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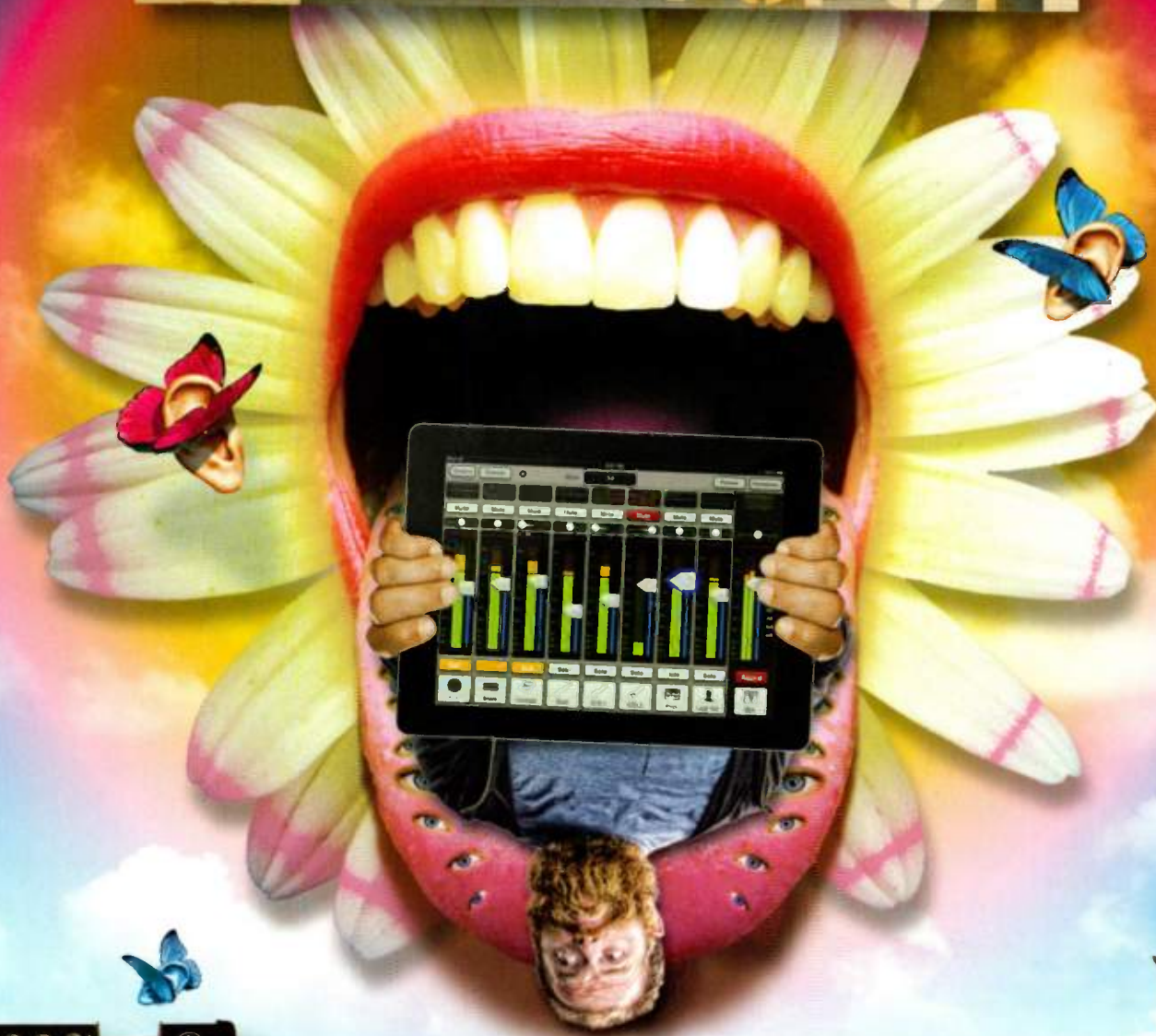
**HOW DONALD FAGEN
WARMED UP TO DIGITAL**

{ 7 }
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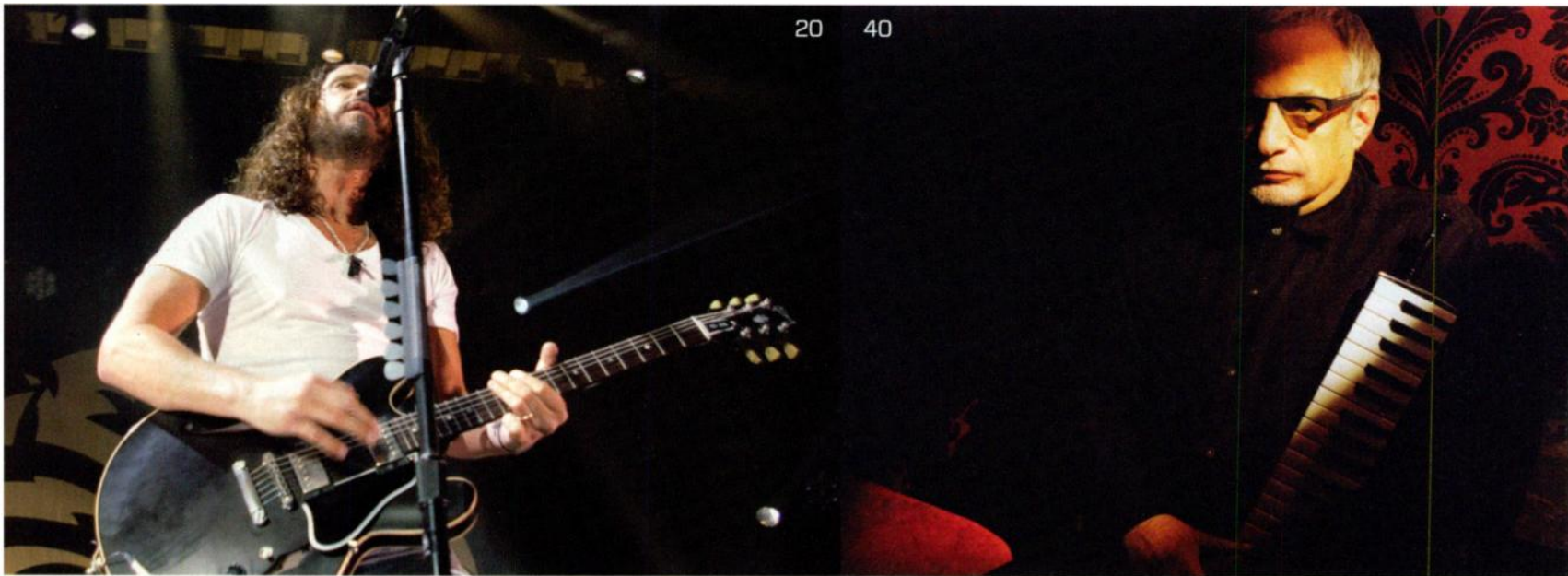
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12.2012

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EDITORIAL DIRECTOR Michael Molenda

mmolenda@nbmedia.com

EXECUTIVE EDITOR Craig Anderton

canderton@nbmedia.com

EDITOR Sarah Jones

sjones@nbmedia.com

MANAGING EDITOR Debbie Greenberg

dgreenberg@nbmedia.com

CONTRIBUTORS

Michael Cooper, Steve La Cerra, Kyle Swenson
Gordon, Emile Menasche, Ken Micallef, Lily
Moayeri, Bill Murphy, Gino Robair, Barbara
Schultz, Bud Scoppa, Tony Ware

ART DIRECTOR Damien Castaneda

dcastaneda@nbmedia.com

STAFF PHOTOGRAPHERS

Paul Haggard phaggard@nbmedia.com

Craig Anderton canderton@nbmedia.com

PUBLISHER Joe Perry

jperry@nbmedia.com, 770.343.9978

ADVERTISING DIRECTOR, NORTHWEST,
MIDWEST, & NEW BUSINESS DEV.

Greg Sutton

gsutton@nbmedia.com, 925.425.9967

ADVERTISING DIRECTOR, SOUTHWEST

Albert Margolis

amargolis@nbmedia.com, 949.582.2753

ADVERTISING DIRECTOR, EAST COAST & EUROPE

Jeff Donnenwerth

jdonnenwerth@nbmedia.com, 770.643.1425

SPECIALTY SALES ASSOCIATE

Michelle Eigen

meigen@nbmedia.com, 650.238.0325

PRODUCTION MANAGER Beatrice Kim

THE NEWBAY MUSIC GROUP

VICE PRESIDENT, PUBLISHING DIRECTOR

Bill Amstutz

GROUP PUBLISHER Bob Ziltz

EDITORIAL DIRECTOR Brad Tolinski

SENIOR FINANCIAL ANALYST Bob Jenkins

PRODUCTION DEPARTMENT MANAGER Beatrice Kim

DIRECTOR OF MARKETING Josh Bernstein

DIRECTOR OF SALES OPERATIONS Lauren Gerber

MARKETING PROJECT MANAGER Tyler Reed

MARKETING DESIGNER Joelle Katcher

MOTION GRAPHICS DESIGNER Tim Tsuruda

SYSTEMS ENGINEER Bill Brooks

CONSUMER MARKETING DIRECTOR Meg Estevez

CONSUMER MARKETING COORDINATOR

Dominique Rennell

FULFILLMENT COORDINATOR Ulises Cabrera

OFFICES SERVICES COORDINATOR Mara Hampson

NEWBAY MEDIA CORPORATE

PRESIDENT & CEO Steve Palm

CHIEF FINANCIAL OFFICER Paul Mastronardi

CONTROLLER Jack Liedke

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IT DIRECTOR Anthony Verbanic

VICE PRESIDENT, HUMAN RESOURCES Ray Vollmer

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INQUIRIES TO: ElectronicMusician, 1111 Bayhill Dr.,

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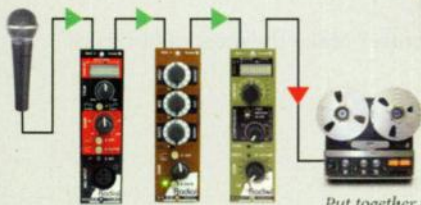
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insight

Pushing Buttons

DJS HAVE come a long way from the club booth. Today, acts like Swedish House Mafia, Skrillex, and Tiësto are selling out stadiums and headlining festivals around the world. But as EDM continues to explode, backlash is brewing in some circles.

There's no question that executing the kind of elaborate multimedia "experience" that fans have come to expect can come at the expense of a live performance element, as Deadmau5 famously pointed out this summer in his Tumblr missive calling out DJs as "button pushers." (Judging by our own poll below, a lot of *Electronic Musician* readers feel the same way.)

But to insist that a DJ act must be 100 percent live to be legitimate is missing the big picture. DJing lies at the intersection of performance and production; there are as many styles as there are DJs, skills can shine in the studio or onstage, and DJs can approach their craft from the perspective of a musician or a producer.

With that in mind, this month's Roundup (page 56) digs into a spectrum of sophisticated DJ tools, from iOS devices to controllers to instruments. If you're serious about DJ production—both live and in the studio—there's something here for you.

Then, get inspired by Rana June (page 48), who's been dubbed "the iPad DJ" but is really more like the Bionic Woman, with her homemade rig featuring 16 iPads and bodypack controls that incorporate mood metatagging, realtime reactive triggers, and live instruments. I don't think anyone



SARAH JONES
EDITOR
sjones@musicplayer.com

is calling her a button pusher. Are you a DJ? How do you work? We'd love to hear from you.

COMMUNITY

"OBVIOUSLY WE'RE SURVIVING. SOME OF US HAVE HEALTH INSURANCE, SOME OF US DON'T, WE BASICALLY ALL LIVE IN THE SAME PLACES, NO ONE'S RENTING PRIVATE JETS. COME TO YOUR OWN CONCLUSIONS."

Grizzly Bear's Ed Droste on inflated ideas of the financial success of indie bands, on Vulture.com, September 30, 2012

The *Electronic Musician* Poll

WHICH MOST CLOSELY EXPRESSES YOUR FEELINGS ABOUT DJs?

THEY'RE NOT REAL MUSICIANS, AND THEY TAKE WORK AWAY FROM LEGIT MUSICIANS **50%**

THEY ARE MUSICIANS, THEY JUST WORK IN A DIFFERENT MEDIUM **37%**

DJS ARE CURRENTLY THE MOST ADVENTUROUS ELECTRONIC MUSICIANS **6%**

CLUB DJS ARE PRETTY COOL, BUT NOT MOBILE DJS **3%**

I DON'T KNOW MUCH ABOUT DJS **4%**

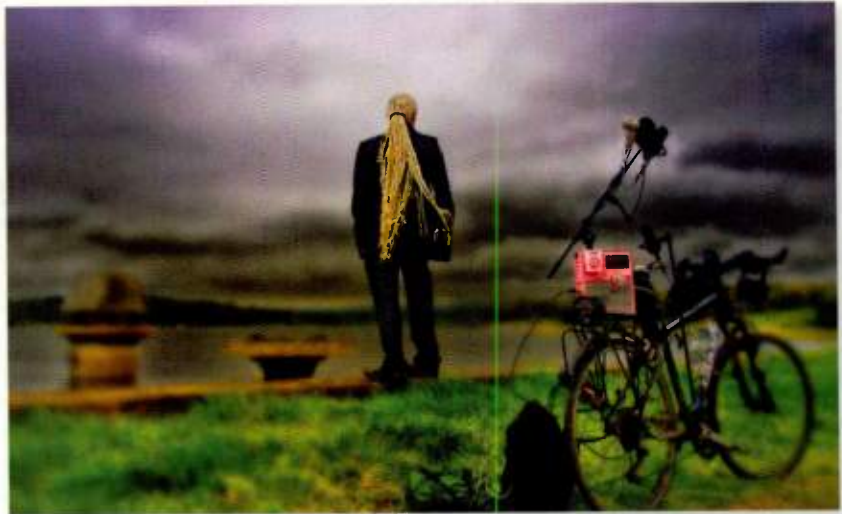


DIG MY RIG

On May 24, 2012, I set out on a musical and physical challenge in a bid to inspire the performances for my new album, *Just for the Record*. While cycling 2,000 miles to the furthest four points of mainland Britain with a mobile recording rig on my bike, I discovered locations along the way that provided inspiration for my songs and vocal takes.

My “bikerphone” rig includes an M-Audio Fast Track Pro, MacBook Pro i7 with Avid Pro Tools 9 and Apple Logic 9, a pair of Audio-Technica AT4033a mics, Beyerdynamic DT 250 headphones, Contour roam camera, Emerald x7 indestructible carbon-fiber guitar, a Nady bullet mic, and as much duct tape as I can carry. The BBC said, “it was the wettest June on record.” How did they know I was recording?

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ask!

I GET LOTS OF CONTRADICTIONARY ADVICE FOR SETTING LEVELS WITH DIGITAL RECORDING—FROM “AS CLOSE TO 0 AS POSSIBLE” TO -18DB, AND EVERYWHERE IN BETWEEN. SO . . . WHAT IS IT?

KEITH SHELLARD
MILWAUKEE, WI
VIA EMAIL

It depends on where in the signal chain you’re checking levels. When entering your interface inputs, leave some headroom to accommodate unanticipated transients; typically, keep peaks below -6dB (although many engineers are more conservative). While giving up 6dB of dynamic range sacrifices about one bit of resolution, with today’s 24-bit

converters this makes no practical difference.

Once within your DAW, an audio engine with at least 32-bit floating-point resolution offers virtually unlimited dynamic range. However, although individual channel meters can “go into the red” without causing distortion, dynamic range is again an issue when these signals leave

your DAW and return to the audio interface. One potential problem is *inter-sample distortion* where, due to the output-smoothing process, the true signal level can exceed what the meters indicate (sometimes by several dB). So, when mixing, it’s good practice to keep output peaks lower than -6dB—then during mastering, raise the level as appropriate

while checking for inter-sample distortion.

Finally, there can be a tendency toward “channel level creep,” which necessitates turning down the master around 0 and if needed, group the channel faders temporarily, and adjust their levels so the output signal peaks at around -6dB.
THE EDITORS

Note that the master fader is set to 0.0, and the output has peaked at -6.2.



Got a question about recording, gigging, or technology?
Ask us! Send it to ElectronicMusician@musicplayer.com.



Craig Anderton held mastering seminars.



PHOTOS BY DANIEL KELLER/GET IT IN WRITING

The track on recording, mixing, and mastering a song from start to finish was extremely popular.

PreSonuSphere 2012

Free Workshops, Interactive Song Creation, and Hands-On Gear Fun

The second annual PreSonuSphere conference—where PreSonus users attend workshops and concerts, share ideas, and interact on a peer-to-peer basis with company engineers, clinicians, and executives—was held September 28 and 29 at the Shaw Center in Baton Rouge, LA. Expanding on last year's one-day inaugural event, this year there were three continuous tracks of workshops, as well as multiple workstations where attendees could play with the gear and pose questions to PreSonus gurus.

Kicking off with a pre-show jambalaya dinner, the seminars focused primarily on live sound and recording. Presenters included studio designer John Storyk, live sound engineer Ace Baker, producers Brent Milligan and Fab Dupont, and *Electronic Musician's* Craig Anderton—who also moderated a free-wheeling panel discussion on the future of the music business. One seminar track even took attendees through the creation of a song, from setting up the mics, though recording, mixing, mastering, and distribution (with the latter focusing on the recently-acquired Nimbit.com site).

Plans are already underway for PreSonuSphere 2013, and PreSonus deserves credit for putting on a highly successful event that was probably a bean-counter's nightmare—but left a trail of satisfied, and more knowledgeable, attendees in its wake.

Gadget Geek

Fans of the '90s classic *Allen Sides Microphone Cabinet* reference CD-ROM have reason to rejoice: It's now available for your iPhone. Produced by legendary guitarist, songwriter, and producer Steve Vai, using Sides' microphone collection at Ocean Way Recording studios in Hollywood, the Ocean Way Microphone Locker app makes it a snap to find the ideal microphone for your tracking project. "When the app revolution hit, I remembered that great CD-ROM and knew it would make an extraordinary app," says Vai, who secured the rights for the CD-ROM contents and worked with renowned engineer and microphone authority Allen Sides, along with Metal Sidecar, LLC to build the app. "You can actually access Allen's mic collection and match them with a complete range of musical instruments. You get tips on the best miking techniques and can listen to samples played by top session cats like Hal Blaine on drums." The app demonstrates ways to pair the right microphone with the right instrument, along with optimum placement, and includes a comprehensive list of 66 microphones and 33 instruments, with diagrams and specs. Ocean Way Microphone Locker is available for \$9.99 at iTunes.



Steve Vai in the studio.



Correction

In our "Extreme Studio Makeover" feature (October 2012), the A-NO-NE Wavelength Calculator application was incorrectly referred to as an Apple product. The software is by A-NO-NE; for more information, visit a-no-ne.com.

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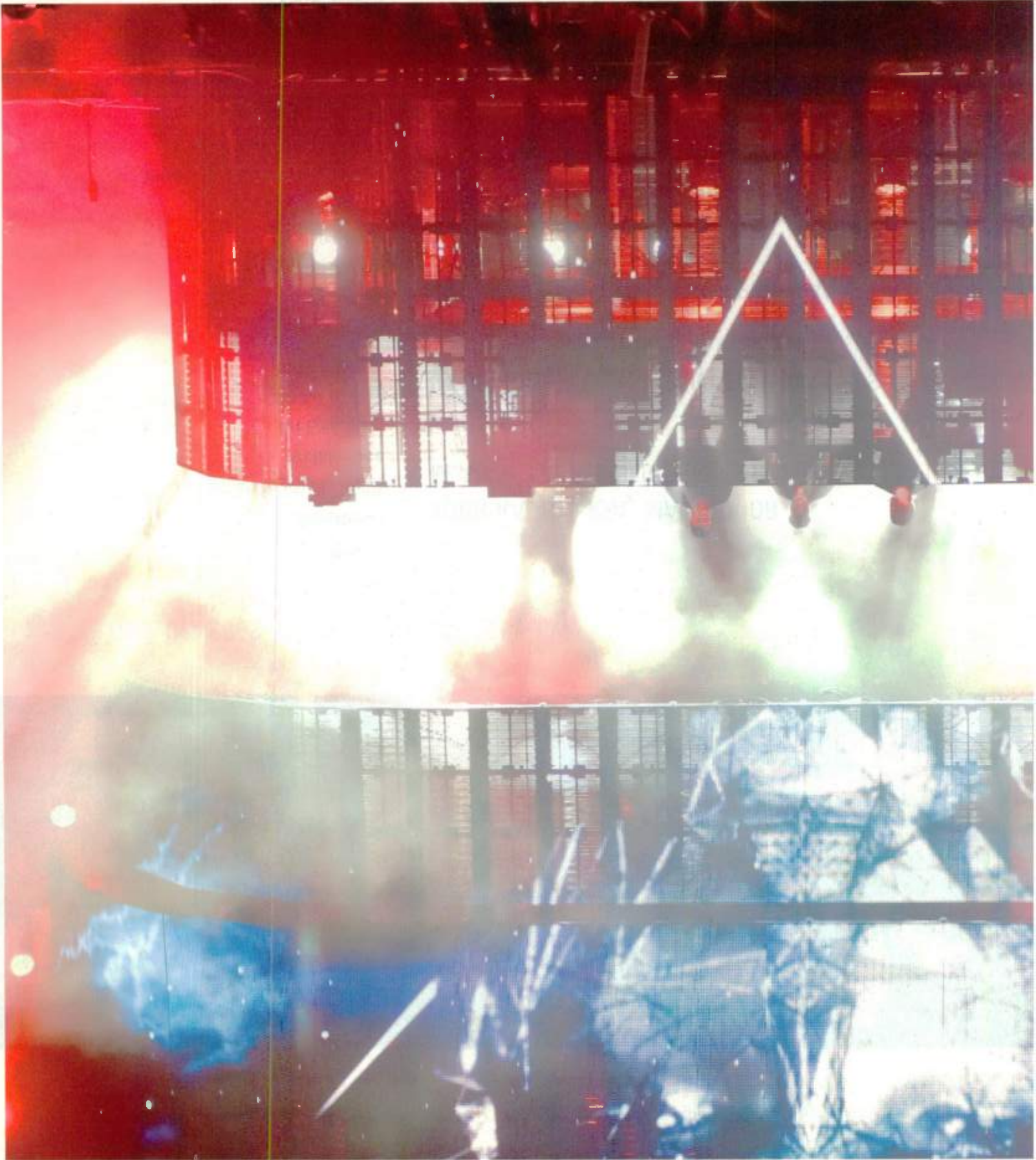
SWEDISH HOUSE MAFIA: DESERT PYROTECHNICS

INDIO, CA
APRIL 24, 2012

A little rain couldn't dampen the spirits of the swarming sea of fans dancing and sweating to the beats of Swedish House Mafia, the Stockholm-based power trio of Steve Angello, Sebastian Ingrosso, and Axwell (Axel Hedfors), as they closed out the first night of Coachella 2012. Their set featured original material and remixes of Coldplay, Diddy, and Temper Trap, enveloped in a sensory overload of video effects and pyrotechnics. Although all three are respected DJs and producers in their own right, the trio appreciates being acknowledged for creating music onstage, as Hedfors recently told the *Wall Street Journal*: "When you get recognition, when [the audience] sees you haven't just pressed a button or two, it's very refreshing."

PHOTOGRAPH BY DAVE VANN

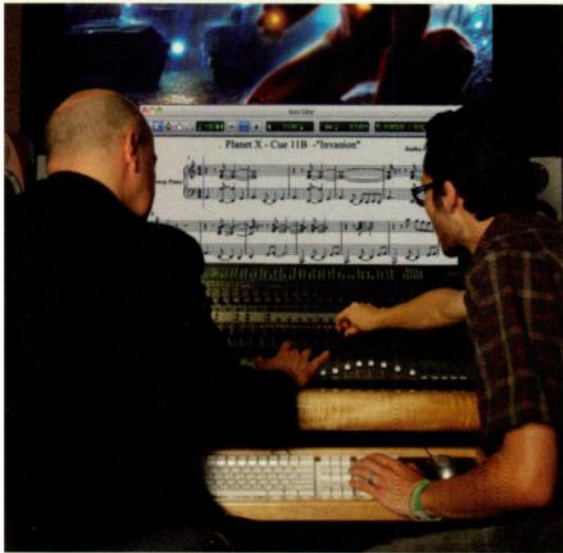






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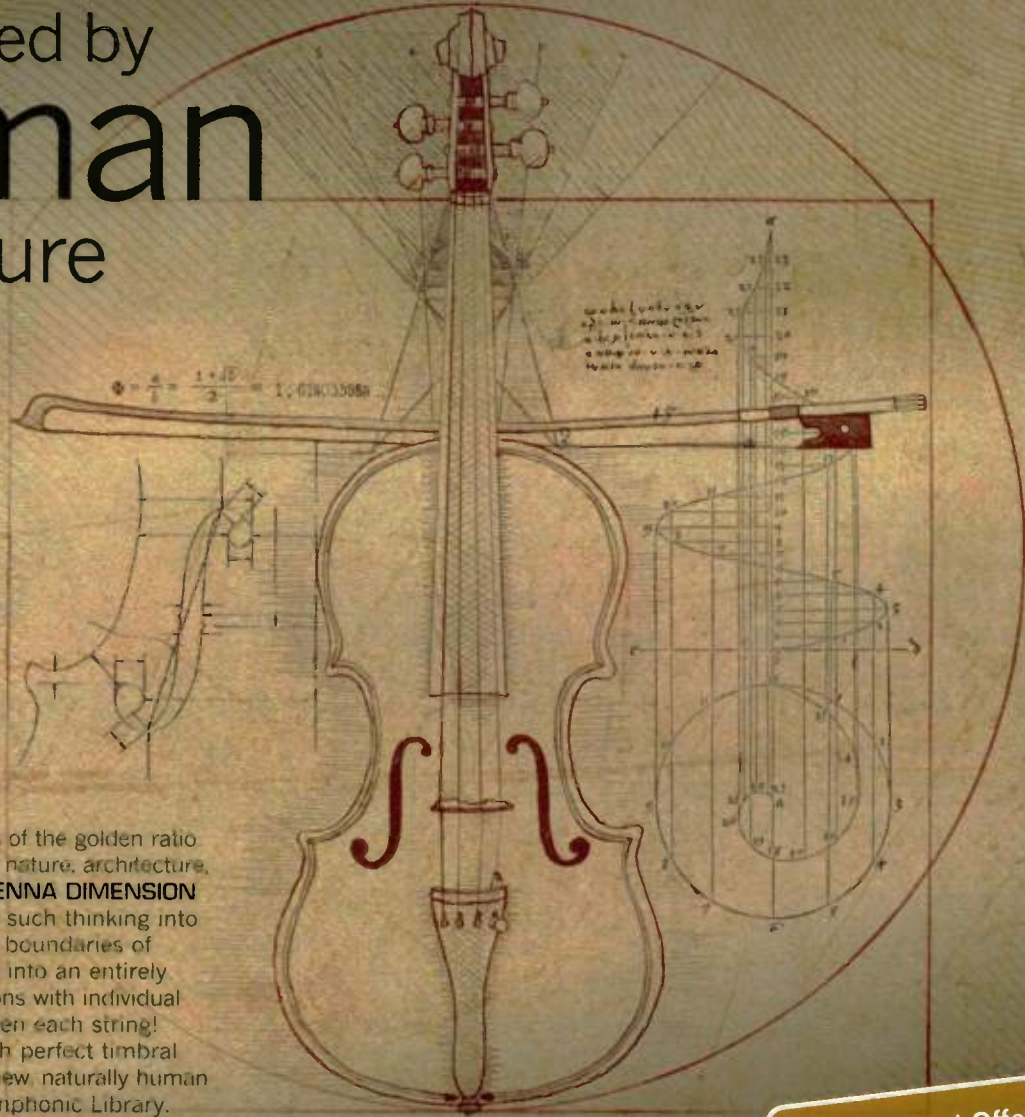
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SOUNDGARDEN

Back in the

Fifteen years after *Down on the Upside*, Soundgarden reunite to record *King Animal*, which reveals a new maturity in the band's musical kinship and creative collaboration in the studio

WHEN SOUNDGARDEN disbanded in 1997 after millions of records sold and the grunge style they helped birth having turned as clichéd as a plaid flannel shirt, acrimony seethed from every pore of their combined being. The band's black hole had finally sucked out the sun.

"We weren't behaving with the band's collective interest at heart," guitarist Kim Thayil reflects. "We had become selfishly oriented, and when you're selfishly motivated, that's not good for bands and families and other partnerships. When you're younger, you champion your own selfish interests. Those behaviors are oriented less toward the band and more toward one's self, and those can be destructive elements in the survival



by Ken Micallef



Soundgarden (clockwise from top) — Kim Thayil, Matt Cameron, Chris Cornell, and Ben Shepherd.

of a band. They can lead to friction and conflict, which isn't good for the creative process."

King Animal, Soundgarden's first album in 15 years, confirms the rebirth of the band's mighty creative approach, encompassing their songwriting, performing, and recording processes. Recorded simultaneously to Pro Tools HD and two-inch tape, it's a blast of raw rock passion in an industry sorely in need of a scouring cleanse.

"I really can't stand modern pop music in the sense that everything is pitch corrected and Beat Detected and picked over to the degree that everything is perfect," singer Chris Cornell snarls. "I don't connect to it emotionally or in any way."

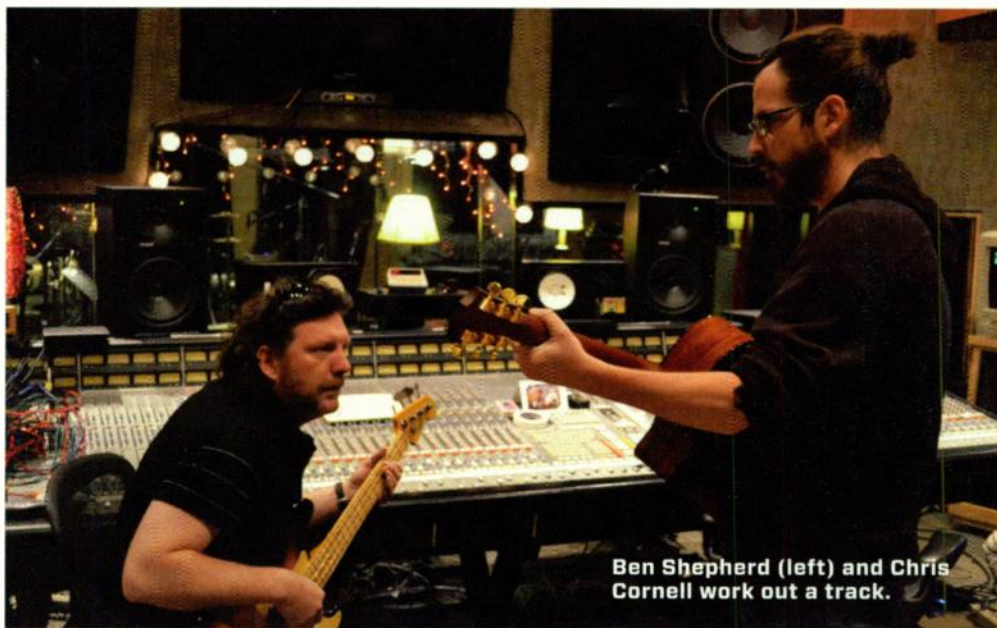
By contrast, *King Animal* is a natural, warm, and transparent recording produced by the veteran crew who helped track and mix 1994's *Superunknown* and 1996's *Down on the Upside*. Recorded on home turf at Seattle's Studio X, produced and engineered by Adam Kasper, assisted by second engineers Nathan Yaccino, Josh Evans, and Sam Hofstedt, and mixed by Joe Barresi, *King Animal* employed the digital domain, but with an analog heart.

"I recorded directly into Pro Tools HD and also off tape through a Studer A827," Kasper explains. "I lined up the tape portion with the Pro Tools track and that gave us both options. Coming from a tape background, you learn to record drums with compression and understanding how things hit tape. You want to get things pumping and sounding big, and I learned how to do that by understanding how tape responds to kick drums and snare drums and saturation. Running [the signal] through two-inch tape you get that flavor, so I always maintain that signal flow to Pro Tools."

"If you track directly to Pro Tools and tape simultaneously," he adds, "then blow up the waveforms in Pro Tools, you'll be amazed how the analog waveform looks rounded and limited, in a way, but the Pro Tools version has spikes and hard edges; your ears must be able to hear that."

Soundgarden's origins lie in the largely pre-digital mid-1980s, and they still favor the sound and style of analog recording. The band acknowledges the speed of digital tracking, but don't necessarily embrace the sonic results.

"Obviously, technology has changed quite a bit since 1996," Thayil says. "Engineers have greater facility working with Pro Tools, but we



Ben Shepherd (left) and Chris Cornell work out a track.

have an aversion toward Pro Tools. We like the way records sounded in the '80s and '90s, and we definitely think there's a difference between analog and digital. We were raised with LP and even the 8-track! When CDs first came out, I didn't like their sound. Maybe those fairly audible scratches and pops were part of the general ambience philosophy that I was used to hearing with LP. The LP sounded warmer in terms of the low end, and it sounded natural. The CD, it sounded like something was missing. And it seemed thinner and colder."

Soundgarden tracked drums and bass in Studio X's large live room, then overdubbed guitars in the control room, tracking multiple amps and effects simultaneously in an iso booth. For much of the *King Animal* sessions, Cornell recorded vocals home, alone, like a painter splashing canvas.

"Chris sang through a 1966 Neumann U67 modified to the original specs," Kasper explains. "It's the best mic for Chris, a blowing-up, spinning, killer sound. We usually run two compressors, an LA2A, and a UREI 1176, also a third one for monitoring, which helps a lot because Chris has low-range vocal sounds, then he gets up high. He has two different tones, at least. I don't EQ his vocal, but it does get a little sibilant at times so I may adjust the attack or deal with it later by de-essing. But that nice distortion happens organically with the tube mics and Chris screaming into them." [Laughs.]

Cornell diagrams his home rig as a "Chandler preamp, an LA2A, through an Apogee converter using a variety of different mics including a hot-rod U67. I used that on several songs on *Superunknown* and *Down on the Upside*." Logic Pro 9 is his platform of choice when going it alone.

"I've had the best luck cutting vocals by recording when I am the only one there," Cornell explains. "I started recording at home for that reason. I'd written a song, 'The Keeper' for a film called *Machine Gun Preacher*. I recorded the track at a friend's studio, but it wasn't happening. So I tried it again at home and it worked. That led to me singing a lot of the new Soundgarden album at my home studio."

"I'm not communicating with another person there so I can try ideas very quickly," Cornell continues. "Recording digitally allows everything to happen so fast. For instance, there's a harmony vocal in the chorus of 'Black Hole Sun'; I was recording myself and I threw it on there. I liked the way it sounded. If I was in a room communicating with an engineer, I might not have bothered. I couldn't have immediately listened back to it on speakers, which is a better way for me because I hate referencing vocal takes on headphones. I can't tell if it's what I want until I'm standing in front of speakers. Then, if I'm singing through the vocal chain that I will be using for takes, what I come up with can be the keeper takes. I can capture that weird spark that a demo has. I'm not over-thinking. It's all brand new and for me it works."

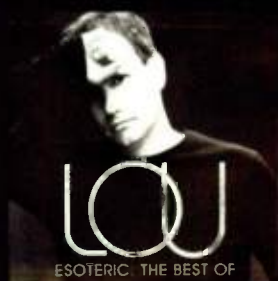
Cornell elaborates on his "demo as final take" approach: "There's often a spark to a demo, to the first time I sing something, where I'm literally reading the lyrics off a piece of paper cause I just wrote it. I don't know what the phrasing is or what the melody exactly is yet. It's happening in the moment and I'm demoing it then I discover it. And I have better luck if the vocal is the last thing I do. On *Down on the Upside*, 'Pretty Noose,' 'Burden in My Hand,' 'Boot Camp,' those were all the



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World Radio History



Cornell records resonator guitar.

first time I ever sang them, and those became the final vocal takes. I've beat my head against the wall many times where I did a demo at home, obviously not well recorded, but there's something about it that I just can't replicate no matter what I do or where I'm recording or who is engineering or what mic I am singing into."

But with Cornell and Thayil's unusual guitar tunings, it can be difficult for Cornell to get his voice around a track, even if it's one he has written. In those instances, he or Kasper (who supplied many of the guitars, basses, and amps for the session) will insert a reference note as an anchor.

"Harmonic tension is often a large part of what it is about the personality of a recording that I like," Cornell says. "That harmonic tension is necessary but there's a limit to how much that works. [Laughs.] There's a fine line between tension and awful. And I can straddle that line surgically; I will obsess over it. The first song I ever did with Soundgarden, 'She Likes Surprises,' we were out of tune but we liked the recording so I played a very clean electric guitar track strumming bar chords through it, which I never would have done as an arrangement. And then I sang to that and we liked the feel. If we add a track just

for vocal reference, sometimes it will work within the context of the song. We do it to have something warm to sing to so I don't have to struggle for pitch."

"I really can't stand modern pop music in the sense that everything is pitch corrected and Beat Detected and picked over to the degree that everything is perfect."

—Chris Cornell

"The big challenge has always been having something Chris can sing to," Kasper adds. "Chris has such volume in his voice that he projects acoustically. I have to get the headphone mix up above his singing volume

so he can pitch off of the track. Everything is really hot, so sometimes a guitar might be too fuzzy or slightly bending oddly so we might put in a clean guitar or a piano chord for him to pitch off of. Once he has something solid to sing to, with the volume and the response of the compressors set, then he just nails it."

Kasper added effects both during and after Cornell's vocal takes. "When you hear panning, feedback, and delay," he explains, "that's AudioEase Speakerphone plug-ins. They're amazing. You can do three or four effects simultaneously, and they're all actual samples. You can have a Leslie effect in a bedroom or a garage with an old Neumann mic running through a speaker phone. We'd use that for vocals. We might run a guitar through a Speakerphone plug-in but we used it mostly for vocals. It has filters, compression, all kinds of EQ, speaker phones, and radio toys. These are actual things they have found and sampled and you can see little pictures of them. They even use a trunk speaker from an old Volvo."

Soundgarden was no less painstaking when tracking guitars. In a band where everyone, including drummer Matt Cameron and bassist Ben Shepherd, compose on guitar, Thayil had his hands full. "On every record we've

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made except for our first Sub Pop EP, Chris and I would double the guitar performances,” Thayil explains. “But these days, I like more of a streamlined guitar sound. And it’s less time consuming to create. But the multiple guitars are still in there (Thayil: Guild S300, Guild S100, 1966 ES335 Trini Lopez, Gibson Firebird, Gretsch Duo Jet; Cornell: Gibson ES335, Gibson Archtop, Gibson Les Paul Custom, Martin D28). I’d record one guitar, Chris would do another one, sometimes an acoustic (Neumann M49, 10 inches away, aimed at the 14th fret), and we’d record different amps simultaneously (Mesa Boogie Electra Dyne/4x12 cab, Mesa Boogie Tremoverb, 1970s Ampeg combo, 1950s Fender Champ, Divided By 13 FTR 37/2x12 cab, Matt Cameron’s 1960s Vox AC30). We miked them separately (Shure SM57, with Royer 121 and Neumann U87), isolated them with a room divider, and aimed each one differently. We’d create a blend of the different amps. We might put a delay on one guitar or treat them as separate tracks. And it’s also easier to accent certain parts of the arrangement now. We’d have one main performance, then go back and overdub a chorus or color a certain guitar section. We’re accenting or emphasizing different parts.”

As on all Soundgarden albums, *King Animal* features some of the greatest guitar sounds this side of Frank Zappa’s nicotine-drenched SG. “Been Away Too Long” buzzes with cathartic, manic tones; “By Crooked Steps” offers freakish delights; “Bones of Birds” closes with a dying crow’s cry.

“The guitars in ‘Been Away Too Long’ sound like angry mosquitoes,” Thayil laughs. “There’s a number of things there: a delay, and tremolo, and vibrato. We were really trying to make it sound as dentist drill-like as possible—shrill and piercing. We cranked up the high end on some pedal. And we have a digital Leslie pedal that creates a Rotovibe, Leslie effect. It captures a fast spinning Leslie. We wanted to make that sound as irritating as possible.

“By Crooked Steps’ is more of a performance thing,” he continues. “I’m playing beneath the bridge on a custom Gibson ES 335 Trini Lopez. I’d do that effect on my Guild S100, which I love, as well; both of them have a lot of room between the bridge and the tailpiece. You can get the string to sound out like harmonics playing it there, so I was picking beneath the



SOUNDGARDEN
JOE BARRESI
ON MIXING
KING ANIMAL

On his recording tools . . .

I use Pro Tools HD3 or Studer A800 tape machines for playback through my SSL G+ desk. If there is any digital processing, it may be a de-esser inside the box (like Massey or McDSP plugins), or the occasional delay effect with [Line 6] Echo Farm. All processing is usually analog and done on the SSL, with access to a wide variety of outboard gear as inserts, effects, etc. I have an Alan Smart compressor and Sontec EQ on the stereo bus into a Lavry A/D for the main mixes. For compressors, it could be Tube-Tech, Pye, Neve, Distressors, etc., along with the console channel compressors. Most EQ is done on the desk, except some Quad 8 and Neve strips for fattening; delays are always Wem. I have nine sets of speakers—everything from NS10s to KRK V6s, NHT Moos, NHT A-20s, NHT M100s, M-Audios, Radio Shacks, Acoustic Research, and Blue Skys—and I try to listen on as many as I can, to see how well a mix will translate on all types of systems.

On balancing the mix . . .

On this record, I tried to make the panning like the band plays live—with most of Kim’s guitars on the left, most of Chris’ on the right. I’d say this holds true on about 85% of the album.

When Adam and the guys tracked, they basically recorded multiple amps as a single performance, leaving them on three to four tracks, so I had complete control to rebalance the guitars as I saw fit. This flexibility allowed me to change guitar sounds in different sections of the song if I needed to.

On carving out an articulate low end . . .

My main concern was to keep the bottom end of this record big. I loved the bass on *Superunknown*; when those songs were played on the radio, they destroyed anything played before and after, so I tried to keep the bass on this record as important.

On the “hi-fi” aesthetic . . .

There are a few tracks that are on the dirtier side—that comes from overdriving the desk or certain pieces of gear. It’s fairly normal in the analog world to think in terms of gain staging because there are so many variables: playback levels, line inputs, insert points, fader levels, parallel and serial processing, etc. I don’t think many people think like that when mixing strictly digital. For instance, I could change the sound of the vocal by how hard I would push it into the channel limiter or the inserted compressor—not something I would ever think of in the digital world. But for the most part, I tried to keep the record open and more “hi-fi.” Matt’s drums sounded great, and a lot of that is derived from the overheads and room sounds, so that was the starting point for each mix. Then I made sure Ben and Chris’ voices got heard through the wall of guitars. Sometimes reamping the bass and certain vocals through small amps worked to make them sit in the track better.

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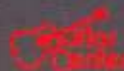
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bridge while bending the string either at the nut or above the 12th fret, which gives you this higher, shriller sound. Then we threw a delay on it. It creates a ghostly, spinning, turning sound when you add the delay.”

Cornell’s “Bones of Birds” is one of the album’s most memorable, menacing moments, a study in sludge ecstasy spinning a tale of time lost and survival of the fittest. It ends with eerie cries. “I love guitar solos just being a swirling squeal for 30 seconds and not having to actually play anything,” Thayil says. “‘Bones of Birds’ was like that. The effects at the end sound like a murder of crows. That was something Adam read about that Pink Floyd did on *Mettle*. It’s a backwards wah wah and a delay and then controlling the volume knob and dialing it in until it’s right about to squeal and twist and bend. You cock the delay pedal at a certain angle and just by turning the volume off and on you get that ‘whee whee’ bird’s sound.”

Ben Shepherd switched between Fender Precision and Fender Telecaster Precision basses, played through an Ampeg SVT VR head/8x10 cab and a Mesa Boogie Carbine head/6x10 cab. Nathan Yaccino printed a Little Labs DI combined with Neumann U47 FET “for each cab, placed far away—mic placement for guitar is close, but for bass it’s backed off ten inches and aimed at a middle driver.”

Currently playing switch hitter between Pearl Jam and Soundgarden, drummer Matt Cameron is the band’s not-so-secret weapon, his staggering ease in navigating the band’s odd metered grooves and oddly phrased guitar rhythms part of his formidable style. Add to that Cameron’s incredibly deep pocket and musical phrasing, and you have a drummer beyond compare.

“With Matt Cameron, you could put up one 57 five feet away from the kit and it would sound awesome,” Yaccino says. “He almost mixes himself while he plays, the way he hits all the drums is very even. It’s so easy to record him, it’s unreal. We did have room mics up, but Matt wanted more of a dry sound, so we didn’t use the rooms. Studio X has a large live room so we stuck the drums smack center in the middle of the room, which is unusual. We were then able to bring baffles around him and be more strategic about placement. Having more control over deadening, we had 360-degree space to place baffles.”

Yaccino used two mics on Cameron’s bass drum: a Shure Beta 52 inside and a Neumann U47 FET out, Shure SM56s (the prototype to the 57) for snare bottom and top, Sennheiser MD421s for toms (tops only), and Audio-Technica MK40s as overheads left and right, and an old RCA ribbon 77 as center overhead, placed 12 feet high and 15 feet on either side pointing away from the drums. As with the guitars and bass, Neve 1073s were used throughout the signal chain.

“A big part of the drum sound is the overheads. Close-miking was just if we wanted to boost the level, the main sound is coming from the overheads. Matt wanted a dry sound. No room mic sound at all, no reverb, no triggers. I pumped up the low end and the compression to get a full kit sound.”

—Adam Kasper

“A big part of the drum sound is the overheads,” Kasper explains. “Close-miking was just if we wanted to boost the level, the main sound is coming from the overheads. Matt wanted a dry sound. No room mic sound at all, no reverb, no triggers. I pumped up the low end and the compression to get a full kit sound. With a great drummer it’s almost better if you use less mics. A player like Matt can mix himself in the room pretty well. He isn’t hitting the cymbals too hard, and he plays as a performance. If a drummer is bashing cymbals way too hard, those mics will collapse and the toms will sound tiny.”

Sixteen years on, stronger, still strange, and more proficient than ever and ultimately surpassing the hoary grunge tag, Soundgarden lay most rock bands to waste on *King Animal*. The album may create its own tsunami in style, and perhaps scald clean the sensitive croons and subdued strums that have replaced much of what used to constitute American rock. Cornell may not love gridding nor Beat Detective, and Thayil will probably never maintain a personal Pro Tools rig like his fellow band members. (He commits everything to memory.) But does he see any advantage in digital technology?

“Of course,” Thayil replies, “it expedites recording. There’s no downtime between takes. With Pro Tools, you can do 20 takes almost immediately and decide which one you like best. We used to do analog backward effects. Chris did that brief backward guitar part in the beginning of ‘By Crooked Steps’ when he was demoing vocals, on his computer. We used to do backward guitar solos by flipping over the tape and playing to the track. With Pro Tools, I tried turning the computer upside down but it didn’t work! Doing things like that are pretty amazing facilitated by the computer. The benefits are pretty amazing in that things work quickly, but it’s the way things sound. I do not like things that sound all Pro Tools-y, I like things to sound organic and natural.”

Thayil hasn’t forgiven digital or embraced Pro Tools. But Soundgarden has made personal amends, and accepted each other and their extraordinary musical kinship. “It’s human nature to be somewhat altruistic in looking out for your brothers and offspring or parents,” Thayil muses. “It exists in various groups like that. So as a band we grew up. We loved each other as friends and as individuals but when you put four guys together in one band we may have neglected the band’s vision as a whole. We’ve matured, and we’ve all learned to appreciate our family and our band as a whole.” ■

Ken Micallef has covered music for the usual joints, including DownBeat, The Grammys, Rolling Stone, and Emusic.com.



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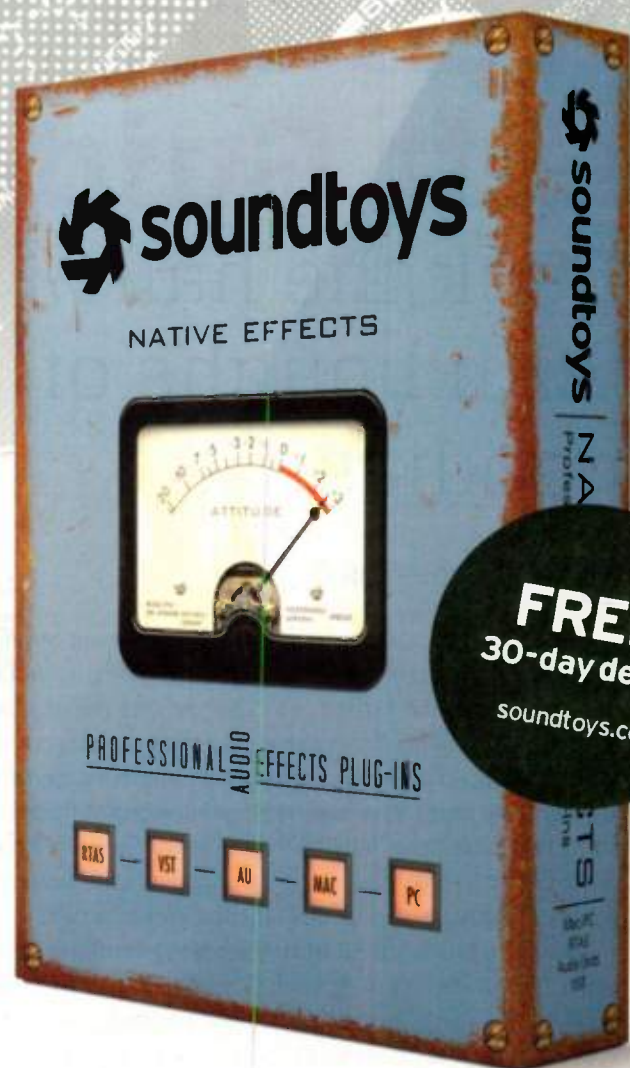
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The *Electronic Musician* Holiday Gift Guide

Deck the halls
with boughs of
goodies

BY CRAIG ANDERTON

HEY, you deserve it. Or maybe a friend or significant other deserves it. It's the end of the year, and you've survived 2012—the Mayan calendar turned out to be just a calendar and not a Prophet of Doom, you've cleaned all the mud off your shoes from stepping in political campaign commercials, guitars are still cool, the music business is showing signs of figuring out some new directions, and it's the holidays! Sure, your employer is too cheap to give you a bonus, but no worries—you can find yourself some pretty cool stuff for not a lot of bucks.

Following is a list of 22 worthy stocking-stuffers, arranged alphabetically by manufacturer; in recognition of what we'll euphemistically refer to as “economic realities,” all of them cost \$100 or less. To arrive at that price, we dispensed with the usual MSRP, MAP, “street,” and other weird numeric variants in favor of listing how much money you'll actually need to buy something (excluding taxes). But it's still a good idea to shop around—you might find some of these on sale. Happy holidays!



Laptop Stand

AKAI PRO

\$70

akaipro.com

Whether you're a laptop DJ, use a laptop for remote control in the studio, or need to save space on your desktop (the physical one, not the one with the cute little icons), a laptop stand is just the ticket. Akai's enigmatically-named Laptop Stand is, well, an affordable and sturdy laptop stand.

Gig Box

AMERICAN RECORDER
TECHNOLOGIES

\$30

americanrecorder.com

Talk about adapters: TRS to XLR, 1/8" to TRS, 1/8" to RCA, TS to RCA, RCA to XLR, dual banana plugs, rackmount screws, cable ties... you get the idea. Think of it as gig insurance for all of those times, when you're trying to fit a round peg into a square hole. Or jack.



Mikey Digital
BLUE MICROPHONES

\$100

bluemic.com

Give your iOS device the gift of good audio with a stereo condenser mic that plugs into the device's digital connector, thus bypassing the onboard audio preamp and converters. It even has a line/guitar/mic-friendly input and sensitivity switch.

D5S-6 Spray
CAIG DEDDIT

\$20

caig.com

It's a contact cleaner, conductivity enhancer, and does your laundry. Okay, it doesn't really do your laundry.

But if you're tired of hearing crackles when you turn a switch or insert a plug into a jack, this is the droid you're looking for.

GrooveTech Guitar Player Tech Kit
CRUZTOOLS

\$60

cruztools.com

What a difference a good guitar setup makes—assuming you have pro-level tools, and a guide to tell you how to do it. This kit has both: tools include 11 hex keys, truss rod adjuster, thickness gauge, ruler, capo, cutters, string winder, and 6-in-1 screwdriver. The tools are lifetime guaranteed, too.

EBow
HEET SOUND

\$100

ebow.com

If you have to ask what it is, you haven't been paying attention: invented in 1969, it remains the coolest guitar accessory since the vibrato tailpiece. Formerly available only direct, you can now find the EBow at Sweetwater, Guitar Center, and various distributors worldwide.

iKlip Studio Desktop Stand for iPad
IK MULTIMEDIA

\$30

ikmultimedia.com

With the iPad becoming an increasingly popular studio accessory, where do you put it? This desktop stand holds the iPad securely, whether in portrait or landscape mode, at your choice of angles for convenient finger-pointing and swiping.

The *Electronic Musician* Holiday Gift Guide



Batt-O-Meter
KEITH MCMILLEN
\$22

keithmcmillen.com

I use this all the time because I use batteries. From checking a 9V battery for my beloved DriveTool Junior pedal to replacing the AAA cells in a wireless keyboard, the Batt-O-Meter doesn't just let you know if the battery is alive, but tells you its type and remaining capacity.

NANOKONTROL2
Slim-Line USB
Control Surface
KORG

\$60

korg.com

Korg makes a bunch of cool stuff for less than \$100, so this was a tough choice. But if you don't have some kind of control surface for tweaking virtual instruments, effects, and fader strips in your DAW, this hits the sweet spot between "I can actually use it" and "I can actually afford it."

IEC(F)-3 Prong(M)
Power Adapter
LIVE WIRE

\$4

livewire-usa.com

Uh-oh... you lost the IEC cable for your rack gear or keyboard or whatever. Carry one of these around, and you can plug your gear into any available AC extension cord. Someday you'll need this; might as well pick one up now.

2 LED USB Light
MIGHTY BRIGHT

\$15

mightybright.com

It's a DJ favorite, but any time you need to work with a laptop under low-light conditions, this light... uh... shines. Just plug it into your laptop's USB port, and two white, bright LEDs can light up the keyboard. It's also great for illuminating the back of computers and other gear.

Cable Station
Pedalboard
Cable Kit
PLANET WAVES

\$70

planetwaves.com

Pedalboard cables come in two popular sizes: too short and too long. So why not make your own? It doesn't matter if you hate soldering or are all thumbs, because the Pedalboard Cable Kit has enough jacks and wire to make five sturdy, high-quality, custom cables in minutes—without soldering.



Finally.

Finally—Sound Forge Pro, the standard-setting, industry-defining audio editor, is available for the Mac. Built from the ground up, it reboots the legacy with a contemporary working environment designed exclusively for OS X. This dynamic lightning-fast production tool provides a fresh outlook on Mac audio editing while delivering the exacting power and functionality you've been waiting for. Sound Forge Pro Mac has everything needed to prepare, process, and render finished audio master files. It further enhances the legendary Sound Forge quality with iZotope™ Mastering Effects Bundle, a suite of essential high-end processing plug-ins, taking your experience farther than you thought possible. Sound Forge Pro Mac redefines your editing experience.

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Scan to see a full list of Sound Forge Pro Mac features.

The *Electronic Musician* Holiday Gift Guide



TriPad Mic Stand Isolator

PRIMACOUSTIC

\$20

primacoustic.com

Primacoustic comes up with a lot of products that are so simple and obvious that no one ever thought of them before. Case in point: TriPad. Put these on your drum mic stands, and cut way down on vibration transfer. Cheap, cheerful, and effective.

KS-18Z Keyboard Stand

ROLAND

\$75

roland.com

While keyboard stands are common, this one handles up to 198 pounds and accommodates 88-key keyboards. It weighs only 17 pounds, and folds up for convenient transport. I presume I'm not the only one who finds the words "sturdy" and "easy setup and tear down" appealing.

Meteor USB Mic

SAMSON

\$70

samsontech.com

USB mics are handy. USB mics like the Meteor with a fold-up stand, a headphone jack with volume control, and zero latency-monitoring are even more handy. And, if you want to strike up a lively conversation with TSA agents, just stick this cool-looking USB mic in your carry-on bag.

SM57

SHURE

\$100

shure.com

Yes, it's a classic mic. Yes, it's been used on thousands of recordings. Yes, it handles abuse amazingly well. And yes, it actually is a \$100 mic, so it's Shurely worth having this baby (or the Shure SM58, its \$100 relative) in your mic locker.

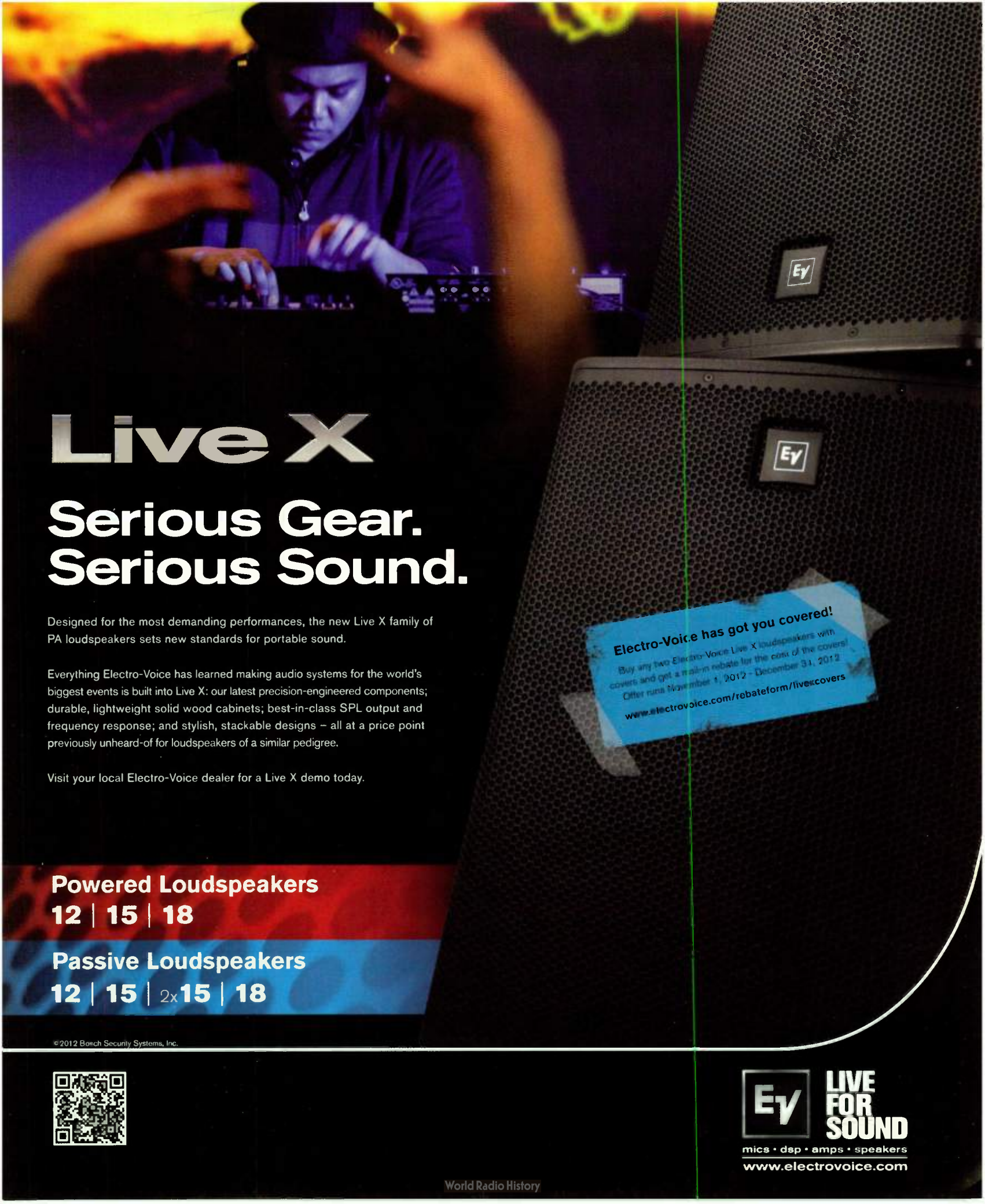
Guitar Case Roadie

STAGE NINJA

\$20

stageninja.com

This stupid-simple clever device lets you carry Two Things That Aren't Too Thick with Handles, like guitar cases, keyboard cases, gig bags, etc. So you can carry two guitars into the gig with one hand, and have a hand free for opening doors, scratching yourself, or fighting off adoring fans.



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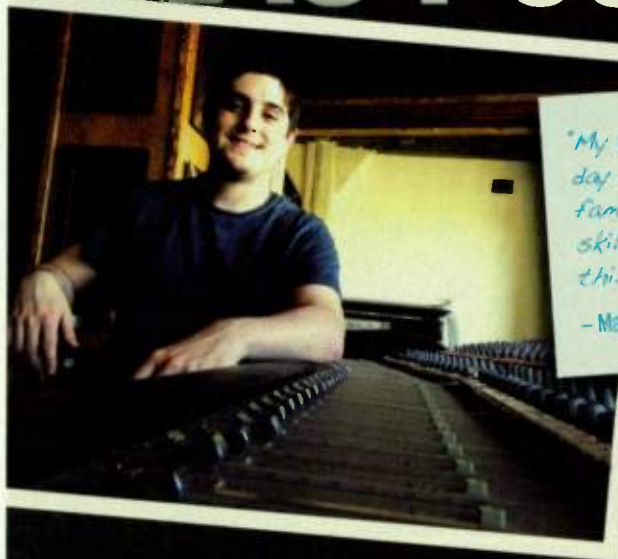
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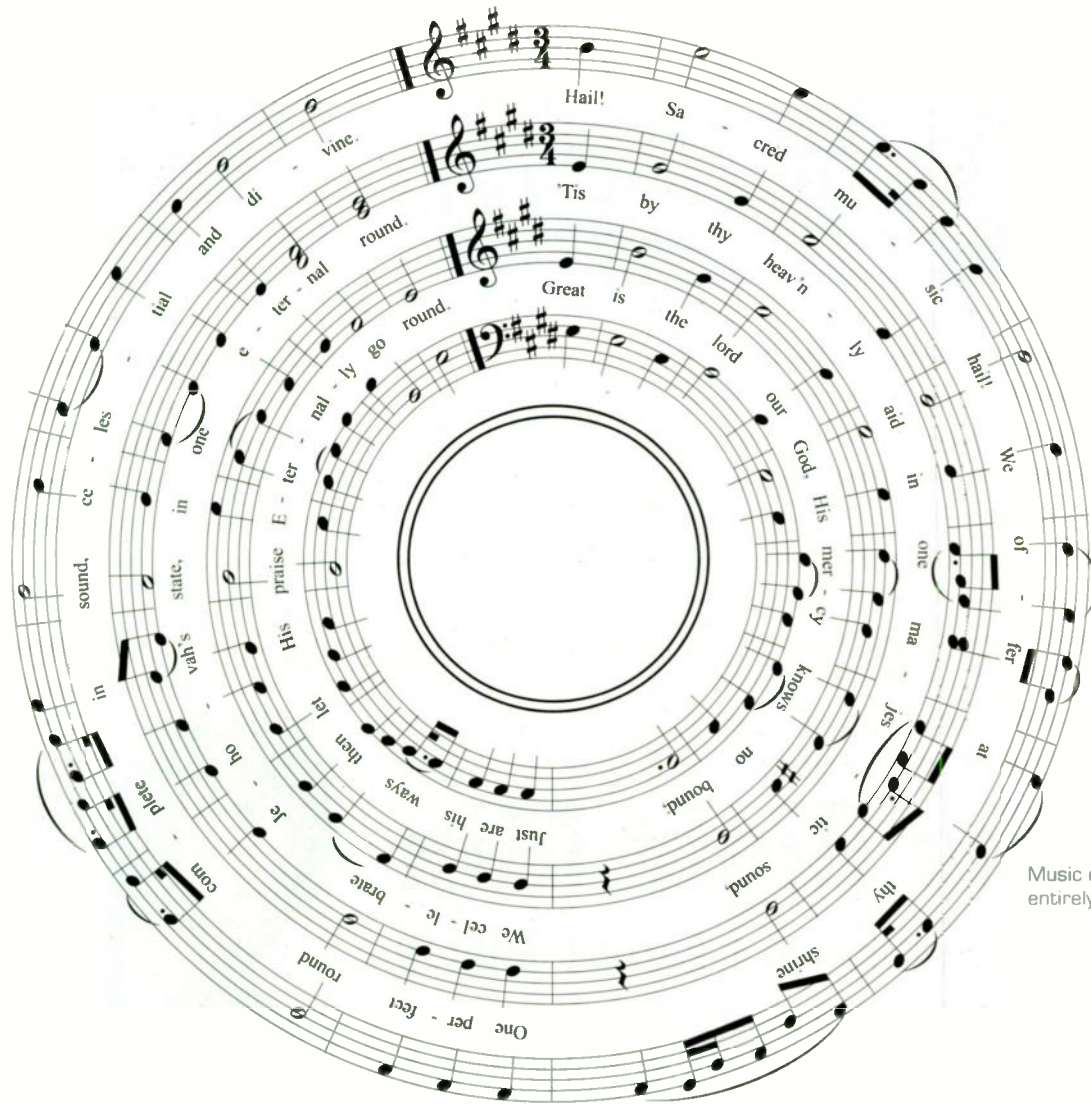
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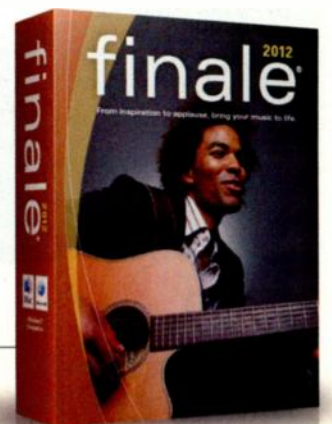


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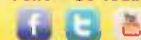
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Thanks guys! Very cool.

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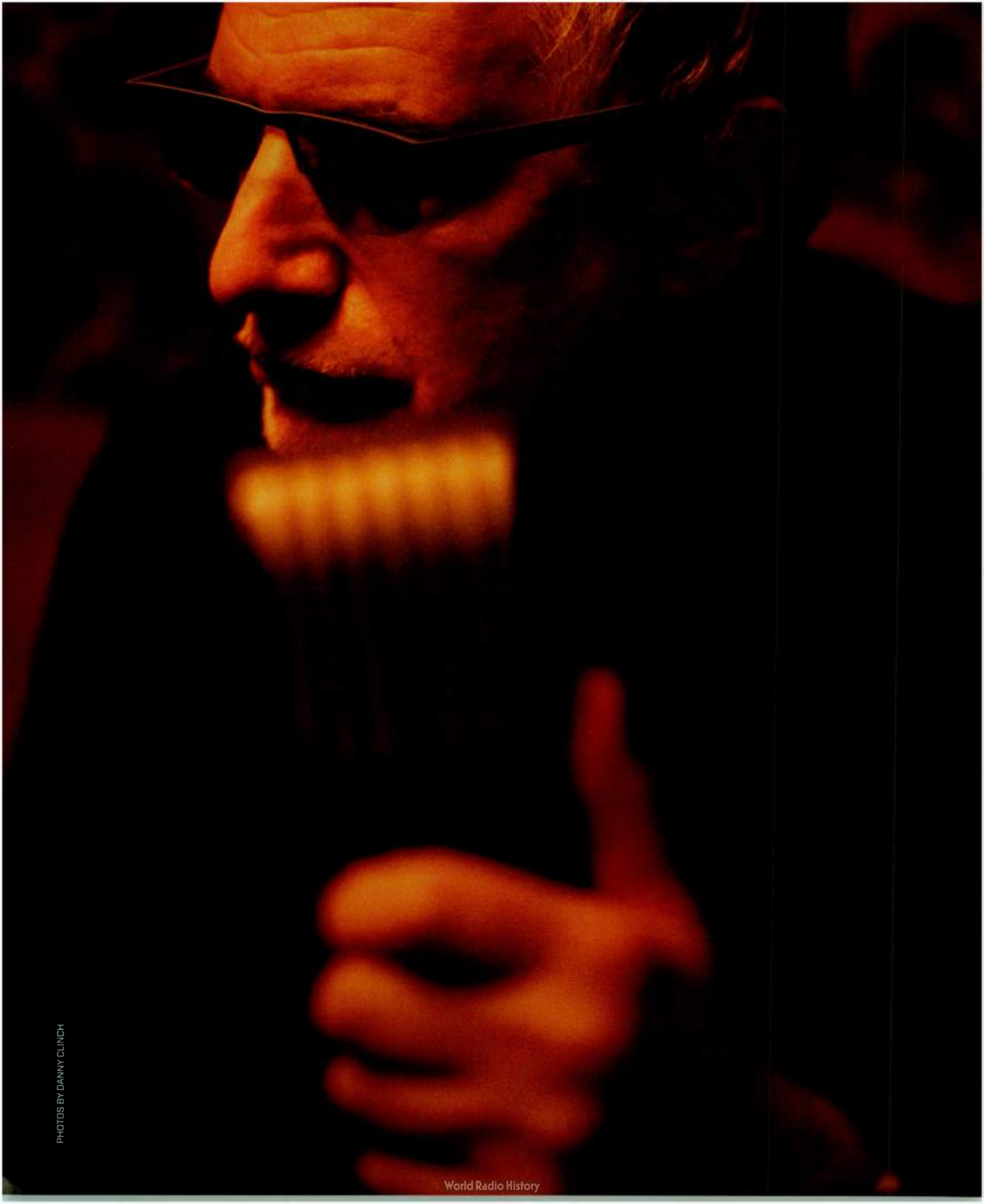
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LISTEN

Donald FAGEN

A studio perfectionist adapts to new recording models, warms up to digital, and gets into the groove to create *Sunken Condos*

BY KEN MICALLEF

WHEN PLANNING his fourth solo album, *Sunken Condos*, Steely Dan's Donald Fagen knew he wanted a warm, rich sound, the kind he and Walter Becker achieved when working at such fabled New York rooms as A&R and Automated Sound. "Those studios all had their own sound and each room had its own sound," Fagen recalls. "The live chambers at A&R were famous because Phil Ramone had tuned them a certain way. We used them when we were mixing *Aja*. They had this beautiful sound when you clapped your hands, a really transparent sound. It didn't have any of that "ssh" you hear with digital echo. It was beautiful. We always looked forward to working in those studios. But now you have to adapt."

Even for an artist of Fagen's stature, new rules insist on guerilla recording and getting the most bang for your studio buck. Joined by longtime Steely Dan associate, multi-instrumentalist, and producer Michael Leonhart, Fagen and a cast

of Steely Dan regulars set off on recording at such boutique New York studios as Audio Paint, Hirsch Studios, Stratosphere, and "Pat Dillett's Studio," as well as Sear Sound, Avatar, and Leonhart's own Candyland.

"The incentive was to find a place where we could have a lockout seven days a week to have more time and perhaps save money," Leonhart explains. "*Morph the Cat* was recorded almost like a live jazz album, with musicians in the room and not a lot of overdubbing; it was a break from the Steely Dan records and Donald's earlier solo albums. Donald wanted to approach this one like a painter, doing some things live and overdubbing other things. When you're adding Prophet 5s and keyboards that have different tunings and soloists are coming in and out, you need a lot more time."

Lacking the corporate backing once afforded Steely Dan, Fagen and Leonhart were also looking to save money. "If we're paying \$2,000 a day,

seven days a week, that's 14 grand," Leonhart says. "So we figured, 'How do we do it and maintain the fidelity?' I made up an Excel chart diagramming which studio would be best for each element of the session. It's like being a parent and deciding which school the kids are going to."

But saving cash didn't mean they scrimped on gear. Candyland, where drums and some instruments were recorded, is a feast of vintage keys including an Optagon, Hammond L100, Clavinet D6, Prophet 5 (from *Aja*), Fender Jaguar organ, Hohner E7 clavinet, Roland Juno-6, 140 and 200A Wurlitzers, Hohner Bass 3, Farfisa organ with a Partner 14 Drum Machine, Crumar organ, and a '70s Realistic synthesizer by Moog, as well as Univox Hofner bass, Melody Maker bass, and an electric sitar given to Leonhart as a wedding present from Walter Becker. Leonhart records in Logic, and uses outboard gear including a UA M610 pre-amp, Shadow Hills Quad Golden Age, Altec 1591a, Teletronix LA2A, and Neumann U87 and KM84, JRS-34 Cloud and Shure SM57 microphones.

Ultimately, the bang is in the buck, *Sunken Condos* sounding extremely rich, nuanced, and clean. Fagen's vocals are especially relaxed sounding, and the intimacy of Leonhart's drum work (credited as "Earl Cooke, Jr.") imbues the entire album with a cozy R&B groove.

Sunken Condos sounds very warm and intimate. Was there a sonic template for the album?

Fagen: I've always looked for a natural sound. I like a fairly dead room; I don't like a big roomy sound. It was recorded mainly in two studios. We did some horns in the bigger rooms, but I think it's really just a matter of taste and just knowing what mics to use. Using tunable keyboards are important. They sound more natural than synthesizers.

Was recording in smaller rooms about getting the most out of limitations?

Fagen: Pretty much. Even though Steely Dan recorded in the greatest studios, we never needed really high-tech gear. We always had some state-of-the-art stuff, but as far as instruments, we used traditional instruments for the most part. Getting a good sound is really a matter of taste, if you want to know the truth. It's not so much about equipment as knowing the difference between what sounds good, and what only sounds good for a minute. You have to know what's going to sound good next week.



How does one develop those ears?

Fagen: I really don't know. Walter and I always used the jazz we heard on those records that Rudy Van Gelder used to make for Prestige and Blue Note; that was our template. His records sounded clear and dry, pretty much. Although they sounded very lively.

Do you have a home-recording rig?

Fagen: Yeah, in the beginning, I gave Michael some really cheap demos made in GarageBand. I play everything myself without time correction. I try to get the good groove. I just use whatever sounds come with GarageBand, then I [compose] a drum track and a bass track and a couple keyboards and something that sounds a little bit like a guitar and something that sounds a little bit like a clavinet. I do a little rhythm arrangement of the tune. Then Mike played drums to my arrangements, and we had a drum track. Then we started replacing the parts with real basses, and real pianos, and Rhodes pianos.

What's your process for tracking vocals?

Fagen: If I write a song, I don't practice it; I work it out in the studio. I sing the song for the first time in front of an engineer. And then kind of work out how I want to do it by doing takes. I can see why someone if they're good at clicking a button and recording themselves, that's a good way to do it. I like to have an engineer there. I do a lot of takes.

Michael, how did you record Donald's vocals?

Leonhart: Donald needs, in the digital realm, absolutely zero latency. That's an issue with a lot of digital gear. We were recording the vocals

in Logic; Pro Tools to me has a better system for latency; it's been designed that way. With Donald, we had the mics set up and the levels were good so I would just hit record and make sure nothing was going over [into the red]. A key part of the chain was the Metric Halo L10-8 A/D converter; I can't say enough about it. The Metric Halo provided zero latency compared to other pieces. The whole chain was the Metric Halo, the [Teletronix] LA2A, his U87, the UA 610 preamp, and Mogami cabling. Then it was the mix. Just the right amount of groove, then a sense of pitch to give him something to latch onto. I approached my vocal guidance as a lover of his music and his lyrics. He had all the melodies set, and he would sing and I'd use my best bedside manner, there would come a point when he needed to do more takes, or I might recommend a melody line. We developed a sense of trust. And I think he sang his ass off.

What kind of effects did you use on his vocals?

Leonhart: We used some Altiverb plug-ins on vocals in mixing to an SSL board, but we always track vocals dry. We used a little compression from the Teletronix LA2A, just kissing it. In mixing, we also had an EMT 250, a Bricasti Design reverb, and a Studer 2-track for slap. The UA only goes down to -10, so I used an in-line pad, which colored it, but for non-super-high volume, it's great. We also had a Shadow Hills Quad GAMA with the mod to switch between nickel (Focusrite), iron (Neve), and steel (API) transformers. Donald's first vocals went through the Neve setting then we moved to Hirsh.

So Michael Leonhart is "Earl Cooke, Jr."?

Fagen: Yes, that's his *nom de musique*. Michael



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would get behind the drums sometimes at Steely Dan soundchecks and I thought he had a great feel. So when we started doing this record, I gave him one or two tracks to play on, and he sounded so good that he ended up doing all of them. Being a jazz musician from a young age, he has this little shuffle in his feel, very old-school, and relaxed. That really made the record feel like it does.

Michael, how did you approach the drums on the records?

Leonhart: After choosing the right drums, including a Ludwig & Leedy snare from Homer Steinweiss, and 1970s Ludwig drums I borrowed from Sean Lennon, we started recording what we thought we would be demo drum tracks. Sometimes Donald would say, "It sounds great, do another pass and send it to me tomorrow." I

would do the takes, the feel would be there, but the sound wasn't right. There was no rush; Donald is never in a hurry. I am a very limited drummer; I do what I do. But nothing is triggered.

Did you grid the drums?

Leonhart: Everything went to click. But Donald is not looking to put everything on the grid, because that feel is awful. Steely Dan was notorious in the '70s and '80s for trying to create the perfect drum take. Moving these tiny increments that 99% of the world can't hear. But Donald is open to anything to get that feel, that snap, but we didn't line up the kick drum in Pro Tools. That's not a human feel. So when I was engineering and cutting things up, Donald wouldn't look. The easy thing would be to snap it to the grid. But Donald has the patience and the discipline to disregard the visual aspect. We recorded the drums in my studio using a Shure SM 57 or vintage AKG D1000E on snare, two Cloud JR34s as overheads, Neumann U87 or Audix D6 on the kick, an old MD421 on toms, and a KM84 on the hi-hat, with no room mics.

The record is very intimate sounding.

Leonhart: That wasn't a mistake; it took many months to do it. We put up baffles for horns and drums in my studio. At the brownstone, it was a long space, so we put up gobos and cut the room in half. We put up baffles and turned the control room into an iso booth and used the live room as my station to monitor. We did it very patiently and made wise chess moves.

Did Donald enjoy working in the smaller studios?

Leonhart: Well, after mixing the album, Donald asked very sweetly, "Where does it go now? What do I get? Tape or acetate?" I said, "We can email you a hi-res version." "What is that?" he said. "What planet are you on?" Donald is amazed by those mesmerized, catatonic people who walk down the street looking at their phones.

Is recording in smaller studios about working within the limitations?

Leonhart: Absolutely. I got used to asking myself, "Is there any ambient noise, hard drive noise, refrigerator noise?" When you're in a huge studio, that is usually taken care of. But even in world-class studios, I've heard playbacks where overheads are not on, or they're clipping. Rookie

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sh*t. People get sloppy. Working in smaller studios takes more concentration; you have to be very careful to not f*ck it up. For example, today in my studio, it's raining; I can't record. So today we'd take a break until it stops raining. Sometimes, it was a nuisance to have to check everything in smaller studios and make sure things were not losing fidelity. With Donald's albums, if there's the slightest instance of things

smearing or being out of phase or cancelling, it's thrown out. We got rid of an entire seven-horn arrangement on a Steely Dan recording because the flutes were wrong. Knowing that, you have to really be careful. That's Donald's level. I am a fan of lo-fi and sampledelia, or The Band albums; there's an honesty and integrity to that. But with Donald, that's not the medium. The medium is getting this extremely rich,

three-dimensional thing. That's been the nicest compliment, people saying this is rich and full and tight sounding.

Donald, do you miss the days of working with analog consoles and tape compared to digital and its speed?

Fagen: The greatest thing about tape was how a really experienced engineer knew how to saturate the tape when recording drums or guitars to fatten everything up. It was a very delicate thing. You don't want to sound distorted, but you do want a little of that saturation that you get using analog tape. Someone like Phil Ramone knew how to do it; Elliot Scheiner learned it from Phil. It really made the drums sound great. Everything sounded a little warmer on tape. But because we did so much overdubbing, after a while the oxide started to come off and we had a lot of errors. We had a lot of trouble with tape; it would come off cause we played it so many times! So I actually like working in digital.

How do you feel about the notion of working at smaller studios and being more self-reliant?

Fagen: Well, I think it makes sense. You can really set up a little studio in your house; that's obviously the way to go. It's too bad, 'cause I love recording in [pro] studios. I love the differences between them. I loved working at A&R and Automated Sound and all these great studios that had these beautiful-sounding rooms and I loved the way they smelled and the wood! It was fantastic. And also, I like having a second engineer, and someone to go get coffee and all that stuff! [Laughs.] But that's not happening now.

Leonhart: I tell people to surround themselves with experienced people. When you're with someone who has a lifetime of experience, that's how you learn. I can't record a 30-piece orchestra; I would be sh*tting my pants. So I know when to call someone in. Studio gear is only made to further a great idea. I like gear, but I prefer a great idea, something you can't buy or put your hands on. It's great to understand the gear, but do it with humility, realizing that there are people who only do this stuff. That's their passion. The guys at Daptone and Truth in Soul learned by failing and going to the guys from the '60s and '70s. You learn it by making mistakes with people who can show you how to correct it. ■

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Rana June

“Three-dimensional DJing” with 16 iPads, wireless rig, and biometric interaction

BY TONY WARE

RANA SOBHANY grew up in McLean, VA, a neighborhood in the shadow of the CIA’s Langley headquarters, one surrounded by defense contractors, and the kind of place where the average overheard conversation is peppered with acronyms and abbreviations. One acronym you rarely hear there, however, is DJ, which is a prefix Sobhany, who performs as Rana June, acquired in 2010 when she first gained attention as “the iPad DJ,” a foundation

she has worked hard to expand upon.

The only acronyms and abbreviations that ever mattered to a young Sobhany, however, included USB, modem, Telnet, HTML, and MP3; and speaking in code wasn’t playing spy, it was computer programming. “Steve Case [co-founder and former CEO and chairman of AOL] lived a few blocks down from me,” reflects Sobhany. “The Dulles corridor [a nearby high-density region of corporate

headquarters] was such a technology hub. I’ve been on a computer since age four . . . the idea of instantaneous communication was always a part of my life.”

Admittedly flirting with a childhood interest in politics, not uncommon for someone growing up within the Washington, D.C., Beltway, Sobhany eventually went the high-tech business administration route. This ultimately led to her involvement launching Medialets, a mobile analytics/rich media ad platform that has grown alongside the Apple App Store, which is equally apropos for someone McLean-bred, as the first brick and mortar Apple Store was opened in nearby Tysons Corner Center mall in 2001.

It was following the introduction of the iPad in 2010 that Sobhany found a way to merge her longtime interests. “This just happens to be the area that I’m the most passionate about: the intersection of data,



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music, mobile technology and human-computer interaction,” she says. First performing with a traditional setup of two iPads cued through a DJ mixer, Sobhany used programs such as Korg’s iElectrube and Sound Trends’ Looptastic HD to sequence rhythms before Algoriddim’s Djay was released as a one-size-fits-all solution for less ambitious mobile party rockers. Inspired by the clips in an evolving scene structure from Ableton Live, informed by analyzing the chords and keys that elicit the most audience response, Sobhany has used an understanding of behavioral patterns and multitouch processing to book gigs as she integrates in-house, purposely engineered apps, and tactile consumer technology (such as Microsoft Kinect and Google Glass) into her self-defined workflow.

“It’s not just some auditory change [I’m triggering]; they can come up and watch me physically manipulate this music and create a brand new auditory-visual emotional experience in connection to that song . . . it’s a three-dimensional version of DJing,” says Sobhany. “It’s performance art meets music production . . . the name ‘iPad DJ’ was given to me by someone else; I’ve always associated more with music producers.”

Content for shows comes both from commercial singles and Sobhany’s home studio, which is centered around a MacBook Pro Retina 2.7GHz quad-core Intel i7 laptop running Logic and Native Instruments Komplete 8 suite, as well as Native Instruments Maschine and the Waves Mercury bundle, Spectrasonics Omnisphere and FXpansion DCAM Synth Squad, among other programs. Various hardware controllers, interfaces, and monitors allow for live guitar and outboard synths to be incorporated.

Using a meticulous preproduction nomenclature system, Sobhany has metatagged all her clips, noting key, BPM, genre, even applying keywords for mood; this all-inclusive compiling allows Sobhany to do away with excessive pre-cueing, which helps compensate for some unavoidable latency in iOS, which is still a developing operating system on sleek but far-from-over-clocked hardware. Assisting in combating latency (as well as multitasking and gestural) issues is Sobhany’s increasingly multifaceted custom setup, which now uses 16 iPads to trigger drums, leads, bass lines, and samples, as well as to manage reactive lighting for the iPads’ custom Plexiglas performance

surface and collect biometric data that could one day potentially be interpreted and interpolated into a performance that uses heat-mapping and pulse to read an audience’s real-time response to the music’s direction.

“There are so many different timbres of



Sobhany assembling her rig.

“I’ve been on a computer since age four . . . the idea of instantaneous communication was always a part of my life.”

—Rana June



Mobility is key to Sobhany’s performances.

sound that you really do need the ability to experiment live . . . so that contributes to the importance of the redundancy factor,” says Sobhany. “It’s just helpful to be able to queue up several things and then to make decisions. I think it really helps the artistic process.”

Facilitating the transmission of this

ensemble to the audience is a selection of Shure hardware, including the PSM 900 wireless in-ear monitoring system, the UR1M UHF-R micro bodypack transmitter, the UR4D+ UHF-R+ dual-channel receiver, the UR2/KSM9 transmitter, plus the PA805SWB and UA860SWB antennas. Having a proven wireless component partner allows Sobhany the flexibility to achieve more mobility and audience interaction than a traditional DJ can accomplish. In addition, Sobhany maintains a Mackie Onyx 1640i mixer to administrate what is essentially a live multitrack session.

Sobhany recognizes that the technology is constantly evolving, and she is glad for it. She looks forward to and hopes to contribute to advances in mobile processing power, wearable technology and inter-device communication that will contribute to removing friction between the creative process and performance. “There is that Steve Jobs quote, quoting a Wayne Gretzky quote: ‘I skate to where the puck is going, not to where it’s been.’ That’s why I wake up every morning.”

Sobhany is always looking for new data to quantify and new innovations to amalgamate. Always with an eye to future shows and moments of inspiration, she keeps her treasured means of artistic expression close to the vest.

“You know, DJs travel a lot; you’re at an airport all the time,” reflects Sobhany. “Now with all my wireless equipment, there’s about \$50,000 worth of stuff in my pelican case, so it’s pretty much handcuffed to me everywhere I go. That’s the ultimate security; they’d have to saw my arm off to get these babies.” It goes to show that you can take the girl out of the land of politics and espionage, but maybe you can’t take all the covert operations influences out of the girl. ■

Tony Ware is a writer/editor, audio enthusiast, and the proud owner of one well-loved iPad 2, which he uses to defeat bad piggies and make flatulent basslines when not scouring the Head-fi.org forums in search of the perfectly tuned accessory.



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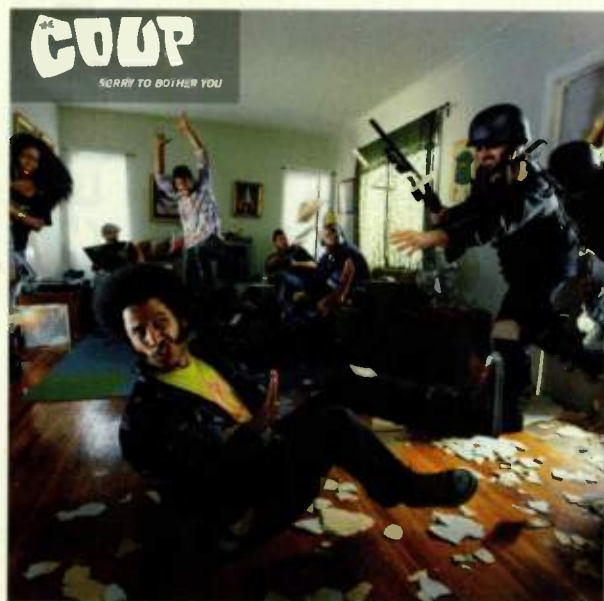
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Lonerism

MODULAR

Australian psychedelic merchants Tame Impala return with their vision refined, their mechanics excelled, and their melodies as head-trippingly colorful as an injection of peppermint psilocybin. Exploring sun-spotting guitars, sci-fi synths, and reverberating rhythms, *Lonerism* combines *Magical Mystery Tour* with *Are You Experienced?*, levitating listeners skyward and beyond.

KEN MICALLEF



Nero

Welcome Reality +

INTERSCOPE/CHERRYTREE

UK production duo Dan Stephens and Joe Ray, with vocalist Alana Watson, lob the gnarled synths and dystopian bombast of '90s rave architects such as Joey Beltram and Messiah atop highly torqued hook-oriented dubstep. Repacking 2011's debut, the team adds two original compositions and one Skrillex remix to the initial 14 tracks. The additional sound design reinforces arena-minded arrangements with tense chords, aggressively detuned bass drops, and brightly forged riff-oriented bass-house, and increased midtempo contortions.

TONY WARE



David Wax Museum

Knock Knock Get Up

MARK OF THE LEOPARD

On their sophomore effort, *Knock Knock Get Up*, the David Wax Museum stud their always-charming, Mexican folk-influenced arrangements with more effects—fuzzed-out guitars, smeared horns, looped mariachis, and vocal adlibs. With these manipulated elements added to layers of percussion, fiddle, guitar, accordion, and vocal harmonies, Wax and co. have perfected fusion for roots music lovers.

BARBARA SCHULTZ



Junkie XL

Synthesized

NETTWERK

Tom Holkenborg (Junkie XL) has been busy composing for films and video games, so the fact that he can even find the time to crank out a new solo album is a blessing. *Synthesized* starts out as an ambient electronic affair ("Take Off on Molly's E"), but quickly picks up the pace with the hip-hop-flavored "Off the Dancefloor," with rhymes by Isis Salam, and the dance-pop bliss of the title track, featuring Anneli Axon.

BILL MURPHY



Various Artists

Electrospective: 1963-2010

EMI

Only in this era of corporate cooperation would EMI Music, Mute, and Virgin join forces for a compilation including Kraftwerk, Brian Eno, Depeche Mode, Massive Attack, Daft Punk, the Chemical Brothers, Air, and Radiohead. Duran Duran and Pet Shop Boys also appear, hardly necessary to an "Electrospective," but it's not titled "Electronic-spective," is it? A remix compilation (*de rigueur*) accompanies a global "multi-platform" marketing campaign. Alternately, you could buy the original LPs for cheap.

KEN MICALLEF



Buddy Miller and Jim Lauderdale

Buddy & Jim

NEW WEST

Buddy and Jim: two great singer/songwriters who sound great together. These two revered country artists host a radio show together on Sirius FM's Outlaw Country, and now they've made these wonderful duets. Stellar guitar work and strong harmonies are central to diverse approaches including the surf noir of "Vampire Girl," the bluesy "I Want to Do Everything for You," and the rockabilly shuffle of their beautiful "Looking for Heartache Like You."

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MOX8



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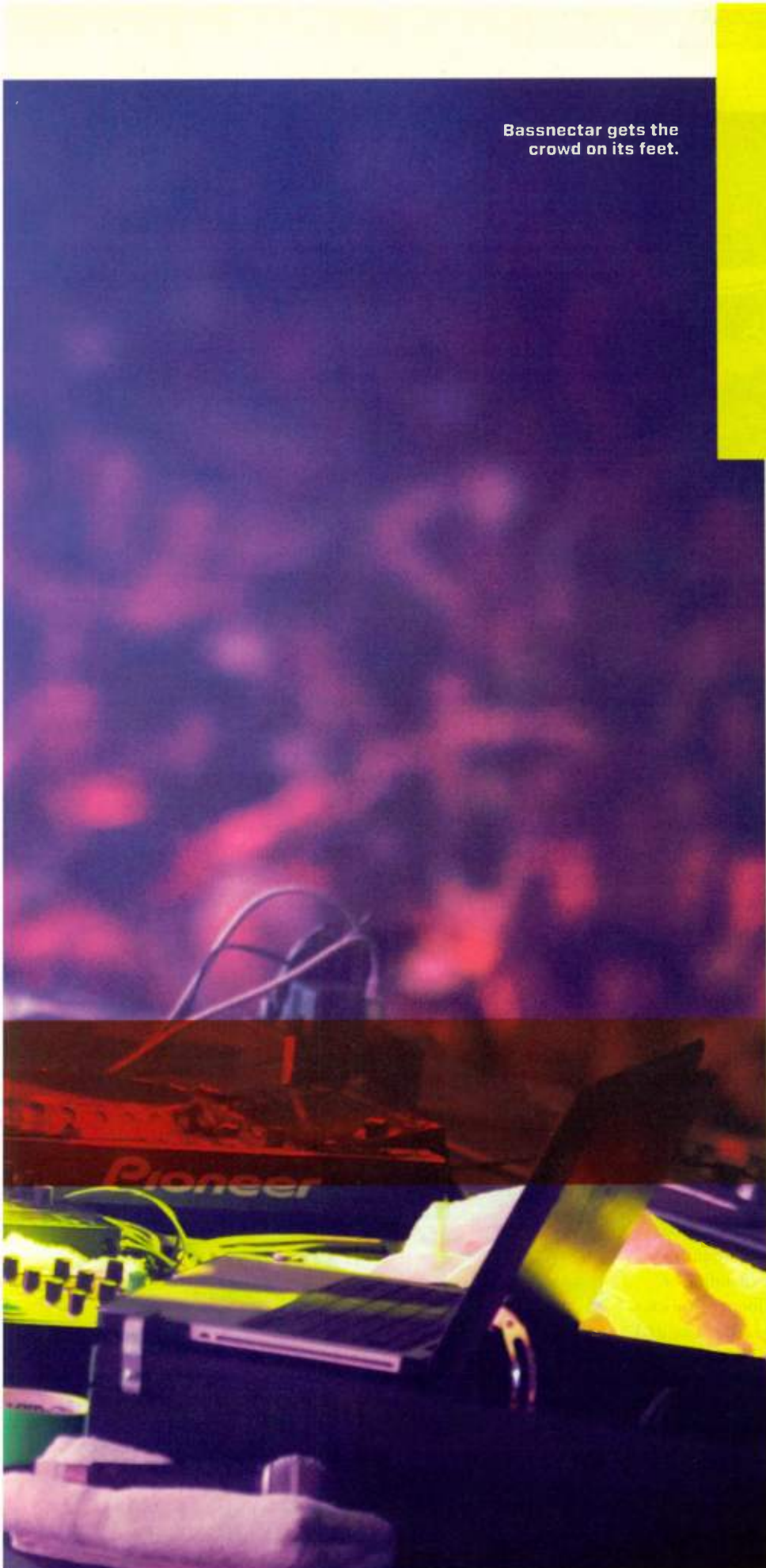




Roundup

Cool Tools for DJs

PHOTO BY DAVE VANN



Bassnectar gets the crowd on its feet.

LUST

Versatile gear for everyone, from beginner to pro

BY CRAIG ANDERTON

YES, I'M a musician. And yes, I *can* play an instrument, thank you—and actually, that's why I'm so into DJing. Like recording, it's a different way to interact with music, and the DJ setup is becoming a sweet blend of gear that's part instrument, part recording studio, and part sampler. It's a new type of instrument with new challenges, and what's more, it's racing headlong toward a musical reality that pushes the envelope of the things that can be done with deconstructing and reconstructing sound.

This roundup is a good example of how the DJ world has expanded: We cover educational programs for the total beginner, sophisticated monitoring options, iOS devices you can toss in a backpack, semi-traditional controllers, “controllerist” controllers, and even hardware/software instruments that speak to DJs. It's a world where anything goes, and one which you ignore at your peril.

The bad news is that yes, you may lose your gig to a DJ. The good news is that DJ might be *you*—and you'll enjoy every minute of it.

Numark

N4 DJ CONTROLLER/MIXER

\$699 MSRP, \$499 street

numark.com



Positioned toward the upper middle of Numark's line of controllers, the N4 4-deck controller incorporates a 4x4 audio interface. Despite its reasonable price, it definitely has a pro feature complement and vibe; while the plastic case construction saves money, it certainly seems sturdy (the tall, rubberized knobs have virtually no "wobble") and offers the added benefit of making the N4 easy to carry around.

Ins and Outs The I/O is generous—XLR main outs, and separate RCA master and booth outs (with individual front-panel level controls for main/master and booth). Decks 3 and 4 can switch over to stereo RCA jack inputs, switchable between line and phono. The class-compliant USB interface works with Mac

OS X/Windows (98SE on up) and accommodates recording your sets as well as computer control; the front edge is endowed with two mic ins (both with gain controls, and one with bass/treble), PC/input source selectors for decks 3 and 4, crossfader contour (scratch and normal), and two headphone jacks (1/4" and 1/8"). The global wall-wart adapter handles 100–240V.

Software The controller/software fit is a big deal, and Numark has taken the unusual step of packing in two programs—Serato DJ Intro and VirtualDJ LE. Serato DJ Intro is two-deck software that seems optimized for simplicity, stability, and tight scratching, although it has fewer "bells and whistles" than VirtualDJ LE, which is four-deck software with two samplers per deck and three hot cue buttons. Another advantage of VirtualDJ LE is that if you do the optional-at-extra-cost upgrade to the professional version, you can use turntables with timecoded vinyl or CD players

with timecoded CDs for audio file control, and output full-screen video. N4 also supports Traktor, UltraMixer, djay, and PCDJ, but not Serato Itch.

Mixing Each deck has 3-band EQ, 45mm level faders, and load and cue buttons for loading music into the decks and cueing the material you've loaded. You'll also find the expected jog wheels and controls/buttons for pitch, effects, loop control, transport, key lock, and similar functions, as well as the unexpected video transition knob (which doubles for doing track selection with the browser) and fade controls—yes, control your videos while you're controlling the audio. In Scratch mode, the top of the jog wheels becomes touch-sensitive and optimized for scratching, while the sides serve the usual pitch-bend functionality for tweaking tempo. The pitch sliders are 100mm—nice—and indicate original playback pitch/speed via LED.

Final Mix The N4 seems oriented more toward controller-oriented DJs than hardcore turntablists, with its main claims to fame being versatility with affordability—while offering more features than you'd expect at this price. In particular, being able to handle a wide variety of input sources takes the N4 beyond being "just" a laptop DJ software controller to being a capable standalone mixer sans computer; and the inclusion of two different, valid pieces of software is also a cool move, as users can choose which "flavor" of DJing they want to do. The N4 is a tough controller to beat, but an easy one to use.

Sound Trends

META DJ IOS APP

\$19.99 MSRP

soundtrends.com

This stellar iPad DJ app uses a four-deck paradigm, but each deck can be a conventional DJ-style track deck with (of course) iTunes integration, or a looping-oriented module, or one of four different instruments. Then there are the effects. . . .

Track Deck This has the basics and then some, with features like automatic BPM analysis and downbeat detection, the ability to

sync decks, easy loop in/out to create loops, four cue points, and "auto-loop" for expanding or shrinking loops to various bar lengths. Touching and swiping the waveform does scratching. This resembles a conventional DJ deck; if you can navigate Traktor, you're good to go.

Looptastic This is just plain cool. Picture an Ableton Live Scene, with



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World Radio History

up to ten loops playing constantly; but each loop is represented by a little square icon in a fader track that—surprise—is like a fader cap, and you can mix all these loops in real time. Touching anywhere along the fader track brings in the loop at that level.

Instruments The app includes two synths, the Drumtron drum machine and SaMPL3R. These aren't so much editable as they are playable, based on the content you load into the instrument. For example, with Drumtron, what appears to be a matrix for programming beats actually contains patterns in the various cells for different drums; you can play these in real time, or hold combinations of patterns to create drum loops. This may sound limiting, but in practice, it's easy to add patterns to go along with the Track or Looptastic "decks,"

especially as the patterns are organized intelligently in terms of musical complexity.

SaMPL3R works similarly to Drumtron, as you can load arpeggiations, bass, chords, drums, leads, etc. These can be patterns, or by choosing Synth, you can call up a keyboard that's chromatic or constrained to various scales.

The other instruments include One Shot, which lets you load or create a bank of up to ten one-shot samples, drawing from enough content that I didn't feel like taking the time to count the number of samples (e.g., female voice, male voice, shouts, fx, etc.). The Riser instrument resembles a dual tonal KAOSS pad, where one pad controls volume and pitch/filter, while the other controls modulation. Although these are "canned" sounds, like the other instruments, they're fun and supplement the Track and Looptastic decks well.

Effects All four decks can be processed by up to four effects in series, drawn from a roster of 15 effects and controlled via X/Y pad. You can control one effect at a time, and return to the underlying deck at any time. One semi-exception is Looptastic; it splits its faders into three zones, which can have independent effects.

Final Mix Other features include Numark iDJ Live and Acid file support, headphone cueing with a specialized cable, Airport output, MIDI sync, the ability to record your set, the option to buy additional content (as well as download free content), and more. But forget all that, and concentrate on the bottom line: This is a ton of fun, it's no toy, and it has a welcome amount of sophistication. But don't say I didn't warn you—it's habit-forming.

Stanton

SCRATCH DJ ACADEMY MIX!

\$69 MSRP, \$49 street
stantondj.com

This cross-platform program is intended for those who want to get started in DJing, but from the standpoint of putting together cohesive mixtapes and sequences of tracks as opposed to learning the tricks and techniques of controller-based DJ techniques. As such, it's more about experimenting with song orders, harmonic mixing, coaxing tempos and crossfades to mesh together, and then exporting the mix into the program's "Mix Vault."

While I can do without lines like "mix the music on your computer into one seamless set—just like a professional DJ!," MIX! can be very helpful for those who need to know the ground rules of DJing; in addition, short tutorials explain concepts like beat-matching, scratching, crossfading, stretching, and even some music theory. These tutorials aren't particularly deep, but their conciseness makes them valuable for beginners.

How it Works The process begins by loading your songs into the library, although the program comes with some content to get you started. Considerately, MIX! points to your existing song locations rather than copying a duplicate set and burying it somewhere

in your root drive. You can then drag songs into a playlist to build your mixtape. If you click on one of the playlist songs, songs in the library with related tempos or keys are highlighted, which suggests what you might want to add next to the playlist.

MIX! creates automatic crossfades among the various songs, but you can tweak these with respect to where the crossfading starts, the crossfade length and curve, and also add scratch effects (with several options) when transitioning between songs. You can preview the transitions, and tweak them until they're as seamless as possible. In addition to crossfades, there's the option to perform drops (*i.e.*, cut directly from one track to the beginning of the next track, with no crossfade) if you want to transition from, for example, a track with a tempo of 127 bpm to one at 133.33 bpm. However...

Going Deeper You can take MIX! considerably deeper. For example, opening



a song information window allows changing the tempo and key of individual tracks, the tightness of beat grid analysis, setting double- or half-time, tap tempo, and the start point for beat 1. While these may be complex concepts, they're easy to edit. Furthermore, MIX! uses zplane's algorithms for stretching, key detection, and beat detection (all of which are very accurate); you've heard zplane's work before with various other popular DAWs. There's also a master track with automation

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ACOUSTICA

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curves for tempo and level, as well as automation for high, mid, and low EQ gain.

Final Mix When I first checked out MIX!, I wasn't that impressed precisely because the

program accomplished what it set out to do—fence off the more advanced sections to make it easier for beginners. Digging deeper, though, revealed additional ways to optimize your mixtapes and in the process,

learn more about the aesthetics of DJing. Whether MIX! is for you or not depends somewhat on your level of expertise in DJing, but find out for yourself: Download the free trial, and check it out.

Dangerous Music

SOURCE

\$1,099 MSRP, \$899 street
dangerousmusic.com

Dangerous Music's Source is an unusual product with many applications, including DJing. Geared for portability, Source monitors and routes a variety of input sources via high-end conversion, noiseless switching, and superb headphone amps. Its size and form factor suggest laptop-based audio production, but it's equally at home in small studios.

Ins and Outs Source has independent monitoring sections for headphones and speakers. Both have buttons to monitor any or all of four shared inputs: stereo XLR+1/4" combo analog ins, stereo minijack, AES/SPDIF XLR digital in (with associated passthrough connector), and USB for stereo audio output from Mac/Windows machines.

Two front-panel 1/4" headphone outs share a single volume control, and two separate speaker pair outs (XLR and 1/4") have their own shared volume control, too. An additional, fixed-level line out mirrors the speaker section's selected set of inputs. The speaker outs are designed for powered monitors, so they're essentially beefy line outs.

Interestingly, Source includes two power connectors that match the included global wall wart. Presumably a single adapter couldn't power two Sources, but Dangerous hints at

possible future accessories.

Monitoring The speaker section can switch between two sets of speakers, but all buttons—input and speaker selectors—are set up cleverly so they can toggle momentarily or latch. Furthermore you can enable input and speaker buttons within their groups simultaneously, or program them so enabling one in the group disables the others.

Using It You can bring in stereo audio from a controller/interface, or via USB from your computer, and send it (with level adjustment) to the 1/4" TRS outs for booth powered monitors and to the XLR main outs. The fixed-level line out is ideal for recording. Meanwhile, you can monitor an iOS device or similar player from the headphones without sending the signal to the main out, but then enable it to the speakers when appropriate. Better yet, send a DJ program's cue output to the computer's 1/8" audio output jack, and patch it to Source's second analog in. (Simply aggregate interfaces with a Mac; with Windows, use ASIO4ALL to enable the USB ASIO and WDM onboard audio simultaneously.)

Given the Dangerous pedigree and design, it probably goes without saying, but I'll say it

anyway: The sound quality is somewhere beyond excellent. Mixing with Source becomes a superior audio experience.

Final Mix While it's not difficult to route cue and main mixes separately, I'd love to see four channels of USB I/O for this; and the ability to set separate levels for the two speaker outs would be convenient for booth setups. However, Source isn't just a DJ tool, but has multiple studio uses—feed in a digital mixer or audio interface output (or computer USB out) for distribution to the two headphones and speakers, switch between speakers for comparison, send one set of speaker outs to monitors and the other set to a sub, switch between a reference CD and your master out, record a mix back into a DAW by routing the line outs to two audio interface inputs, and the like. Ultimately, "going to the Source" means routing and monitoring that are portable enough for laptop DJs, but robust enough for studio work.



IK Multimedia

iRIG MIX

\$99.99 MSRP
ikmultimedia.com

This mobile mixer works with one or two iOS devices (iPad, iPhone, iPod touch), or an

iOS device and other player (CD, MP3, etc.) to provide "DJing to go," needing only an AC outlet for the mixer's global wall wart.

The Hardware The mixer has two channels with 60mm level sliders, each flanked by a four-LED level meter. The 60mm crossfader

has the requisite "loose" feel. Controls include per-channel cue button, and bass, treble, and gain controls; master controls are volume, input select, and X-Sync (covered later). Interfacing offers RCA stereo outs, 1/4" headphone jack with level control, two 1/8" audio input jacks, and Micro-B USB power

Arturia

MUSICAL INSTRUMENTS



Oberheim 2-Voice



Wurlitzer 200A
1972



ARP 2600
1971



Moog Modular Systems
1964



Moog Minimoog
1970



Yamaha CS-80
1976



Sequential Circuits Prophet VS
1983



Sequential Circuits Prophet 5
1978



Roland Jupiter-8
1981



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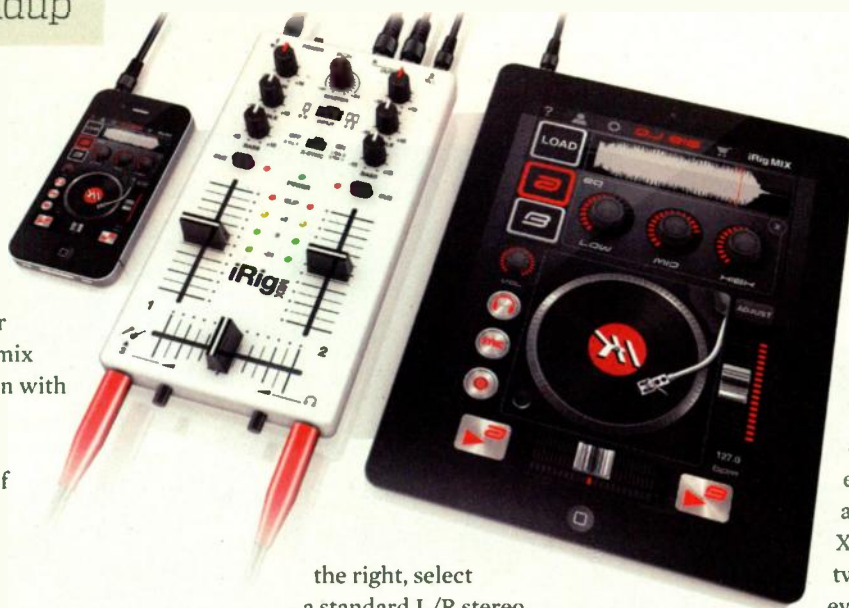
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supply connector. A second 1/4" jack provides a third input with level control for guitar/bass/mic, which you can process through an iPad app (like IK's AmpliTube), then run it into input 1 while audio from another device feeds input 2. Or, simply mix this input (without processing) in with the other two inputs.

The Software A free version of IK's DJ Rig app (also for iPad, iPhone and iPod touch) gets you more than started, while the full version costs \$19.99. You'll find the basics and more: two turntables, each with low/mid/high controls and associated solo buttons, automix, level and crossfader, bend up/down, sync, cue, pitch adjust, and four banks of nine one-shot pads. Each pad has individual level and pitch controls; replace the pad sounds to create a custom collection, or record new sounds.

The three output routing options are also appreciated, and make it possible to use a single iOS device—you can route the main out to the left output with cue (headphones) to



the right, select a standard L/R stereo output, or split each deck to its own channel. Three crossfader curves, and a crossfader filter for transitions, are available. Note that the software controls don't "talk" to the mixer (e.g., changing the hardware's crossfader doesn't change the software's crossfader).

The full version allows for setting internal loops within the audio along with slip and hold, offers four cue points instead of one fixed cue point, provides a waveform view, adds content, and includes six effects (lowpass,

bandpass, and highpass filters; delay, stutter, and phaser) while the free version is limited to the lowpass filter. All effects have a KAOSS pad-style X/Y interface.

X-Sync This is very cool: When using two iOS devices, or even an iOS device and an external audio source such as an MP3 or CD player, enabling X-Sync can sync music on the two different devices. You can even match the iOS device to the external source, although of course, X-Sync is most effective with rhythmically consistent program material.

Final Mix iRig MIX is portable, light (the case is plastic), relatively inexpensive, and capable; it not only works with DJ Rig, but also the free versions of AmpliTube, VocaLive, and Groovemaker. IK has been in the iOS game for a while, so it's not surprising they'd come up with something like this—but that doesn't diminish its cool factor.

Native Instruments

MASCHINE MK2

\$669 MSRP, \$599 street
native-instruments.com

The original Maschine did so many things right, and became so popular with musicians and DJs (it's often synced with Traktor), that an update seemed somewhat superfluous. MK2 doesn't address any "fatal flaws," because there really weren't any. But it does offer workflow improvements, some extras, and accessories.

NI didn't mess with the features that made Maschine a hit: easily navigated hardware control coupled with pattern-based sequencing software, lots of content (with optional expansions), sampling, multi-effects, and stand-alone or plug-in (VST/AU/RTAS) operation. But with the benefit of years of observing the ways people used Maschine, NI zeroed in primarily on workflow.

The Accessories

The rugged, all-metal Maschine Stand (\$79) tilts Maschine when used on a tabletop to a more playable (and LCD-readable) angle, and includes a mounting adapter for mounting Maschine like a snare drum on 7/8" drum clamps. Rubber pads on the base make sliding around virtually impossible, and pins hold Maschine in place on the stand.

Maschine comes in white or black, and you can customize it with colored, metal (not cheap vinyl) faceplates that cost \$79 and affix to Maschine magnetically so they're easy to

swap out; matching knobs are included. (While the stand and the new 1.8 software version are compatible with the original Maschine, the faceplates aren't.)

Mechanical Changes Maschine MK2 makes excellent use of LED-colored pads



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KURZWEIL
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(which are also somewhat more sensitive than the original). For example, you can make the cymbal pads yellow and the kick red for consistency among kits; furthermore, the drums shown in the software acquire the same colors. You can also associate colors with scenes, groups, and patterns. The buttons “click” for positive feedback, a big master encoder with push switch simplifies editing, and the two displays are more readable over wider viewing angles.

Software Changes For those who don't own *Komplete* or *Massive*, the inclusion of the *Massive* virtual instrument is a big deal. It's a dubstep mainstay, but it's also a fine,

big-sounding (and CPU-hungry) synth; you get *Komplete Elements*, too. The other refinements mostly involve workflow so you can stay more in the “hardware domain.” Time stretching and pitch shifting are now brought out to the Maschine interface itself, and the Transport controls can trigger your DAW's transport. This version includes new tape and tube modes for the Saturator effect, and a transient shaping effect—if you don't already have a transient shaper, this is a very useful addition. (Try it on the bass samples, too.) You can now audition individual sounds before loading them, and while this is not a new feature, it's

worth pointing out that being able to drag-and-drop MIDI and audio files into your DAW from Maschine is welcome.

Final Mix Like other beats fans, I took immediately to Maschine; those without Maschine are fortunate to be able to start with MK2. For owners of the original, MK2 isn't “mandatory,” as the 1.8 software is compatible. However, this also means the original version retains its value, so it could be worth selling and moving to MK2—which offers some undeniable benefits. Native Instruments has been generating one hit after another these days, and Maschine MK2 is most certainly one of them.

Novation

TWITCH

\$624.99 MSRP, \$349 street
novationmusic.com

It took a while for DAWs to break from the “tape recorder/mixer replacement” paradigm, and most DJ controllers still follow the dual-turntable model, even though software is going where conventional DJ setups never ventured. Native Instruments' solution was to go modular; Novation has retained the single unit approach, but re-invented it for a controller-oriented world.

The Hardware Twitch packs a lot into a small footprint. Bus power adds to the portability, although the lights seem less bright than controllers with dedicated power supplies. Replacing the jog wheels with touchstrips isn't just about a major size reduction, but a different way of working: It's much like “swiping” and grabbing with touchscreens, and I imagine those raised on iPads will feel right at home. You can even “pinch” to adjust loop lengths, and with a little practice, do decent scratching.

Outputs include separate master (1/4" TRS, not XLR) and booth (RCA) outs, with the booth switchable between master and cue. A built-in, cross-platform 2x4 USB interface allows direct monitoring, and the mixer incorporates an auxiliary RCA stereo input with gain control. The front includes 1/4" and

1/8" headphone jacks, and 1/4" mic input with gain control.

In addition to 60mm level sliders (also assignable to effects—cool) and 45mm crossfader, other controls provide standard functions such as low, mid, and high EQ for the two decks, effects controls, loop options, rotary pitch control, autosync, etc. More highlights: each channel's eight pads, which trigger cues and loops but aren't dedicated solely to those tasks.

The Software Twitch is *Itch*-centric and includes the program, but is not as tightly wedded to software as some other controllers. It includes an overlay for *Traktor* (2- or 4-deck mappings, with easy toggling between deck pairs, and excellent use of the pads for assignable control), and was also designed with *Ableton Live* in mind—download a *Live* template for Twitch-oriented sets, as well as

a “translator” utility to optimize Twitch's MIDI messages for *Live*. While it's not as tight a fit as the Akai APC series controllers, those who use *Live* in a more “DJ” way will find Twitch a fluid controller.

Slicing and Dicing One advantage of using *Itch* is Twitch's control over *Itch*-specific mappings, like slicing. The software slices the file into eight equal-length cue points, which you can re-arrange on the fly with the pads—play them straight through or loop them—as well as change length with the touchstrip. For example, you can load a drum part and twist its beat around in relation to another track, or split a bass part into sections and re-arrange the melody; timings are quantized, so like loop rolls, you can't go wrong. And this just scratches (ahem) the surface.

Final Mix. Twitch isn't a MIDI controller adapted to DJs, but a DJ controller adapted to MIDI. Its implementation is most complete with *Itch*, but works very smoothly with *Traktor* and *Live* too. Most importantly, it expands the controllerist's world, offering an alternative to traditional approaches. Twitch is a very hip piece of hardware that bids a fond farewell to turntables, while looking toward the future. ■



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Combining Yamaha's expertise in drums and technology, the **DTX400 Series** features dynamic acoustic drum and percussion sounds, plus modern rock drums and electronic tones. Drummers of all levels will enjoy the full size kit and durable steel rack system. Customize kits to match your style, and practice with 10 interactive training functions with Voice Guidance - it's like having a talking drum teacher built in! Play along with the musical practice songs or AUX input and develop the chops to play on acoustic drums. These kits combine affordability with renowned Yamaha quality for a value that can't be beat!

NEW
DTX400K

NEW
DTX450K

- **DTX400** Drum Trigger Module with 297 high-quality sounds
- 7" Drum Pads designed for greater playability and durability
- Large 10" cymbals and Hi-Hat cymbal
- KU100 Silent Kick Unit for quiet play anywhere
- 10 Preset kits (all of which can be overwritten)
- 10 interactive Training Functions with Voice Guidance
- 10 play-along songs

All the features of the DTX400K plus:

- TP70S 3-zone snare pad for head, rim-shot, side-stick
- KP65 kick pad with Yamaha FP6110 bass drum pedal
- HH65 hi-hat controller allows "half-open" hi-hat sounds

DTX400K
\$499.99

Estimated street price

DTX450K
\$699.99

Estimated street price



For more DTX info scan QR code
or visit 4wrdr.it/dbx4em2

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Fig. 1. Virtual Tape Machines emulates two tape decks, each using alternate tape formulations and operating at different speeds.

Slate Digital Virtual Tape Machines

Authentic open-reel
analog sound

BY MICHAEL COOPER

SUMMARY

STRENGTHS:

Sounds fantastic and authentic. Offers calibration controls and grouping.

LIMITATIONS:

CPU hog. Robs DP's (and possibly Pro Tools') keyboard shortcuts. Linking I/O controls eliminates their offset. Assignment to a new group nulls controls.

\$249 (direct)
slatedigital.com

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VTM alternately emulates a 2-inch, 16-track Studer A827 and 1/2-inch, 2-track Studer A80 RC tape recorder operating at either 30 or 15 ips (inches per second), using either Ampex 456 or Quantegy GP9 tape. The cross-platform plug-in is available in AU, RTAS, and VST formats and requires an iLok 2 dongle.

Non-linear Response Like analog tape, VTM produces a more saturated and compressed sound the harder you drive the plug-in. The 30 ips setting extends the high-frequency response, and moves the head bump (bass-frequency boost) to a higher center frequency compared to the 15 ips setting. 456 tape sounds more colorful but less detailed than GP9 when driven equally hard. Choosing VTM's low bias setting better preserves a track's dynamics; high bias saturates high frequencies more readily and rounds off transients smoothly.

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whether I desired more color (456) or punch and detail (GP9).

On snare, the 16-track machine, GP9 tape, 30 ips tape speed, and low bias setting enhanced the attack and compressed the instrument's body beautifully. The 2-track machine also sounded flattering, but made the snare sound a hair less compact. On drum room mics, over-biasing the 16-track machine, slamming the input, and using 456 tape created a highly colored, compressed sound that was awesome.

On DI'd electric bass, I loved running the 16-track machine at 15 ips, set to high bias. Using 456 tape and lightly pinning the input meter boosted the bottom end, broadened the mids, and rounded the transients beautifully, creating a lush, fat, and burpy sound. The same general treatment sounded fantastically lush on double-tracked electric guitars; however, changing the tape speed to 30 ips moved the head bump and created better separation in the mix.

Beware the Pitfalls VTM robbed Digital Performer 7.21 (DP) of its keyboard shortcuts. (This is also an ongoing problem with Slate's long-established FG-X mastering plug-in.) Regaining control of DP's transport requires clicking outside the plug-in's GUI. Slate



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DTX
drums

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DTX400 Series

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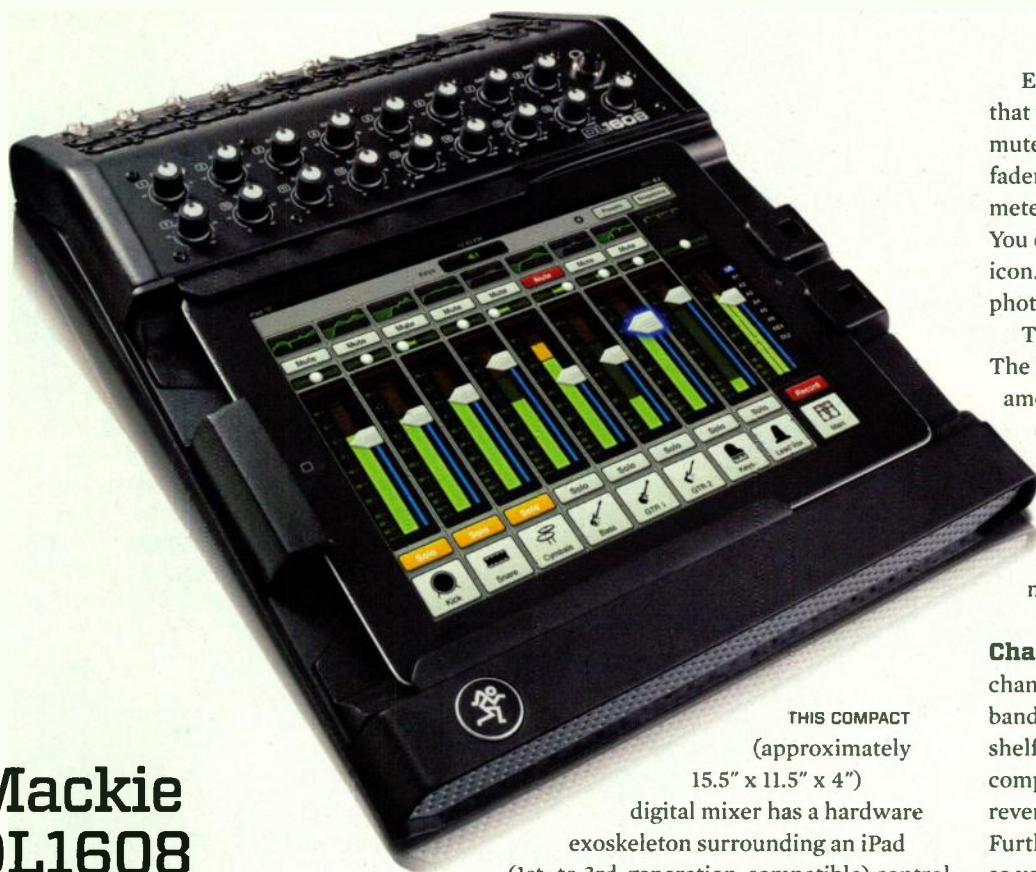


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Mackie DL1608

Digital mixer with iPad integration

BY CRAIG ANDERTON

SUMMARY

STRENGTHS:

Well-suited to live performance. Excellent DSP. 16 Onyx mic pres. Wireless control. Internal recording.

LIMITATIONS:

Global phantom power. Limited number of 1/4" inputs.

\$1,249.99 MSRP, \$999.99

street

www.mackie.com



THIS COMPACT (approximately 15.5" x 11.5" x 4")

digital mixer has a hardware exoskeleton surrounding an iPad (1st- to 3rd-generation-compatible) control surface. The Mackie pedigree is obvious: 16 channels of Onyx "straight wire with gain" preamps, accessed through 12 mic/line-level XLR ins and 4 mic/line-level combo jacks to accommodate 1/4" connectors, mounted on a backward-slanting rear panel. You'll also find six balanced TRS 1/4" send jacks, two main XLR outs, "line-lump" power supply connector, Kensington lock, Ethernet to connect to a router for wireless control, and a global phantom power switch that enables/disables phantom power to all inputs.

The front panel has 16 gain controls (unity to +60 dB), each with a signal present/clip LED; it also includes headphone jack with level control.

The User Interface Mackie got it right—yes, you can use an iPad in a live mixing situation. The iPad is only for control; the DSP is in the mixer.

The main mixer screen always shows the master fader. Swiping scrolls through views of eight channels at a time, including returns for the Reverb (nine algorithms) and Delay (five algorithms and tap tempo), and iPad output for playing back sounds from apps that run in the background.

Each channel strip has an EQ thumbnail that you touch to enter processor land, plus mute button, panpot, gain reduction indicator, fader (with 60mm throw and highly readable meters), Solo button, and "scribble strip" label. You can also enter a name or select a track icon. (Choose default icons, select your own photo, or use the iPad camera.)

The DL1608 is actually nine virtual mixers. The Master Fader's output selector chooses among L/R out, six aux outs, reverb send, and delay send. Once you select one of these outs, all mixer faders control the mix to that output. One obvious application is creating cue mixes.

Overall, the UI is painless—figure on 10 minutes tops to know your way around it.

Channel Processors Each of the 16 input channel strips includes EQ (four parametric bands, with high and low bands switchable to shelf and a high-pass filter), noise gate, and compressor. An additional window shows reverb and delay sends and their parameters. Furthermore, the DSP section is "swipe-able" so you can scan through the individual channel settings without returning to the mixer. Adjust parameter values by dragging nodes or entering numbers.

Some channels operate differently; a 31-band graphic EQ and compressor are available for all the Master Fader outs (except Reverb and Delay sends). Also, the Auxes include a pre/post effects button.

Cutting the Cable You can control the DL1608 wirelessly, although you'll need a router (not included). Yes, you can walk around and tweak the 31-band output graphic EQ to "ring out" a room, but the mixer can be controlled by up to 10 iPads, so musicians can tweak their processing and adjust remote monitor mixes.

Overall, this is a slick, user-friendly, cost-effective mixer—you can even record the mixer L/R output as a WAV file within the app and retrieve it via iTunes. The graphics are nice and big; live, the buttons and faders are easy targets, so you don't need serious dexterity to operate it. The DL1608 isn't just a one-off "cool product"—it proves the viability of combining an iPad with pro audio hardware for live mixing. ■

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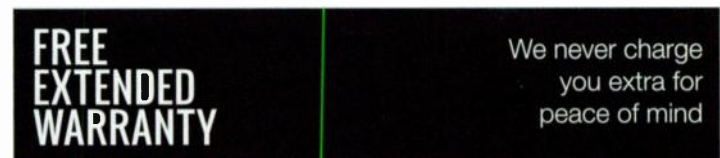
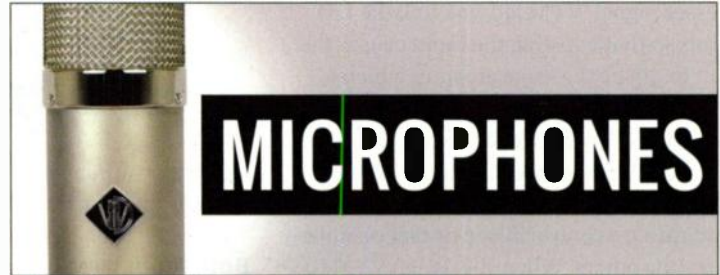
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reported a similar issue in Pro Tools, although I didn't notice it in Pro Tools 9.0.6. The company expects a future update to fix the problem.

Even with its input and output controls set to 0dB, VTM often added a bit of gain to the processed signal. VTM lets you link the I/O controls so that boosting the input causes the output to dip by the same amount, which is intended to preserve unity gain; unfortunately, any existing offset between the controls isn't preserved when you click the link button.

You can group multiple VTM instances so that adjusting a control in one instance similarly changes the others. When you assign VTM to a new group, all of its controls return to their default settings, so make sure you assign it to the group before making any adjustments. (Assigning additional instances of VTM to an existing group makes their controls mirror the settings common to the group's other instances.) Bypassing any grouped instance of VTM—using the plug-in's bypass switch, not your DAW's—bypasses all other instances in the group. This is



a great way to compare the effect VTM has on multiple tracks to their unprocessed sound.

Roll Tape! VTM is the most authentic and best-sounding tape-emulation plug-in I've heard. The GUI strikes the perfect balance between flexibility and speedy operation—there are enough options to shape the sound of the tracks without encumbering your workflow by offering too many variables. Just be forewarned: VTM is a CPU hog. Each instance consumed around 5% of my 8-core Mac Pro's CPU resources. A good

conservation strategy is to add VTM to auxes for subgrouped tracks.

If Slate Digital can't fix the aforementioned keyboard-shortcuts problem, I suspect some users will find it an unacceptable workflow tradeoff. Not me. VTM sounds so awesome, I'm willing to put up with the handicap—I've gotta have that sound! ■

Michael Cooper (myspace.com/michaelcooperrecording) is the owner of Michael Cooper Recording and a contributing editor for Mix magazine.

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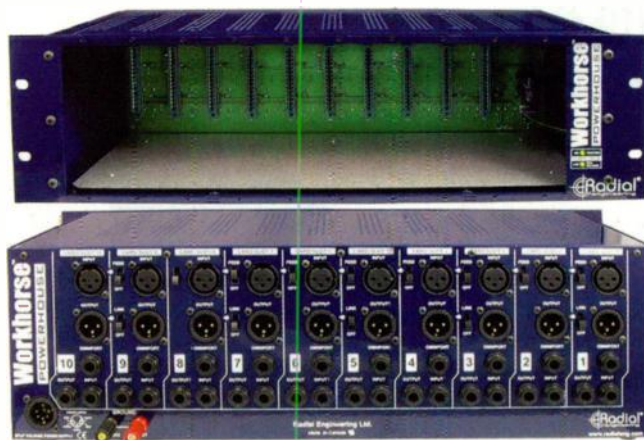
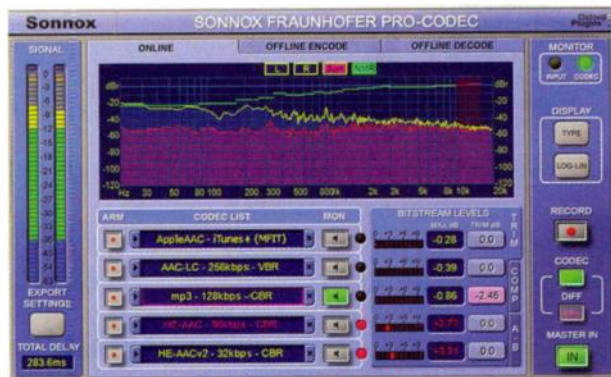


1
IK Multimedia
iRig KEYS
iOS keyboard controller
\$99.99
HIGHLIGHTS Ultra-slim, highly portable MIDI controller keyboard • connects directly to iOS device dock connector (iPhone, iPod touch, iPad) or Mac/PC USB port • 37 velocity-sensitive mini-keys • Core MIDI and USB class compliant • ultra-low power; powerable by iOS devices or the available USB port for longer playing sessions
TARGET MARKET Players and producers who make music “on the go”
ANALYSIS As more apps (like IK’s SampleTank) become available for iOS devices, there’s more need for controllers that provide a player-friendly interface and playing experience.
ikmultimedia.com

2
Native Instruments
Premium Tube Series
Native plug-ins
bundle \$229
HIGHLIGHTS The series includes three effects: Passive EQ (2-channel, 4-band parametric EQ with additional HP and LP filters), Vari Comp compressor/limiter, and Enhanced EQ (adds warmth and weight to the low end of individual tracks) • VST/AU/RTAS/AAX-compatible • effects also available individually
TARGET MARKET Recordists who want a more vintage-sounding plug-in for essential functions like EQ and dynamics control
ANALYSIS Most DAWs include “bread and butter” EQ and dynamics processors, but there’s a growing interest in plug-ins that provide a more vintage or stylized sound quality.
native-instruments.com

3
Korg
Krome
Music workstation
\$1,999 (88-key)
HIGHLIGHTS 640 programs, 288 combinations, 900 arpeggiator patterns, and more than 600 drum track grooves, including content from the Kronos workstation • piano-roll style sequencer • color TouchView display with advanced graphic UI • Krome Plug-In Editor integrates with computer-based DAWs • 61-key (\$1,499) and 73-key (\$1,799) versions also available
TARGET MARKET Keyboard players, in live performance or studio applications
ANALYSIS The Kronos and Kronos X have been popular high-end keyboards; in typical Korg fashion, the company distilled many of the most important elements into a more affordable workstation.
korg.com

4
DigiTech
Unplugged Acoustic Simulator
Stomp pedal download
\$7.99
HIGHLIGHTS Transforms electric guitar sounds to acoustic guitar sounds • includes Lexicon reverb • stereo ins/outs • controls include low EQ, high EQ, reverb level, and effect level • downloads into the DigiTech iStomp hardware via the free Stomp Shop iOS app
TARGET MARKET Guitar players who want to avoid the inconvenience of switching between electric and acoustic guitars, particularly live
ANALYSIS The iStomp hardware stompbox’s functionality depends on which “e-pedal” (e.g., the Unplugged Acoustic Simulator) you load into it via the Stomp Shop app.
digitech.com



5
Sonnox
Fraunhofer Pro-Codec V2
Codec plug-in
\$495

HIGHLIGHTS 2nd-generation Sonnox Fraunhofer Pro-Codec plug-in • can now master for iTunes via the Apple AAC iTunes Plus Codec • supports the latest multichannel audio codecs (MPEG surround, AAC-LC, and HE-AAC) • enables monitoring the iTunes encoding chain's exact clipping behavior to ensure high-quality output during the mixing process

TARGET AUDIENCE Mastering, creating compressed audio streams for websites

ANALYSIS The original Pro-Codec was the *ne plus ultra* of codec plug-ins, allowing realtime monitoring and analysis of compressed audio data streams. V2 takes it up another notch.

sonnoxplugins.com

6
Royer Labs
SF-2
Active ribbon mic
\$2,495

HIGHLIGHTS Phantom-powered version of Royer's original SF-1 ribbon mic • output level of -38dB • custom-designed FETs for ultra-quiet operation; self-noise is lower than 18dB • 1.8-micron ribbon element for excellent transient response • negligible off-axis coloration • loads the ribbon element optimally • can't be damaged by phantom power • handles long cable runs

TARGET MARKET Recording classical performances or capturing acoustic instruments

ANALYSIS Sensitivity equal to phantom-powered condenser mics means that the SF-2 provides enough level to drive any recording medium, even with extremely quiet sound sources.

royerlabs.com

7
Radial
Powerhouse
500 series rack frame
\$1,000

HIGHLIGHTS 10-slot power rack for 500 Series-format modules • 14-gauge steel construction for superior shielding and durability • each channel slot has separate XLR I/O and parallel 1/4" TRS connectors for splitting the signal, cross patching, or acting as a patchbay mult • 1600mA external power supply

TARGET MARKET 500 Series module owners who need to fit the maximum number of modules in the minimum space

ANALYSIS Interest in 500 Series modules continues to grow, and Radial has expanded its line of frames to accommodate all levels of users.

radialeng.com

8
MOTU
CueMix FX Software
Audio interface driver update
Free

HIGHLIGHTS Driver update for all CueMix-equipped MOTU audio interfaces • includes iPad TouchOSC templates for wireless control of onboard CueMix mixing/effects processing • supports Mac OS X/Windows 7 • bi-directional communication, so the iPad reflects changes made on the computer screen

TARGET MARKET Owners of any "mk3" or "mkII" MOTU audio interface, as well as the 4pre, Audio Express, MicroBook, MicroBook II, PCI-424 core systems, and Track16

ANALYSIS iPad control is popular and convenient; now MOTU interface owners can exploit this technology.

motu.com



1



2



3



4



5

1
Zildjian
Gen16 AE
Cymbal system
\$769–\$949 per system

HIGHLIGHTS Real cymbals with embedded mics • variety of cymbal types, including hi-hats, splash, crash, ride, and china • available individually or as a complete system with AE Digital Cymbal Processor and cables
TARGET MARKET Drummers with electronic or acoustic setups
ANALYSIS Designed for players who want the feel of real cymbals but with a flexible, customizable sound library. Extremely versatile.

gen-16.com

2
Yamaha
DTX450K
Electronic drums
\$699

HIGHLIGHTS DTX400 Drum Trigger module • 4 drum pads including 3-zone snare • 10" cymbal pads • real Yamaha bass drum pedal • interactive training functions with voice guidance • USB connectivity
TARGET MARKET From beginner to pro drummers
ANALYSIS An affordable practice/session kit suitable for students or experienced players. Compact setup features 10 preset kits that utilize 169 high-quality sounds from the company's more expensive electronic kits.

usa.yamaha.com

3
Alesis
DM10 X Kit
Electronic drums
\$1,999

HIGHLIGHTS DM10 sound module with sequencer • six drum pads • three cymbal pads plus hi-hat • XRack and snare stand • quick-release clamps
TARGET MARKET Electronic drummers who want an affordable, yet full-size kit
ANALYSIS With four rack toms and three cymbals, as well as 1,000 uncompressed multi-samples with Dynamic Articulation, Alesis didn't skimp on the pads or the sounds with this kit.

alesis.com

4
Roland
TD-15KV V-Drums
Electronic drums
\$3,499

HIGHLIGHTS TD-15 sound module with SuperNatural sound engine • V-Hi-Hat controller • USB connectivity on module • four drum pads • Coach function • Quick Record • Quick Edit
TARGET MARKET Discriminating drummers who want a road- and studio-ready kit that's easy to schlep
ANALYSIS A portable set with excellent audio quality, thanks to its SuperNatural technology, mesh V-pads that feel realistic, and an easy-to-use sound module.

rolandus.com

5
Simmons
SD5K
Electronic drums
\$999

HIGHLIGHTS Affordably priced • 5-piece kit • 2 cymbals plus hi-hat controller • 10 custom kits • 22 preset kits • lightweight aluminum rack • 48 song presets to practice with
TARGET MARKET Beginning and intermediate players, as well as schools and home studios
ANALYSIS A full-size, entry-level MIDI-compatible electronic drum set that would work well for students and personal studios looking for an inexpensive drum controller.

simmonsdrums.net

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Visit Gen-16.com for more information and check out the "Young Guns" series of performance videos.

gen¹⁶
Zildjian

Elevate your MOTU studio with advanced technology

Run Digital Performer 8 and MachFive 3 on the new Apple MacBook Pro with Retina display, control your audio with the elegant one-touch Track16, then add the latest advances in studio technology.



Apple MacBook Pro with Retina display It's a whole new vision for the notebook

Apple designed every aspect of the all-new MacBook Pro with performance in mind. From the beginning, the entire internal structure was built to house the very best high-performance components: all-flash storage, the latest quad-core processors, powerful discrete graphics, and massive amounts of memory.

Yet despite packing such an enormous amount of power into such a slim design, it still achieves an astonishing 7-hour battery life for those marathon MOTU studio sessions.



Novation Impulse

The professional USB/MIDI controller (25, 49 or 61 keys)

The Novation Impulse features a precision, semi-weighted keyboard, 8 drum pads and a full control surface. It comes with Novation's award-winning Automap (version 4), the original, most powerful, and now, easiest-to-use control software.

This makes getting hands-on with Digital Performer and your plug-ins fast and simple.

MOTU Track16

Desktop audio I/O with effects and mixing

Simple operation. Clean design. Studio-grade sound quality. Track16 exhibits these design principles through and through. And don't let its compact size deceive you. There's plenty of I/O available for a well-equipped personal studio, ready for multi-player recording sessions. Track16's pristine mic preamps, balanced line-level audio connections, and renowned MOTU engineering deliver world-class audio quality.



MOTU

ToonTrack Superior Drummer 2.0 Virtual drummer engine with legendary sounds

With everything you need to take your drum tracks from concept to completion, Superior Drummer 2.0 from ToonTrack has become the professional industry standard in drum production tools. With amazing samples, built-in effects by Sonalksis, and an on-board mixer for limitless routing inside Digital Performer, this is your one-stop rhythm shop — guaranteed!



Shure Beta 181 Stereo Set Ultra-compact side-address instrument mics

Designed for discreet placement and control in live or studio environments, the Sweetwater-exclusive Beta 181 Stereo Set includes interchangeable cardioid, supercardioid, omnidirectional, and bidirectional capsules for superior versatility. The small-diaphragm design provides superior audio with consistent, textbook polar response in a form factor small enough to get close to the source in the tightest conditions. High SPL handling, ultra-smooth frequency response, and interchangeable polar patterns make this the perfect stereo mic pair for any technique in the book. This must-have mic bundle comes with two mic bodies and eight capsules in a custom case.

Genelec 8040A Active bi-amplified studio monitor

With performance comparable to much larger systems, but in a compact package, the bi-amplified Genelec 8040A is ideal for use in MOTU studio situations where wide frequency response is needed but space is limited. Use the 8040A for nearfield monitoring in project/home studios, edit bays, broadcast and TV control rooms, and mobile production vehicles.



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From Samples to Score

Libraries are great tools for film scoring, but using them effectively requires more than merely playing those cool presets

BY EMILE MENASCHÉ

FROM A purely technological point of view, it's hard to imagine a better time to be composing music for motion pictures. Those of us who grew up striping VHS tape with SMPTE and trying to get it to lock up a MIDI-only sequencer are forever thankful for the ability to score video in a DAW that offers both audio and software instrument tracks. This month, we're going to focus on the last item in that list: using software instruments, and more specifically, sample libraries, for film music. I'll draw from both my own experiences and advice from award-winning NY-based commercial composer Fritz Doddy and from Ben Newhouse, Music Composition for Film and Television instructor at Berkleemusic.com, the online continuing education division of Berklee College of Music.

Of course, scoring with samples is nothing new: The practice goes back to the days before mass-produced samplers, when top composers would spend enough money





to buy a nice house on DAWs like the Fairlight and Synclavier—and earn it back in short order with all the work those systems generated.

Now most DAWs come with more content than anyone would ever be able to—or want to—use. Third-party libraries offer increasingly complex and realistic options to composers and producers. That's all great, but with the number and size of the samples available in today's top libraries, you can easily find yourself dealing with terabytes of sounds and thousands of presets. So, like a carpenter, the first step to any job is gathering your tools and knowing where they are.

Setting Up Even with today's faster computers, film scoring demands a lot of system resources—especially from your hard drives. If at all possible, use separate drives for your system, samples, audio tracks, and video playback.

Managing the second element in that list—the samples—requires some pre-planning. Large software instrument collections like Native Instruments' *Complete* are a godsend for film scoring because they put so many sounds at your fingertips. But the content takes up a ton of disk space. The default location for all those gigabytes of samples is usually the system disk, but you can customize the installer to place the samples on an external volume (Figure 1).

This is easier if you use a desktop system with multiple drives, either internal to external. The “sounds” drive is always available. If, however, you're like me and use a laptop for the bulk of your work, you need to use external drives, keep them handy, and—I say this from painful experience—keep them backed up.

In addition to the raw sample data, you've got to manage the presets that draw on those samples to create playable sounds. Most DAWs will remember the last settings you use on any software instruments you load—even on third-party plug-ins. But it's still a good idea to save and name presets and store them within your sampler's memory. Not only does this act as a kind of backup in case the DAW file gets corrupted (or you forget to Save As and overwrite a file by mistake); it also allows you to use the same sounds while migrating between DAWs or even when working on someone else's system (assuming they have the same software).

Setting up a template within your DAW can help speed things along as well. My personal



Fig. 1. Managing samples requires pre-planning. *Complete*, for example, lets you customize your installer to place samples on an external volume.

view is that the templates that come with most DAWs are a little overloaded with plug-ins to be useful. I prefer to start with a blank slate and load my own instruments based on the project, then modify that. Figure 2 shows an example using Logic Pro 9, with Kontakt, iZotope Iris, Logic's own Sampler, and Addictive Drums all available. I've also made provisions for ReWire tracks from Ableton Live, Sibelius, and Reason. I may not use these, but having them available in the template means that I can easily bring them in, even after I've started writing and saving cues.

Note that the Arrange window is empty, save for the video track and a few markers. I don't always know what I want to use before I start working, so the basic templates get modified as I write some rough material. Once I have a basic sense of what I'm going to want to use, however, I remove any MIDI and audio from the track and do a Save As with a blank slate. It just gives me a chance to go back to a starting point. At the same time, as soon

as you write a cue, be sure to Save As with its name. I like to include something about the video scene in the file name. If I'm really being organized, I'll even add a note about the location in SMPTE time: for example, 1_30_11_01_dialog_bed.logic. I create a master folder for each film and store the template, along with the files for each cue, within it.

A template is useful because it not only saves time, but it helps you focus on a cohesive sound palette. Remember, with film music, your goal is almost always to either connect the listener to the project's universe—or to disconnect them temporarily. Using too many different kinds of sounds in too many places will sound random. Instead, establish a range of instruments and then use variations within that range to keep the viewer connected.

Templates not only include the instruments you're using, they can save the presets loaded into those instruments. But you may not want to rely on the template solely. “The biggest rule for sample library management is saving

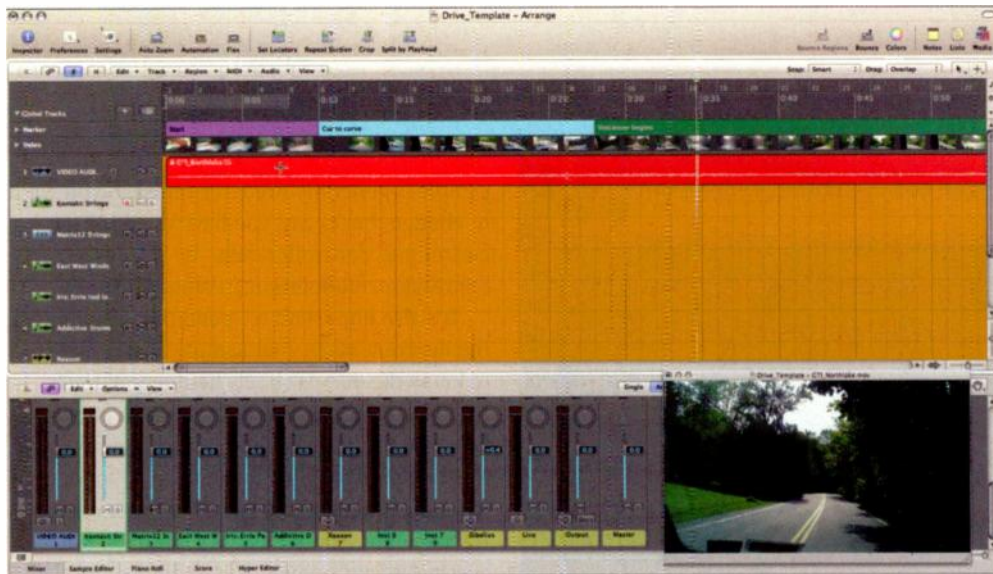


Fig. 2. A Logic template for loading instruments based on your project.



Fig. 3. EastWest's *Hollywood Orchestra Woodwinds* Platinum edition.

all Kontakt multis outside of the DAW session so I can open them on different versions of Kontakt depending on what studio I am working in," says Doddy, whose credits as Creative Director of Elias Arts LLC include "Got Milk" and a recent commercial for the Verizon Cloud that relied heavily on sound libraries. "Even if you don't have the original libraries, you have a record of the patches used, MIDI assignments, etc.," he says.

Know the Instruments Today's instrument libraries are amazing, and the best part is that the products available as I write this are likely to seem like stone tools in a couple of years. First, there's the matter of storage: The ability to stream samples from hard drives means that there's almost no limit to how long a note can sustain, or how many variations of a single pitch on a single instrument you can have.

When realism is your goal, the more samples per note, the better. The most obvious implementation of "more-really-is-more" is where velocity-switching is used to select among individual samples recorded at various dynamic levels. Humanizing algorithms can also randomly select individual samples within the same dynamic and pitch bands to create the kind of variation a real player might produce.

Drum sample libraries like Toontrack's Superior Drummer and XLN Audio's Addictive Drums have been go-to programs for me, for both song and scoring production. Part of what makes them so effective is the subtle variation they can produce even when playing a repeating MIDI pattern. They're especially good when mated to MIDI libraries created by live drummers.

Similar levels of realism are available with pitched instruments—though you'll need to learn how to harness these tools. Figure 3 shows the main screen for EastWest's *Hollywood Orchestra Woodwinds* Platinum edition (which is so massive that it actually comes on its own ESATA hard drive). In this example, the preset uses alto key switching to access variations on an alto flute part. The lower fall octave on the keyboard allows you to change the samples on the fly, while the gray shaded notes change the pitches. For some, this realtime control is ideal.

Doddy, however, prefers a two-stage approach when working with a complex library. Working under constant deadlines, he keeps things simple when he's getting ideas down, then goes back and works with the samples to add the little details. "I'm not a big fan of key switching, as it pulls me out of the creative flow," he says. "I try to start everything as simply as possible for sake of speed. For example, I'll flesh out a melodic line for an oboe using a sustain patch, then I'll go back and replace the short notes with an appropriate staccato/spicatto patch to give it realism and life."

While it may be tempting to simply play parts that sound good to your ear, your score will be more convincing if you actually know something about the instruments and ensembles you're trying to imitate. "Go listen to live music to pick up arrangement and orchestration tricks," Doddy advises. "There's a reason there's usually only one piccolo player in an orchestra! There are a lot of violins. Violas? Not as many. Cellos? Even fewer. There

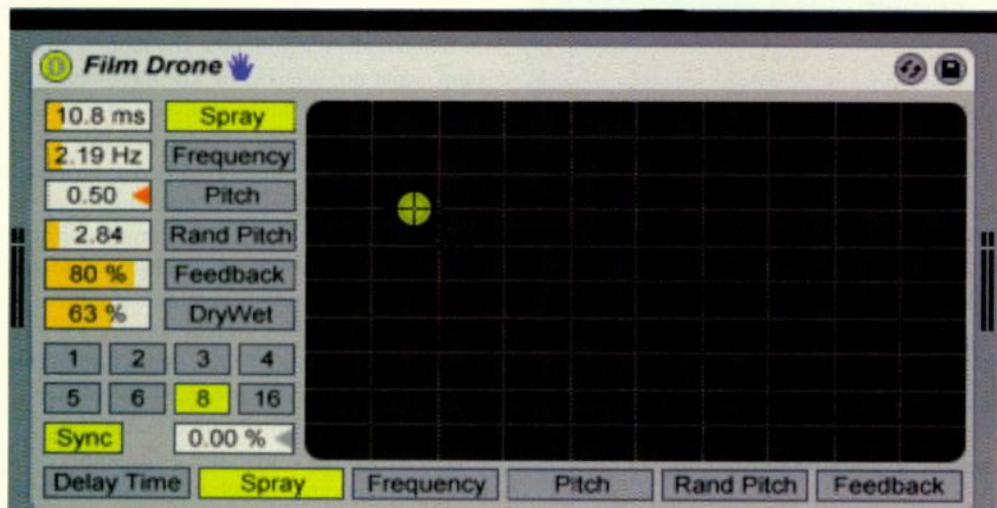


Fig. 4. Ableton Live's Grain Delay is ideal for manipulating a sustain.

are only a handful of basses. Mimic a real ensemble's player count with your samples and it will feel more like the real thing."

Some composers with classical training like to score using programs like Avid's Sibelius and Notion Music's Notion3 because they're based on musical notation. Both programs can record performances via MIDI, come with impressive, multi-gigabyte sound libraries of their own, and can integrate with traditional DAWs via ReWire, which allows you to use them to score directly to video.

Even if you're like me—that is, *not* classically trained—notation software can be useful. Every project is based on the musical staff, and there are templates for both single instruments and ensembles. When you add an instrument, the program automatically assigns the appropriate samples to it—you don't need to load a sampler per track and then load the correct preset, as you do with a DAW. This can be a pretty big time saver when you're dealing with, say, a virtual chamber orchestra of 12–18 instruments. Also, the display can give you a heads up when you try to write outside of an instrument's range, and if you spend some time getting to know about articulation and expression marks, you can "write in" some nuances to your score.

According to Newhouse, who also teaches orchestration at Berkleemusic.com, it's important to consider how samples and the acoustic instruments behave differently. "It takes no effort for a violinist to switch articulations, meaning they can alternate

between staccato and tenuto with complete ease," he explains. "But with MIDI sequencing, changing sample types requires an extra step, be it adding a key switch or switching to a new track." As a result, it's easy for MIDI orchestrators to bypass those techniques, especially when they're under deadline.

If you want to get more out of your sample library, you can do the same thing you did when you were learning to play—practice. Take some time to get to know how the sampled instruments respond to controller input, velocity, etc. Try mapping some controllers of your own. But simple moves can add realism. "A mod wheel assigned to track or instrument volume can impart a lot of dynamics to a part, as opposed to moving the entire section/track up or down," he says. "You can also mix articulations. With strings, I like to combine arco [bowed] and pizzicato [plucked] parts."

But don't just focus on the attack: Controllers can be used to ride a note as it sustains. "Variable decays are more challenging in the world of samples than in the acoustic world," Newhouse says. "A trumpet player in the real world can change dynamics on a sustained note with complete ease. While holding a note, they can crescendo, decrescendo, remain level, or some combination of these dynamic changes. While using samples, we generally have access to many different decay types. Some samples have a level sustained sound, others crescendo, others decrescendo, and so on. However, once a sample is triggered, the decay of that

sample is generally predetermined. If you want to change that decay, you have to add MIDI continuous controller data—be it volume, expression, modulation, or something else."

It's also important to spend time listening to the instruments in your sample library and get to know the details about their overall tones. Doddy says he chooses different collections based on the way the samples are recorded and the kind of processing he plans to do for each individual final mix. "I use all of the Native Instruments' Kontakt factory libraries, *LA Scoring* strings [which runs under Kontakt], *Abbey Road Keyboards* for Reason, *EastWest Symphonic Orchestra*—especially woodwinds—*Heavyocity Evolve*, and *Symphobia*; the Sordino strings are just awesomely beautiful," says Doddy, who runs Digital Performer, Ableton Live, and Reason under OS 10.6.8 on an eight-core Mac Pro with 16GB RAM. "I rely heavily on *LA Scoring* strings for realistic legato string lines, plus the standard patches have no reverb on them. I prefer to use one instance of a reverb, either algorithmic or convolution to impart a sense of real space. If I am going for an intimate feel, I'll use more of the Kontakt factory library for woodwinds, brass, and short strings, as those patches have no ambience on the samples. If I am going for a larger feel, I'll use the *EastWest* libraries primarily, as they all have some natural ambience on them and the ensemble feels cohesive."

Get the Real Score Ultimately, your realistic parts will be more realistic if you spend time learning the basics. "Even if you write for orchestral samples as the final product, it's extremely beneficial to study traditional orchestral scores," Newhouse says. "Studying scores lets you learn from past composers. People have been writing music for orchestra for centuries. Many composers have already come up with some wonderful ideas. There's no sense reinventing the wheel; studying scores teaches a new composer what past composers have already figured out. It also trains you to think of an orchestra as a complete unit. While looking at a full score, you can readily see how all the instruments are working together—which instruments have the harmony, the melody, the countermelody, and so on. It's often harder to visualize the big picture when simply improvising at the keyboard one sample at a time."

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Fig. 5. An example of electric guitar loaded with Iris presets.

Finally, studying scores and arranging basics will help you avoid what Newhouse calls “impossible possibilities.” “There are things the samples can do that the real instruments cannot play,” he explains. “Even if these impossible possibilities sound good in the studio, they will sound less like an actual orchestra and should be avoided when recreating the sound of an orchestra is the goal.”

That doesn’t just apply to orchestral parts, either. “One of the biggest mistakes I hear,” Doddy says, “is drum programming that features a ‘drummer’ with too many hands—hi-hat still playing during drum fills or cymbal crashes.”

And no matter how powerful they can get, it’s important to understand the limitations of the technology. On high-budget film projects, composers often get to replace their sample-based scores with the real thing. But even on a smaller budget, one well-placed “live” musician can help. “When a solo instrument—wind, strings, brass, etc.—is in the forefront, a sample can sound very unrealistic,” Doddy says. “Please spend the \$112 for a session player to play the part.”

Surrealism Of course, scoring with samples doesn’t have to be strictly—or even a little—imitative. Plenty of libraries focus on sound design with an eye to film composition. These can be both useful and inspiring, but as with loops, the more time you take to individualize the presets, the less likely you are to hear another work with the same sound.

Simply changing parameters like attack, sustain, and filter settings can offer pretty good—and easy—results, especially if you operate those parameters with a realtime controller like the mod wheel.

Samplers and synthesizers excel at one of the least exciting (but still important) film scoring jobs: creating a bed underneath a scene. This can be nothing more than a drone if there’s a lot of dialog or other onscreen sound. The trick is to make the drone interesting without being distracting. I like to layer a sustaining low string section sample with a basic analog synthesizer sawtooth sound on separate tracks playing the same MIDI part, then use the mod wheel to adjust the filter cutoff and/or the attack time of one of the layers while keeping the other static. That little change in texture gives the sound some friction without making the audience think that they’re watching a horror movie.

Purposely unrealistic modulation and vibrato can also work, especially when you combine them with effects that change over time. Ableton Live’s Grain Delay (Figure 4 on page 84) is one of my personal favorite tools for mangling a sustaining sound. The ability to grab a parameter and drag over a graphical interface works well. I don’t really think about whether I’m changing delay time or pitch, I just move controls and listen.

When your score includes elements of sound design, it’s nice to be able to sync

timbral changes to picture. The ability to see and draw your synth’s or sampler’s parameters using DAW automation can make this a lot easier than it would be if you were just riding the controls while watching the screen.

I write this as I’m composing for a new documentary project where I’ve been asked to twist familiar sounds into something ominous and sinister. iZotope’s new sample-based synthesizer Iris, which has a unique visual interface that lets you “draw” the parts of the sample you want to hear over time, is proving to be a good tool for this job. It can layer up to four samples at once, each can have its own set of parameters, and the samples can be of different lengths and kinds (*i.e.*, single notes and loops can be used together). Figure 5 shows an example in which my own electric guitar playing is layered with a couple of Iris presets. The light areas show the parts of the guitar you’ll hear. The result is an eerie pad with plenty of forward motion.

According to Doddy, the old-school approach of playing samples from a keyboard can also be very effective. “If the goal is not realism, I much prefer finding a sample, dumping into a one-shot sampler and mangling it from there,” he explains. “Vocal samples are great to turn into percussion sounds, as there is always a little pitch envelope at the front of the note and that gives it a real organic feel.”

Ultimately, whether you’re using a sample library to create something that captures a specific place or era, imitates a traditional film orchestra, or serves as a jumping-off point for your own sound design, the connection with the visual will determine its effectiveness. Listen to what the director and the action on screen are telling you, and choose your colors accordingly. ■

Emile Menasché is the author of Home Studio Clinic (Hal Leonard), editor of In Tune Monthly magazine, and composer for the Oscar-nominated documentary Incident in New Baghdad. He’s currently composing music for two new films by Incident director James Spione.



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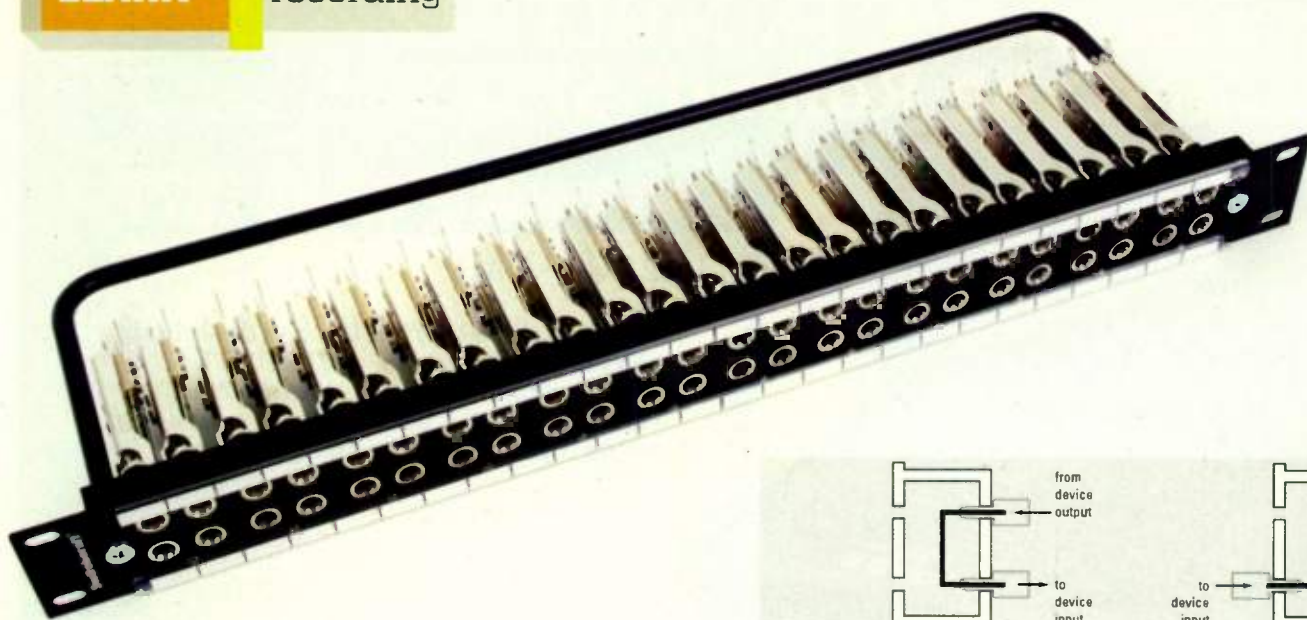


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Getting Reconnected

An introduction to the audio patchbay

BY GINO ROBAIR

THERE COMES a time in every personal studio where more effort is spent connecting gear than using it. That's when a patchbay can save the day. This simple organizational tool lets you interconnect numerous hardware devices from one convenient location.

A patchbay has two rows of jacks aligned horizontally on the front and back of a rackmountable frame. Each front-panel jack connects to the rear-panel socket behind it, allowing signals routed into the back to be easily rerouted from the front using short patch cables.

Top to Bottom Patchbays are traditionally set up using the waterfall principle, where audio outputs are available from the top row, and the corresponding inputs are below. That way, signal flow is always clear.

Connections can also be made within the patchbay itself, allowing you to send audio signals from output to input without using patch cables. This internal connection is referred to as a *normal* (see Figure 1a). Studios typically use normaled connections

for channel inserts, tape returns, or routing synths directly to channel inputs.

You can also use a normaled connection to patch your mixer's aux send to your favorite effects processor. If you want to break the normaled connection and route another device into the effects unit, simply plug the new device into the input on the bottom row (see Figure 1b).

A *half-normaled* connection allows you to split the output signal by inserting a patch cable into the top row. The normaled path remains connected while the signal is simultaneously routed to the other device (see Figure 1c).

We use the terms *denormaled* or *open* when no internal connections are made within the patchbay. This is used when you don't need a device to be permanently patched to a destination (see Figure 1d).

A patchbay can also be used as a *multiple* or *mult*. This passive configuration connects several jacks together so that one input can be split in order to feed multiple outputs, similar to the way a Y-cable works.

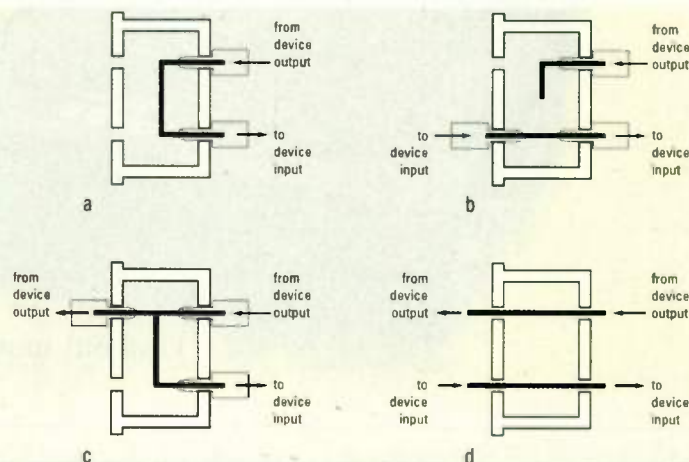


Fig. 1. Signal flow can be redirected within a patchbay.

If you need a combination of these features, check to see if you can change the normaling on the patchbay that you intend to purchase. Inexpensive models may require you to open up the device and switch jumpers or modify contacts on the circuit board for the patch points you want changed. A more convenient option from some manufacturers lets you change the normaling by reversing the circuit board, often without having to disassemble the patchbay to do so (see Figure 2).

Configuration Considerations Patchbays are available in a number of configurations and price points. Many are easy to setup, requiring you to merely plug your studio gear into the back panel using standard connectors. On the other hand, professional-grade patchbays typically require you to solder the rear-panel connections.

The least-expensive models use prosumer, unbalanced connections—RCA or 1/4" TS plugs, or a combination of both. These work well for project studios and other informal situations if the cable runs are short and your

EMI-producing power supplies and wall warts, are kept at a distance.

Balanced lines, however, provide common-mode rejection, so that unwanted noise gets significantly reduced. Balanced patchbays are available with 1/4" TRS, XLR, or tiny telephone (referred to as TT or Bantam) jacks. TRS patchbays are popular in personal studios in part because the patch cables are ubiquitous and the jacks are smaller than XLR jacks.

TT patchbays are used primarily in pro studios and utilize the smallest of the balanced connector types, therefore yielding the greatest density of patch points: 96 TT points per rack unit compared to 48 TRS patch points or 16 XLR patch points in the same amount of space. TT patchbays are usually wired using solder lugs or terminal blocks, which is time consuming to install and a more permanent solution than the plug-and-play designs.

When it comes to choosing the type of patchbay you want, consider the price of the cables as well. TT cables, for example, are the

most expensive, while RCA and 1/4" TS are the cheapest. If you have soldering chops, making your own cables is a cost-effective way to go.

Plan Ahead Before buying a patchbay, determine the connections you need and how you want them normaled. Begin by creating a chart of all the inputs and outputs you'll connect, including your mixer, interface, processors, and instruments. An extensive setup may require more than one patchbay. By planning the connectivity in advance, you'll create a setup that is convenient to use and that will enhance your music making experience. ■

Gino Robair is the former editor of Electronic Musician.

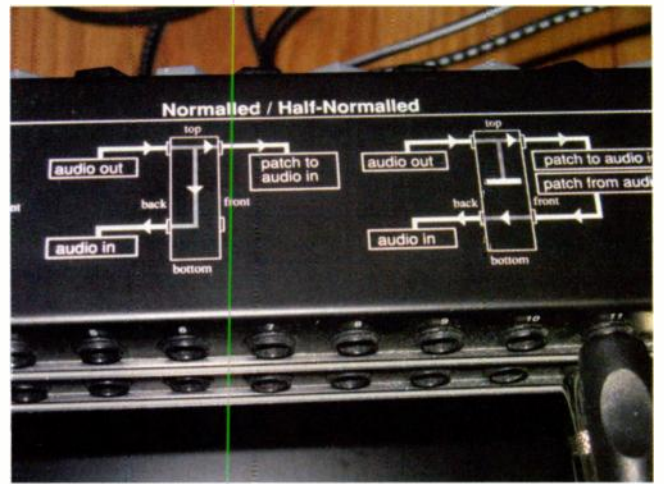


Fig. 2. The diagram on top of this patchbay shows how normaled and half-normaled patching works inside the unit. The circuit boards are easy to remove and reverse.



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Advanced Gating Techniques

Dig deep to create interesting creative effects

BY STEVE LA CERRA

IN JULY, we looked at basic dynamic processing. This month, we'll explore advanced techniques for using expander/gates. Our initial discussion of expander/gates was basic: Insert one on a sound, and it can hide unwanted noise when the sound is not playing. When the sound is playing, the noise is still there but it is typically masked by the sound. A gate can be used for some interesting creative effects, but to take full advantage of its capabilities we need to dig a bit deeper.

Any gate incorporates something known as a "gain-control device." Think of it as a remote control for opening and closing the gate. This remote-control signal can be the same sound we are gating, or it can be a completely different signal. For example, when we gate a snare



Fig. 1. The MasterWorks Gate plug-in from Digital Performer. The gate is inserted on the synth bass track; on the kick drum track, an aux send is routed to Bus 1. Bus 1 is then used as the gate's "KeySource."

drum to hide leakage from other parts of the drum kit, two things are happening every time the snare is hit: The snare is passed through the gate's audio path, and the snare sound is routed through the remote control path, telling it when to open and close the gate.

No one ever said that those two signals had to be the same. Suppose you are trying to gate a snare drum, but the kick drum sometimes causes the gate to open. If you could remove the kick drum from the *control signal*, the gate would track the snare drum more reliably. This is where the sidechain or "key" filter comes into play. The key filter modifies the control signal, *not the audio path*. If we set the key filter to cut everything below, say, 250Hz, a lot of the kick drum leakage would be removed from

the control path, reducing the tendency for the gate to open on kick hits. Since this signal is different from the audio path, we *did not* change the sound of the snare. The same technique can sometimes be useful when trying to reduce the instance of cymbals opening tom gates. The "key listen" (or "sidechain listen") button on a gate lets you temporarily hear the filtered signal.

Many expander/gates (software or hardware) provide a separate "key" or "trigger" input, enabling you to use a secondary sound to take control over opening and closing the gate. For example, let's say you patch a gate on a synth bass but route the kick drum to the gate's key input (see Figure 1). Even though the synth bass is passing through the gate's *audio*

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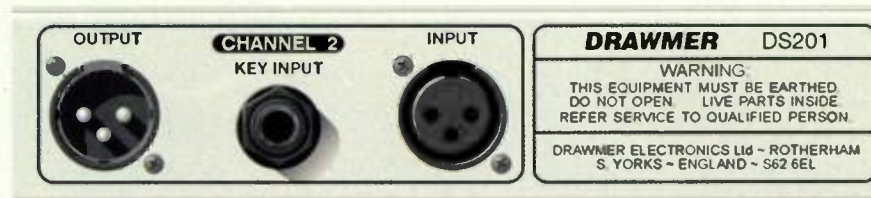


Fig. 2. The rear panel of the Drawmer DS201 Gate provides audio input, audio output, plus a separate input for a key signal. A front-panel switch turns the key feature on or off.

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path, the kick drum actually opens and closes the gate. If the kick drum does not hit, you won't hear the synth bass, regardless of what the synth bass is playing. This can be used for some interesting effects where the synth is rhythmically matched to the kick hits. Since the synth is heard *only* when the kick is played, it sounds like the kick and synth are playing together perfectly.

Many expander/gates provide a separate "key" or "trigger" input, enabling you to use a secondary sound to take control over opening and closing the gate.

Next, substitute that synth bass for a low-frequency test tone tuned around 70Hz. Every kick hit opens the gate on the test tone, making your kick sound like a TR808 kick. You can use the gate's hold and release controls to make the length of the tone as long or as short as you like. A similar approach can be used on a noise signal to trigger the gate from a snare. Every time the snare hits, you'll get a burst of noise in time with the snare drum. Again, you can either add this to the real drum or use it to replace the snare sound. Trent Reznor will be proud of you.

Here's how to create a TR808 kick in Pro Tools: First, add an aux track. Make sure that the fader on the aux track is pulled down all the way or you may be in for an unpleasant audio surprise. Insert a signal generator plug-in on the aux track (insert menu > other > signal generator). Slowly bring up the fader on this track and you'll hear the test signal. It's pretty useless at this point. Set it to Sine Wave and 200Hz. Insert a gate on the aux track (insert

> dynamics > Expander/Gate Dyn 3), making certain that the gate follows the tone generator in the signal path. This means that the signal generator *must* be in the top insert slot. Adjust the threshold of the expander/gate so that the tone is just muted. Next you need to route the kick drum to the 'trigger' input of the gate. Add an aux send to the kick drum track. Set its output to Bus 1, set it to pre-fader and bring the aux send fader up. Set the gate's key input to Bus 1. Click the gate's sidechain 'key' button.

Every time the kick drum is hit, the gate will open, unmuting the tone and giving you a low-frequency burst (You may need to fine tune the gate's threshold control.) Try tuning the tone down to around 60 or 70Hz. You can turn this into a TR808 kick by lengthening the hold and release of the gate, or keep it short and just use the tone to reinforce the kick. In fact, if you already like the kick drum sound, tune the tone to approximately 40 or 50Hz just to add some impact to the kick drum.

Some engineers have had success using contact pickups on each drum to trigger gates on the microphones. This is a useful technique because the contact pickup is not subject to any leakage, whereas microphones may capture other sounds that might mis-trigger the gates (particularly on loud stages). The contact pickup is placed on the drumhead and patched to the key input (see Figure 2) on the respective drum's gate. Since the trigger is in physical contact with the head, it will send a signal only when the drum is hit. Leakage is no longer a factor in opening the gate, so the gate reliably opens only when the drum is hit. ■

Steve La Cerra is an independent audio engineer based in New York. In addition to being an Electronic Musician contributor, he mixes front-of-house for Blue Oyster Cult and teaches audio at Mercy College Dobbs Ferry campus.

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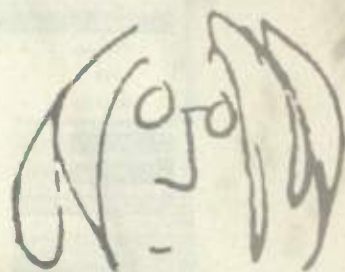
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Steinberg Cubase

Perform time-stretching and create special effects

BY CRAIG ANDERTON

OBJECTIVE

Apply both musical and “low-fi” time-stretching.

BACKGROUND

Cubase offers many ways to fit tempo or follow tempo changes, such as warping, musical time, and hit points. However, this method uses the Time Stretch DSP function to allow for a wider choice of algorithms, and applies the process rather than performing realtime processing.

TIPS

■ Step 4: The élastique Pro “Tape” algorithm changes pitch as well as time, so setting the locators to extremes can provide “slowed-down” or “sped up” tape effects.

■ Step 4: The Help button in the lower left describes characteristics of the various algorithms.

■ Step 5: To audition algorithms, after previewing an algorithm, click Stop, select another algorithm, click Preview, audition it, etc.

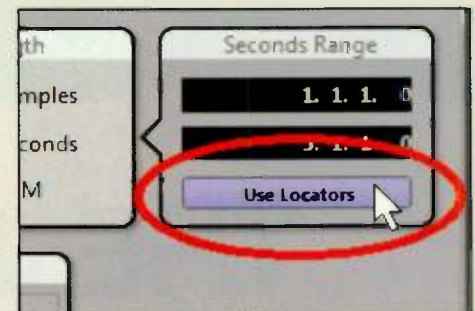
Step 1 Set the locators for the target clip length.



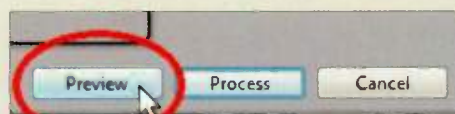
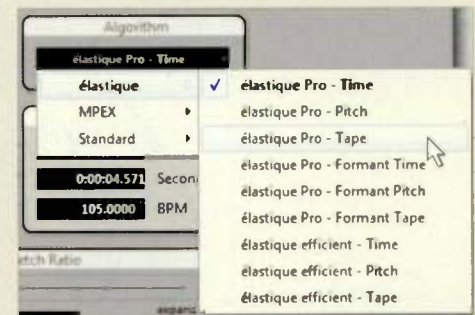
Step 2 Click the clip to select it, then go to Audio > Process > Time Stretch.



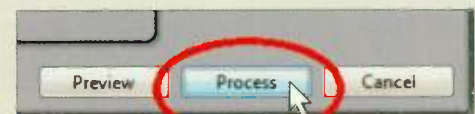
Step 3 In the Time Stretch dialog box, click on Use Locators.



Step 4 Select a stretching algorithm.



Step 5 Click Preview to hear how the algorithm affects the sound.



Step 6 After finding the ideal algorithm, click on Process.

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BY CRAIG ANDERTON

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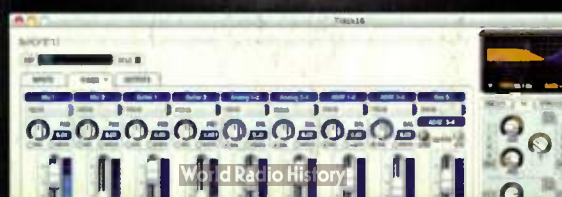
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