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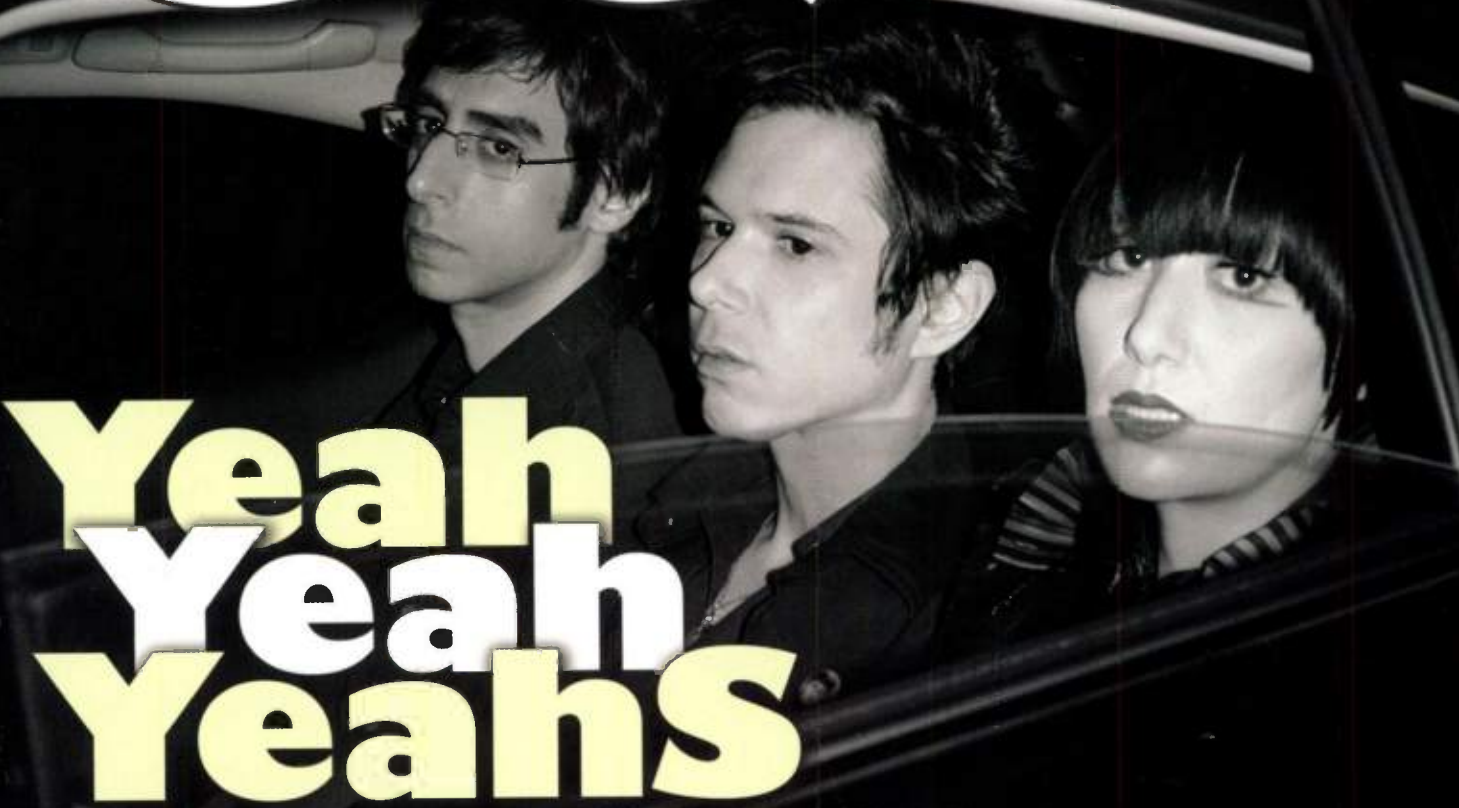
# Yeah Yeah Yeahs

## DUELING PRODUCERS TAKE THE WHEEL AND DRIVE A BRAND-NEW SOUND

RECORDING HORNS & KALIMBAS WITH **NOMO**

HUMANIZED DANCE RHYTHMS

# JUNE 09 CONTENTS

JOSH WILDMAN

Cover Photo by Josh Wildman

## RULES? WHAT RULES?

It's been said that with recording music, "there are no rules." Well, it seems the recording world was ahead of the curve—we now live in a world where any remaining rules seem to change daily.

For example, when XM Radio started broadcasting in late 2001, satellite radio seemed like a good idea. But that was before devices like Apple's iPod Touch, which can pick up plenty of internet radio stations. Satellite radio is still trying to get out of debt, but it may be an idea whose time has come—and gone: The rules for broadcasting changed from a limited number of transmissions to the end user, to the end user tapping into a global network of broadcasters.

Or take desktop computers. It seemed like they were forever destined to get bigger, more capable, and less expensive. And they have. But their market share has been eroded by the laptop, which delivers most of what people want from a desktop at ever-decreasing prices. However, like those cartoons where the little fish gets eaten by the medium size fish, who then gets eaten by the big fish, the laptop's market share is now being eroded—fast—by the new generation of Netbooks. Their success isn't due to being more powerful, but to what put the iPod on the map: convenience and portability.

These days, the music industry is adrift because so many of its rules have changed. Some theorize that record labels have resigned themselves to music becoming essentially free because they can't stop people from stealing music—consider the growing number of "360 deals" with artists (encompassing music, concerts, merchandising, licensing for films, etc.), where music is merely a marketing component for all the other elements. And with 360 deals, the rules change for P2P and file-sharing too. They cease being the enemy, and instead become marketing vehicles for exposing new music—taking the place of radio, which was usurped by television, which is being usurped by the Internet.

If you want to survive musically in a world without rules, there are really only two options: Be agile as a world-class surfer with a strong Darwinian survival streak, then change as often as needed to follow the "rules *du jour*." The other is, quite simply, to make your own rules where you're the first to come up with the model that *others* want to emulate.

Neither option is easy, but then again, making a living in the arts has never been easy. If you want to "make it" using the old models, you almost certainly can't. But if you can navigate the ever-shifting environment, or create a new model that works, you'll do just fine.

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**Lindsey Buckingham**
The Casual Approach of Fleetwood Mac's Studio Genius

**SAMMY HAGAR** ON GUITAR TONE
**TELEFON TEL AVIV** ON BUILDING BEATS
THE **GREGORY BROTHERS** ON PRE-PRODUCTION
**CHIMAIRA** MIXES VIA EMAIL

## DYNAMICS: WHAT A CONCEPT . . .

Congrats on another very useful and interesting issue (04/09). All of the articles were informative and helpful (as usual), and it's great to keep seeing new and fresh ideas still coming along. I really liked the hum removal article, as well as the home mastering tools roundup.

As a big fan of Lindsey Buckingham's work with the Big Mac (as well as his solo work—especially his newest *Gift of Screws*), I was very happy to see him featured on the cover.

Even better, I'm thrilled to see that Will Romano touched on what might be seen as an early victory in the "loudness wars." I'm referring to the discussion of the dynamics in one of my favorite tracks on *Gift of Screws*—"Love Runs Deeper." In these days of overprocessed and crushed audio, this track just blew my mind the first time I heard it. I did a double take and had to make sure something wasn't "wrong" with my system. I went as far as ripping the track and putting it up on my DAW to see what I was hearing. And there it was: real, inarguable dynamic range! No *über*-compressed 2x4 piece of solid lumber on the timeline; there are waveforms! The intro, verses, and some of the solo are actually lower in level (by several dB) than the chorus—which slams in every time it comes around. Most importantly, the song rocks, in no small part due to the in-your-face levels of the chorus and big finish.

When mastering pop/rock material, I use this track now as an example to show people what *can* be done in the digital realm, with the right talent and proper management of dynamic range. Hats off to Lindsey Buckingham

and Bernie Grundman, and kudos to *EQ* for pointing out this track in particular. It should be mandatory listening for anyone who thinks they know how to make something loud enough to pass muster in these days of MP3 downloads and crushed-dynamics radio airplay—and it makes music *fun* again.

Once again: Great job everyone, and thanks for more reasons to keep coming back to *EQ* every month.
*Joe Hannigan, Producer,*
*WestonSound.com*

## BACK TO BASICS?

I've been a subscriber to *EQ* for a few years now and really enjoy every issue. I'm an old school analog multi-tracker trying to educate myself on the way things are done these days and often have questions regarding some subjects that perhaps many of your readers might find simplistic. For instance, I notice that most studios you profile have a mix of computer-based and analog technology. How does all this stuff interconnect? What does one need to allow a nice old mixing console to be interactive with a modern computer-based recording software? How do outboard effects get thrown into the mix (no pun intended)?

Have you ever done any article to bring someone like myself up to speed? Are there other, more obvious references?

Thanks for your time and I'll continue to look forward to the next issue.
*Donnie K (via the forums)*

### Executive Editor Craig Anderton responds:

Handling basics is tricky. Advanced readers don't want to see "compression 101" for the umpteenth time; books are best for those kinds of "timeless" topics. Yet your question—while basic—is probably relevant to a lot of readers (and it's already giving me ideas for some articles).

Short form answer: Mating the analog and digital worlds requires *interfaces*, which translate analog signals into digital and vice-versa. They often translate one form of digital data to another one as well.

DAW channels can address multiple hardware outputs. For example, suppose you have 16 channels of audio in your DAW and want to mix that down through an analog mixer. If you have an interface with 16 analog outs, you could patch these with analog patch cords to 16 of the mixer's inputs. Then, you assign the DAW channels to the appropriate interface output to feed particular mixer channels.

You can throw a digital plug-in into a DAW channel insert to do something like compression, or if you want to use an analog compressor, you can patch it between the interface output and the mixer input.

There are several types of interfaces. For example, the *ADAT I/O* interface carries eight channels of digital data on a fiber-optic cable. Many interfaces have ADAT outputs, which you can feed into a box that does ADAT-to-analog conversion, which then provies eight analog outputs. If your interface has two ADAT outputs (not uncommon), then that and two ADAT-to-analog converters will get your DAW signal to your mixer. Hope that helps!

### HEY! WANNA BE AN ASSISTANT EDITOR FOR *EQ*?

*We're really curious about which parts of the magazine you like most, and which you like the least, so we can continue to tweak the mix of articles. So, hop on over to www.eqmag.com's forums, where we've put up some polls, and give us your feedback . . . we truly value your opinion.*

*Of course, whenever you have something to say, you can always drop us a line in our Letters to the Editor forum at www.eqmag.com, send an email to eqeditor@music player.com, or address snail mail c/o EQ Magazine, 1111 Bayhill Dr. Suite 125, San Bruno, CA 94066 for possible inclusion in Sounding Board.*

*Note: Letters may be edited for length and/or clarity. Direct correspondence by EQ editorial is not guaranteed. All submissions become the property of EQ magazine and can be published in any medium.*

World Radio History

**Grizzly Bear (left to right)—Daniel Rossen, Ed Droste, Chris Bear, and Chris Taylor.**

# NO PLACE LIKE SPACE
## Grizzly Bear on the Virtues of Natural Reverb

**BY KYLEE SWENSON**

At this year's SXSW festival, Grizzly Bear brought a new kind of gospel to the Central Presbyterian Church in Austin, Texas. Badge and wristband holders who managed to get in were treated to the angelic voice of Ed Droste, complemented by lofty ceiling acoustics and the well-balanced vocals of his three singing bandmates.

For Grizzly Bear's second album, *Veckatimest* [Warp], sky-high studio spaces were just what the band needed to achieve its otherworldly chamber-pop sound. Bassist and producer/engineer Chris Taylor started recording the band in upstate New York at the Glen Tonche estate, which features a live room with 50-foot-high wood ceilings. The guys also recorded at Droste's grandmother's house in Cape Cod

and at a church in Brooklyn. But access to a church didn't automatically result in perfect natural reverb—Taylor was careful with mic placement.

"If you have a huge space, if you put the mic really far away, you're going to have a really diffused sound," Taylor says. "The closer you move it towards the source I find the more noticeable the reverb is going to be, the more signal-to-noise ratio is hot on the signal end."

In the church, Taylor found a sweet spot for the drums at a pew 10 feet away. "I like to point mics straight at wooden surfaces," Taylor says. "With the church, I'll put a mic 10 feet away right at that wooden surface and it still sounds huge because there's so much diffusion happening in that space. If you face it out at the church, it's just going to be really cavernous, and you won't really hear it."

In more conventional studio spaces, Taylor still plays with wood reflections. "A [Shure] SM57 is an awesome room mic if you point it at a nice-looking old piece of wood, like a wall or an old door. I think that's an awesome guitar-room sound that sometimes gets the drums really slappy, sort of like Nirvana."

For a couple tracks on the album, the band recorded a girls' choir. Taylor set up a stereo pair of Microtech Gefell M 930 mics in an X/Y pattern, 10 to 15 feet back and about three feet above the girls' heads.

"To decide where to get that reverb, stand in the spot where you hear the reverb sounding most appropriate to the track," Taylor says. "Think about distance—you know, if someone's telling you something from across the room or they're telling you right in your ear or they're telling you at a normal volume or they're telling you something at a bar where you're yelling. Just think of things like that 'cause that's all it is. The more realistic you can make it for yourself, then the more realistic it's going to come across to other people."

The album's most immediate song, "Two Weeks"—with its "Chopsticks"-esque piano and gorgeous call-and-response chorus vocals—begs to be heard on repeat. "I'm always listening to a song to make sure there's an event

that's maintaining focus, so things don't get nebulous," Taylor says. "[We did that by] changing around the main part, which is a sort of quarter-note piano-ish part, and then adding in a Wurlitzer and a guitar doing the same thing." In addition to changing up the instrument, he also changed the texture. "We'd do things like take room mics in and out to draw things in and then open them up," Taylor says. A large-diaphragm condenser made by Curtis Technology often did the trick.

But it's not always about the room; Taylor uses synthetic effects, too. On "Fine For Now," which plays with dynamics both quiet and—thanks to some overdriven guitars and crash cymbals—more epic, Taylor used reverb from a guitar pedal for some backup vocals. "I ran both the dry and then the wet, distorted signal, pretty heavily distorted, and then mixed in enough of the dry that it sounds clear," he says.

Some of Taylor's favorite effects are the Electro-Harmonix POG octave pedal, Univox Echo Chamber tape delay, and MXR M-190 Digital Delay and M-126 Flanger/Doubler rack units. Meanwhile, his prized outboard gear includes a Neve eight-channel BCM sidecar (often driving its preamps to add distortion), and Chandler TG Channel MKII and LTD-1 preamp/EQs.

"Messing with actual outboard gear is really important to understanding the way that shit works. I'm personally not a big fan of what plug-ins do," Taylor says. "I know a lot of people use them these days, so I'm totally not talking trash about that. But if you're at the novice level, I feel like it's important to mess with the actual outboard stuff and see what happens when you turn a knob or push a switch in and pull it out."

By doing his own experimentation, Taylor started doing what he felt was best for a song rather than following engineering trends. "In audio-engineering school [at NYU], they always used to talk about 60Hz being really hot on the kick drum, and I find that kick-drum sound is always changing trend-wise," he says. "I'm a little bit more into the way a hip-hop kick sounds, and I find that boosting 32Hz quite a bit and

then running the kick drum through a distressor makes it sound more like I want a kick drum to sound, a little bit more current. I like the hype-y thing, like the low-lows and the high-highs. But then there's something so amazing about the way a kick drum sounds on a Neil Young record. That's a whole other thing of totally different equipment and a beautiful board and running it all into a nice Studer tape machine."

Taylor's Neil Young obsession is no shock, considering *Veckatimest*'s Crosby, Stills, Nash & Young harmony vibe. With all four band members singing, Taylor could default to set signal chains and parameters for efficiency's sake, but he doesn't. "It's just boring to me: 'Yeah, this is my lead vocal chain. This is my background vocal approach,'" he says. "It should be more specific to the song and the part itself, and what it's supposed to be serving to the track."

But unlike his drum treatments, which optimize the full frequency spectrum, Taylor always shelves vocals. The exact recipe per vocal depends on whether it's a lead versus background part, has lyrics or not, and is soaked in reverb or is on the drier side.

He often uses a battery-powered '80s Neumann U 87 for vocals. "I use that mic a lot, and the different polar patterns give it even more flexibility," Taylor says. "For a background, maybe I'll use that same mic, but I'll put it in omni or I'll put it in figure-of-eight, depending on how much proximity effect I want on the vocal."

In the studio, Taylor doesn't over-think his choices or give himself an out in the mix. "I like to make decisions on the way the sounds sound while I'm recording because that's more fun and honest, and it's a little more in the moment," he says. "[I don't like] that whole idea where you're like, 'This effect on the guitar sounds awesome, but we should DI it just in case we don't want that effect later.' If it sounds awesome, then go with it. What's the worst that can happen? The stock market is not going to crash if your guitar tone has the wrong delay on it. There are more serious things to worry about than that." **eq**

# LONG-DISTANCE CONNECTION

## Junior Boys on Modular Synths and Transatlantic Collaboration

**BY TONY WARE**

It sounds like a cliché: Electronically inclined Canadian music composer gains success and moves to Berlin—the home of synth-tone purists. But that's exactly what Matt Didemus—one half of poptronica duo Junior Boys—did in 2006, shortly after the release of the Boys' sophomore release, *So This Is Goodbye*.

The album title was not some prophetic statement on the pair's collaborative future, however. Didemus and his still North America–rooted production partner Jeremy Greenspan found ways to mitigate the impact distance could have on creativity. And the inspiration of '70s yacht-rock session drummers and vintage avant-garde synth-pop resulted in acid house and MOR-toned oscillations. But don't expect the kind that could be confused for the modernist repetitions of minimal, dub-flecked tech-house as associated with Berlin transplants in recent years. Splitting time and sound libraries between studios in Germany and Hamilton, Ontario, the Junior Boys forged analog sources and digital editing into *Begone Dull Care* [Domino]—an eight-track album named in homage to mid-20th Century animator/synthesis innovator Norman McLaren.

"Basically, we came to the conclusion that we like digital arrangement tools as opposed to stuff that generates sounds," Greenspan says. "We rarely use software instruments, because I find they are just too precise. You can obviously generate the random in software, but I like hearing the weird glitches—and how you're literally playing with wires—when you're following an audio signal or control voltages that modulate it. I love hearing the tangibility."

Gear polygamists, Didemus and Greenspan took *Begone Dull Care* as an opportunity to get modular. While Minimoog and Roland Juno-106 synths make regular appearances across the album, they were patched in alongside a Studio Electronics Omega 8, a Dave Smith Prophet '08, and a Doepfer Analog Modular System A-100.

"Modulars are a great way to learn about sound," Didemus says. "The logic flow can get a bit confusing, and, because they are open-ended, the sounds you create might not work in the song the way you want them to. But if you have a good setup, you can get sounds where you are saying to yourself, 'Wow, that is amazing.' You can feel really excited about what you have done, while feeling almost if it wasn't you who did it."

On "Bits & Pieces," the guys layered the Omega and the Prophet on the chorus, with the Juno on the lead and a Rhodes piano for chords. They used very little processing other than extreme EQ on the Omega to make what Didemus calls a "guitar-like sound.

"Avoiding drenching sounds in effects, and focusing on arrangements with good source sounds is, in part, how our sound is achieved," Didemus says.

Percussion on the pulsating, arpeggiated track "Parallel Lines" came partially from working with a modular synth to produce a smashing snare, and then using the brain from old Simmons drum pads as a series of CV triggers for sequencing.

Didemus leans toward his Berlin room for recording bass through its EMT console.

"The EMT seems to augment the low end and smooth out transients in the high end," Didemus says. "But the Hamilton studio—which features a TL Audio VTC console—has more channels, more converters, and more outboard gear, so it's easier to mix there."

Through Ableton Live, Didemus would send out MIDI clock to a Kenton MIDI-to-CV/DIN converter, which would then send out DIN sync to a Roland MC-202 and clock to a Doepfer step sequencer, and, sometimes, Moogerfooger pedals. All of this was recorded back into Ableton, where the core groove was sliced into clips, which where then looped and manipulated.

Meanwhile, Greenspan works more with Apple Logic, which he prefers for its visual analysis tools, as well as its ring modulation, chorus, panning, and delay plug-ins.

When editing vocals, Greenspan resists the temptation to make things too clean by pitch correcting. Instead, he subscribes to the "Neil Young school of recording," and any editing is done to create texture, rather than to fix imperfections.

"One day I might want to experiment with using the sheen of ultra-clean pop music as a trippy effect, but, for this record, we wanted people

**Jeremy Greenspan (left) and Matt Didemus like their music and their lighting soft.**

to hear the thought process behind the songs as the sequences played out," Greenspan says.

That slightly more human approach was applied to the synths in "Work." The synth drone before the verses originated with a sawtooth waveform from the Mimimoog, and a very long envelope on the VCA fed through a complex reverb-like multi-tap delay followed by a Moog Phaser pedal. Subtle changes to the Moog filter's cutoff—along with changes in the phaser's rate/LFO—created a dense wash that varied slightly as the sequence progresses, achieving a

more live feel to the pattern.

While suited to track synths and mix sessions, one thing neither of the Boys' studios was meant to handle was recording vocals. So Didemus and Greenspan turned to Guy Sternberg's LowSwing studio in Berlin, which featured Neumann U 47 and AKG C 12 microphones, a Requisite PAL Plus MKIII preamp/compressor, Cadac G-268f and Neve 33114 preamps, a Urei LA-4A compressor, and Mytek A/D converters.

On "Hazel," the AKG was fed into the Requisite at a 3:1 ratio, with the gain make-up done using the "negative

feedback" control in order to get more tube color, with a very soft knee. In some instances, Didemus used an EMT plate reverb. The result is a cradle of low end on the verses that swings with subtle, laid-back flair, and supports the track's tranquil proto-disco groove.

"Our album should be markedly quieter than a lot of new albums," Greenspan reflects. "We wanted a lot of variation. A lot of the time with mastering, you just see these blocks—these giant square waves. We prefer the headroom of analog, pushing the sound to get it warm." **EQ**

Nomo (left to right)—Erik Hall, Quin Kirchner, Dan Bennett, Elliot Bergman, Warren Defever, and Justin Walter.

# DISTANT HORIZONS
## NOMO on Handmade Instruments and Far-Out Sounds

DOUG COOMBE

**BY KYLEE SWENSON**

Ann Arbor, Michigan, is not the most exotic city in the world, but that hasn't deterred NOMO bandleader Elliot Bergman from tapping into music from distant destinations. After graduating from the University of Michigan Jazz Studies program, the saxophone and keyboard player started NOMO, paying homage to the musicality of African groups such as Konono No.1 and Fela Kuti.

On the band's fourth full-length album, *Invisible Cities* [Ubiquity], Bergman sought out even more inspiration from afar. After a few years of

constant touring, he drew on a connection he had to Italo Calvino's *Invisible Cities*—a book wherein Venetian explorer Marco Polo regales Mongol ruler Kublai Khan with stories of fantastic, bizarre cities he encounters on his travels.

"In the course of the book, the emperor becomes skeptical, and thinks that Marco Polo is making it all up, and it becomes clear that Marco Polo is really just describing Venice," Bergman says. "It's a very layered understanding of how a city might work—or how traveling works—and the various personalities of one place. We're just roving bandits looping around

the country, and so we've started to understand places in different ways."

Outside of touring with NOMO (which features six to nine musicians onstage), Bergman has traveled to places such as Kenya and India, bringing back exotic instruments and lots of inspiration. Although traditional Western instruments such as horns, guitar, bass, keyboards, and drums figure prominently into the music, several songs on *Invisible Cities* got their start on homemade instruments.

Bergman and producer Warren Defever (of the band His Name Is Alive) both have an affinity for the electric

kalimba—so much so that they've made over 200 of them in various sizes, shapes, and sounds, and they sell them on the road and online (twentyseven kalimbas.blogspot.com). The materials they use are mostly junkyard treasures.

"Street-sweeper tines are one of the things we used," Bergman says. "We also used a plumber's rod that you'd use to clean out a clogged shower or toilet. There's a great flea market right outside of Chicago in the parking lot of the Allstate Arena, and I find a lot of stuff for the kalimbas there—such as plumber's snakes. There's also this stuff called fish tape that electricians use to thread wire through dry wall."

The day after a long tour, Bergman and his band mates went to Defever's all-silver studio in Detroit—UFO Factory—for a kalimba jam session that yielded hours of rhythmic loops for *Invisible Cities*.

"Everything was set up, miked, and the levels checked before they walked in, so we started recording immediately," Defever says. "There was super-deep kalimba going through the Ampeg Rocket Bass amp, lead kalimbas through a GDS 18-watt combo and a Mesa/Boogie Mark IV, and a couple of kalimbas with long tines that were played with mallets going through a Shure Vocal Master P.A. system. The guitars amps were close-miked with Shure SM57s, Beyerdynamic M130 ribbon mics, and the bass amp was miked with a RCA 44 ribbon mic. AKG C414s were used for room mics."

There were guitar pedals in the mix, too—a Vox wah, a Dunlop Fuzz Face, an Electro-Harmonix Micro Synth, and an Ibanez AD9 Analog Delay for lead kalimbas, and an Electro-Harmonix Bass Micro Synth and a Boss SYB-5 Bass Synthesizer for the bass kalimbas. A Boomerang Phrase Sampler was used to record and play back kalimba loops in half- or double-time.

The effort paid off in the songwriting process.

"There's so much musical information in those little loops," Bergman says. "You can come up with 50 different loops in a night, and then you go back and listen, and a couple of them will jump out as being really interesting. So the process is to excavate these loops, and then ask, 'What would the horns do over this? What kind of melody do we need here? Is it slow? Is it repetitive? Is it rhythmic? Is it jumping all around? Is it intervallic? Is it slippery? Is it angular?' You just try to think about what works in what context."

Bergman then added sounds from Sequential Circuits Prophet-5, ARP 2600, Rhodes and Wurlitzer keyboards.

"Rhodes and Wurlitzers are like modern versions of a kalimba," Bergman says. "There's obviously a more well-designed hammer system, and they're more evenly balanced and probably better in tune than my kalimbas, but it's that same principle, so there can be some nice sonic overlaps between kalimbas and electric pianos."

Also playing parts on *Invisible Cities* are bamboo flutes (on "Crescent," which also features one of the kalimba jams), log drums, bell trees, electric mbira (African thumb piano), and an electric saw-blade gamelan—which you won't see onstage.

"It's too dangerous," Bergman confesses with a laugh. "It's made of saw blades, and they're mounted on bolts into this wooden resonating box. It's kind of like chimes and gongs, but it's giant and unwieldy and prone to cutting people."

Instead, Bergman samples sounds into his Boss Dr. Sample, and takes that along with his Yamaha Custom tenor saxophone and Clavia Nord Lead and Nord Electro keyboards on the road.

As for recording the horns—trumpets, tenor, and baritone saxophones, and trombone—it starts out very straightforward. Defever records the horns dry, and then groups and compresses them as a whole with a Valley People 610 stereo compressor/expander. The fun part

begins with a crusty-old Maestro Echoplex EP3.

"You get a little bit of tape compression, and it dirties up the sound, thickens everything, and smears it. There's a little bit of shimmer from the tape, and the pitch warbes a little bit," Bergman says. "It just gives it a hazy, woozy, smoky, and mysterious feeling."

Defever's description is less sexy.

"People go to tape when they're looking for 'warmth,' but this offers something more like 'charred remains,'" Defever says. "The warped, distorted, and gnarled tone that comes back from this machine is a ridiculous, horrifying version that only barely resembles the original track that went into it. This 'echo' is then re-synced with the original signal so there's no actual echo, just distortion. We mixed at Keyclub with Bill Skibbe, and he's got a really nice Echoplex EP4, so we took our original Echoplex signal and added echo with his machine for the solo on 'Invisible Cities.'"

Meanwhile, the drums on the album have a nice upfront presence, but the kit was only recorded with four or five mics.

"The fifth mic is for when I forget that Dan Piccolo is going to be hitting the snare really hard, and I quickly stick a Shure SM57 underneath," Defever says. "And the overheads aren't really *over* the drums. It's more like a fake British-style arrangement where the left overhead is in front of the rack tom, vaguely pointing at the snare, and the right overhead is near the floor-tom rim, more or less pointed at the drummer's stomach.

"My mix philosophy for NOMO is basically that everything is a guitar. All the drums are just midrange-y, heavy hits that should be loud—plain and simple. And I dislike subtlety in the tambourines and shakers. I just want to hear every attack, and have the percussive hits land in the same simple place and with the same volume level. No fancy business on tambourine, please!" EQ

# TOOLBOX

**by Mike Rozkin**

*Toolbox material is provided courtesy of Harmony Central, Inc., and is used with the express written permission of the publisher.*

### TC-Helicon VoiceTone Synth

**What** Vocal processing pedal.

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**Price** TBD

**Web** www.tc-helicon.com

### RME Fireface UC

**What** USB audio interface.

**Why** Based on a newly developed RME Hammerfall core, the Fireface UC provides revolutionary ultra-low latencies even with multiple channels, removing current restrictions of typical USB audio interfaces.

**How** 18 ins and outs, eight of them analog. Two digitally controlled mic preamps along with two balanced universal inputs for line and instrument signals. Capable of sample rates up to 192kHz on all I/Os. Enhanced stand-alone operation with rotary encoder and front panel operation.

**Price** TBD, available in June 2009

**Web** www.rme-audio.com

### Perimeter Sound Tone Set #6

**What** Dualtones for Line 6 Pod Farm software.

**Why** These amazing presets are ready to go right out of the box, just unzip the patches and copy them to your Pod Farm presets folder.

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**Price** $20

**Web** www.perimetersound.com

### Universal Audio UAD 4K Series

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**Web** www.uaudio.com

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**Web** www.runbeerrun.blogspot.com

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**Price** TBD, shipping June 2009
**Web** www.tcelectronic.com

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**What** V-Studio console for Sonar Producer.
**Why** Provides the deepest hardware/software integration of any control surface available today.
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**Web** www.cakewalk.com

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**Web** www.mcdsp.com

### LIVE PACK
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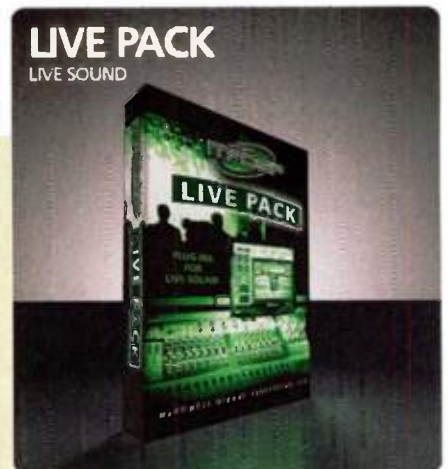
# blitzfully yours

With their third studio full-length *It's Blitz!*,
the Yeah Yeah Yeahs uncork a heady new
brew of sonic delights with producers
Nick Launay and Dave Sitek

by Bill Murphy

# blitzfullyyours

We've all heard how a shark has to keep constantly moving forward or it dies, and the same usually goes for a rock band that's banked its reputation on being edgy, engaging, and ahead-of-the-curve. For New York City's Yeah Yeah Yeahs, their "shark moment" came when the trio reconvened in early 2008 to begin work on their latest album. Collectively, they decided not just to leave behind the jagged art-punk sound of their 2006 break-through *Show Your Bones* (and the follow-up EP *Is Is*), but to deconstruct and retool it entirely.

The opening salvo originated with lead singer Karen O, who made the seemingly innocent suggestion to guitarist Nick Zinner that he might consider trying out some new instruments. For anyone even remotely familiar with the YYY sound, that's almost like asking Peter Max to give up his brush, but Zinner didn't flinch.

"There's already been some talk about this album, with people saying, 'He's putting down the guitar! There's no guitar on the record!'" he says, referring to a recent *Spin* cover story with a dismissive laugh. "The reality is there's still tons of guitar on here, but I'm constantly looking for new sounds anyway. Karen's idea just

goes with our band ethos of not repeating ourselves, because we're always trying to evolve."

*It's Blitz!* [Interscope] marks an evolution on multiple levels. The band enlisted two topflight producers—British expat Nick Launay (known for his work on PiL's legendary *Flowers of Romance*, and to YYY fans for *Is Is*, as well as recent albums by Nick Cave, Supergrass, and Silverchair) and long-time friend and confidante David Andrew Sitek from TV on the Radio, who has worked closely with YYY since their 2003 debut *Fever to Tell*. What's more, *It's Blitz!* embraces retro new-wave pop, but with a thick low end and deep-space atmospherics worthy of Björk, Massive Attack, or Goldfrapp—all of whom have felt the touch of the album's mix engineer Mark "Spike" Stent [see sidebar, "Jedi Master" on page 22].

Meanwhile, Karen O exudes a brighter, sunnier, and more confident mood throughout—a change that might have as much to do with her relocation to L.A. several years ago as it does her rise to maturity. Drummer Brian Chase sounds tighter and drier, giving the music plenty of room to stretch out and breathe. And Zinner flexes his burgeoning chops on an ARP Omni 2 synthesizer and a phalanx of other

synths and effects pedals, proving his thirst for new sounds is only just getting started.

"It was really about going in without any plan," Launay says, recalling the first winter sessions he had with the band. "I think the important thing to know about this album is that they went in with maybe one or two tunes, but the majority of the material was written completely in the studio. That was more common back in the '80s when I started making records. It's a very unusual approach these days, and I think the reason they wanted to do that was specifically to come up with something new and fresh."

### ENTHUSIASTIC PING-PONG
A total of five studios figured in the making of *It's Blitz!*, but the main venues for tracking were Long View Farm in Massachusetts and Sonic Ranch in Texas (with Launay), and Sitek's former Stay Gold Studio in Brooklyn. "We started in the winter at Long View and then we went to Sonic Ranch," Launay explains. "The last lot of overdubs were done at The Boat in Silverlake [L.A.], and there were little bits and pieces done at Seedy Underbelly in L.A., which is the studio that I usually work out of, just off Laurel Canyon."



Karen O braces herself for falling fruit, with Brian Chase (left) and Nick Zinner.
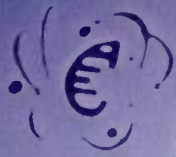
# blitzfullyyours

Sitek spent about three weeks in July with the band at Stay Gold, while he and Launay would frequently trade Pro Tools sessions, building tracks and adding to each other's work as time went on. The scope of the project became huge: Each of the album's ten songs went through at least four or five different versions, consisting of sometimes more than 100 tracks per song, and eventually taking up more than a dozen 250GB hard drives.

**You don't often hear of two major producers trading licks like this on one album—especially on this scale.**

**Launay:** That's why I think the album works so well, because Dave and I pretty much played what I like to call enthusiastic ping-pong. I would capture the band when they were writing and put all the best elements together with a lot of editing; maybe I'd grab something and put it in backwards, or switch out a chorus for a verse—things like that. Then it would go to Dave, and he might scrap this or that, try something new, and send it back to me and I'd go, "Holy shit! What happened to all *those* ideas? This is really good!" There was never any competition—in fact I found it all quite amusing.

**Sitek:** It was all pretty open. A lot of it was the band being like, "Okay let's take it to Nick's world," and then, "Now let's take it to Dave's world."

**Launay:** We actually had one conversation. I rang Dave to ask him a question about a song. I'd heard that he's a very strong-willed character, but he was totally graceful and nice about it. He even told me, "Man, I'm so glad that you're okay with what I'm doing, because if someone came along and f**ked up my stuff the way I've been f**king up yours, I wouldn't be too happy." [*Laughs.*]

## SYNTHESIZE ME

From Nick Zinner's perspective, his approach to getting guitar and synth sounds was equally wide open. Aside from the ARP Omni 2 he picked up on eBay (and which provides the bulk of sounds for the oddly mystical ballad "Skeletons"), he also availed himself of Sitek's huge array of synths, including the Yamaha CS-15—a staple on almost everything Sitek has ever recorded. It helps drive the arpeggiated bass lines, along with a Roland Juno-106, of the uptempo first single "Zero," while an ARP Solina String Ensemble and a Crumar Trilogy provide the strings and pads oscillating in the song's upper reaches.

Then there's the mind-boggling sonic palette that Zinner is able to wrench from his main guitar—an '80s Strat that he's had since childhood—with the help of such exotic pedals as Line 6's DL4 Delay Modeler and MM4 Modulation Modeler, Eventide's Time-Factor and ModFactor, DigiTech's Whammy and Hyper Phase, and a beat-up Roland RE-201 Space Echo, which he uses primarily for distortion filters. With so many choices at hand, Zinner can dial up guitar sounds that can easily be mistaken for synths; for a prime taste, check out the whistling—and Whammy-fied—melody that anchors the catchy "Soft Shock," the only song on the album where Zinner played a vintage Fender Jaguar.

**What were the basics of your guitar setup?**

**Zinner:** I like to go through two amps at the same time—a Vox AC30 and a Fender [Hot Rod] DeVille, for example—and then mic those up differently, as well as going direct. We really wanted to get away from the classic big room sound, so I did blends of those different signals. I usually put the guitar into a [Pro Co] RAT first, then the Line 6 Mod, then the Whammy, then the Line 6 Delay, and into the amps.

**Launay:** We usually had five tracks of Nick's guitar on every song. We'd have two mics on the Vox, which were usually a Beyer M 88 and an AKG 414,



JOSH WILDMAN

with the 414 very flat up against the grille and the 88 at an angle. The combination of them being slightly out of phase with each other is what gives it the basic sound, and then you can manipulate the balance.

On the DeVille, I'd have another 88 and a ribbon mic like a Royer or an old RCA 44. Very often I'd use a combination of any of the four mics—again, I might use two of them and put them out of phase with each other, or sometimes delay one of them, and then all of these would go through a combination of API and Neve preamps.

With the DI, sometimes that would be after all the pedals, so it would be very fuzzy if he was using a [fOXX] fuzz pedal, let's say. And we would replug things constantly—it was like spaghetti junction in there. If we wanted to go back and recreate some of those sounds, it would be almost impossible. We just had to record everything.

**On "Zero," how did you "warm up" the signal path of the synths on the way into Pro Tools?**

**Sitek:** For most of that I used the Wunder Audio 1073s and the Retro [Instruments] 176 [Limiting Amplifier]. I'm going direct, so older synths like the Yamaha CS-15 tend to need a little makeup gain on the output. What I like to do is take it to the absolute maximum that I can on the 1073s, and then draw it back in by turning the gain down a little bit in the compression stage. That keeps it really bright and frizzly—that's the technical term. [*Laughs.*] By that I mean everything above 2k, where the air starts to distort.

**VOCALS WITH ATTITUDE**
The lion's share of Karen O's vocals were tracked by Launay at Sonic Ranch using a Neumann M 49, which he also prefers specifically for the way it distorts. "When you get close to it, it cracks up in the same way that a Shure SM57 does," he says. "To me, it's one of the few tube mics that has the midrange of a dynamic mic, which I think is very important when you're doing rock and roll. If you use a really nice mic on a singer who's gonna give it some attitude, you're not gonna capture that with a delicious-sounding mic. You want something


Dave Sitek at his Stay Gold Studio.

that sounds a little bit more earthy and urban."

Karen O is at her strongest and most riveting on "Hysteric"—a dreamy, almost mournful performance that channels equal parts Chrissie Hynde and Karen's own soulful emergence as a singer with real emotive power. Her sound gets an added boost from Spike Stent's beautifully designed mix, which subtly guides her voice through varying movements of cool crispness, shimmery delay, and needle-clipping distortion.

**Can you describe the room at Sonic Ranch where you tracked vocals?**

**Launay:** It has a wooden floor with plaster walls, just like a normal living room, but the ceiling is very high. Karen was positioned in between a couple of slightly padded screens—with some amazingly colorful material, by the way, so there was a vibe there too—so if she sang loudly, then you would hear the room, but if she sang softly you wouldn't. I would say compared to the way most people record vocals, it sounded quite live.

**How do you use EQ and compression to preserve that *attitude* that Karen delivers?**

**Launay:** Another thing I like about the M 49 mic is that it gives you this incredible low-mid boost when you get close to it, so when I run Karen's vocal into a Neve 1081, I just leave the midrange alone. I'll boost at about 300Hz to give the sound some thickness, and then a similar amount at 100Hz. I usually boost at 15k, too—I

find that the 1081s have the top-end control that's really good for fine-tuning at that frequency.

Then I go into a Tube-Tech CL 1A compressor, which I really like because the attack and release are both very fast. They're very similar to an 1176 in the way they're set up, but they sound a lot warmer and better suited to sibilance than an 1176. Generally, the combination of the M 49 and the Tube-Tech is fantastic. I'll set it at the fastest possible attack and fastest possible release for Karen's voice, and compress so that it's pinning—so the needle is hitting the end stop on the left-hand side when she's at her loudest. It comes very close to sounding like analog tape distortion.

**Did you treat her voice with any other effects before the final mixing phase?**

**Launay:** One thing I used on all the monitor mixes that we were doing, and in Karen's headphones generally, was a Roland CE-301 Chorus Echo. I used that as the slapback and reverb because there's a cheap built-in reverb in there that works really well with Karen's vocal. I know that made it onto a few of the songs, and I'm pretty sure Spike may have used it because I told him I thought it sounded great.

**DRUMS FOR DAYS**
There aren't many rock drummers who will actually tune their drums to the key of a song—in fact, you'd be hard-pressed to find any besides Brian Chase, whose conservatory training at Oberlin

College made him somewhat of an anomaly among Brooklyn kit bangers when the Yeah Yeah Yeahs were first coming up. Chase has a number of tuneful moments on *It's Blitz!*, but his tom arrangement on the reverberating album closer "Little Shadow" is probably one of his best.

"The room gives the drums a natural reflective sound on that," he says, "but that's also Nick Launay's touch after the fact. I remember with the kick-drum sound in particular, he would dupe a track and then run it through a SansAmp setting to give it a little fuzz." In fact, aside from the album's two "live" tracks with the full band—"Dull Life" and "Shame and Fortune"—sonic manipulation was the order of the day for capturing and cataloguing new drum sounds.

**Dave Sitek has mentioned that he recorded different parts of the drum kit separately for the last TV on the Radio album. Is that how you guys worked together, too?**

**Chase**: Yeah. In general for this album, we were essentially going for a very muted kick and snare sound, so a lot of the drums were recorded pieces at a time. We would record a kick and snare track first; because there were no cymbals or toms, it gave us a lot of flexibility to mold the character of those sounds. Then we would layer the tracks from there—usually multiple hi-hat tracks, and then cymbals on top of that.

**Was there a basic way you got that muted sound—for example, on "Dragon Queen?"**

**Chase**: I think the kick on that was a 24-inch double-headed kick that was stuffed with blankets. The muting on the snare was just a wallet resting on top, which worked against me a few times because I would end up leaving the studio without it. [*Laughs.*]

**The drums on that song almost sound like an old drum machine. How did you record them?**

**Sitek**: Generally, I use the Microtech Gefell M 930 on the snare, but on that particular one I think we actually went way out on a limb and used an SM57. [*Laughs.*] I recorded the kick with a Neumann U 47. You've gotta be real careful in terms of wind with that, so I doubled up the kick shell with another empty

shell in front of it, and then put the mic in that shell and carpet the whole thing. That gives it a little more space between the head and the microphone, but you don't really sacrifice distance because it's all in its own chamber.

**You must have done something on the way into Pro Tools.**

**Sitek**: Everyone asks me what I use on the drums, and I'm like, "Well, who's the drummer? Is he on acid?" [*Laughs.*] One thing I will say is that I'm big about low cuts. I cut the lows out of almost everything, so that

when I finally do the bass, you can hear every aspect of it. The kick and the human voice are my priorities in every song that I work on.

**Can you give us a hint, though?**

**Sitek**: Well, I mod those Dolby A-Type [Model] 361s to compress just the high end and disregard the low end. Those are my favorite things on earth. I'll put Karen's vocal through those things, too. If you want the crispy tippy top to stand out and you don't want to deal with an EQ or a mix issue, the 361s are great for that. ●●

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# JEDI MASTER

**Dave Sitek refers to Spike Stent as the "Obi-Wan Kenobi of mixing." Welcome to his inner sanctum.**

Studio G at L.A.'s Chalice Recording Studios is outfitted with an SSL 4080 G console, and for a while now it's been the main base of operations for Mark "Spike" Stent. More than just a mix engineer, Stent has built a sterling reputation over the years for truly shaping and crafting a mix, using filters and effects largely at his discretion once he gets creative input from an artist. The approach must be working; his client list includes everyone from U2 to Radiohead, and he has more on the horizon.

"I love the SSL Gs," Stent raves. "I don't particularly like mixing on any other console. I basically use a mixture of the console and plug-ins and automation on Pro Tools or Logic; for the Yeah Yeah Yeahs album, it was Pro Tools. I was brought up old-school, so I like the analog sound because it has a certain toughness, and I find it a lot easier to get what I want quickly out of that."

From the layered guitar and synth atmospherics that coat the tail-out section of "Dragon Queen" to the subtle variations in texture of Karen O's vocal on "Hysteric," Stent folds himself seamlessly into some of the finishing aspects of *It's Blitz!* He favors a number of SoundToys effects plug-ins, including EchoBoy and FilterFreak, but uses them judiciously in conjunction with the console, accessing

automation controls in the box as well as on the desk itself.

"Karen had tracked up 'Hysteric' quite a lot," Stent observes, "but where she sings the actual word in the background, I stuck it through EchoBoy. I also time-adjusted her vocals in places, so one side would go left and one would go right with a very short delay; that makes it sound wider, phase-y, and a bit more 3D. I also have a dual chain that I tend to use where I'll split the vocal up to two channels and EQ them differently. One goes through an LA-2A and the other goes through this blue-stripe, black reissue special edition 1176, which I use on everything."

In the end, Stent had options galore; not only were the Pro Tools sessions delivered to him in all their multitracked (and color-coded) glory, but producers Launay and Sitek also included loads of extra "grayed-out" tracks that Stent could activate if he was looking for something different.

"Dave and Nick did amazing jobs," he says, "and the soundscapes that they created for me to work from were incredible. And nothing should be taken away from Nick Zinner. He's an incredible guitarist, and I feel he completely reinvented himself on this record. There are traditional fans who are gonna go, 'What's happened?' but I think it's important for bands to try new things, and not just do the same record all over again."

World Radio History

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# Retro

## Despite Its Future-Electro Sound, MSTRKRFT Adheres to Old-School Rock Ways

# Respect

**by Ken Micallef**
Photograph by Geoff McLean

# Retro Respect



When Toronto's celebrated electro-punk duo MSTRKRFT planned the follow-up to their 2006 smash debut, *The Looks*, the team of Jesse F. Keeler and Alex Puodziukas (a.k.a. Al-P) let it all hang out. Daft Punk and Justice be damned, MSTRKRFT embraced their inner "Tom Sawyer."

"We wanted to let all our varied, non-dance influences get involved," Keeler says from Toronto. "We were listening to Steely Dan's *Aja*, George Benson's *Give Me the Night*, weird Japanese records. We thought about metal riffs. We even joked that we wanted to make a dance song that sounded like Rush's 'Tom Sawyer.' So the prog-rock influence is no mistake. We tried to not let our DJ ideas hold back our musical ideas, and actually make songs."

With that in mind and due to the fact that both Keeler and Puodziukas are drummers, the duo approached beats in a non-dance way, too. "We did drum programming in a way that is similar to how you would actually play the drums," Keeler says. "If you only have two hands and two feet, you can't hit all the drums at the same time. We cut around and made sure it was all real sounding. We emulated how things would be off the computer, in the computer."

The fruits of MSTRKRFT's labor are evident in the first track from *Fist of God* [Dim Mak/Downtown]. Whirring, eardrum-ripping synths and a vicious four-to-the-floor groove introduce "It Ain't Love," but after an all-too brief verse (sung by Lil' Mo), prog-rock lightning bolts upend the house-oriented arrangement like Anthrax jamming with Rush at Budokan. After the big prog moment, the dance groove re-enters, now approximating a gargantuan Run-DMC beat while layered synths morph and mushroom above. The song's only constant is its ever-changing drum pattern, whirring synths, and prog rock assault. How MSTRKRFT created the track's vertigo-inducing rhythm is a study in devolution.

"We work with a lot of samples," Keeler explains, "and for the most part on the grid in Pro Tools, moving actual audio around to make our drum patterns. We'll program the pattern and run that out to an Akai Z4 sampler, then load up ten or 12 samples
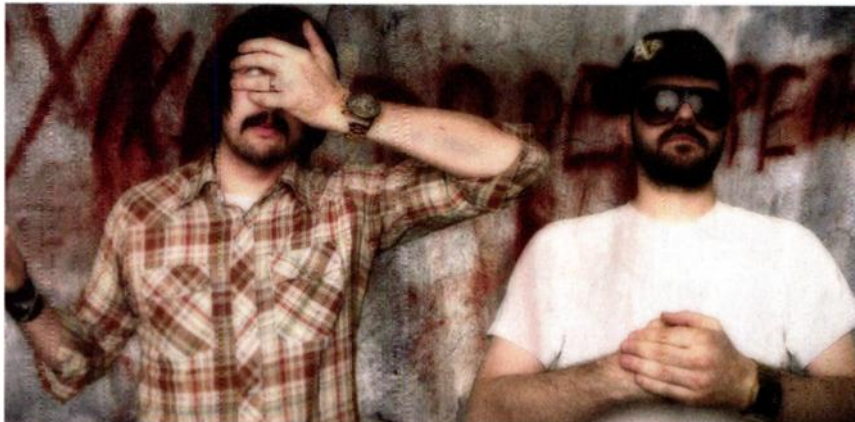
that we think might work and scroll through them. Once we make a decision, we lock it down and print it."

But even prior to the usual sample select/scroll/print process, MSTRKRFT considers the human element. The prog-rock thrills of "It Ain't Love" were derived from one of Puodziukas' former loves.

"I was just playing that pattern on my thighs; it originally came from my old punk band, Spiral Hill," Puodziukas says. "Whenever we program drums, we're thinking about playing it on a drum kit. What are you going to play on that virtual kit you've created with your sample selections? During fills and rolls, we make sure there's not three hands playing stuff, so the hi-hats will drop out during snare or tom fills. That gives the illusion of having a real drummer. Having things drop out and beats missing really creates the illusion of reality. We also record live drums. We

usually stick to a sampled kick, but we'll record live hi-hats; Jesse plays the pattern and we quantize it. It's a straight overdub with a little processing. That really brings the drums to life."

Puodziukas admits there is "nothing complicated about a 1/8th-note hi-hat pattern," but insists that having the same pattern played by a human hand produces "a psycho acoustic effect."

"You're hearing the same sound repeated but each one is slightly different and unique to that pattern," he says. "That's really important. Why not just take the best hi-hat and copy and paste it throughout the whole track? Because that slight bit of wander even when quantized really pleases the ear."

In addition to beat mechanics, Keeler and Puodziukas are known for the massive array of hardware synths used in their productions, including



MSTRKRFT—Jesse F. Keeler (left) and Alex Puodziukas.

Korg MS-20, Moog Micromoog and Voyager RME, Roland Juno-60, Juno-106, JX-3P, MKS-80, and SH-101 synths, TR-707 and TR-909 drum machines, Sequential Circuits Prophet 600, and *Fist of God's* most used item, the Roland MKS-80 Super Jupiter. Throughout *Fist of God*, the Super Jupiter can be heard running backwards, zooming like a crashing spaceship and seemingly inhaling and exhaling. MSTRKRFT attribute the latter effect to sidechain compression or "ducking."

"We use sidechain compressors like a Drawmer DS201 [Dual Noise Gate] or a stock [Waves] C1 compressor set up to duck the hi-hats out of the way when the kick drum enters to make it sound more like a real kit," Keeler says. "And that's also what gives the synths those different effects."

You've heard the effects of sidechain compression a hundred times. Remember that big sucking sound in Daft Punk's "One More Time" or similar sonic tomfoolery in Thomas Bangalter & DJ Falcon's "Together"?

"It's a special effect; it sounds like studio processing," Puodziukas explains. You're trying to achieve a radio effect where you've got a hard master compressor on stereo program material. Anything above 100Hz is getting pulled down by the heavy kick drum 'cause it's pushing so much more energy than the top frequencies when you put it through a heavy compressor. So the ducker is to achieve that effect but in a controlled manner.

"In 'Fist of God' and 'Vuvuvu,' the Super Jupiter is being ducked out of the way of the kick drum. At times it sounds like it's being reversed, because the envelope the ducking creates is kind of unnatural because it's a slow attack and a hard release. By jockeying the release time on the ducker it gives that swelling effect. We usually try to time it on an upbeat so you have a kick drum on the downbeats, and by timing the release of the processor, you'll get a swing up on the 1/8th note in between the main beats. All you need is a compressor with a sidechain input. It's an exciting sound; it gives the impression that the track is cooking and crushing everything."

In addition to ducking, "Vuvuvu" also features a bizarre deceleration section where the synths, beat, and everything else slows to an almost painful BPM.

"It's an ascending chromatic scale from the Super Jupiter," Puodziukas says. "The idea was to have that pattern running, then during the break just slow it down until it became in time with the original tempo, but the rhythmic figure is different and the actual pattern was truncated. If the original pattern was 2, it would be 1.75 times the original length. To execute that idea took some brainpower and a calculator. Once the pattern slows down, it's running at a different BPM in relation to the original BPM, but it's being truncated to fit over the original BPM. The de-acceleration was a programmed tempo change in Pro Tools."

By now you can tell that Keeler and Puodziukas are thoroughly old-school,

at least in their attitude regarding live instrumentation versus programming. That also influenced their choice of control surface. While they use Pro Tools to assemble the bits and bobs, recording is done via a 1971 Neve 8016 24-channel 8-bus console—loaded with Neve 1064 EQs—which they lovingly call "Rhiannon." And for good reason. Theirs is the exact Neve console used to record Fleetwood Mac's self-titled album, which produced the 1975 hit, "Rhiannon."

"It's a special console, and we've put a lot of work into it to keep it functional," Puodziukas says. "It's built like a tank. It's all military spec, 1971, so the wiring is the same quality that is used on missile silos. It really does have a certain spirit. Every Neve sounds different, and this one has a signature sound you can hear in our productions."

The console also serves as a reminder to not cut corners when it comes to recording signals going in.

"On old mixing desks, EQ was called 'correction'," Keeler says. "I tell the kids on our message boards to take that mentality when recording. Get the sound right going in and don't try to use all manner of processing, and only effect it in Pro Tools if you are not happy with it. A lot of the sounds on our record are the natural sounds produced by the instrument. We only messed with levels. Letting things breathe is a good idea, and just being careful and not overprocessing sounds."

For a duo as popular as MSTRKRFT—they've remixed Yeahs Yeahs Yeahs, Kylie Minogue, Brazilian Girls, Usher, and many others to great acclaim, and even R&B superstar John Legend insisted he appear on *Fist of God* ("Heartbreaker")—they seem strangely stuck in a sonic time warp of their own design.

"Is it just us being nostalgic?" Keeler wonders. "I really believe that these traditional processes end up sounding better in terms of harmonics. Digital is great, but it is has a frequency range. These analog sounds that are not even audible do affect your production sound; they can even change the other frequencies. That doesn't happen in digital. Digital can only do harmonic emulation, but it is not actually happening. It's just static fuzz." EQ

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The EVENT Opal sets a new benchmark in studio monitor accuracy. Featuring revolutionary technology that enables incredibly defined midrange frequency reproduction as well as deep, clear low end, the Opal has a response far beyond any existing 2-way system. Up to 750 watts of burst power allows the Opal to reproduce the transient dynamics of music while exhibiting the lowest distortion of any speaker in its class. Made in Australia, the Opal is unparalleled in accuracy and performance.
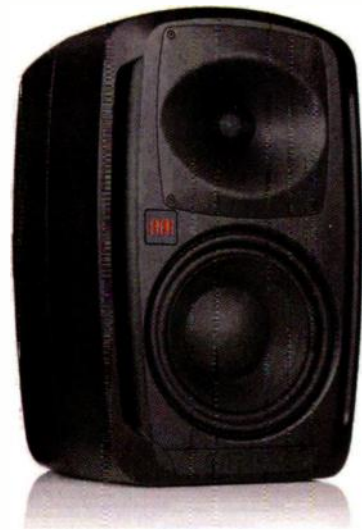
## RØDE NT2-A
### Large-capsule microphone

The legendary RØDE NT2-A features a large-diaphragm (1") condenser capsule with switchable polar patterns (cardioid, figure 8, omni), highpass filter (flat, 40Hz, 80Hz) and pad (0dB, -5dB, -10dB). The all Australian-made NT2-A features incredibly low self noise and a wide dynamic range, and was the recipient of the MIPA "World's Best Studio Microphone" award in 2006. The NT2-A is the go-to mic for any musician and engineer that demands reliability, quality, and performance.

## BIAS Peak Pro 6
### Evolution of an award-winning standard

Whether you're a musician, sound designer, audio editor, multimedia producer, or mastering engineer, Peak Pro 6 offers more creative potential than ever before. Used side-by-side or launched directly from within DP6, Peak Pro 6 streamlines your workflow with industry-renowned sonic quality and precision. For additional mastering, restoration, and DDP 2.0 delivery power, step up to Peak Pro XT 6.
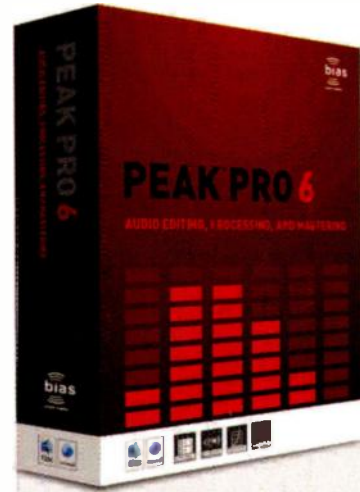
## Antelope Isochrone OCX
### Premier reference master clock based on aerospace technology

A master clock is the heart of any MOTU digital studio, essential to maintaining stability and preserving sonic integrity. The Isochrone OCX is an ultra stable, great sounding master clock highly regarded by many top professionals. Mixes come alive with much more depth and detail when the OCX is plugged into gear that has a digital input. Hear it and believe it!

# 4 QUICK WAYS TO CRAFT UNIQUE TONES

**by Michael Molenda**

Guitarists often spend entire careers discovering, developing, and refining "their" sound. It's a noble quest. But sometimes a track may require something out-of-the-ordinary to bring it to life, and that extremely personal tone you worked so hard to make your own may not cut it. Time to step into the great unknown. Here are four swift and relatively painless schemes for leaving the familiar behind.

### SWITCH GUITARS

Sounds simple—dumb, even. So why don't more players move out of their comfort zones, leave their favorite guitar in its case, and try something strange? And I don't just mean trading a Les Paul for a Strat, or vice versa. Borrow anything that tosses you into a different creative space: big hollow-bodies, cheapo planks with skyscraper-high actions, dobros, acoustic-electrics, kiddie models, and so on. And while you're at it, don't leave the instrument's Volume and Tone controls cranked. Experiment with the subtle colors available by rocking those knobs back and forth. Ever see Jeff Beck or Les Paul weave their magic? They are continually switching between pickups, adjusting volume levels, and playing with Tone controls. There's a reason for all those manipulations—different tones happen.

### DO IT ALL WRONG

A Shure SM57 placed right against the speaker grille is a time-honored and trusted method for miking an amp. But if you need a very different timbre, don't just jettison the tried-and-true, do something downright stupid. Position a mic *behind* the amp—even if it's a closed-back cabinet. Heck, lay the cabinet down so that the speakers are firing into the floor, and drop a mic beside it. Buy a $29 microphone from an electronics store (I've found some beauties at

Radio Shack throughout the years), and position it off-axis to the speaker cone. Throw the amp in a coat closet, a bathtub or shower, or even in your car (if your garage is close enough to your studio space), and toss the mic in the dumbest place imaginable (a coat pocket, gaffer's taped to a faucet, under the passenger seat, etc.). Seek any option that may surprise you with something ghastly, bizarre, or even oddly useful.

### GO REALLY SMALL

Small wattage amps are all the rage right now—and Jimmy Page used them to great effect on the early Led Zeppelin albums—but I'm talking about downsizing to *micro* levels. Danelectro, Marshall, Fender, Dean Markley, and others make mini-powered (1 watt or less) amps for solo practice and mobile rockin', as well as for looking cool on your desk. These petite ravers can sound gloriously ratty when pushed to the limit, so plunk down a mic in front of one. Whatever you do, it will sound nothing like it would if you had plugged into a pro-quality tube or modeling amp, and that can be a good thing. In addition, because these amps are so small, you can toss them into freezers, car trunks, garbage

**Micro amps, such as the Fender Mini Tone-Master Amp, can offer some very buzzy, solid-state-style tones, and, due to their tiny size, they can be positioned almost anywhere.**

pails, coolers, ventilation shafts, and other sick environments to achieve the double bonus of a weird tone captured in a truly bizarro sonic space.

### ABUSE YOUR TOOLS

While many guitarists feverishly promote their creativity, let's face it—when it comes to pushing the envelope, a significant percentage of players can barely lift the flap. You'll get a heck of an argument to that statement, and, if you do, simply ask the shocked and angry guitarist whether he or she programs their own effects from scratch, or blindly uses the preset parameters provided by the box or pedal. Gotcha! So whether you process your guitars with plug-ins or hardware pedals, start grabbing every parameter option—even the ones you don't really know (waveform, diffusion, ratio, etc.)—and spin through the values until something interesting pops up. Don't even *listen* to the preset—just start destroying its sonic imprint in the quest for a startlingly peculiar tone. Yes, this exercise will take some effort and some guts if you've made accepting what you're given a habit, but if you want something different, you're going to have to dial it in all by yourself. Be brave! **eq**

# 10 TIPS FOR BITCHIN' BASS MIXES



IK Multimedia's Ampeg SVX gives solid bass sounds in stand-alone mode, but when used as a plug-in, can also "re-amp" signals recorded direct. This shows the Cabinet page, where you set up your "virtual mic."

by Craig Anderton

If there's one instrument that messes with people's minds while mixing, it's bass. Often the sound is either too tubby, too thin, or interferes too much with other instruments . . . yet getting a bass to sit right in a mix is *essential*. So, here are ten tips on how to do just that.

**1. Check your acoustics.** Small project studio rooms reveal their biggest weaknesses below a couple hundred Hz, because the length of the bass waves can be longer than your room dimensions—which leads to bass cancellations and additions that don't tell the truth about the bass sound. Fix your room, put in bass traps, and if all else fails, do a reality check with *quality* headphones.

**2. So much is in the fingers.** A good bassist makes all the difference in the world. As just one example, fretted notes can give a tighter, more defined sound than open strings (which are often favored for live playing because they give a big bottom—but can overwhelm a recording).

**3. Compress, compress, compress.** Normally you don't want to compress the daylights out of everything, but bass is an exception, particularly if you're miking it. Mics, speakers, and rooms get really weird in the bass range, with uneven responses. Compression can help even these out, giving a smoother, rounder sound. Also, try using parallel compression—*i.e.*, duplicate the bass track, but compress only one of the tracks. Squash one track with the compressor, then add in the dry signal for dynamics.

**4. Put highpass filters on other instruments.** Clean up subsonics and low frequencies on instruments that don't really have any significant low end (*e.g.*, guitars, drums other than kick, etc.). A low cut filter, as used for mics, is a good place to start. By carving out more room on the low end, there will be more space for the bass to fit comfortably in the mix.

**5. The right EQ is crucial.** Accenting the pick/pluck sound can make the bass seem louder. Try boosting a bit around 1kHz, then work upward to about 2kHz to find the "magic" boost frequency for your particular bass. Also consider trimming the low end on either the kick or the bass, depending on which one you want to emphasize, so that they don't fight. Finally, many mixes have a lot of lower midrange buildup around 200–400Hz because so many instruments have energy in that part of the spectrum. It's usually safe to cut bass a bit in that range to leave space for the other instruments, and provide a less muddy overall sound; sometimes cutting just below 1kHz, like around 750–900Hz, can also give more definition.

**6. Tuning is key.** If the bass foundation is out of tune, the beat frequencies when the harmonics combine with other instruments are like audio kryptonite, weakening the entire mix. Beats within the bass itself are even worse. *Tune, baby, tune!*

**7. Edit in context.** Because bass is such an important element of a song, what sounds right when soloed may not mesh properly with the other tracks. Work on bass and drums as a pair—that's why they're called the "rhythm section"—so that you figure out the right relationship between kick and bass. But also have the other instruments up to make sure the bass supports the mix as a whole.

**8. Beware of phase issues.** It's common to take a direct out along with a miked or amp out, then run them to separate tracks. Be careful, though: The signal going to the mic will hit later than the direct out, because the sound has to travel through the air to get to the mic. If you use two bass tracks, bring up one track, monitor in mono (not stereo), then bring up the other track. If the volume dips, or the sound gets thinner, you have a phase issue. Hardware devices like the Radial Engineering Phazer or Little Labs IPB can tune out phase differences; with a DAW, simply slide the later track so it lines up with the earlier track. The timing difference will only be a few milliseconds (*i.e.*, one millisecond for every foot of distance from the speaker), so you'll probably need to zoom way in.

**9. Respect vinyl's special requirements.** If anything you ever do has even a slight chance of ending up on vinyl, pan bass to the exact center. If there's more than one bass track, pan both to center.

**10. Fun with bass amp sims.** There are some excellent bass amp sims, like the cabinets in Native Instrument's Guitar Rig 3 and Waves GTR, as well as the dedicated Ampeg SVX plug-in (from the AmpliTube family) offered by IK Multimedia. These open up the option of recording direct, but then "re-amping" during the mix to get more of a live sound. You'll also have more control compared to using a "real" bass amp. **EQ**

The Sweet circa 1974.

# CELEBRATING THE SOUND OF THE '70S

**by Kent Carmical**

Just how does one go about getting '70s drum sounds? Polyester drumheads? Stuff the kick with pooka shells? Spray some Jovan Musk on all the cymbal stands?

In a way, a "definitive" '70s drum sound remains a mystery. If any era saw change in recording techniques, it was the 1970s. Everything from Black Sabbath sludge to Steely Dan perfectionism to disco minimalism could all come to mind. So for this article, I will concentrate on the famous "cardboard box" drum sound of the early to mid '70s. Just put on your glam head and think Sweet's "Little Willy."

### PREPPING THE TIME MACHINE
Just in case you don't have a vintage '70s kit set up and ready to go, here is how to put some glitter vibe in your modern kit:

• Remove the resonant heads from the kick and toms. This is the front head on the kick and the bottom head on the toms.

• Loosen the snare head. We are looking for more of a thud, rather than a modern, snappy snare.

• Tune down the rest of the drums. The '70s was a looser decade. Tighter drum sounds came with the anxiety-plagued '80s.

• Drummers of that era were a bit more laid back in their playing and didn't hit their drums like a chick

fight on YouTube. So mellow out, have a nice day, and keep the aggro on the back burner.

### STUFF THOSE SUCKERS!
Engineers in the "me decade" were obsessed with reducing resonance in drums, and they generally went ape stuffing and taping all sorts of sound-deadening material in and on the drums and cymbals.

Stuff the kick drum with blankets, velvet bellbottoms, dirty laundry, or kilos of cocaine (just kidding). Do whatever it takes to deaden the sound and lessen the snap of the beater hitting the head. Go for the same with the snare. If you want to rock the room like Jim Keltner, put your wallet or a pack of cigarettes on the snare head for that authentic touch of '70s studio cool. Also, any engineer worth his Dingo boots would attack the toms with equal resonance-fighting zeal, saving the most humiliating treatment for them. Duct tape, rolled-up paper towels, or the truly hot setup of the time—Tampax—were adhered to the inside and outside edges of the tom heads to absorb any offending ring. And if *that* weren't enough, some engineers would put a dishtowel over the toms and enjoy the lifeless thump.

Cymbals did not escape this hatred of natural sound. Big, heavy ride cymbals and crashes, while excellent for cutting through in a live environment,

just rang forever and were way too much for the dead-sound-obsessed engineers of the time. Adhere duct tape, starting at the edge of the cymbal, until they sound as ring-free as a manhole cover.

### MIC THOSE DRUMS!
Once your drums and cymbals are wrapped up like a Christo installation, you can get to the nut of your sound with the choice and placement of microphones. This is critical if you are after true period-correct sounds. Extensive EQ was pretty much a dream for all but the larger studios. Your average studios of the decade were considered space age if the board had midrange EQ, so microphone choice and placement were the most common methods available for getting good drum tone.

Starting with the kick, the Electro-Voice RE-20 was a very common mic choice. A large-diaphragm dynamic, it could take brutal sound-pressure levels and deliver a warm sound with the right amount of punch. Start with the RE-20 about midway inside the drum, moving it closer to the head if more beater sound is desired.

For the snare, the time-honored Shure SM57 dynamic was the way to go. Put it about an inch from the head at a 45-degree angle. Rumors abound of '70s guys miking both the top *and* bottom heads of the snare, but you have to remember they did a

CHRISTIAN WEIGEL

lot of things back then that we now know are kind of bad ideas for both mind and body—not to mention music production.

Your now semi-mummified toms cry out for Sennheiser MD421s to get that groovy '70s sound. Again, close miking is the order of the day. [*See this month's Techniques: Tracking on page 38 for more info on close-miking drums—but for slightly different reasons.*] Stick those MD421s as close as one-inch from the heads, and, if you are the adventurous type, you can jam them up inside the shells. If a choked sound is the action you crave, this technique will give it up in spades.

At this point, you may wonder where, if any, the high-end of our drum sound is gonna come from. Well, that's where the hi-hat and overheads come in. Stick a Neumann KM 84 about three inches from the top edge of the high hat, and you'll get Krispy Kreme highs until the POWs come home. KM 84s also work

great as overheads. Set them about three feet above the kit, and point the business end where the sticks will hit the cymbals. This, in conjunction with the hi-hat mic, should give you all the sizzle you need.

### RECORDING AND MIXING
In the time period we are trying to recreate, 8- and 16-track recorders were pretty much the high technology of the day, so engineers usually didn't have the luxury of giving each drum its own track. To keep the vibe, I recommend giving the kick, snare, and hi-hat their own tracks, and combine overheads and toms to a single track. If you did your drum preparation and mic placement well, you shouldn't need much EQ to keep the sounds real.

Compression was a big deal then as now, but unlike the modern DAW, studios of yore didn't have them in great numbers. The Urei 1176 Peak Limiter is a great choice for the kick and snare. Start with a 4:1 ratio and a

gain reduction around –7dB to –5dB. If you want more transients from the kick and snare, slow the attack time. If less transients are your bag, speed up the attack time. Bomb Factory makes a killer 1176 plug-in that is highly recommended. Although they weren't around at the time, an Empirical Labs Distressor makes for a killer tom sound. If you can't find a Distressor, Bomb Factory has a Pultec plug-in, which, when maxed out, can give you some of the sonic filth the Distressor is known for. Give the overheads a light dusting of plate reverb, and that should be '70s enough for your woman to grow chest hair and a moustache. I achieved a killer '70s sound by running the whole drum mix through T-Racks Classic Multiband Limiter with the Input Drive control set to about 80 percent, and the Overload control set to about 60 to 70 percent, but be careful not to jack the high end too much, or you may hit the wrong decade. 🔵

# OPTIMIZING REVERB FOR VOCALS

by Craig Anderton

Reverb is an important component of vocals; few recordings put the voice totally out front, with no ambience. However, there's much more to getting the right vocal reverb sound than just dialing up a preset and crossing your fingers.

### ONE REVERB OR MANY?
Back in the stone age of recording, a recording had one reverb, and all signals were bused to it. Often the vocals sent more signal than some of the other instruments, but the result was a cohesive "group" sound.

Later on, studios often used a specific reverb for vocals. Much of the motivation for doing this was to make the voice more distinctive, and if the studio had a plate reverb, that was often the reverb of choice because it tended to have a brighter, crisper sound than a traditional room reverb. This complemented voice well, which tends not to have a lot of high-frequency response.

With the advent of digital reverb, some people went crazy—one reverb type on the voice, gated reverb on drums, some gauzy reverb on guitars, and maybe even one or two reverbs in an aux bus. The result is a sound that bears no resemblance to the real world. That in itself is not always a bad thing, but if taken to extremes your ears—which know what acoustical spaces sound like—recognize the sound as "phony." Unless you're going for a novelty effect, this can be a problem.

If your digital reverb has a convincing plate algorithm, try that as a channel insert effect on vocals and use a good room or hall reverb in an aux bus for your other signals. To help create a smoother blend, send some of the vocal reverb to the main reverb. This will likely require dialing back the vocal reverb level a bit, as the main reverb will bring up the level somewhat.

### TO DIFFUSE, OR NOT TO DIFFUSE?
A reverb's diffusion control increases the density of the echoes. Higher diffusion settings give a less "focused" sound, producing more of a "wash." This is helpful with percussive instruments, because percussive sounds create sharp echoes with digital reverb. Turning up diffusion gives a smoother sound. However, a voice isn't percussive, and high diffusion settings can produce an overly "thick" sound. This violates the First Rule of Vocal Reverb: The reverb should never "step on" the vocal. Instead, try low diffusion settings. This produces a reverb sound that blends in with the vocals rather than sounding like a separate effect that lives apart from the voice.

### WHAT ABOUT EQ?
Many reverbs have adjustable high- and low-frequency decays, or at least levels, with a crossover point between the two. With voice, I tend to use a longer high decay than low decay. This gives a reverb splash to the "s" sounds and mouth artifacts, while reining in low frequency reverb components that have the potential to make the sound more muddy. Remember, crispness with vocals is usually a good thing, because it increases intelligibility—as long as you didn't already add massive amounts of high frequency EQ to the vocal itself.

Experimentation is key to finding the right crossover point, because of differences between male and female voices, tonality, range, etc. Start around 1kHz and move upward from there until you dial in the right sound.

### REALLY, THERE'S NOTHING LIKE AN ACOUSTIC SPACE
Sure, digital reverb algorithms have made tremendous progress in the past few years. Still, there's nothing quite like a real acoustic space to give an ambient quality that remains elusive to pin down in the digital domain.
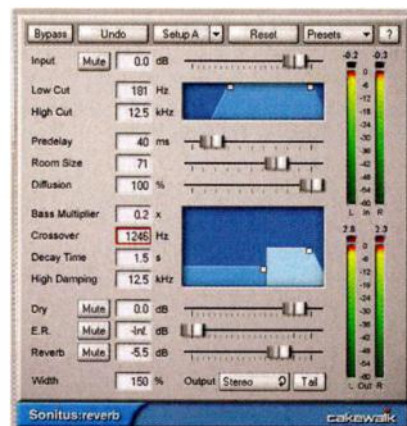


The Sonitus:fx reverb is one of several cost-effective plug-in reverbs that includes a crossover for changing the emphasis between the reverb's high and low frequencies.

But this doesn't mean you need a concert hall to get a good reverb sound. Even relatively small spaces, if they're reflective enough, will do the job. Simply send an aux bus out to a speaker in your bathroom (remove any towels or soft surfaces, and pull shower curtains back), then put a mic in the bathroom and bring its out back into a mixer input.

Send some of your vocal channel's digital reverb output through an aux bus into this space, and add just enough of the acoustical reverb to provide the equivalent of "sonic caulking" to the digital reverb sound. The room will add early reflections that will be far more complex and interesting than all but the very best digital reverbs can deliver—and you might be very surprised just how much this can "sweeten" up your sound.

And if you're in an experimental frame of mind, consider adding some feedback to the room reverb: Send some of the room reverb return back into the send output feeding the speaker. Be very careful, though, and keep the monitors at extremely low levels as you work on the sound—you don't want a major feedback blast! EQ

# BASIC TIPS FOR RECORDING LIVE DRUMS AT HOME

**by Buddy Saleman**

Think you can't record acoustically marvelous drums in a bedroom? While it does take a bit of finagling, with time and patience you *can* work within the limitations of the typical home to record very good acoustic drum tracks.

Most home-studio spaces have some acoustic gremlins such as fluttering echoes or sharp reflections. Hey, it's not like you spent tons of bucks transforming your room into a pristine and harmonious acoustic environment that would give Abbey Road a run for its money. No matter—you can probably find at least one spot where the kit sounds ballsy, dimensional, and well-balanced. Move those drums around the room, record them with a good large-diaphragm condenser positioned a few feet in front, and listen carefully for where the kit sounds best. Pay attention to details, such as whether quick or quirky reflections are boosting undesirable high end on the hi-hats and cymbals, or adding slapbacks that mess with the drummer's groove. Judge your mono recordings against professional drum sounds you dig, and while you may not be able to nail those tones in your space with your tools, you can at least determine what you may be lacking in resonance, attack, and shimmer as compared to the pro drum tracks. When you discover a position that delivers a reasonably exciting tonal balance—freeze! It's time to start putting up more mics.

### KISS IT!
Even in this best possible position, the sound of the kit will likely continue to suffer somewhat from the sound of your room. But you can diminish any sonic ill effects by positioning your mics close to the source sound (toms, snare, hi-hat, etc.). Try putting the kick mic inside the kick itself (or right near the outside head), as well as placing mics no more than an inch from the snare and tom heads. This strategy should serve up beefy impacts and resonances, and minimize problematic room reflections. Rather than position overheads way over the cymbals (where reflections may add energy to frequencies you don't want to hear), try placing a good large-diaphragm condenser about a yard from the front of the kick drum, and at a height between the drummer's chest and head. You'll lose a stereo overhead perspective, of course, but you may gain a clear and clean cymbal sound that you can blend into the drum mix without worrying about ugly signal bleed or phasing problems.

### MIC IT!
Of course, if you're going to stick a mic right on the source, you should be sure the mic can deliver all the tone you desire. I like to put a small pillow into the kick to dampen any ringing that detracts from a strong thud, and use something like an AKG D112 that can capture a sharp attack

*and* meaty bass frequencies.

For the snare, I typically dampen any ringing with Moon Jellies—small rubber squares that can be placed in varying quantities atop the head—and use a Shure SM57 for its classic sound, as well as its ability to capture a good crack. I want more fullness and "boom" on the tops, of course, so I'll usually go for something like Sennheiser MD421s. If I mic the hi-hat, I often put an AKG C451 right off the lip of the cymbals because I like to hear the tip of the sticks cut through the mix like a machete cutting through underbrush. Depending on what you're going for, room and overhead mics should deliver dynamic interest and a full frequency spectrum. My favorites are AKG C 414s and Neumann 103s, and I've even used a SM57.

### KEEP OUT!
Now that you've taken all this time to get a good drum sound from a less-than-ideal space, compromising it with signal bleed from a scratch vocal, a guide rhythm instrument (guitar, keyboard, or click track), or the "control room" monitors seems positively crazy. So set up those players in another room (bedroom, bathroom, garage) with small amps, or take them direct if possible (excluding the vocal, of course). Have everyone monitor over headphones while the drummer is tracking. Don't let anything soil the drum sound you've worked so hard to achieve. Let the room speak for itself! **EQ**

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# 4 WAYS TO ANIMATE YOUR MIXES

**by Michael Molenda**

There's nothing wrong with your typical, full-bandwidth stereo mix, accept that it is, well, *typical*. The stereo field wraps evenly around your ears, the frequency spectrum is balanced, and, thanks to the current obsession with loud, the track hits you in the face like a boxer's punch. Is that *really* the most dramatic and stunning way to present your music?

Well, if you crave an IMAX-style audio experience you'll have to jettison conventional methods and start screwing up your mixes big time. After all, drama is often achieved by introducing an antagonist, and, depending on the style and vibe of your music, that adversary can evoke anyone from Scooby-Doo to Hannibal Lecter. Let's explore four options for transforming a mix from a static, one-dimensional "sound portrait" into a thrilling animated soundscape of wonder and delight.

## STUPID STEREO

When stereo appeared on pop records in the '60s, the "new" listening experience was often boldly presented with extreme left/right mixes, such as vocals on one side and instruments on the other. Panning got pretty nutty in the psychedelic era, and, after that, many mixes seemed to settle into faux concert perspectives where sonic elements were somewhat evenly distributed across the stereo field. An animated mix, however, has no patience for balance or subtlety. It is like a loud, boisterous guest at a dinner party who is constantly calling attention to himself. So to animate your stereo spectrum, you should experiment with jagged perspective shifts that snap a listener's head around. Take some cues from early singles by the Beatles, Paul Revere and the Raiders, and just about any band from the *Nuggets* anthology. Always pan hard right or hard left, or ping-pong from one side to the other. Put selected instruments solely on one channel or the other. Splitting layered guitars right and left is almost a cliché these days, but are you brave enough to put the electrics on one side and the acoustics on the other? Never employ stereo background vocals, just toss 'em over to the left or right. Getting the idea?

Your mix elements should stand out boldly and demand that you notice them. When the listener doesn't know what to expect, then you've truly animated your music.

## DIMENSION

Messing with spatial relationships is also critical to animating a mix. A compelling balance of things moving front and back is as valuable as shifting a listener's focus left and right. This may be painful for reverb and delay hounds, but in order to intensify your track's dimensional interest, you'll have to leave some mix elements totally dry. Of course, you'll also get to bathe some elements in ambience, as well. (Feel better?) Thinking in cinematic terms, your dry sounds will be foreground elements, and your wet sounds will become background elements. It's critical, therefore, that you resist all instincts to make nice with reverb, and let one or two broadly ambient environments define your mix. There's nothing wrong with a big, juicy wash of reverb, but it won't animate your sound stage. Here are a few ideas to experiment with as you develop your

own dimensional sleight-of-hand:

• Leave the kick, snare, and toms dry, but add a medium reverb to the overheads.

• Leave rhythm guitars dry, but add reverb to solos and/or riffs.

• Try putting pre-fader "ghost-style" reverbs on a selected instrument. This is where the source sound is not audible—just the reverb effect.

• Fade a slapback echo behind the lead vocal, and put gallons of reverb on group background vocals, but fade them way back in the mix.

### DYNAMICS

As I mentioned earlier, many artists and producers destroy every last drip of dynamic range in order to make their tracks sound as loud as possible through various playback systems. (Metallica's *Death Magnetic* anyone?) Again, there is nothing wrong about wanting your tunes to explode out of

car speakers, earbuds, and boom boxes, but the absence of soft sounds *and* loud sounds will make your mixes appear one-dimensional. Digital media offers a wide dynamic range, but it may take some gravitas to embrace it, as the softer elements of your mix will definitely *not* do any leaping out of your speakers. However, an animated mix presents numerous perceptual dips, drops, rises, and zigzags—just like a roller coaster—so you must fearlessly seek a near-orchestral approach to dynamic range. For example, consider making a breakdown a break *down*, where you don't simply pare away the density of the instrumental mix, but you also diminish the volume levels in a musical way. In addition, don't be afraid to allow the song to rise to a crescendo from a soft intro, or drop to silence after a huge chorus and then have the track almost immediately crash back even louder. Drama is your goal, and

the more dramatic you can get, the more your mixes will come alive. Get off that compression carousel!

### THE UNEXPECTED

This is perhaps more of an arrangement technique than a mix strategy, but be sure to insert minute musical, tonal, or textural elements that only happen once in a section. As with the spatial, ambient, and dynamic applications previously discussed, these "little surprises" are tremendously helpful for seducing a listener's attention. The surprise could be as subtle as, say, an E-Bow line following the chord progression for just four bars, or a long delay that hits the vocal on the last line of a chorus, or a piano motif that drops into the first phrase of the bridge and then disappears. And, of course, if you really want to animate these surprises, impose extreme stereo, panning, ambient, and/or dynamic effects upon them. **ea**

### by Craig Anderton

*Cheat Sheet delivers concise, explicit infor-mation about specific recording/audio-related tasks or processes. This installment describes techniques for Cakewalk's Rap-ture virtual instrument.*

## BETTER SOUND QUALITY

Each Element has a Quality parameter that defaults to Std. If the patch uses pitch sweeps, change this to Hi to mini-mize aliasing. To further minimize alias-ing, click on the Options button (the Screwdriver icon toward the upper right) and check "Use sinc interpolation when freezing/rendering."

## RAPTURE MEETS MIDI GUITAR

Click on the Options button. Check "Set Program as Multitimbral" so Rapture ele-ments 1–6 receive MIDI channels 1–6, which can correspond to guitar strings 1–6. For the most realistic feel where play-ing a new note cuts off an existing note sounding on the same string, set each ele-ment's Polyphony to 0 (monophonic with legato mode), and Porta Time to 0.0.

## ENABLING PORTAMENTO

Portamento is available only if an Ele-ment's Polyphony = 1. If Polyphony = 1, only one voice can sound (monophonic mode), but without legato or the option to add portamento.

## MULTI OPTION DETAILS

An Element's Multi option can thicken an oscillator without using up polyphony. However, it works only with short wavetables, not longer samples or SFZ files.

## ACCEPTABLE FILE FORMATS

Each Element can consist of a WAV, AIF, or SFZ multisample definition file. SFZ files can use WAV, AIF, or OGG files. Samples can be virtually any bit depth or sample rate, mono or stereo, and looped or one-shot.

## MELODIC SEQUENCES

When step sequencing Pitch, quantize to semitones by snapping to 12 levels or 24 levels (right-click in the sequencer to select).

## CHAINING ELEMENTS FOR COMMON FX

You can route an oscillator (with its own DSP settings) through the next-higher-numbered Element's EQ and Effects by right-clicking on the lower-numbered Element number and selecting "Chain to Next Element." (You can't do this with Element 6 because there is no higher-numbered element.)

## SMOOTHER HALL REVERB

If you select Large Hall as a Master FX, create a smoother sound by loading the Small Hall into Global FX 1 and the Mid Hall into Global FX 2. Trim the reverb filter cutoffs to "soften" the overall reverb timbre.

## KNOB DEFAULT VALUES

Double-click on a knob to return it to its default value

## THE PROGRAMMER'S FRIEND: THE LIMITER

When programming sounds with high resonance or distortion, enable the Limiter to prevent unpleasant sonic surprises.

## THE MOUSE WHEEL

The wheel can turn a selected knob up or down, change the level of all steps in a step sequence, scroll quickly through LFO waveforms, zoom in and out on envelopes, and more. Hold the Shift key for finer resolution, or the Ctrl key for larger jumps.

## FINEST KNOB RESOLUTION

Use the left/right arrow keys to edit a knob setting with five times the reso-lution of just click/dragging with the mouse.

## NEW LOOK WITH NEW SKINS

In the Rapture folder under Program Files, the Resources folder has bit-mapped files for Rapture graphic elements (*e.g.*, back-ground, knobs, etc.). Modify these to give Rapture a different look.

## COLLABORATING ON SOUNDS

To exchange files with someone who doesn't have the same audio files used for an SFZ definition file, send the audio files separately and have your collaborator install them in Rap-ture's Sample Pool library. This is where Rapture looks for "missing" SFZ files.

## FIT ENVELOPE TO WINDOW

If the envelope goes out of range of the window, click on the strip just above the envelope graph, and choose Fit.

## SET ENVELOPE LOOP START POINT

Place the mouse over the desired node and type "L" on your QWERTY keyboard. Simi-larly, to set the Loop End/Sustain point, place the mouse over a node and type "S."

## CHANGE AN ENVELOPE CURVE TO EXPONENTIAL

Place the mouse over the end node of a line segment, and type "N."

## CHANGE LFO PHASE

Hold down the Shift key, click on the LFO waveform, and drag left or right.

## ADDING CUSTOM LFO WAVEFORMS

Store WAV files (8 to 32-bit, any sample rate or length) in the LFO Waveforms folder (located in the Rapture program folder). Name each WAV consecutively, starting with LfoWaveform020.wav, then LfoWaveform021.wav, etc.

## CHOOSING THE LFO WAVEFORM

Click to choose the next higher-numbered waveform or right-click to choose the next lower-numbered waveform. But it's faster to right-click above the LFO wave-form display, and choose the desired LFO waveform from a pop-up menu.

## PARAMETER KEYTRACKING

The Keytracking window under the LFO graph affects a selected parameter (Pitch, Cut 1, Res 1, etc.) based on the keyboard note. Adjust keytracking by dragging the starting and ending nodes. Example: If Cut 1 is selected and the keytracking line starts low and goes high, the cutoff will be lower on lower keys and higher with higher keys. If the line starts high and goes low, the cutoff will be higher on lower keys and lower with higher keys.

## CHANGE KEYTRACKING CURVE

Click on the Keytrack line and drag up or down to change the shape.

## TRY OUT DIFFERENT STEP SEQUENCER PATTERNS

Click within the step sequencer. Each time you type "N," it generates a new random pattern.

## CHOOSE AN ALTERNATE TUNING

Click on the Pitch button for the Element you want to tune. Click in the Keytrack window and select the desire Scala tuning file. **eq**
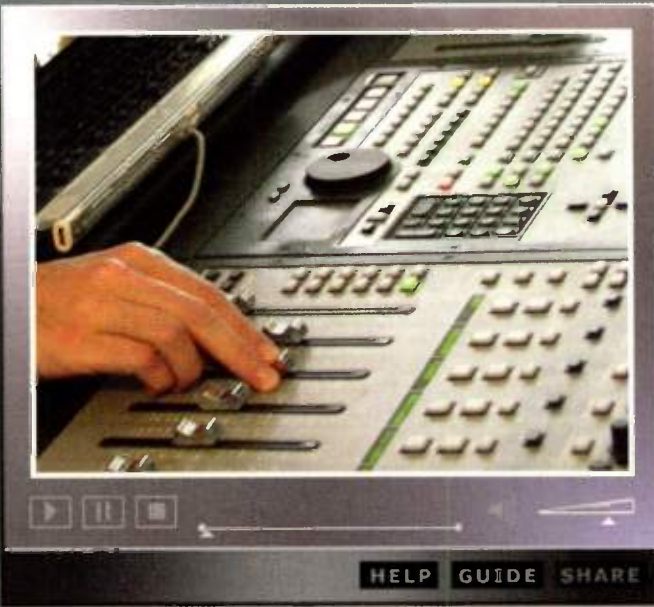
Cut Along Dotted Line

# POWER APP ALLEY

BY CRAIG ANDERTON

# STEINBERG WAVELAB
## Tweak the levels of sounds inside a drum track or loop

**OBJECTIVE** Change the mix of an already-mixed drum part by emphasizing or de-emphasizing particular drum hits.
**BACKGROUND** Think you can't do much to change the mix of an existing track or loop? Think again—especially if you have Steinberg Wavelab. Its Spectrum Editor mode allows zeroing in on a particular range of frequencies with surgical precision, allowing you to do tricks like lower or raise a kick drum's level, emphasize only a drum's transient, accent the snare backbeat, and in some cases, remove a sound entirely from the part.
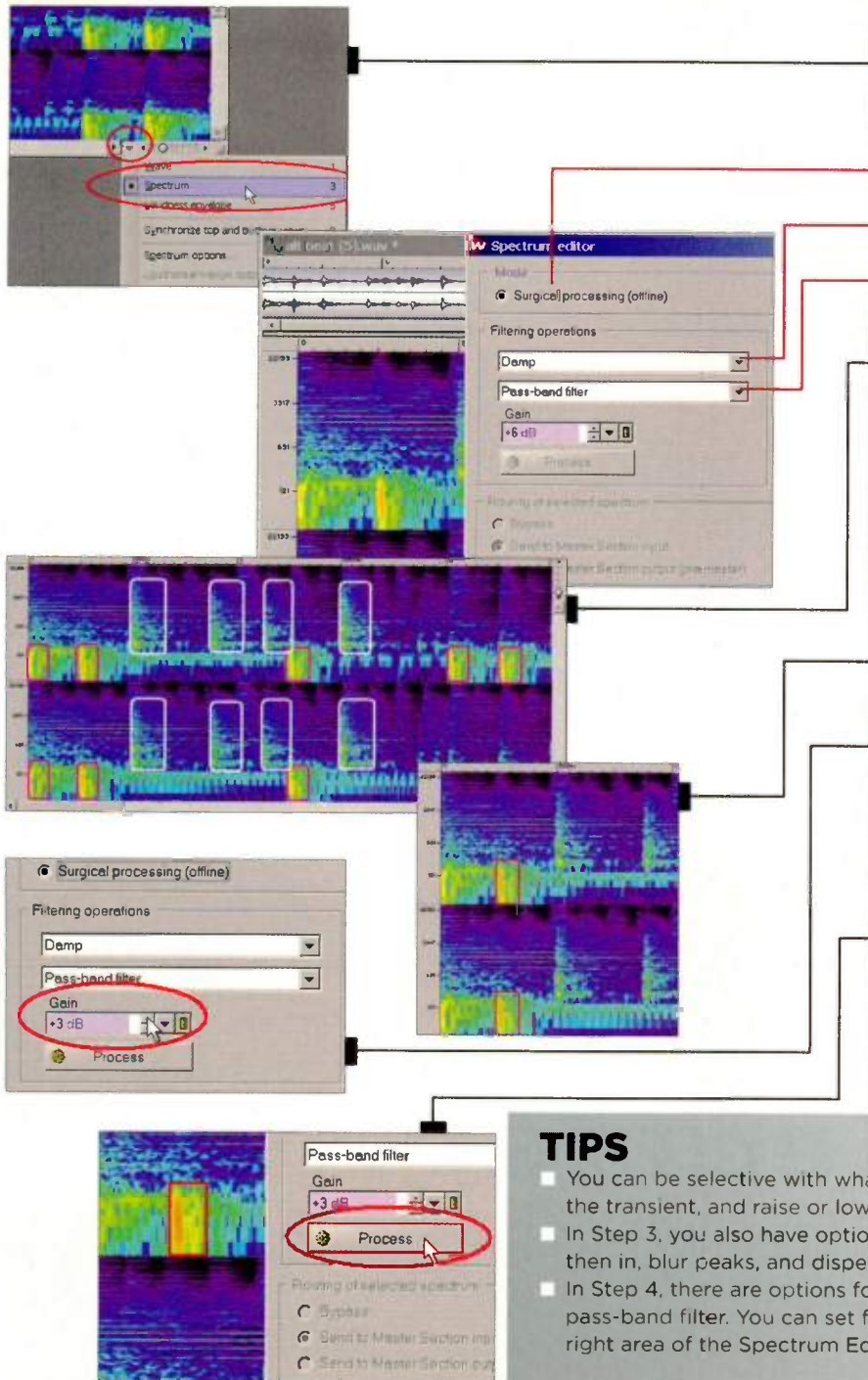


## STEPS

1. Click on the downward arrow toward the waveform window's lower right, and select "Spectrum."

2. Choose "Surgical processing (offline)."

3. Select "Damp" to change gain.

4. Select "Pass-band filter" to alter all frequencies in the area you're about to select.

5. Study the waveform while playing it to correlate sound to shapes and colors. For example, with Wavelab, red is the loudest level, then it goes through the spectrum (orange, yellow, green, blue, indigo, violet) to softer levels, with dark violet being the softest. So in this example, a yellow blob at a low frequency (toward the bottom of a window) shows a kick drum. Here kicks are outlined in red, and snares in white.

6. Draw a marquee around the area you want to change (*e.g.*, a kick).

7. Set positive gain to make the sound louder, and negative gain to make it softer. In this instance, the kick is going to be made +3dB louder (click on the up/down arrows to increment/decrement respectively).

8. Click on "Process." Done! Note how the kick with the marquee is now more orange than yellow, indicating that it's louder; also, more of the selected area in general is yellow.

## TIPS

- You can be selective with what you edit; for example, you could select only the transient, and raise or lower only the transient and nothing else.
- In Step 3, you also have options like fade in or out, fade in then out or out then in, blur peaks, and disperse sound.
- In Step 4, there are options for low-pass filter and high-pass filter as well as pass-band filter. You can set filter steepness (dB/octave) in the lower mid-right area of the Spectrum Editor dialog box.

World Radio History

# VIRTUAL INSTRUMENT ROUNDUP

## From recording tips to gear reviews, here's what you need to know about using musical instruments that exist only in the virtual world

**by Craig Anderton**

WTF happened?!?

Instruments, particularly keyboards, used to be things that you set up in your studio and played into a recorder. But now, they're *in* your recorder—and instead of arriving in a wood, metal, or plastic enclosure, they come on a CD- or DVD-ROM, or are downloaded from the Internet. Really, these are *instruments*?

Really, they are. There are over a thousand virtual instruments available, ranging from questionable to insanely great. We already did a roundup on virtual drummers in the 07/07 issue, but now it's time to lay our fingers on some synths and samplers.

Of course, lines of code and a cool user interface do not an instrument make. One of the most important add-ons is a control surface to give physical control over an instrument, whether a dedicated box like Native Instruments' Kore, or a more general purpose "fader box" controller. Either

of these help restore the physical element to virtual instruments.

The computer comes into play, too. Today's fast computers reduce latency, and make the playing experience far more enjoyable; also, companion editing applications reveal an instrument's innards in a way that's hard to pull off in the physical world. Truly, the virtual instrument has come of age.

This roundup has two main sections. The first covers tips and techniques on recording virtual instruments, because the process is not always as obvious as it might seem. The second features reviews of several current virtual instruments, and frankly, this presented a problem: There are so many of them we couldn't cover even 1% of what's out there. So, we chose a selection that's fairly representative of what you'll find—from clever analog synth emulations, to super-synths with huge sound libraries.

There's a third part, too, but this one threw us a curve: We wanted to get some insights from prominent

virtual instrument designers on the state of the art, so we asked Ernst Nathorst-Böös (Propellerhead Software), Doug Rogers (EastWest), Peter Gorges (Advanced Instrument Research, a division of Digidesign), and to add a non-designer viewpoint, Nick Batzdorf (Editor of *Virtual Instruments* magazine) to give us their thoughts. We expected to get a few useful quotes we could use in sidebars, but to our surprise and delight, we instead received long, detailed, and introspective responses from all of them. There was more than we could fit in the magazine, and editing them seemed just plain wrong. So, we've put the complete, unedited versions of these interviews on the web at www.eqmag.com. It's rare to get these kind of insights from people who are, in various ways, responsible for the virtual revolution we're experiencing in music.

It was a blast putting this roundup together, and we sincerely hope you enjoy it. Play on!

# PART 1: RECORDING VIRTUAL INSTRUMENTS



**Fig. 1. IK Multimedia's instruments give you the choice of High Quality for fast computers, or High Performance, which is more accommodating to slower computers.**

Well, it's easy, isn't it? You just insert it into your host and click on record. Right?

Wrong, because a virtual instrument should be an *instrument,* not just another feature in your DAW. It should *feel* right, and offer expressive control options.

### SHAKING THE CURSE OF LATENCY

Most people understand what "latency" is with virtual instruments: the time it takes between hitting a note and hearing it. The greater the latency, the less satisfying the playing experience.

Aside from the obvious solution—a wicked fast computer, and well-written audio drivers for your audio interface—there's another approach I call "variable latency recording." The premise is that latency is a continuum between low and high latency, and the trick is to find the "sweet spot" along that continuum for the task at hand. For example, when recording, you want the lowest latency for the best feel, but when mixing, you can use higher latencies to accommodate all the CPU-sucking tracks, instruments, and effects.

When recording a virtual instrument, you need to unload your CPU of as many obligations as possible so it can devote all its power to the instrument. Here are some easy ways to deal with latency issues.

- Record keyboard parts early in the recording process, when there are few other virtual instruments or

effects. You'll be able to get away with low latency.

- For "guide" tracks, use audio tracks (recorded instruments or loops), as they require less CPU power than virtual instruments.
- Record with any "low-resolution" options enabled (Figure 1). These days, fewer instruments have low-res modes because computers have gotten so fast—but those that do often allow for lower latency when recording in low-res mode.
- Don't use CPU-hungry effects, like convolution reverb. Add these during mixdown, when it's possible to increase latency to 20ms or even more and not have the delay be a problem.
- A "workstation" (or multitimbral sampler) plug-in loaded with instruments will use less CPU than an equivalent number of individual instruments.
- The Freeze function is your friend. Most modern DAWs can freeze a track, which renders the instrument audio to a temporary (or permanent, if you want) hard disk audio track, then "disconnects" the virtual instrument itself from the CPU to save power. This is an excellent option when you're partway through recording; you can freeze your virtual instruments, yet still set a fairly low latency when recording overdubs.
- Don't have other programs running,

even in the background, when recording. They all demand at least a little bit of RAM, CPU power, or both.

- Consider the new generation of hardware synths that think they're software. The Korg M3, Yamaha Motif XS, Roland Fantom G, and several others have software GUIs that run as plug-ins in your computer (Figure 2), and communicate with the hardware via USB. For all practical purposes, the synth is a plug-in—except with a *bitchin'* control surface, and on the downside, you can't instantiate more than one instance. But as these are multitimbral anyway, this isn't much of a limitation. These synths typically include onboard mixing and effects, which takes even more of a load off the CPU. One of the more interesting examples of this approach is Cakewalk's Sonar V-Studio, whic builds a hardware Roland Fantom synth into the audio interface (Figure 3). Thus, you have a multitimbral hardware synth available at all times during the recording process that doesn't require any significant amount of CPU.

There are other hardware solutions, too. The Use Audio Plugiator (see the associated review on page 52) basically houses several synths in DSP, and communicates with its GUI via USB; the venerable SCOPE system (formerly from Creamware and now from Sonic

Core) has several DSP-based instruments as part of their "virtualized studio" system, and TC Electronic's PowerCore has a synthesizer option.

## SOUND MANAGEMENT

With so many instruments these days having huge sound libraries, there's the question of where to store all that data—not a trivial issue, when you consider that having only Spectrasonics' Omnisphere and MOTU's Electric Keys requires over 80GB. (And yes, they both take a long time to install—but six double-layer DVDs is *way* better than 27,000+ floppy disks!)

Most installations default to installing the sounds on your root drive, usually as some sub-folder of the program folder. Not only does this "crowd" the all-important OS drive, but streaming samples from disk is a disk-intensive activity.

Therefore, it's a good plan to have a separate, huge drive dedicated solely to instrument libraries. I installed a 1TeraByte SATA drive inside my computer, but another option is to use a fast external FireWire or USB 2.0 drive. In general FireWire provides somewhat greater sustained throughput than USB 2.0, but has a reputation of being more "finicky" in terms of getting along with particular chip sets.

If you place the sounds somewhere other than installation default, you'll probably have to tell the program where to look for its library. There may be the option of searching for files, but if you have a big hard drive, that can take a while—it's faster to point to the sounds manually.

Different instruments handle this in different ways. The most common is to specify a file path, typically in a Preferences menu (Figure 4). Another method is to create aliases where the sounds are assumed to be, then point to where the sounds really are (Figure 5). However, the shortcut *must* have the exact name—you can't leave "shortcut to" or "alias" in the name.

## EXPRESSIVE CONTROL

Although you can always add controller data after recording, it's more spontaneous to do it while playing. Many keyboard controllers include some sort of control surface, as do hardware synthesizers (Figure 6). Lacking that, generally you can use a fader box or other MIDI control surface designed for mix control, like the Novation Nocturne, Mackie Control, Native Instruments Kore (or their Maschine controller for MPC pad-based instruments), Behringer BCF2000, and the like.



**Fig. 2. A patch is being built from scratch using Korg's M3 Editor. Here, an effect is being added to process the instrument sound.**

The control surface generates MIDI data. If there's a keyboard, you'll have velocity, mod wheel, and probably aftertouch as modulation sources. There may be other options, like an expression pedal input, or front panel controls.

As to actually linking physical controls to virtual instrument parameters, the most common option is to simply right-click or ctrl-click on a parameter to bring up a "learn" menu: Move your hardware control, and the instrument will link that control's movement to the selected parameter (Figure 7). You will likely select one or more of the following options for optimizing the response.

• **Polarity or Invert.** When positive, increasing the control's value increases the parameter's value. When negative,



**Fig. 3. The Fantom VS hardware is built into Cakewalk's V-Studio audio interface, but the GUI shows up on-screen as a virtual instrument plug-in.**
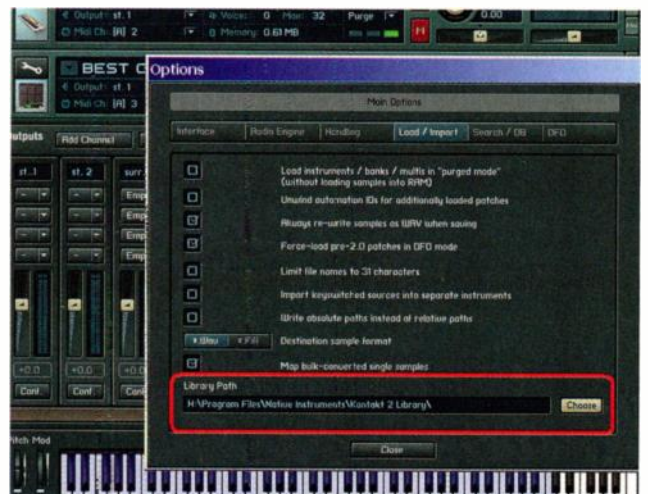


**Fig. 4. You can tell Native Instruments' Kontakt where to look for a sound library by using the Options menu.**
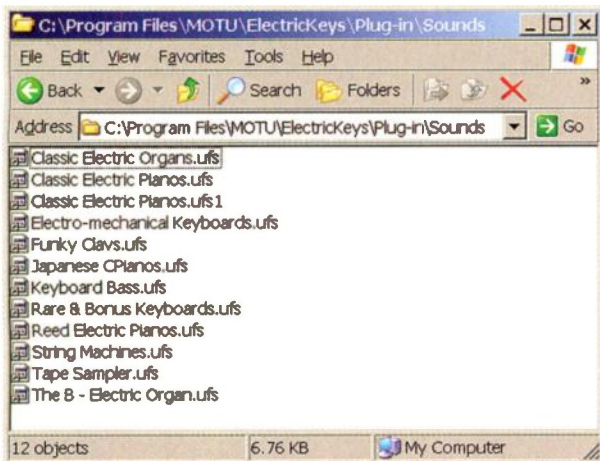
**Fig. 5. MOTU's Electric Keys normally stores its library in a "Sounds" folder. But you can store the library elsewhere, and put shortcuts to the library in the Sounds folder.**



**Fig. 6. Like many current hardware synths, Yamaha's Motif XS includes a control surface that works not only with synth parameters, but includes templates for providing realtime control over various programs.**

increasing the control's value decreases the parameter's value. As a practical example, suppose you want to increase "Drive" (*i.e.*, add some distortion to make the sound dirtier) with a mod wheel—except that this creates a volume jump. By applying negative polarity to the volume over a limited range, you can turn down the level simultaneously while increasing the drive.

• **Range, Depth, or Level.** This determines how much modulation will be sent to a parameter, thus determining the range of the parameter the

hardware control will sweep. You might want the control to cover a parameter's full range, or only a small portion (*e.g.*, filter resonance from 5% to 30%). Often polarity and range are combined in a single control (Figure 8), where the center position indicates no modulation, turning clockwise gives positive modulation, and turning counter-clockwise gives negative modulation.

• **Smoothing.** Because incoming MIDI data is usually quantized into 128 steps, this may produce an annoying "stair-stepping" effect instead of the smooth, continuous control you'd expect from an analog synthesizer. Smoothing integrates these values

internally, within the synthesizer, to smooth the response. The only drawback is that this might add a bit of an attack time, and a slight "overhang" during the decay.

• **Response curve.** The parameter may respond in a linear, log, or exponential fashion.

Even if you don't have a physical controller, all is not lost: With many instruments and hosts, you can enable automation and write automation data by turning a virtual instrument's control with a mouse. Of course you're limited to controlling only one parameter at a time this way, but it's better than nothing, and you can always overdub automation passes.



**Fig. 7. KikAxxe from WayOutWare has a versatile control response. It offers MIDI learn, three different response curves, invert, and a range control where you specify the upper and lower limits; the linked hardware control covers the range you specify.**



**Fig. 8. Arturia's Minimoog V includes a modulation matrix with six possible modulation sources and destinations. The Amount knob controls both range and polarity, depending on how it's turned: Counter-clockwise gives negative polarity, while clockwise gives positive polarity.**

# GEAR HEAD

## PART 2:
# THE GEAR

With so many virtual instruments, it was very tough choosing just these few—but we feel each one represents a particular genre of instrument.

Most have downloadable demos or at least online audio demos, so with few exceptions, you can "try before you buy." As with our other

roundups, all products are presented in the order our layout artist thought looked best on the page, and all prices are list prices.

## MOTU ELECTRIC KEYS

Electric Keys is a sample playback-based VST/AU/RTAS/DXi/standalone encyclopedia of 50 vintage keyboards—combo organs, electric pianos, clavs, organs, piano bass, string synthesizers, "tape samplers"—with more presets than I feel like counting. It uses the UVI audio engine featured in other MOTU instruments, with an efficient browser and several sound modification options.

**Included sample library:** 39.1GB
**Copy protection:** iLok.

**The interface:** A basic "shell" has controls for Volume, Tune, Bass, Middle, Treble, Drive, Tremolo (with off/on/pan switch, Depth, Speed, and Sync), and four velocity curves. Loading a different instrument changes the skin to reflect the look of that particular instrument.

You can load up to two sounds simultaneously, each with its own volume, pan, and mute control; an additional "edit" panel for each instrument provides significant editing, including 14 filter options with envelope, amplitude envelope, and pan modulation. Also useful: The "effects rack," with an amp simulator (that goes beyond just amp sims), filter, phaser, flanger, chorus, "vinyl," delay, and reverb. There's also a stand-alone mode.

**Strengths:** It really does have just about everything you could want from a set of vintage keyboards, including sampling with fine fidelity. Although the editability isn't spectacular, neither was the editability of the keyboards being emulated. The best part here is the filter—14 different filter



**Remember those funky old Italian organs from the '60s? They're just one of 50 vintage keyboards collected in MOTU's Electric Keys.**

types—although the effects can also add a very useful dimension, and even be saved as presets that are independent of instruments.

**Limitations:** There's limited velocity multisampling on several of the keyboards; for example, electric pianos with five different velocity samples per note. Also, for authenticity keyboard ranges are limited to that of the original keyboard—but I would prefer if the ranges were stretched a bit further. Sometimes playing an instrument out of its natural range gives cool timbres.

**The bottom line:** If you lack vintage keyboard sounds, Electric Keys will plug those holes—it reminds me conceptually of Big Fish Audio's *Drums Overkill!*, which sampled every drum machine created since the Bronze age. Even if you have most of the sounds represented here in other sample libraries, there are enough variations that you'll surely find ones you don't have. Overall, the completeness and relatively low cost are in Electric Keys' favor.

**Price:** $295

## NATIVE INSTRUMENTS MASCHINE

Combining both hardware and software, Maschine is a package that streamlines the beat creation/groove process. It follows the usual drum machine paradigm (you string patterns into songs), but also borrows Ableton Live's "scene" concept for triggering multiple patterns simultaneously. It's also a sampler and re-sampler that can slice files.

**Included sample library:** 4.75GB
**Copy protection:** Online registration.

**The interface:** The hardware is a classy, compact playing surface with 16 extremely predictable pads, 41 buttons, 11 rotary encoders, and two LCDs; while optimized for Maschine,



**It's software . . . it's hardware . . . it's a beatmeister's groovebox, translated into a virtual instrument.**

you can also switch it into a MIDI controller mode.

The software includes two applications. *Maschine Editor* manages sounds, patterns, and scenes—assign sounds to pads, apply effects to individual sounds or groups, sample, create rhythm patterns, and combine patterns into scenes. *Controller Editor* allows programming the controller's pad and button MIDI assignments when used as a MIDI controller. Most functions are duplicated in hardware and software, so you can adjust a parameter either physically or virtually; the manual often describes how to do a function using either option.

**Strengths:** Maschine is much deeper than it appears, although you can get a lot out of just the top layer, and the sample library is packed—fortunately, the browser has categories and tags. The software/hardware integration is as good as it gets, and the effects are huge: While there are the expected effects (EQ, compressor), most seem designed specifically for percussion (*e.g.*, lo-fi, unusual reverbs, frequency shifter, etc.). You won't find them in your typical host program, so it's good Maschine has them. You can automate most of their parameters.

**Limitations:** This isn't a limitation of Maschine, but what would be acceptable latency with other instruments can become unbearable with percussion. It won't matter if you're into step sequencing, but for realtime playing, a fast computer is essential. Also, Maschine won't do MIDI out so you can't send the patterns to anything else, nor can the notes that trigger slices be brought into a host; according to NI, these features will be in a future update. There's also no REX file support.

**The bottom line:** No single element of Maschine is particularly innovative, but put all the pieces together, and you have a groove/beat machine that is truly *fun* to use. If beats are what you do, this machine was designed with you—and tactile, realtime control—in mind.

**Price: $669**

# SONIVOX PLAYA

Playa is sort of a hip-hop construction kit plug-in (that also works in standalone mode) with a boatload of samples, MIDI compatibility, and an MPC-style pad interface—which, incidentally, works very nicely with Maschine's controller. Editing is limited, but Playa is quick, fast, doesn't draw much CPU, and has a high "fun factor."

**Included sample library:** 5.5GB

**Copy protection:** Online authorization via virtual PACE.

**The interface:** Playa's graphics are all about being a DJ/groove-style instrument, so instead of having little teeny controllers with illegible type, you get obvious faders and knobs that look more like a DJ mixer. Almost all of these respond to MIDI control and/or automation, so with a decent control surface, you have more of a "live performance instrument" than a plug-in.

In addition to being able to load particular instrument sounds (drums, guitar, bass, keys, choirs, synths, orchestral, and more—all the usual suspects), you can also load particular pad layouts. Note that Playa isn't multitimbral, so it's one sound/one output pair per instance. But you can load up on the instances—Playa doesn't need a lot of CPU juice.

**Strengths:** Solid, mostly genre-specific samples form a solid foundation. Playa is very easy to learn, once you figure out a few basics (like how to choose keyboard or pad input,



*Behind that DJ mixer-type interface lies a big sample library and a lot of potential grooves.*

and the difference between instruments and layouts). And, the automation/MIDI control allows for expressiveness.

**Limitations:** The only effects are chorus and delay, so figure on adding plug-ins afterward on the host. Also, Playa doesn't really work that well for standalone operation, because it loads only one sound at a time—you can't, for example, lay down different tracks and overdub against a pattern. And of course, it's designed specifically for groove/hip-hop type sounds, although I feel many sounds are highly suitable for dance music.

**The bottom line:** Playa costs less than the average virtual instrument, with the tradeoff being less editing and complexity. You still get a fine sample library, simple operation, and that MPC-style vibe. Some consider it "Maschine lite," but they're very different animals: Playa is about sounds, not sequencing, slicing, or using a custom controller.

**Price: $149.95**

# USE AUDIO PLUGIATOR

Plugiator comes with four virtual, DSP-driven synths in a compact, tabletop hardware box. You can take it on the road and use it live, or feed it into your DAW of choice. Furthermore, its Plug-In Manager software editor takes advantage of Plugiator's USB interface for preset management and the ability to tweak the instrument parameters beyond the five parameters brought out to



*Although the DSP is in a small hardware box, the Plug-In Manager software lets you edit sounds on your computer.*

realtime control knobs on the unit itself.

You can't instantiate Plugiator as a plug-in within a DAW yet (Use Audio is about to introduce VST front ends for the various Plugiator instruments so that they can be integrated with a DAW as plug-ins), but you can send MIDI data from your DAW to Plugiator via USB, and feed Plugiator's audio outputs into your audio interface's inputs.

**Included sample library:** There's no library per se; Plugiator ships with four modeled instruments (Minimax virtual analog synth, LightWave wavetable synthesizer; B4000 Hammond B3 model, and Vocodizer vocoder). Other instruments are available for $49 each: Prodyssey, Pro-12, FMagia, and Drums'n'Bass (drum machine and bassline).

**Copy protection:** Online registration.

**The interface:** The hardware has 1/4" left and right outs, a 1/4" stereo headphone jack, balanced mic input for the Vocodizer, and USB. However, you can't plug in a USB MIDI controller; you need to use the 5-pin DIN MIDI connectors, or plug a USB keyboard into your computer, then send its data via USB to the Plugiator. The Plug-In Manager applica-

tion is fairly standard, throwing all the various instrument parameters on-screen.

**Strengths:** It sounds fine, doesn't load down your CPU, and is platform-independent: If your DAW can spit out MIDI, Plugiator knows what to do with it. The realtime tweaking controls are a nice touch, and extra instruments are inexpensive—for $698, you get eight instruments in a small, portable package.

**Limitations:** Although you can load eight instruments in DSP, you can only use one at a time. Also, each instrument is limited to 100 patches. The sole effects are delay and chorus, and different instruments provide different amounts of polyphony (e.g., ten voices for the Minimax, 91 for the B4000). Finally, you can't run the Plug-In Manager while running a DAW unless you use a MIDI loopback applet, like MIDI Yoke.

**Bottom line:** Plugiator takes an unusual approach to virtual instruments, but it's an effective one. There's also a certain feeling of permanence; if Apple or Microsoft updates their OS you'll still be able to use it, and it makes a reliable live performance device.

**Price:** $549

# FUTURE AUDIO WORKSHOP CIRCLE

It takes a lot to add something new to analog emulation synths, but Future Audio Workshop seems determined to do that with Circle. While the sound-shaping elements aren't out of the ordinary—oscillators with analog waveforms or digital wavetables, various effects, filtering, and multiple modulation sources (LFO, envelope, and step sequencer)— the way they're put together is clever. I also like the tuned delay that feeds the output back to the input through a "Feedback" section, which is sort of like an extra voice.

**Included sample library:** There are no samples, but the preset management includes tagging/categorization and search. FAW has posted additional free sound sets on their website.

**Copy protection:** Online authorization.

**The interface:** First of all, the interface looks modern rather than emulating a vintage vibe—it reminds me a bit of Live crossed with Tracktion—and features intelligent use of color. For example, you can drag a colored circle from a modulation source to a controllable parameter (e.g., filter frequency), and the parameter's "virtual jack" acquires the same color. Each modulation source is color-coded, making it easy to see what connects to what without using a modulation matrix. There's also a little ring around the "jack" for adjusting modulation depth, like Arturia's Moog Modular.

**Strengths:** Circle is exceptionally easy to figure out and use. I looked at the manual only to check whether I'd missed anything (I hadn't), but I must say they did a really good job



Circle's slick, modern interface is surprisingly easy to figure out and navigate.

on the documentation. If fact, if I ran an electronic music school, I'd buy a site license and use Circle to teach synthesis.

**Limitations:** You can't load your own wavetables, and all the envelopes are basic ADSR types—okay if you're going for straight analog emulation, but they're pretty old school compared to things like tempo-synced envelopes. The LFOs offer 16 different waveforms, which is appreciated—but again, you can't load your own—and the step sequencers aren't as complete as, say, Cakewalk Rapture.

**Bottom line:** If you like the idea of analog emulation but don't want something that's just an imitation Minimoog, it's worth downloading the Circle demo to find out what the fuss is about. It's easy on both the eyes and ears.

**Price:** $199

# APPLIED ACOUSTICS STRING STUDIO VS-1

Do you like a DX7 Rhodes better than a real one? Do you wish your guitar string had editable parameters? Do you think Lounge Lizard really nailed the electric piano sound? Then you're a candidate for String Studio VS-1, a VST/AU/RTAS/DXi plug-in (standalone too) that's based on physical modeling of

strings rather than samples. Not only can you create recognizable string sounds like guitar, bass, and clav, you can also make sounds that exist only in your imagination, like stratsichords or clavbasses. (By the way, if you're a Live fan you're not having *déjà vu*: String Studio is very similar to Tension, an optional Ableton instrument for Live 7.)

**Included sample library:** No samples, so there's no sample library—but you do get lots of presets. They're useful in

their own right, and also provide a great point of departure for your own tweaking.

**Copy protection:** Online challenge and response.

**The interface:** It looks like something out of Captain Nemo's submarine, but that's a compliment—the look is retro, but in a Moog sythesizer sort of way. You can choose different excitation types (pick, bow, and hammer), damping, string parameters, fret/finger interaction, and soundboard bodies, and you also have synth elements like filter, filter envelope, LFP, EQ, and distortion. Everything is brought out to switches, controls, and drop-down menus that respond to MIDI control and automation.

**Strengths:** Modeling-based synthesis allows more expressive possibilities than sample-based synthesis, because samples can be altered only so far without sounding freakish. And

unless you own the Scope system Six-String plug-in, there won't be anything quite like this on your hard drive—you'll be exploring new sounds every time you twist a knob.

**Limitations:** There's not much to dislike: String Studio is cost-effective, original, delivers useful sounds, and allows for lots of creativity. You can complain that it's a one-trick pony, but it's a really cool trick—and the product lives up to the company's promises.

**Bottom line:** If you're looking for a workstation-type of plug-in, this is about as far from that as you'll get. However, if you have good line-up of plug-ins and are itching for something different, you'll likely appreciate the original, musically-useful approach String Studio brings to the table. Sure, you can just call up presets; but this is an instrument that's worth tweaking to get the exact type of sound you want.

**Price:** $229



This novel modeling synthesizer produces string sounds, from lifelike to sci-fi. Note the browser toward the left.

# IK MULTIMEDIA SAMPLETRON

This is based on the multitimbral SampleTank engine, with 16 channels and 16 stereo output pairs; you can also save and load preset combis. In addition to 17 instruments (Mellotron, Chamberlin, Optigan, Novatron, Stylophone, etc.), there's a wealth of effects—32 total—that add serious value and sound-shaping ability. You'll find considerable editability, from filtering to stretching; you can apply these edits selectively to samples in different keyboard zones.

**Included sample library:** 2.4GB of

meticulously-produced samples.

**Copy protection:** Online authorization.

**The interface:** It's basically SampleTank with a different skin that has the beat-up vibe of a vintage instrument. The upper right half has a browser; a multitimbral map to the left can switch between channels 1–8 and 9–16. The lower half has multiple pages for accessing and editing parameters, with synth engine options and effects parameters. A virtual keyboard lets you play notes.

**Strengths:** SampleTron can emulate vintage instruments exactly, including quirks (the 8-second time limitation of Mellotron "loops," tape hiss, etc.) or you can dial back the lo-fi and also do infinite looping, like a modern sampler. The effects are very useful, and overall, SampleTron is far greater than the sum of its parts. The correct judgment calls have been made on how to bring these instruments into today's world, while being respectful of their rightful place in musical history.

**Limitations:** VST, AU, and RTAS automation is limited to controlling only six parameters—volume, pan, and the four macro controls. This is mitigated by being able to control almost all parameters via MIDI controllers, so if you have any kind of MIDI control surface, you'll be okay.

**Bottom line:** I'm not a huge fan of those old tape samplers, because the sound usually left so much to be desired. Also, they stereotyped your music—"Moody Blues strings," "Strawberry Fields flutes," etc. But while this package can do lo-fi if desired, Sonic Reality has done the audio equivalent of restoring an oil painting: The dust and dirt is gone, but the character remains, and you see details you've seen before. In the process, they've managed to make these instruments relevant *today*—it's not just about nostalgia. That's a noteworthy accomplishment.

I've never used any samples of this type of instrument in any of my music before. Much to my surprise, SampleTron will change that.

**Price:** $229.99



This virtual instrument crosses over the line into a labor of love—it must have taken a lot to restore not just those vintage keyboards, but their sounds.

# SPECTRASONICS OMNISPHERE



Omnisphere isn't just about the enormous sample library, but also, its sophisticated editing—this view shows the page for deep parameter editing.

Spectrasonics has never stumbled, while producing exceptional virtual instruments. So perhaps it's not surprising that it would take Spectrasonics to outdo Spectrasonics, and this flagship instrument delivers on all levels.

Sure, Omnisphere deserves a long and comprehensive review; I recommend the one in the 12/08 issue of *Keyboard*, because I basically agree

# GEAR HEAD

with everything it says. But there's one caution: If you're expecting a super-GM module with traditional sounds, Omnisphere is not the droid you're looking for. While there are some standard instruments, Omnisphere is about pushing the envelope, not copying it.

**Included sample library:** 42GB and over 6,000 patches.

**Copy protection:** Online authorization.

**The interface:** There are four primary pages for editing. *Main* handles the crucial controls for the two layers per patch you can load simultaneously, *Edit* is for deep editing, *FX* calls up 12 effects (four for each layer, and four "common" effects), and *Arp* is a 32-step arpeggiator. That's for individual patches. Go into *Multi* mode, and Stylus RMX fans will feel right at home: eight channels for eight patches, each with level, pan, and four aux sends for feeding up to four effects per aux, as well as four "master" effects. But you'll also find a "live" mode for on-the-fly stack editing and playing, and a *Stack* mode where you can set up instrument crossfades, velocity switching, splits, and the like. All of this is obvious and straightforward—no small feat with an

instrument on this level.

**Strengths:** While many other synths just add features (and Omnisphere has plenty of those), it's the sound library that makes Omnisphere unique. Yes, there are some guitars, strings, and synths, but if you get a feeling of "been there, done that" when playing with soft synths, you won't feel that way with Omnisphere. Many sounds are sufficiently inspiring you'll be writing a song before you know it. Omnisphere's sample library oozes creativity, and a browser can help narrow your searches.

**Limitations:** There's no standalone mode, so live, you have to use a host. You can't load your own samples (but the company isn't ruling out that possibility in a future release), and there's no demo version.

**The bottom line:** Reviewing this in 2,500 characters is like reviewing Paris by saying "It has this really tall tower left over from a world's fair, lots of museums, and great restaurants." Paradoxically, though, despite its sophistication Omnisphere is easy to summarize: It's a *tour de force* of sampling-meets-synthesis that's surprisingly easy to use, extremely playable, cost-effective, and inspiring.

**Price:** $499 (upgrades available for Spectrasonics Atmosphere users) ⊄⊅

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## BIG FISH AUDIO: EARTH TONE

World percussion libraries are useful to have around, because just about any type of music—from hip-hop, to rock, to electronica, to drum 'n' bass—benefits from having a frosting of persuasive percussion.

*Earth Tone* has ten folders of loops organized by tempo (from 72 to 135BPM), with two additional folders for 190 and 200BPM. There are different instruments in the different folders, but stretching is reasonably good (even the Acidized files), so you can mix among the various folders fairly easily.

One aspect I particularly like is that these have real dynamic range, and don't slam the dynamic range extremes, either. This helps them fit into a composition really well, as percussion generally is softer than the main rhythms. Of course, you can always normalize and/or limit them in your DAW if you want a more aggressive sound.

This is indeed world percussion: Some loops sound more African, while others have a Middle Eastern or Latin flavor, making this a versatile collection that also lends itself to some interesting cross-cultural mash-ups. What's more, the loops-to-dollar ratio definitely works in your favor.

There are many world percussion libraries, but they often focus on one particular part of the world. *Earth Tone* is a fine general-purpose collection, where the odds are good you'll find something that works for you. —*Craig Anderton*

**Contact:** Big Fish Audio, www.bigfishaudio.com
**Format:** DVD-ROM with about 2.47GB (over 900 files) of unique 24-bit/44.1kHz WAV content, duplicated for Apple Loops, REX, and Stylus RMX.
**List price:** $99.95

## BEST SERVICE: CLUB REVOLUTION VOL. 1

With 2,099 one-shots and 642 electronic drum loops, you can think of this collection as a filling station for MPC-type groove-boxes—it can provide loops on some of the pads, and one-shots on others for accents. As if to underscore the point, five out of the six loop folders don't have a kick, encouraging you to lay down the loop, but get original with the underlying beat.

The one-shot collection is wonderful—bass, claps, snares, kicks, effects, synths, toms, percussion, chopped vocals, and the like. They're also great companions for drum modules, like Battery or Impulse. Most sounds have a tough edge that's more techno or hard/progressive house than "classic" house, and they cut through a mix. Melodic files have the key in the name.

The loops are of the "get up and move!" type. I'd recommend boosting the highs a bit on some of them, but the rhythms are spot on. All of them are fairly short and run at 140BPM; they aren't Acidized, and REX/Apple Loop versions aren't included—if you want to stretch the tempo, you're on your own.

For dance music productions, *Club Revolution* is "collage fodder"—some assembly required, unlike "mix and match" loop collections. The downside is you need to put a little more work into putting the bits together, but the upside is a more original, creative end result—and that's a good thing. —*Craig Anderton*

**Contact:** EastWest, www.soundsonline.com
**Format:** CD-ROM with over 2,700 files, 640MB, and patches for EXS and Kontakt 2/3 samplers. 16-bit/44.1kHz.
**List price:** $89.95

## FUTURE LOOPS: INFINITE SOUNDS FROM A FUTURE COSMOS

Not only are virtual instruments sprouting big libraries: Infinite Sounds is 17GB of material that, had it been around during the 1980s new age boom, would have likely ended up in a zillion segments of *Hearts of Space*. Each of the eight DVDs is themed (Sea Explorations, Ice Ages, Biospheres, Desert Soundscapes, etc.) although these are loose descriptions.

There are no "beats" *per se,* although there are files with rhythmic modulation; mostly this is about drones, pads, effects, and soundscapes. They're cinematic in nature, but also work as the long, evolving sounds that skim the surface of trance or chill. One DVD, "Artificial Intelligences," has a lot of electro-friendly material. Files typically hover around 30 seconds, and there are 400 files per DVD—most are unpitched, although there are a few exceptions. The main limitation: These aren't cross-faded as loops, but fade in and out. While more "plug-and-play," this makes it difficult to loop them.

There's a certain sameness about the collection, but you certainly can't beat the value, whether you want to accompany "So as the lion cub awakes," "Professor, activate the trans-gravitator!," or even "The ancient Pharaohs. . . ." In fact as I was reviewing this, I needed a video background and clicking around unearthed three perfect candidates. I guess that says something right there. —*Craig Anderton*

**Contact:** Future Loops, www.futureoops.com
**Format:** Eight DVD-ROMs with over 17GB of sounds. 16-bit/44.1kHz.
**List price:** $99.98

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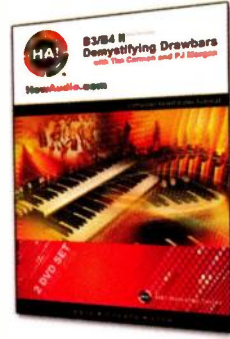


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World Radio History

One is a respected producer/songwriter and the other is an immensely sought after film and television actor. But it is with Ironworks Studios that this duo added "studio owner" to their list of credits. Upon entering the 15,000 square foot building—formerly an iron works; hence the name—you sense that a lot of thought was put into not only the gear, but also the aesthetics, which were obviously designed for making records without clock watching.

"This building was exactly what I had wanted on the inside," says Sutherland. "There was a lot of exposed brick, and the wood-trestle ceiling was very hard to find in Los Angeles, so I fell in love with it."

**Acoustically and aesthetically this is a unique and attractive layout. Who designed the studio?**

**Sutherland:** Jeff Cooper designed the studio, and he did a fantastic job. Everyone that has recorded here has just been amazed with the variety of sounds. In the main studio that leads out into a corridor, there's a natural reverb that has countless variations depending on how you leave the door ajar.

**How did you select the gear?**

**Cole:** Mark Somguinari and myself selected most of the equipment. Excluding the extensive guitar and amp collection Kiefer has, we went through our wish list, and then reviewed the realities of the budget. We put money where we felt it was going to be able to shine the best. We put a lot of money into compressors, and we're just building a microphone collection. The console was very important, and I knew I wanted an SSL. We found one that was previously owned by Larrabee—an SSL 4000 G+ that has a nice round EQ system.

**How did you come to amass such a collection of vintage guitars?**

**Sutherland:** The guitar collection started when Jude and I first met. He's one of the most beautiful guitar players in the world, and there were some guitars that he *should* have been playing but couldn't afford. So I would buy a couple of guitars and lend them to him. The collection started like that, and then Jude started to do really well, and I said, "I want my guitars back!" That's when I realized we had a collection going. I have a '58 and a '56 Les Paul Special, a '54 Les Paul Jr., a '55 Les Paul Jr., a '59 and a '66 Strat, and a rare '51 Gibson ES-225.

**What are the pros and cons of being in a studio partnership?**

**Sutherland:** I don't really have any cons, because the people that are working here are people I really like—and I like the music they're making, as well. Our whole vantage point is to make records and have those records sell—that will ultimately be the business end of the studio. As for the partnership with Jude—he is like a brother to me. We've been best friends since I was a teenager, and we just knew we were going to kind of live our lives together. For me to watch a talent like his—well, you just want to partner up with him, and make sure he has every opportunity available to be able to express what he does.

**Cole:** We've always had a great time. Kiefer has been an incredibly supportive friend in my life, and there are a lot of musicians he loves and would love to have the ability to help along the way. I think he just loves the whole environment, and he's also a pretty damn good guitar player. As for the studio, the nice part is not having the constraint of a budget when developing an artist. It's the nicest luxury I've ever had. I'm humbled by it, because it took a lot of faith on Kiefer's part to put it together. This is a product of something that has come from a conversation that has lasted for the last 15 years. —*Excerpted from Lisa Roy's interview in the March 2003 issue of EQ* **EQ**

# COMMAND CENTRAL

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