Load several tracks for your compilation by dragging and dropping them into Jam's playlist window.

2 Pick a track whose ending you'd like to cross-fade into the next track and click its cross-fade button (right-hand side). The cross-fade editor will appear.

3 You should now see the tail end of the selected track and the beginning of the next. To make a cross-fade between them, drag the fade envelopes (dark purple). Your changes are reflected on the center waveform display. Zoom in to fine-tune the fades.

4 Optional: If one or both of the tracks were faded out/in originally, there may be "dead space" at the beginning or end. In which case, you'll need to move the track markers (green and red vertical lines) and adjust the fades accordingly.

5 To audition the transition, click the yellow Preview button. If you like what you hear, click Apply. If not, adjust the fades until you're satisfied. Repeat this process for all the tracks in your playlist.

6 With each track's transition set, click the big blue "Burn" button. You'll be presented with a dialog box for the recorder's settings. Click the Advanced tab, choose DAO, and then click Record.

World Radio History

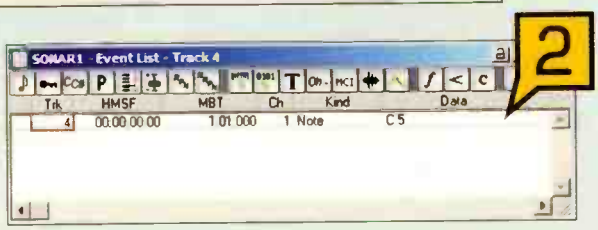
by Craig Anderton

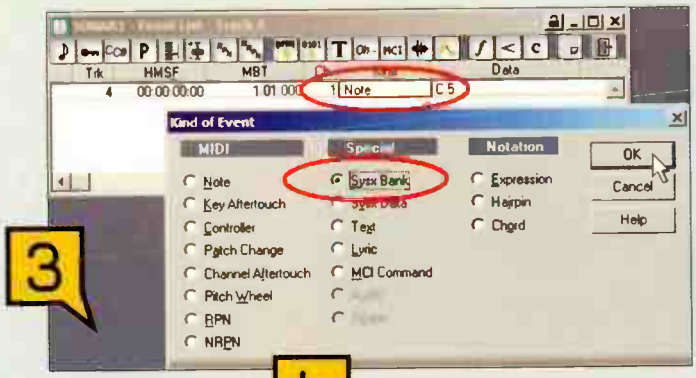
Cakewalk Sonar

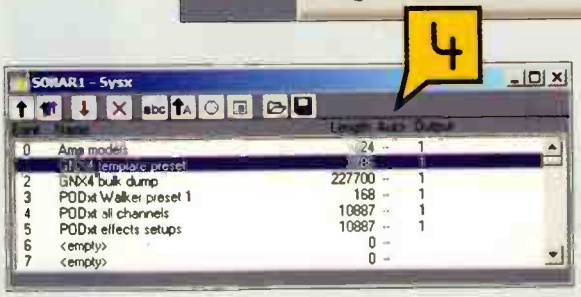
Play back banks of sys ex data from within Sonar

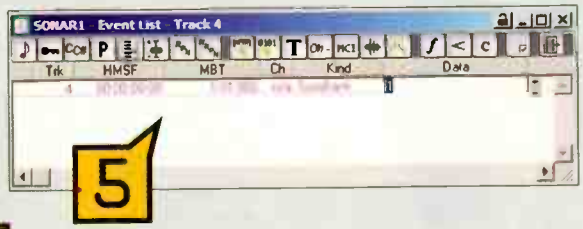
Objective: Send sys ex data to external devices by playing back data stored in Sonar's Sysx View.

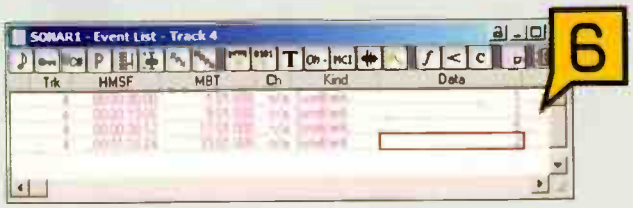
Background: If System Exclusive is checked under *Options > Global > MIDI*, Sonar can record sys ex data into a track in real time, then play it back. However, this technique is limited to 255 byte messages. Fortunately, there is a way to "embed" triggers in a track that will play back sys ex banks (stored in Sonar's Sysx View) of virtually unlimited length — yes, set up all your outboard MIDI gear with the click of a mouse.











1. **Place the Now time where you want Pro Tracks Plus to send the data, then open up the MIDI track's Event List view by going View > Event List or typing Alt-4.**

2. **Hit the computer keyboard's Insert key. This inserts an Event into the Event List at the Now time position.**

3. **Double-click in the Event's "Kind" field. When the "Kind of Event" window appears, check "Sysx Bank" under Special, then click on "OK."**

4. **Go View > Sysx to call up the Sysx view, and determine which number represents the sys ex bank you want to send.**

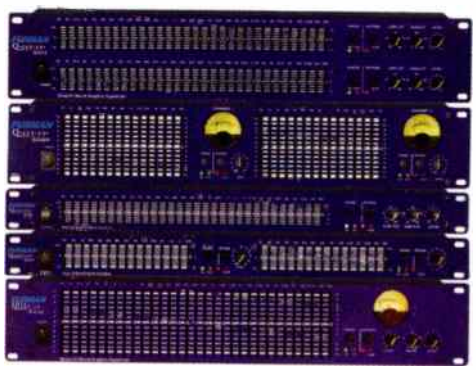
5. **Double-click on the Event List's Data field, enter the number of the Sysx View bank you want sent at the current Now time, then hit Return.**

6. **Repeat steps 2 and 5 until you've entered all the sys ex banks you want to send, then close the Sysx and Event List views. Done!**

tips

- Playing back an entire sys ex dump takes a while. If possible, store and play back only what's needed (*e.g.*, a single preset instead of a whole collection of presets).
- The Sysx View bank data is saved with the project, so backing up your Sonar project backs up all related sys ex data as well.

World Radio History



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by Todd G. Tatnall

XP MIDI Troubleshooting

Last month, we looked at how to make sure your MIDI interface was functioning properly in Mac OS X with AudioMIDI Setup. This time, we'll look at some tips to make sure your MIDI interface is working properly in Windows XP.

The easiest way to make sure your interface is working properly is to check your sequencer application. Are you getting MIDI input and output? If not, there are two crucial factors to check: First, is the MIDI interface connected properly and powered up? And second, are the drivers installed correctly?

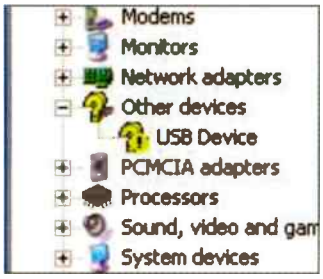
The best place to check this is within Windows Device Manager. Click the Start menu, right-click My Computer, and choose Properties from the pop-up. In Properties, click the Hardware tab and choose Device manager.

In the list of device categories, click the [+] next to Sound Video and Game Controllers. If your MIDI interface is listed by name, it's likely that the hardware is recognized and the software installed. If the device isn't named and there's a "!" or a "?" on the device, It could be installed improperly or have a problem.

If this is the case, but the interface is still not functioning properly, right-click the device and choose "Uninstall." It's important to uninstall the drivers first. Reinstalling the same driver over and over without first uninstalling rarely fixes the problem.

Restart the computer. Once it's restarted, you should be prompted by XP's New Hardware Wizard that a new device has been detected. Follow the Wizard to reinstall the driver software.

If your MIDI interface isn't listed in Sound Video and Game Controllers, check the category Other Devices in Device Manager for an unnamed "USB Device."



If you're unsure if this unnamed device is your MIDI interface, simply disconnect the USB cable between the computer and the interface. If the unnamed device disappears in Device Manager, it's the MIDI interface. This indicates that the computer sees the interface, but the necessary drivers aren't properly installed. You can right-click the "USB Device" and choose "Update Driver." The New Hardware Wizard should appear and take you through driver install.

In addition to following the New Hardware Wizard's instructions, you'll also want to check user guides for install steps. Some MIDI interfaces need some specific steps to be followed for installation to be successful. You may need either the software CD that comes with the MIDI interface, or internet access to download the latest version of the interface's drivers.

NOTE: Some USB MIDI interfaces require that the device be disconnected while installing the drivers, others require the opposite. To prevent problems, be sure to read instructions carefully before connecting the hardware and beginning driver installation.

Special thanks to Sweetwater's Dave Federspiel for teaching me how to troubleshoot MIDI interfaces in Windows XP. EQ

Todd G. Tatnall is the Senior Tech in Sweetwater's Technical Support department.

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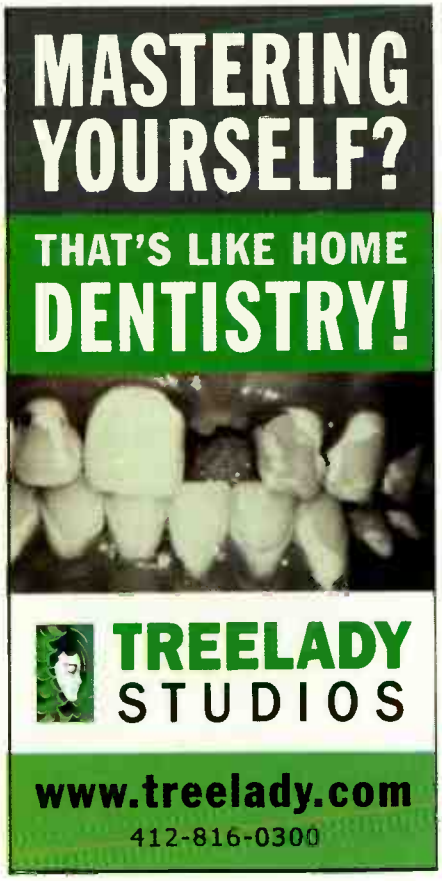
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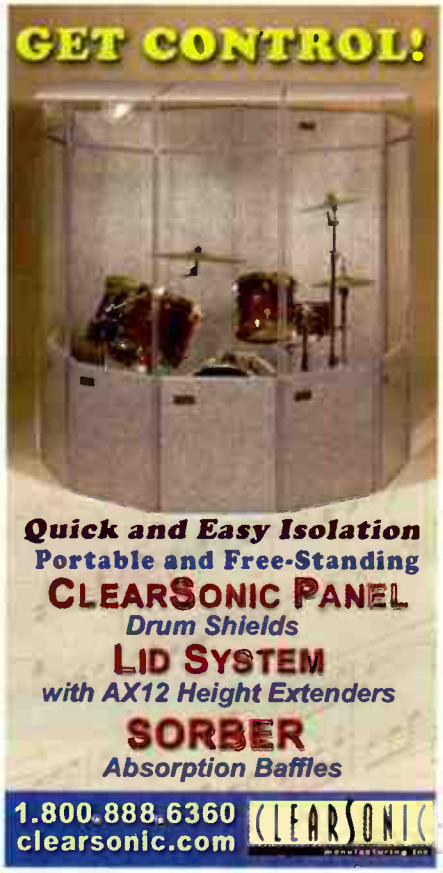
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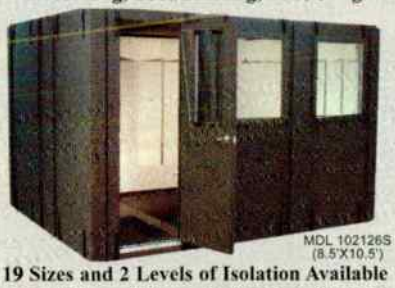
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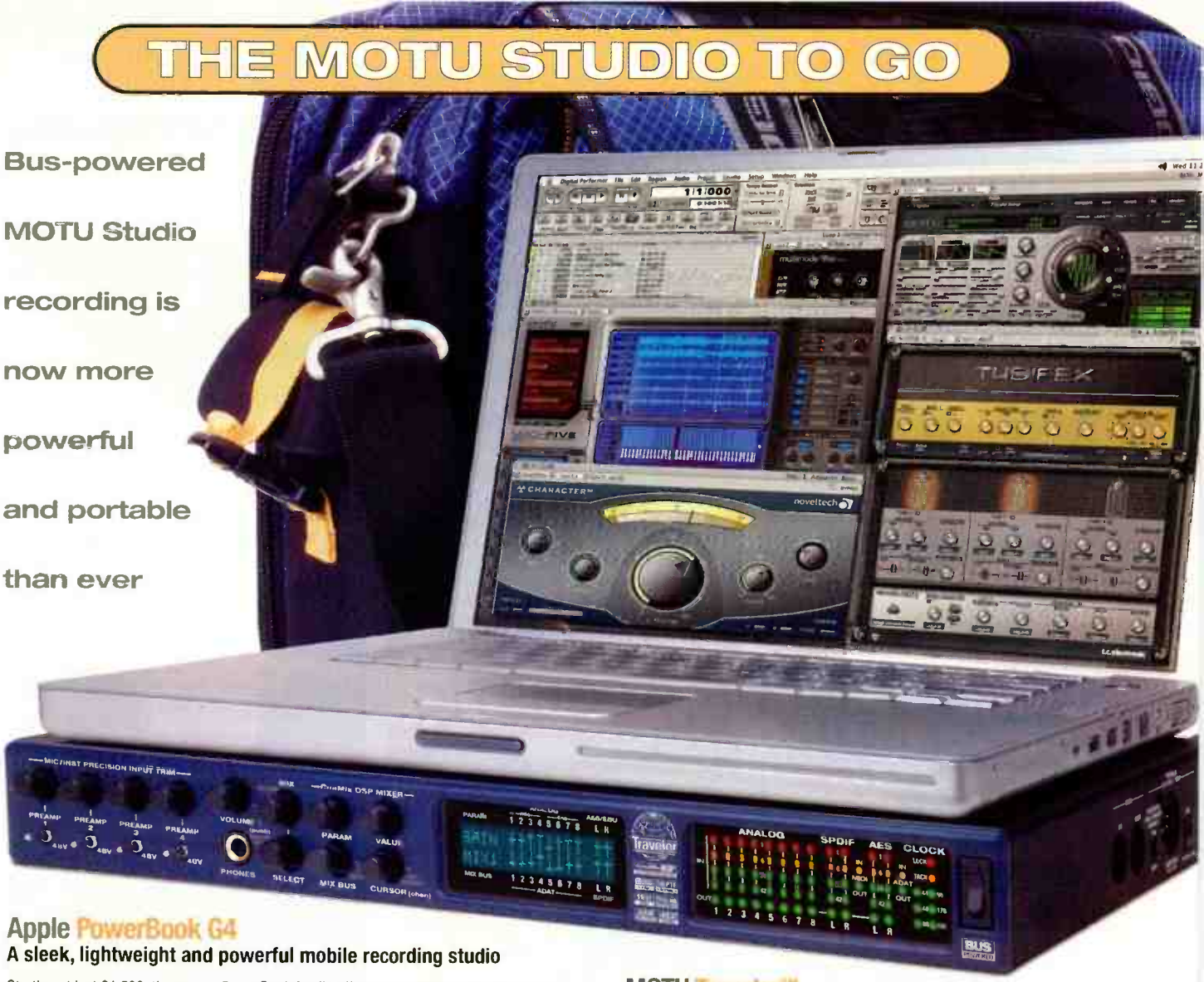

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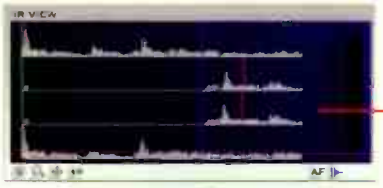

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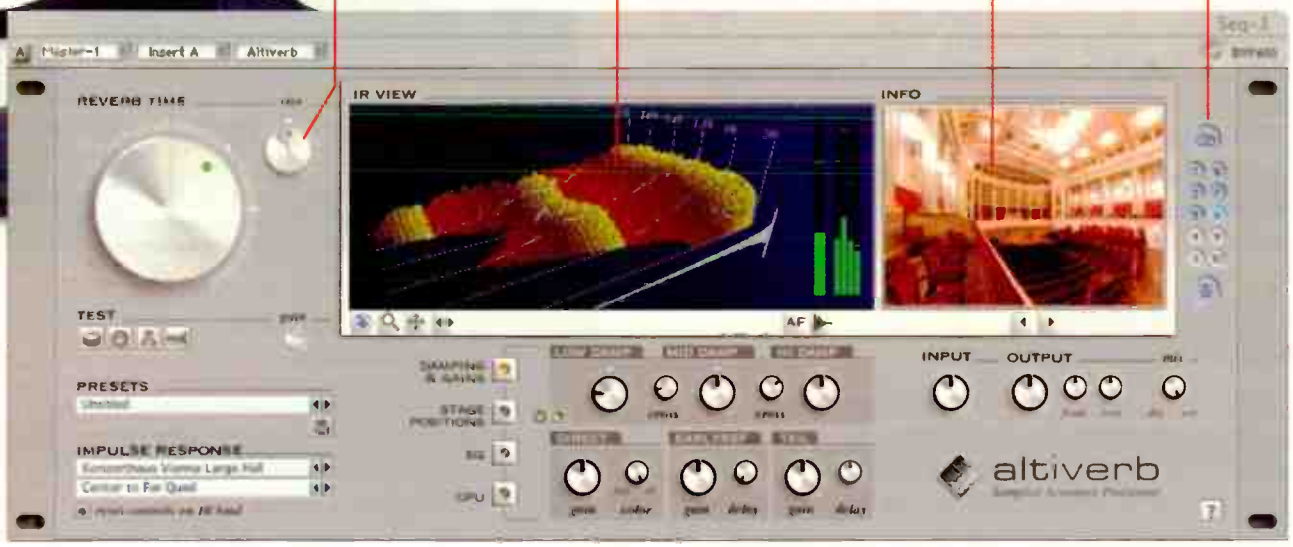

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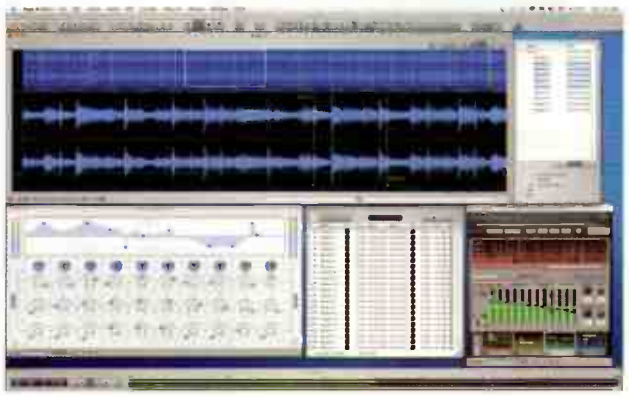
Peak 4.1 plus SoundSoap Pro and SuperFreq. Imagine the world's most popular stereo audio editing, processing, and CD mastering program for the Mac, combined with unparalleled noise reduction and restoration technology — all at a jaw dropping low price. You get Peak 4.1 (including ImpulseVerb, Sqweez, Vbox SE, Jam 6, SFX Machine LT, and more), SoundSoap Pro (combines four state of the art restoration and noise reduction tools in a single plug-in), and the SuperFreq suite of mastering EQs all in one great package. Launch Peak directly from DP4 for more editing and processing power. Run SoundSoap Pro within DP4 or in Peak as an AU plug-in. For the very best in sample editing, batch processing, file conversions, loop creation, sound design, restoration, and Redbook CD mastering on OS X, pick up the Peak 4.1 Mastering and Restoration Edition today — the perfect mastering and restoration companion for DP4!



Native Instruments Absynth 3

Bend, mold, meld and morph sounds!

ABSYNTH was used extensively, together with Digital Performer, on the Matrix Reloaded soundtrack by electronica mastermind and Juno Reactor founder Ben Watkins. And now, this award-winning synthesizer hits the scene for the third time armed with a host of new and unique features. ABSYNTH 3 brings dozens of new features that greatly expand its already extraordinary sound spectrum. The powerful synthesizer now incorporates a new user interface with convenient one-window editing, envelope-controlled surround sound features, live audio inputs, real-time fractalization, unison mode, advanced envelope control, 2 new special effects and 256 additional presets. Combining FM and subtractive synthesis, ring modulation, a live stereo input, classic and granular sampling with the most advanced envelope control ever implemented, this unrivalled synthesizer will take you on the most outrageous sonic adventures. There's really nothing else like ABSYNTH 3.

Spectrasonics Stylus RMX

The power of groove production

Stylus RMX is the first product to offer the combined power of Groove Control™ with Spectrasonics Advanced Groove Engine (S.A.G.E.™) giving users dramatic new control over groove production. Dozens of new features include a completely redesigned interface, a new 7.4 GB core library of cutting-edge grooves and sounds produced by Eric Persing, and the ground-breaking, always changing Chaos Designer™. Real-time groove creation has never been so simple, and has never sounded so good! Kits and over 10,000 new single-hits, too. RMX is the ultimate Remix-oriented sound module for building millions of grooves.

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PreSonus Central Station™

A Console Master Section Without the Console!

Special limited time offer!
get a CSR-1 remote with your Central Station
for only $99! Save $50!

The PreSonus Central Station is the missing link between your MOTU recording interface, studio monitors, input sources and the artist. Featuring 5 sets of stereo inputs (3 analog and 2 digital with 192kHz D/A conversion), the Central Station allows you to switch between 3 different sets of studio monitor outputs while maintaining a purely passive signal path. The main audio path uses no amplifier stages including op amps, active IC's or chips eliminating coloration, noise and distortion enabling you to hear your mixes more clearly and minimize ear fatigue.In addition, the Central Station features a complete studio communication solution with built-in condenser talkback microphone, MUTE, DIM, two separate headphone outputs plus a cue output to enhance the creative process. A fast-acting 30 segment LED is also supplied for flawless visual metering of levels both in dBu and dBfs mode.

Mackie Control Universal™

Automated hands-on control for the DP4 studio

Imagine the feeling of touch-sensitive, automated Penny & Giles faders under your hands, and the fine-tuned twist of a V-Pot™ between your fingers. You adjust plug-in settings, automate filter sweeps in real-time, and trim individual track levels. Your hands fly over responsive controls, perfecting your mix — free from the solitary confinement of your mouse. Mackie Control delivers all this in an expandable, compact, desktop-style design forged by the combined talents of Mackie manufacturing and the MOTU Digital Performer engineering team. Mackie Control brings large-console, Studio A prowess to your Digital Performer desktop studio, with a wide range of customized control features that go well beyond mixing. It's like putting your hands on Digital Performer itself.

Mackie HR-series Active Studio Monitors

Nearfield monitors for your MOTU studio

Mackie's HR-Series Active Studio Monitors are considered some of the most loved and trusted nearfield studio monitors of all time, and with good reason. These award-winning bi-amplified monitors offer a performance that rivals monitors costing two or three times their price. Namely, a stereo field that's wide, deep and incredibly detailed. Low frequencies that are no more or less than what you've recorded. High and mid-range frequencies that are clean and articulated. Plus the sweetest of sweet spots. Whether it's the 6-inch HR-624, 8-inch HR-824 or dual 6-inch 626, there's an HR Series monitor that will tell you the truth, the whole truth, and nothing but the truth.

Sweetwater SweetCare™

Your personal MOTU studio expert advisor

When setting up and maintaining a MOTU desktop studio, there are many considerations to factor in to your decision making. Both the hardware and software landscape are constantly changing, and it's hard to keep up with all of the advancements. That's where Sweetwater comes in. Your personal Sweetwater sales engineer offers much, much more than just a great price. They do the research, day in and day out, to ensure that you'll fine-tune your MOTU system to fit your exact needs.

Call now for your MOTU Studio To Go personal consultation: 800-222-4700

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photos by Joshua Ragsdale

Room with a VU

by Mitch Gallagher

STUDIO NAME: Cliff's Walk-In Closet
CONTACT: www.cliffgoldmacher.com
LOCATION: Nashville, TN
KEY CREW: Cliff Goldmacher
CONSOLE/MIXERS: Yamaha 01V
RECORDERS/PLAYERS: Alesis Masterlink, ADAT XT-20; Panasonic SV3700
MONITORS: Event 20/20 bas, Mackie Big Knob, Sony MDR-7506 headphones (3), Bose Quiet Comfort headphones
MICROPHONES: Lawson L-47MP, AKG C414, C391 B (2); Rode NT-2, Shure SM57, PG 52
MICROPHONE PREAMPS: Manley Voxbox
COMPUTERS: Apple Power Mac G4/1.25GHz, PowerBook G4/800, Viewsonic G810 21" monitor
DAW: Digidesign 001, Mbox
SOFTWARE: Digidesign Pro Tools
SYNCHRONIZATION: Rosendahl Nanosync Audio Reference Generator, JL Cooper Data Sync
KEYBOARDS/MIDI: Kurzweil K2500
AC POWER: Furman AR-1215 Isolation Transformer, APC BACKUPS 1400

STUDIO NOTES: Cliff Goldmacher is literally beside himself: "Cliff's Walk-in Closet," his current studio, occupies the apartment next to the one in which he lives. No problems with the neighbors here.

Located about five minutes off of Nashville's famed Music Row, the studio offers a range of recording services ranging from publisher song demos to television and film master productions. Goldmacher has also recorded/produced more than 3 dozen CDs in the Walk-in Closet. In addition to engineering and producing, Cliff is a multi-instrumentalist/session musician with numerous credits to his name. As a singer/songwriter, he's released one CD under his own name, *Songs I've Written and Memorized*.

Gear-wise, Goldmacher placed his primary focus on equipping Cliff's Walk-in Closet with a world-class vocal chain, citing his Lawson L-47MP and Manley VoxBox as his vocal-recording tools of choice. A Mackie Big Knob provides monitor level control, as well as "a much-needed talkback mic instead of yelling through the door. . . ." While a Digidesign 001 running Pro Tools LE software is the studio's main recording tool, Goldmacher also puts his Apple PowerBook, Digidesign Mbox, and Bose "Quiet Comfort" headphones to good use for remote recording and audio editing at the nearby Starbucks.

HEY, *EQ* READERS. WANT US TO FEATURE YOUR STUDIO? SEND PICS AND INFO TO mgallagher@musicplayer.com.

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THE 01X

All the Hardware you need for your SOFTWARE based studio

Pro Audio Review

PAR Reviewer's Pick 2004 :: **Aug. 2004**

The Yamaha 01x is the answer to all my needs for integrating everything I do with audio and music. Its bargain price makes it a no-brainer purchase for anyone who wants a DAW control surface, high-quality audio interface and, of course, a hardware digital mixer.

Macworld :: **Oct. 2004**

KEYBOARD :: **Jan. 2004**

After using the 01x for a few months, the coolest aspect is that it blurs the lines between a traditional digital mixer, control surface and audio/MIDI interface — it's all three.

Electronic Musician :: **Nov. 2004**

Electronic Musician 2005 Editors Choice

Considering all the functionality packed into the 01x's silver-gray front panel, its user interface is a miracle of modern ergonomics.

RECORDING :: **Dec. 2004**

Quality inputs and effects and the ability to integrate into your computer setup could make it the perfect centerpiece for your project studio.

REMIX :: **Dec. 2004**

The converters are great, and the subsequent digital signal processing is fantastic, including the EQs and, particularly, the compressors.

NEW LOW PRICE

See your authorized Yamaha dealer for details.

The 01x now features Studio Connections Recall

For more details go to www.studioconnections.org

www.yamaha.com | www.01xray.com

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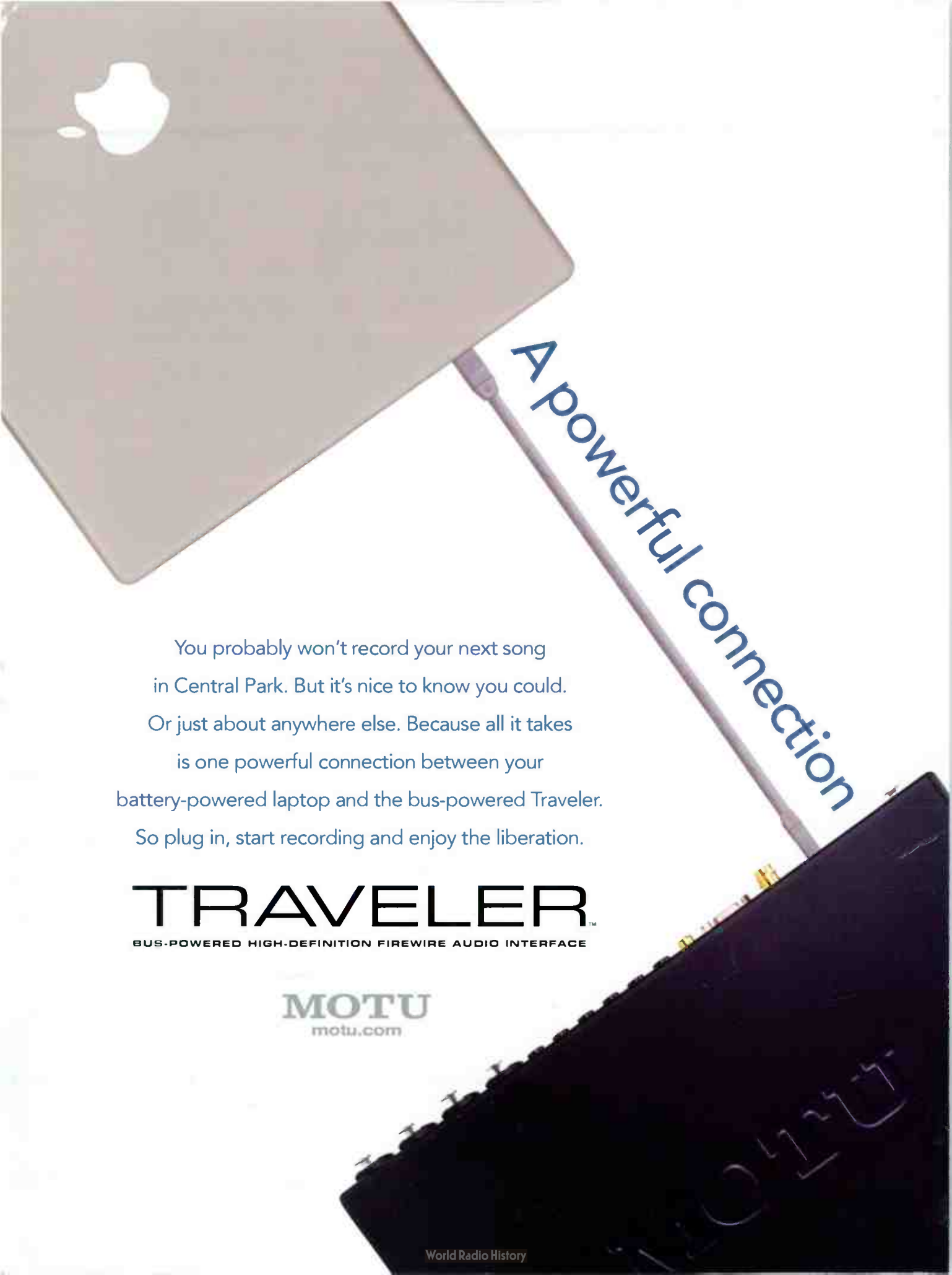

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in Central Park. But it's nice to know you could.
Or just about anywhere else. Because all it takes
is one powerful connection between your
battery-powered laptop and the bus-powered Traveler.
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