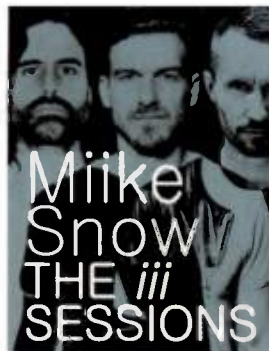


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THE *iii*
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IN THE
STUDIO WITH
Moderat

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Why Metadata
Matters
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DJS

BANDS

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The New
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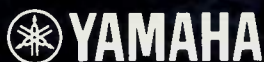
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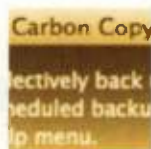
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A RIG FOR ANY STAGE GIG

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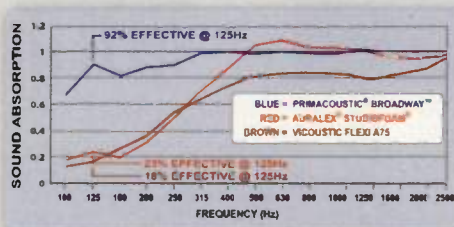


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Your Most Important Tools

AC/DC, a band plagued by misfortunes in recent years, was dealt another huge blow this spring by the devastating news that lead singer Brian Johnson's hearing damage dictated that he would have to cease touring immediately to avoid total hearing loss.

You might assume that this kind of catastrophe happens only to extremely loud rock bands playing stadiums for decades, but nobody making music is immune from the risk of noise-induced hearing loss.

Artists gigging at every level face their own hearing health risks, from cramming around drum kits in tiny spaces to putting themselves at the mercy of an unknown club P.A. system and house engineer every night on tour.

Our cover story focuses on stage gear for singer/songwriters, DJs, and bands. As you spec out options, consider the role hearing protection plays in your rig.

In-ear monitors, for example, offer potential protection by controlling

volume, lowering stage volume, and increasing isolation—provided they're used properly.

Noise-induced hearing loss is insidious and *permanent*. But it's also preventable. Start by educating yourself: Learn OSHA safe exposure guidelines; put a free dB meter app on your phone, and check your stage (and studio!) levels. We offer resources to help you at emusician.com/hearinghealth. Your ears are your livelihood. Don't destroy them by doing the job you love.



SARAH JONES
EDITOR

sjones@musicplayer.com

electronic MUSICIAN

WEB HIGHLIGHTS

This month on emusician.com

Roland Juno-DS Loop Samples

Plus...

The DIY Advisor: All About Open Rates

HD Vinyl: 7 Reasons We're Skeptical

...and lots more!



gadget geek



Kilpatrick Audio Phenol Patching Perfection in a Compact Package

Modular synth aficionados seeking a compact, affordable instrument will be inspired by the latest offering from Kilpatrick Audio. Modeled after traditional modular synths, Phenol is based on a banana patch system with color-coded jacks and voltages compatible with Kilpatrick Format and other modular systems. Features include two analog VCOs, two analog filters, two envelope generators, MIDI-to-CV converter, built-in MIDI sequencer/looper, a variety of connectivity options, and a mixer. Retail is \$849; check it out at kilpatrickaudio.com.

app tip Novation Blocs Wave

BY MARKKUS ROVITO

Construct music one loop at a time.

NOVATION'S NEW Blocs Wave 8-slot looping app for iOS 8 or later (blocs.cc) makes up for its simplicity with an elegant interface and high-quality audio material. Six sound packs are included, with many more in the in-app Store for \$1.99 each. You can also record your own material or use third-party sounds in this quick-start music-building app.

1. Start a new session and touch one of the eight cells across the top to select it. The color-coded wheel at right has blocks for drum, bass, percussion, vocal, melodic, and effects parts. Just touch any block for a loop to be selected at random and begin playing. To choose specific loops by sound pack and type, go to the Packs menu. The first drum or percussion loop you choose sets the tempo, and the first bass or melodic loop sets the key, but you can change either setting from the upper right-hand corner.

2. From the Edit mode screen, you can choose the loop points on a zoomable

waveform, move the loop select and use Slip to snap an attack point of the soundwave to a marker of the beat grid. Experimenting with these tools can lead to some interesting off rhythms. To the far right are the loop volume slider and mute button. You also mute/unmute the eight loop cells by sliding down or up on them.

3. Go to the Record mode screen to record your own sounds from either the built-in mic or from almost any connected audio interface. Here, you can monitor your input volume and set the count-in and loop lengths before recording. When finished, you can name and edit recorded audio.

4. Blocs Wave works with the third-party standards Audiocopy and

Audioshare apps both to import and to export loops. You can export the selected portion of any loop as WAV or AAC audio to other apps via AudioCopy and AudioShare, or by simply emailing it as an attachment.

Blocs Wave sells for \$4.99 at the iTunes App Store.



EM News HD Vinyl: Buzz or Bust?

BY MARKKUS ROVITO

AT PRESS time, Austrian Company Rebeat Digital (rebeat.com), which makes Music Enterprise Software (MES) for labels to manage their releases, broke the audio corner of the internet when word got out that it had filed for a European patent on High-Definition (HD) Vinyl technology.



HD Vinyl would reportedly offer an additional 30 percent capacity, 30 percent more volume, and twice the audio fidelity of the average vinyl record of today. Not only that, but the new records will purportedly be significantly easier, faster, and less expensive to produce. They will use laser etching and 3D modeled "topographical mapping" to produce records with little to no possibility of distortions. Faster production would be most welcome, as the current vinyl

production capacity struggles to keep up with demand.

Rebeat, in an interview with Digital Music News, claimed that users would be able to play HD Vinyl on existing turntables and still "enjoy the benefits"; however, "enhanced features" will require HD-compatible turntables.

Rebeat is also seeking worldwide patents and early-stage financing, and plans to begin producing HD Vinyl in three years.

Will this new format launch to wild success? We'll be watching and waiting. And for a more in-depth analysis of the pros and cons of this potential new format, visit emusician.com/HDvinyl.

>> Black Stone Cherry with David Barrick

HEAVY METAL band Black Stone Cherry have come full-circle: After 15 years in the business, this close-knit group have come home to make their latest album, *Kentucky*, with engineer/studio owner David Barrick, who also tracked their first album.

"Other than us and our parents, nobody knows our music better than David," says lead guitarist and singer Chris Robertson. "It's like a family, and he's part of it."

Barrick Recording Studio (Glasgow, Kentucky) is built into a former music shop; Barrick kept much of the store's footprint and vibe intact, installing recording rooms on the main floor, and a control room below, to achieve good isolation.

As they have since forming in 2001, the members of Black Stone Cherry—Robertson, drummer John Fred Young, bass player Jon Lawhon, and guitarist Ben Wells—write songs en masse, often capturing ideas to Logic on the tour bus. They go into recording sessions with solid song structures, but arrangements really develop live in the studio.

"If there's a magic moment on guitar or bass, we try to keep that, but we generally are just trying to get the best drum performance we can at first," Robertson explains.

Young's kit was situated in Barrick's drum room, miked with a Shure Beta 52 inside the kick and an Audix D6 outside. "I like to have a good stereo mic in front of the drums, eight feet away, down low to the floor" Barrick adds. "We used a Telefunken AR70, and that picked up a lot of body."

Barrick used Shure SM57s on snare top and bottom, and three Audio-Technica 4033 overheads, above the cymbals. "It worked best in this case to have three—center, left, and right," he says. "On the hi-hat and the ride we had AKG 451 pencil mics, and for toms I had the Heil P30. Those Heil mics are great, because very minimal EQ is needed; you can't really overdrive them, but they're very open-sounding."

Other instrument parts are approached in a fluid but organized fashion: A specific guitar solo may inspire a new drum lick, or vice versa, and the band needs the freedom to go wherever a song leads them. So, Barrick and the band put together a grid, showing every potential part for every song that might go on the album, and they tick parts off as they get done.

"It's overwhelming at the beginning of a session when you have 18 songs on that chart and no check marks," Barrick says. "But there's something satisfying about adding the check marks."



Left: David Barrick is at his workstation while frontman Chris Robertson plays. Above: bass player Jon Lawhon and guitarist Ben Wells.



With that system in place, Barrick is free to focus on creative sonics: "We concentrated on making sure the tones were just right for each particular song," he says. "It wasn't a set-it-and-leave-it type of situation. You get more variety when you say, 'This song is really heavy, but let's try some stuff to make the guitars even bigger than we did on this part,' or, 'Let me put some room mics in for the solo.'"

The guitar Robertson played most on the album was a Paul Reed Smith black goldburst 245 with 708 pickups, with a prototype PRS amp that he says is "50 watts of awesomeness," and which Barrick captured via a close

57 and a Cascade ribbon mic, through one of his Neve 3405 modules. "We also used my Tubetech MP1a tube pre's. Usually, if I printed a stereo room [mic] with a solo or rhythm [guitar], I would use the MP1a's on the room mics."

Robertson likes to sing his deep, growling vocals into an SM7B. "I think it was the same mic we used on their first record," Barrick says. "It has a forward sound that's good for their music."

That said, Barrick used two Telefunken mics to capture acoustic guitar and vocals live, when Robertson sang the last song on the album, "The Rambler."

"That song really pulls at your heartstrings," Robertson says. "The majority of the record being heavy, we couldn't figure out a way *not* to finish with that. We ended on a totally different note."

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TARGET MARKET Guitarists, bassists, keyboardists

ANALYSIS A quick and easy way to add the vintage tones of a tape-replay machine to your rig.

ehx.com

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rossum-electro.com

3
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TARGET MARKET Professional and personal studios

ANALYSIS A full-featured software model of a popular '80s-era dynamics processor.

waves.com

4
LEWITT
LCT 640 TS
Multipattern condenser mic and DAW plug-in
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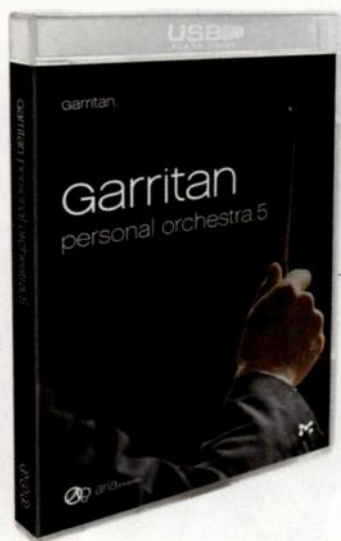
HIGHLIGHTS Five polar patterns—omnidirectional, figure-8, cardioid, wide cardioid, supercardioid • directionality adjustable after recording using the bundled AAX/AU/VST plug-in • dual output mode lets you record the front and rear diaphragms separately as well as track in stereo • mid-side recording capability • 4-setting lowcut filter • 4 pad settings • includes shockmount, pop screen, windscreen, and molded case

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ANALYSIS A major update to a highly affordable orchestral and choir library.

timespace.com

6 WIDE BLUE SOUND ECLIPSE

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ANALYSIS Designed to offer a darker, more aggressive, and moodier vibe than the company's first release, Orbit, while providing a refined user interface.

widebluesound.com

7 FLUID AUDIO FPX7

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TARGET MARKET Professional and personal studios

ANALYSIS The combination of a ribbon tweeter with coaxial driver placement provides a unique listening experience.

fluidaudio.net

8 SAMPLE LOGIC MORPHESTRA 2

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TARGET MARKET Composers, sound designers

ANALYSIS Stocked with samples of traditional instruments and field recordings, Morphestra 2 provides a broad palette of colors intended for game, film, and television.

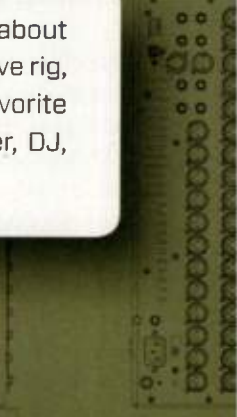
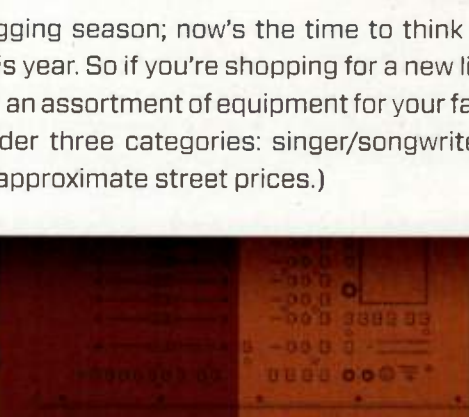


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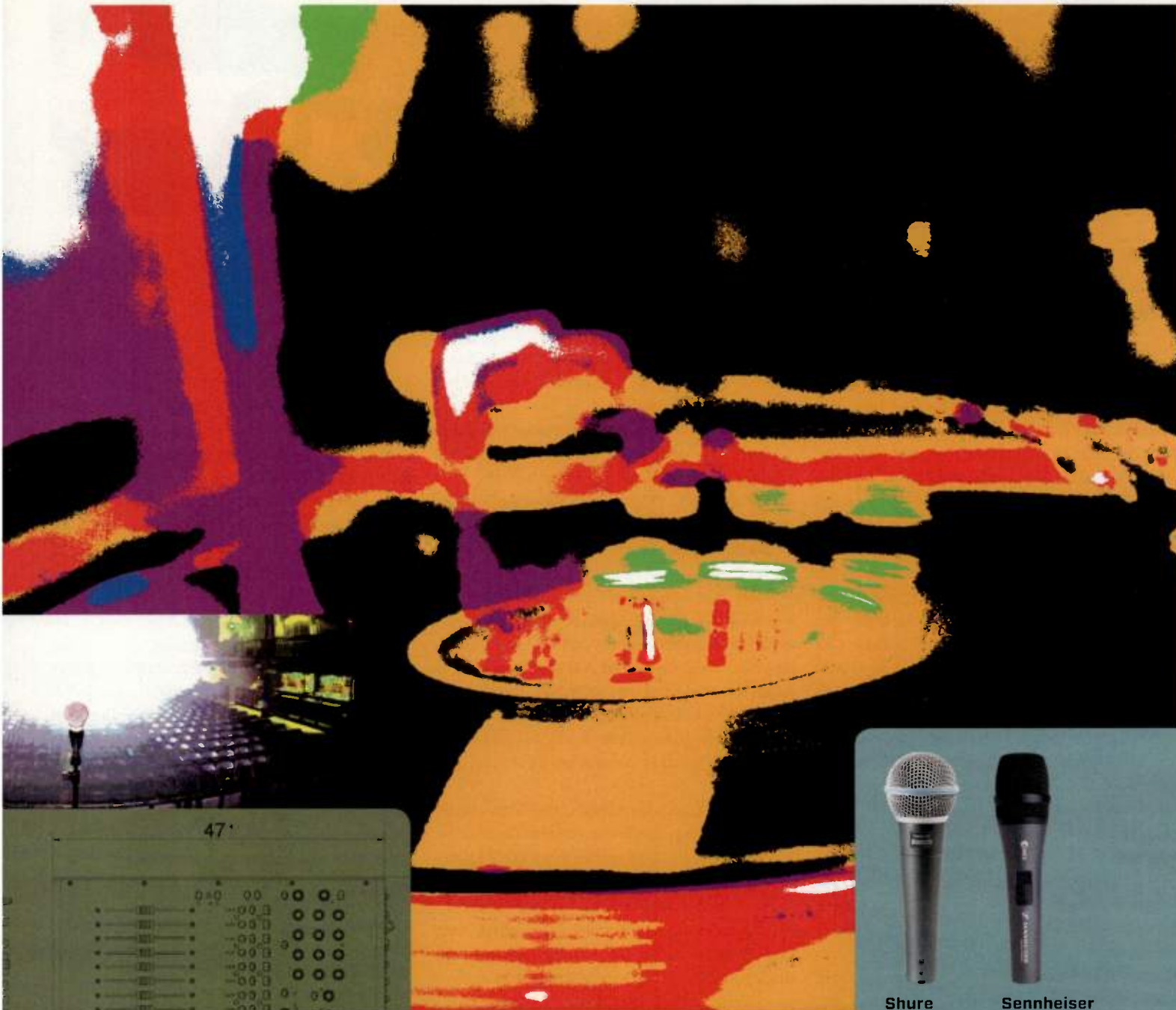
A Live Rig for Any Gig

Whether you're a DJ, singer/songwriter, or rock band, we have perfect stage gear recommendations for you

BY STEVE LA CERRA



Summertime is the busy gigging season; now's the time to think about the stage gear you'll need this year. So if you're shopping for a new live rig, start here! We've rounded up an assortment of equipment for your favorite poolside gigs, organized under three categories: singer/songwriter, DJ, and full band. (All prices are approximate street prices.)



Shure
Beta 58A



Sennheiser
e845

SINGER/SONGWRITER

A system for use by a solo performer needs to provide ease of portability, fast setup, and simple operation. No solo artist wants to be humping a lot of heavy gear, yet it's important that the system offer some measure of expandability for that occasional duet gig.

We'll start with the most important part of the signal chain: the vocal microphone. We need a mic that's reliable, sounds great, and offers high gain-before-feedback. Dynamic (moving coil) microphones tend to be the most rugged and won't require phantom power—an important consideration because we probably won't be using a "proper" mixer. Popular choices for stage vocal mics include the Shure Beta 58A (\$159), Audix OM-5 (\$159), Audio-Technica ATM-610a (\$169), and Sennheiser e845 (\$150). Some of these mics are available with an on/off switch—a feature you may need for muting the mic between sets.



We'll forgo the complexity of mixers (powered or otherwise) and go for a "portable P.A." with multiple inputs: one for a vocal mic and another for an instrument. Take for example, JBL's PRX712 (\$699), a compact, two-way system with a 12-inch woofer and a 1.5-inch neodymium compression driver powered with two onboard Class D amplifiers. If you need a bit more bottom end, you can climb up the chain to the PRX715 (\$799) with a 15-inch woofer. Two rear-panel combo jack inputs with level controls accept mic or line signals, and a pair of RCA jacks can be used to connect an iPod for music during breaks. An XLR output jack can carry either or both channels for connection to another PRX for use as an additional main speaker or monitor. As you might guess from its name, the Bose L1 Compact (\$999 street) was designed for portability; it weighs in at only 29 pounds. The L1 Compact employs Bose's Spatial Dispersion technology to deliver consistent, 180-degree coverage across the stage and to the audience. Its vertical enclosure houses six small drivers for HF reproduction, and sits atop a bass module with an 8-inch woofer. An XLR mic input features low- and high-band EQ, while channel 2 offers 1/4-inch TS (switchable between line or instrument level), RCA, or 1/8-inch stereo inputs.

Speaking of monitors, we'll also need a small wedge monitor. (In-ears are too complicated for this application.) Yamaha's DBR12 (\$499) incorporates a voicing-contour switch to modify the cabinet's frequency response for use either as a main speaker or a floor wedge, permitting it to function as part of a larger system in the future. Electro-Voice's EKX-12 (\$499) can also be used as a main or monitor speaker and features DSP presets for music, live speech, or club applications as well as crossover settings that can seamlessly match it with an EKX Series subwoofer. Add some cables, a speaker stand, and a mic stand, and off you go to the coffee house.

VARIATIONS ON THE (P.A.) THEME

Fishman's SA220 (\$999) Solo Performance System boasts a full-featured mixer, upping the ante with two phantom-powered microphone inputs, three-band EQ, reverb, and feedback suppression. A convenient

Mute switch turns off the mic inputs and XLR outputs while allowing the aux input to continue functioning for break music.

Possibly the first portable P.A. system of its kind, Korg's Stageman 80 (about \$500) integrates a drum machine, a mixer with two inputs, built-in effects and a WAV file recorder. Dual 4-inch, full-range speakers are each powered with a 40-watt amplifier, and the Stageman 80 can be battery powered for those gigs in the NYC subway.

A bit more of a financial commitment than the previously mentioned models, Mackie's Reach (\$999) provides four combo inputs plus a 1/8-inch stereo aux input for an iPod. A unique feature of the Reach is an integrated monitor speaker that faces the performer—eliminating the need for a wedge. The Reach includes onboard effects and DSP, and is controlled using Mackie's Connect app for iPhone, iPad, or Android.

Samson's Expedition XP800 (\$599) takes a slightly different approach, offering a powered eight-channel (4 mic/line plus 2 stereo line) mixer that folds into the rear panel of one of the cabinets for transport. The mixer provides built-in effects, Bluetooth connectivity for wireless music streaming, and dual 400-watt, Class D amplifiers. The entire system packs up into a single portable unit that weighs around 40 pounds.

THE DJ SYSTEM

Nailing down a DJ system requires first asking the question: "what's the source?" Old-school DJs spinning vinyl will want a pair of direct-drive turntables. Technics' SL-1200 was discontinued in 2010 but this summer the company will introduce the limited-edition SL-1200GAE 50th Anniversary Edition (\$4,000), which looks like something I installed at Studio 54 in 1978 (kidding). At a more earthly price (around \$650) is Pioneer's PLX-1000, a direct-drive turntable with a high-torque motor for stable platter speed and a high-mass, die-cast chassis made of zinc. Unlike yee olden days, the PLX-1000 has gold-plated RCA jacks so you don't have to settle for the crappy captive cables that came with turntables when I was a kid. Pitch control can be varied over ± 8 , 16, or 50 percent, with instant reset to 0.

DJs who like the ability to switch between the analog and digital worlds will appreciate Audio-Technica's AT-LP1240-USB (\$399) which features an onboard RIAA preamp and can deliver line output as well as the traditional "phono level" output via RCA jacks. Integrated A/D conversion at 44.1 or 48 kHz enables the AT-LP1240 to show up as an audio device under Windows or Mac OS. Don't forget the phono cartridge: Shure (M44-7, \$45), Stanton (505, \$70), Audio-Technica (AT95E, \$39), and Ortofon (Scratch OM, \$61) are popular choices that won't break the bank.

If you *do* want to break the bank, you can plug those turntables into Pioneer's DJM-2000NXS 4-channel digital mixer (\$2,499). The DJM-2000NXS can also accommodate analog line level input or digital inputs. Additional features include Beat Slice for creating new track slices on-the-fly, and Sync Master which automatically synchronizes tempo and beat position of tracks. DJs who prefer to work in the digital domain might want to check out Rane's SL 4 USB interface (\$899) which works with Serato Scratch Live for vinyl emulation. Vinyl "control" records included with the SL 4 allows DJs to use analog turntables to alter playback of computer-based files.

No DJ rig would be complete without headphones, preferably closed-back to reduce leakage from the outside world. The Denon DN-HP500 (\$89), Shure SRH550DJ (\$100), and Pioneer HDJ-500 (\$89) all fit that bill, and provide padded, swiveling ear cups that move at least 60 degrees.

Every DJ needs plenty of thump, both for themselves and to get booties shaking on the dance floor. PreSonus' StudioLive 315AI powered speaker (\$1,450) combines high output (2,000 watts onboard, triamped), integrated processing, and compact design using the company's proprietary CoActual coaxial transducer. A 15-inch LF transducer handles the lows while the CoActual driver produces the mids and highs. When mounted atop the PreSonus StudioLive 18sAI subwoofer (\$1,250), the 315AI is time- and phase-aligned to create a true four-way system. Remote tuning via wired or wireless network is possible using PreSonus' free SL Room Control app for iPad,

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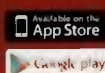
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\$2,499 ⁰⁰ | B Gibson Les Paul 4 Reference Monitor (Cherry)
#GKLP4C
\$599 ⁰⁰ | C NEAT King Bee Cardioid Solid State Condenser Microphone
#NEMICKBCSSC
\$349 ⁰⁰ |
| D Numark Lightwave DJ Loudspeaker with Beat Sync'd LED Lights
#NULIGHTWAVE
\$194 ⁹⁵ | E Allen & Heath GLD-112 Chrome Edition Compact Digital Mixing Surface
#ALGLD2112
\$6,499 ⁰⁰ | F Audeze LCD-XC Closed-Back Planar Magnetic Headphones
#AUDXCWCBBBL
\$1,799 ⁰⁰ |
| G Zoom F8 Multi Track Field Recorder
#ZOF8
\$999 ⁹⁹ | H Apple 16GB iPad Air 2
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#SHMV51
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| J Moog Mother-32 Semi-Modular Analog Synthesizer
#MOM32
\$599 ⁰⁰ | K RME Babyface Pro 24-Channel 192 kHz USB Audio Interface
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Mac, or Windows, and an optional Dante networking card enables routing audio via CAT5 cable.

To get you moving in the DJ booth we'll grab a pair of QSC KW122s (\$1,099), a two-way/12-inch active loudspeaker with 75-degree conical DMT (Directivity Matched Transition) coverage for consistent sound throughout the listening area. The KW122's profile allows it to be used with standard 35mm pole mounts or as a floor wedge monitor, and it weighs in at a relatively lightweight 22 pounds.

BAND RIGS THAT GO BIG

Our most ambitious rig is intended for bands carrying their own P.A., gigging in small clubs. Let's assume instrumentation of drums, bass, guitar, keyboards, and lead and background vocals. Those instruments will yield a lot of inputs, so a portable P.A. is out of the question. We'll need a "proper" mixing console and a digital mixer is the way to go. Sixteen input channels are a must; if you can foot the bill go for 24 channels. Allen & Heath's Qu16 (\$1,999) has 16 XLR mic/TRS line inputs, three dedicated stereo line inputs (including a front-panel 1/8-inch jack for your iPod) and 12 balanced XLR outputs. The outputs facilitate routing a L/R house mix, four mono mixes, and three stereo

mixes, so we could create as many as seven monitor mixes. Four onboard stereo effect processors can generate a gazillion effects including reverb, delay, chorus, doubler, phaser, and flange.

If you prefer the idea of a mixer without the mixer(!), A&H's Qu-Pac (\$1,499) and Mackie's DL32R (\$1,799) are viable candidates. Both of these are rack chassis with all of the audio I/O and processing, and much less (or in the case of the DL32R—none) of the control surface. These are network-controlled via tablet or phone, and the manufacturers offer free apps to control their respective products. One of the great attractions of such a setup is that each musician can dial in his or her own monitor mix using a phone (no pun intended). It also means that an engineer can walk the room while mixing on an iPad. Club owners love the fact that they don't give up space for a mix position.

Software control also means that some of these systems are expandable. PreSonus' StudioLive CS18AI (\$1,999) offers a mere four inputs and two outputs on its control surface, but it's intended for AVB networking control of StudioLive RM16AI (\$999) and RM32AI (\$1,599) rackmount digital mixers, managing systems up to 64 inputs and 32 outputs.

Next we'll need a complement of microphones,

both instrument and vocal. Generally we can revisit the vocal microphones that are appropriate for the singer/songwriter rig, most of which are available in wireless versions.

If you don't mind a little legwork, you can pick drum microphones *à la carte*: Shure Beta 52A (\$189), Audix D6 (\$199), or Sennheiser e 602 II (\$159) for kick drum; Shure SM57 (\$99), Audix i5 (\$99) for snare; Electro-Voice ND44 or ND46 (price TBA; both from EV's new ND Series), Audio-Technica ATM230 (\$139), or Sennheiser e 604 (available in a three-pack for \$349) for toms. Small-diaphragm condenser microphones generally fare best for cymbals but good condenser mics get pricey *real fast*.

Shure's PGA181 is an excellent condenser mic at a ridiculous price tag of \$100 street. (Get two before Shure raises the price.) If you have deeper pockets, you can get into the Audio-Technica Pro 37 (\$169), AKG C430 (\$199), Audix SCX-1 (\$499), and Shure SM81 (\$349). Keep in mind that gigging with expensive microphones is not always the greatest idea—gear occasionally gets left behind or walks away at the end of the night.

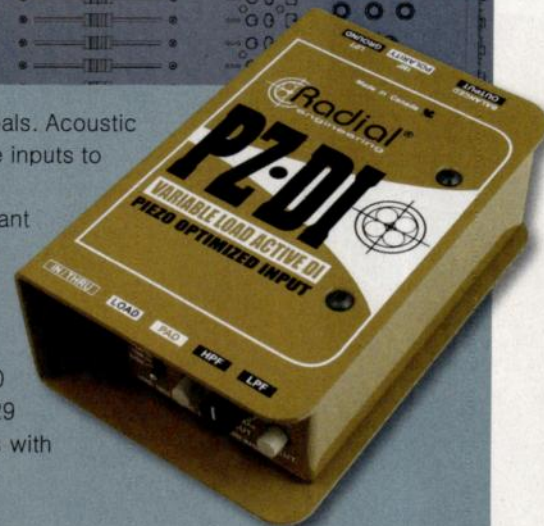
A drum mic package can simplify your shopping list. Samson offers the 7Kit (kick, snare, three tom, two condenser, \$199) to cover a 5-piece

Sound to DI For

Most 1/4-inch inputs on mixers or portable P.A.s are not designed to accept "instrument" signals. Acoustic guitar pickups, electric basses, and many keyboards need to be patched into high-impedance inputs to properly produce their audio signal.

A direct box ("DI") is the correct way to make the connection, performing three important functions: One, the DI brings the output of the instrument down to microphone level so that the signal can be connected to a mic input. Two, the DI balances the (typically) unbalanced signal generated by the instrument, and three, the DI presents the instrument with the high-impedance input that it is designed to drive, restoring the instrument's output level and tone.

DI prices range from 25 to 500 bucks, with plenty of models in-between. Expect to pay \$100 to \$150 for a good-quality direct box. Noteworthy is the PZ-DI from Radial Engineering (\$229 street), a direct box specifically developed to properly match input impedance to instruments with magnetic pickups, piezo pickups, or the active preamps found in some acoustic guitars.



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
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Electro-Voice
ELX115P



Shure PSM300

drum kit easily; larger (8Kit) and smaller (5Kit) variations are also available. Miktek's PMD5 (\$849) includes four PM10 snare/tom mics plus a PM11 kick drum mic. Audix, Shure, AKG, and Sennheiser also offer drum mic packages, some of which include mounting hardware—meaning you'll have fewer microphone stands to carry.

You won't go wrong miking a guitar amp with a Shure SM57 or Audix i5; for a slightly different flavor try the Audio-Technica ATM650 (\$99). If the need arises, any of these can also be used for horns.

There's a very good chance that bass and keyboards will require direct boxes as opposed to mics on amplifiers (see sidebar on page 20). Radial's ProDI (\$99) is an excellent all-around DI that

is reasonably priced (around a hundred bucks) and should be able to withstand being hit by a truck, even if you don't. The iFace from ProCo (\$160) accepts stereo input via RCA or 1/8-inch mini and delivers the signals on XLR balanced outputs.

KA BOOM!

Now that we have the front end out of the way, it's time for the heavy guns. Our band system is already getting fairly complex and we don't want to increase setup time by using passive speakers, power amps and crossovers. Let's consider the Mackie HD Series for the mains: The HD1521 (\$999) is a two-way active system with components designed by EAW. Onboard Class D ampli-

fication enables the HD1521 to deliver SPLs well above 120 dB, with low-frequency response down to 50 Hz. To make sure we have plenty of gas in the bottom end of the tank, we'll augment these with a pair of HD1801 powered subwoofers (\$999 each). The HD1801 employs an 18-inch transducer, extending low end down to 35 Hz. A highpass output can be used to feed the HD1521 and—since the HD1801 was optimized to interface with Mackie's full-range boxes—the system integrates without worry of crossover points or filter slopes.

We also need stage monitors: at least two up front and one for the drummer. Again, we'll stick with powered boxes. QSC's K10 (\$699) is a compact powered wedge that can kick your ass with

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- Passive step up transformer boosts signal without noise
- Jensen Transformer for unmatched performance
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Capital Records - Grammy winning Engineer
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"I have been using Hafler for over 25 years and I've never been disappointed. Their performance is outstanding, they are very dependable and their dynamics are just what I look for."

PH50 phono stage

for moving magnet



- Phono stage for moving magnet cartridge
- Ultra low noise transformerless design
- Variable high-pass filter to eliminate rumble
- 91dB dynamic range - 0.002% distortion
- Plug and play easy to set up and use



Eric Boulanger

'The Bakery' - Mastering Engineer
Imagine Dragons, Neil Young, Colbie Caillat, One Republic

"I installed the Hafler PH50 to the pickup of my Neumann VMS70 cutting lathe. This phono preamp is such an accurate window on the world for me and it can drive a long line with low noise effortlessly."

PH60 phono stage

for moving coil



- Phono stage for moving coil cartridge
- Ultra low noise transformerless design with 70dB gain
- Switchable high-pass filter to eliminate rumble
- Internal jumpers to match cartridge impedance
- Plug and play easy to set up and use



Chuck Ainlay

Grammy winning Engineer - Producer
Mark Knopfler, Taylor Swift, Band Perry, Eric Clapton

"My Hafler PH60 phono preamp kicks ass! I've never heard my turntable sound that good. Actually, I didn't think it was possible."

SPLs up to 129 dB. Its lightweight ABS enclosure houses a 10-inch woofer, a 1.75-inch compression driver, and dual 500-watt Class D amplifiers. An XLR line out jack permits easy daisy-chaining, and each of the K10's two inputs has its own "direct" output, should the need arise.

If your taste leans toward a little more bottom end (and a louder stage), check out the ELX115P (\$699) from Electro-Voice. The ELX115P mates a 15-inch woofer with a 1.5-inch titanium com-

pression driver housed in an enclosure that can be placed as a floor wedge, or on a pole for sidefill use. Get two so you can give your drummer a pair of Texas headphones.

In an ideal world we'd put the entire band on in-ear monitors. See the sidebar below to help decide whether this is a good or bad idea for your situation. High-quality systems are available from Sennheiser (ew300 IEMg3, \$999) Shure (PSM300, \$799), Westone (AM Pro 10, \$189; AM Pro 20,

\$339; and AM Pro 30, \$439) and Audio-Technica (M2, \$599, and M3, \$799) if you can handle the commitment to IEMs.

So there you have it. We've suggested some great gear for any live sound situation you might face this summer. Now go make some noise!! ■

Steve La Cerra is an independent audio engineer based in New York. He mixes front-of-house for Blue Öyster Cult and teaches audio at Mercy College Dobbs Ferry campus.

Should You Use In-Ear Monitors?

Switching from stage wedge monitors to IEMs can be a life-changing experience. Musicians find it easier to hear what they need in their ears, monitor feedback disappears, the stage sound is greatly cleaned up, and the front-of-house mix improves due to reduced spill from monitors into the house. Used properly, IEMs can help conserve your hearing by reducing stage volume. But the switch to IEMs isn't all roses and champagne. Don't expect to "throw and go" with IEMs like you can with wedges. You'll need time for a sound check, plus a mixer with a sufficient number of aux sends to feed the transmitters. It's possible to use a single transmitter to feed the same monitor mix to multiple receiver packs (for several musicians), but that misses one of the points of using IEMs in the first place.

IEMs also require someone to pay attention to the cue mixes, especially since stage sound should decrease when IEMs are used correctly—meaning that you may have trouble or not be able to hear your instrument at all until the ear mix is running. Assuming that your budget does not allow for a monitor engineer, it'd be smart to choose a mixing console that allows control via an iPhone or iPad app for monitor mixing. This will enable each musician to mind his or her own monitor mix and won't be possible with an analog mixer.

A set of quality IEMs costs around \$500 with generic earpieces; systems with enhanced features will cost closer to a grand per set. Ear buds are not acceptable for use with IEM systems because they will not seal your ear from ambient sound. Custom-molded earpieces add at least \$300 per person. All of this information is not designed to discourage you from moving to in-ears, just to let you know what it takes to do it with some measure of success.

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Glen Ballard

Grammy winning Engineer - Producer
Alanis Morissette, Shakira, Katy Perry, Van Halen

HA75 Tube Head™

12AX7 tube circuit



- 100% discrete class-A circuit with 12AX7 tube drive
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- Dual headphone outputs to share with engineer and talent



Jimmy Douglass

Grammy winning Engineer - Producer
Justin Timberlake, Pharrell Williams, Rolling Stones, Jay-Z, AC/DC

"The Hafler HA75 Tube Head is awesome! I love the warmth, love the room simulator feel, really cool features... A mixers delight... If you gotta be stuck in the phones, what a sweet way to do it!"

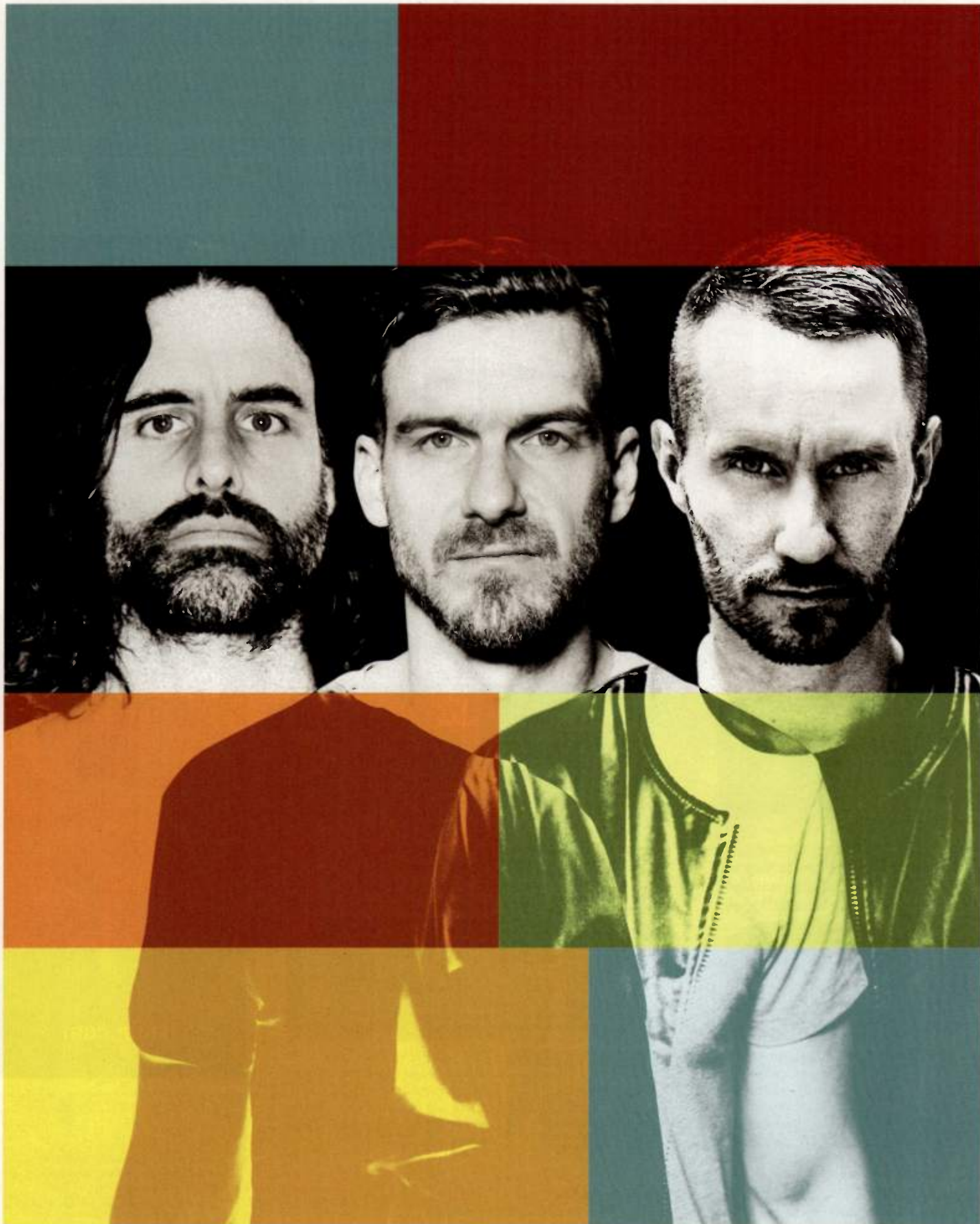
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Inside *iii*, the third full-length from international production trio Andrew Wyatt, Christian Karlsson, and Pontus Winnberg

BY TONY WARE

AN ANIMAL, a sad robot, a jealous tyrant: Miike Snow is all of these things, and none of them.

An ambiguous character, nay characters, Miike Snow is the alias, the aggregate, that has allowed Andrew Wyatt, Christian Karlsson, and Pontus Winnberg to operate in a fictitious universe for nearly 10 years, combining past experiences and retrofuturistic studio techniques into sci-fi fantasies and emotional but never manipulative indie-pop songs.

As songwriters, the three have had successes delivering club bangers and pop chart-friendly R&B—Karlsson and Winnberg (as Bloodshy & Avant) writing for Britney Spears, Katy Perry, and Kylie Minogue, to name a few; and Wyatt working with Bruno Mars and Mark Ronson, among others.

The group's 2009 self-titled debut introduced the Miike Snow combination of electronic ensembles, live drums, and filtered vocals, while 2012's *Happy to You* featured a less pumping, more resonant focus on treated pianos and synthesis. Now two plus one definitely equals *iii*, as Miike Snow's latest full-length showcases both the pensive and pitch-bent sides of the group's personality, augmented by sample-led earthy funk, live instrumentation, and copious hooks.

"For album one, we combined the sum total of our musical experiences until that moment—what we'd done and had forged us," reflects Wyatt. "Between albums one and two we toured as an actual band, operating in that backstage social universe

where we'd have to think about where we fit in and what expectations people might have for another album. Then, after album two, we no longer felt obligated to even be a band, so when we came back together it was fully by choice. We weren't desperate to make a new Miike Snow record, but it seemed like the fun thing to do so we started."

Between *Happy to You* and *iii* Wyatt, based between New York and Los Angeles, had kept busy releasing a solo album (*Descender*) and collaborating with artists including Flume and Lykke Li, among other activities. Karlsson, splitting his time between Bangkok and LA, scored several dance/electronic chart hits as half of duo Galantis (with Linus "Style of Eye" Eklöv). And Winnberg, located in Stockholm, spent time producing and managing the artist collective/record label INGRID. Getting back together could have resulted in a clash of egos, aesthetics, or just plain logistics, but "everything came together really early," explains Karlsson. "Like the first demo and the final mix aren't that far from each other. It used to be very far apart."

"Our time together in Miike Snow has become very rare; everyone lives in different parts of the world," says Wyatt, "so we knew when we came together we had to nail it, have the shit be good and inspired in a short period. We weren't going to have a month to work on the beat. So this record was similar to the first in that instinctually we knew what to do and it was working fresh enough

to be relevant. The thing you want to have is a song you can play on the piano that would keep your interest and feel satisfying, and then you have the talent to lay out a much richer production."

Reuniting in L.A.'s Silver Lake neighborhood for a few days in late 2014, then continuing sessions in New York and Stockholm over the next year, Wyatt, Karlsson, and Winnberg overcame initial tensions by committing to keep things uncomplicated. A template soon emerged: Mix the cathartic sing-a-long heartbreak pop of '60s and '70s singer-songwriters, a love of sampler-borne '90s hip-hop, and modern studio treatments.

Influences from garage rock to brooding prog, blue-eyed soul to choppy J. Dilla and Just Blaze drums crop up, shown in the dusty breaks of "My Trigger" and vintage Marlena Shaw loop in "Heart Is Full." A variety of tender, swaggering, uneasy qualities are given to the album's stories of break-ups and come-ons by Wyatt's vocals, which are "not always necessarily from a soulful place but coming from a soul tradition."

"My initial instincts in music come from jazz, hip-hop, soul ... my first records, people compared to Stevie Wonder and Todd Rundgren back in 1993, and it's something that's always been with me and you can't rewrite," says Wyatt. Karlsson adds that his approach on *iii* involved "a lot of going back into the mind of me as a 16-year-old with a [Akai] MPC60 or something."



On the first two albums a hybrid production approach pulled in everything from analog voltage-controlled synths to Camel Audio plugins and SSL channel strip emulations, while the totem of *Happy to You* was “The Blob,” a modular performance synth assembled by guys from Teenage Engineering and EMS, and based around a 6-channel mixer, Corgasmatron filters, EH Cathedral and Doepfer reverbs, Intellijel VCAs, and custom 12V lamp drivers to visualize the audio signal.

While *The Blob* has been retired, what it represents remains integral to *iii*: embracing positive distortion and perfect imperfections.

“All gear has a sound, has character in my mind, and that can be as much a part of the song as the melody,” says Winnberg. “I don’t do classical music or anything where neutrality is a factor. When we were writing ‘I Feel the Weight’ I came up with this very slow vibrato guitar tone, and I recorded the part with my [Fender] Jaguar through an Ace Tone pedal and probably a Sennheiser MD 421 II, layering notes for a spacey, seasick vibe that was noisy, but that didn’t bother me. And I’ve been workshoping getting as much punchy drum sound out of one microphone as possible. I’m never looking for the per-

fect formula, just the perfect sound for the immediate song.”

Perfect sound may seem difficult to achieve on an album where sessions were split so extensively both geographically and chronologically, but in recent years the Miiike Snow trio has consolidated platforms to some extent. Wyatt and Karlsson work with Pro Tools rigs in L.A., though Karlsson says more and more of his time is spent producing mobile, exploring whatever gear is at hand, and the only constants are his choice of monitors: Genelec, ADAM Audio, and Yamaha NS10s. As long as plug-in versions were reconciled, swapping sessions isn’t a challenge.

Winnberg now also records in Pro Tools, with gear including “one Neve BCM10 with a 1078 or 1081 or 1084s—the short ones, not the taller ones—and then there’s an API 1608 we used. I used to use Logic a lot, but I don’t trust it fully. When you bring it up the third or the fourth time might be slightly different even though you might not have done anything, but when it’s an audio file it’s a file and it’s less likely to change. I’d rather have as little plug-ins as possible and have the computer do as little work as possible once it’s in the main session.”

Winnberg is not alone in his desire to get a

take exactly where he wants it with effects and then just alter level and pan later.

“I hate having too many options or channels or whatever,” says Karlsson. “I like to just print stuff early and be like, ‘This is how this sounds.’ When I’m done with something, even effects—reverbs, delays, etc.—a lot of times I’ve already printed those. I think it’s good with some limitations. It helps you move forward. It keeps me more creative. If I have too many options, it suffers. It’s like, ‘There’s a reason I like this right now. Let’s just print it.’”

For example, Wyatt and Karlsson had a very clear vision during tracking for the vocals on certain tracks. “I feel like I learned a lot about how I want to sing, and how the softer you sing the bigger it sounds,” says Wyatt. “And there are some songs where it’s obvious a dynamic mic will work better. Like, ‘I Feel the Weight’—the first instinct I had was vocals should be formant-shifted down, autotuned and on a [Shure] SM57, and we did that and we thought it was cool with this computerized sound, like Air or something. Still, it was such a good song we thought we’d try singing it naturally, but nothing worked sonically as well so we left the computerized vocal.”

“I guess I like robots more than humans, I

A man with glasses and a tattooed arm is shown in profile, playing a Roli SeaboardRISE instrument. He is wearing a watch and a ring. The background is a dimly lit studio with various pieces of equipment, including a large speaker and a mixing console.

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don't know," laughs Karlsson. "I never like any vocal when it just sounds like a normal vocal. Ever. Sometimes I feel like I spend 50 percent of my time on the treatment of the vocals and 50 percent of the time I spend on the rest of the song."

This philosophy has the potential to cause severe challenges in the mix stages, but the clear vision and experience of the producers minimized any issues, according to engineer Niklas Flyckt: "Yeah, and a lot of the stuff was really good so we'd use it but I'd add more ambiance, more dimension to it by blending in some old Fairchild 658 spring verb or EMT 240 gold plate or something. Maybe I'd try to give it analog richness with some Klark Teknik DN780 or AKG BX 15, but sometimes the things they had done—especially the vocals—were very established in Pro Tools so it had to be the stuff they did. Software reverbs sound a little bit all the same all the time to me, and stacking older reverbs make the overtones sound more live, less cut and paste, so there is definitely a lot of old nice-sounding equipment on that record."

Reinforcing Flyckt's ability to visualize and optimize each sketch's full potential is a relationship stretching back nearly two decades. "I've been working with Niklas for almost 20 years," says Karlsson. "I know this because I was just nominated for a Grammy again with Niklas for a Galantis song and we were sitting down and counting when we started to work together. He's been there through so many different periods in my life as a musician, producer, mixer, songwriter. He's had different roles, but there's something so cool about

working with someone who knows the way you think and can understand things you can't always clearly put into words."

Flyckt—working out of Khabang Studio, his room in Stockholm—said the hardest part of the process was "having the guys decide which demo to use as a reference. I just had to make sure I had all the files, because they recorded while we were mixing and the guys were all over the world in different time zones. So we'd mix several songs at one time so I could always work on something while the guys listened to different arrangements, versions. The demos the guys did were really good so my job was more getting the songs a more organic sound."

Having started his career 30 years ago in all-analog studios, Flyckt views his Pro Tools HDX MADI system (with DirectOut Technologies 64-channel Andiamo.XT convertors) more like a multitrack recorder, with sessions spread across his SSL AWS 948 Dual Path Channel console and routed through "a lot of tube EQs, tube compressors, old RCA STALEVEL gates, and old reverbs like EMT plates."

Compressors included the Chandler Limited LTD-2, ADL 1500 stereo tube, RCA Ba25, Teletonix LA-2A leveling amplifier, Unity Audio Ltd. Lisson Grove AR-1 tube, and R-124 single-channel tube. The AWS 948 is Flyckt's board of choice because its EQ (sonically identical SuperAnalogue mono Channel EQ of the XL9000K series) reminds him of a "moody" 9000J he had in a previous studio.

"The thing with working with an analog EQ is

that it has more depth; it doesn't smooth things out as much," he explains. "The mids are in a way more aggressive and warm and when you work between 1.5k and 4k it doesn't start to sound harsh. It also pops out a little bit better in the mix. And another thing I like with the 948 is this stereo width function that helps you put things more out on the side, and it makes it easier to get room for things while having the details placed clearly in the middle or on the sides."

Along with the AWS EQ, Flyckt used Roland Dimension D, MXR Flanger/Doubler, and the analog reverbs to enhance presence on vocals and drums, but it was a final combination of the iZotope Trash 2 plug-in, a Thermionic Culture Vulture, Urei 1176LN limiting amplifier, and Purple Audio Inc. MC76 peak limiter that allowed him to sculpt dynamics without exerting excess pressure.

"On a track like 'Genghis Khan,' I'd add 1176 on a fader to see how much I could use to bring out the ghost notes that were very important for the groove," says Flyckt. "That together with the Culture Vulture works really well because you get distortion without peaks, so it sounds louder without causing a problem in the digital domain. In the song there is a loop that plays all the time with a lot of automation on the drum part, and that combination was important to keep the kick and this older sound of the drums and make sure less loud tones didn't get lost in more modern low end."

After dialing tones in, Flyckt pulled back as he mixed down through the two-channel Digital Audio Denmark ADDA 2402 converter to Nagra Audio LB 2-channel universal digital audio recorder. "I work quite hot when sending around the mixes, but when I go to mastering I usually go down 6 or 7 dB so they can come to reference levels that are where my old levels were when I was mixing down analog on half-inch. So that's around 0 dB VU on the console. It's important to give headroom for the mastering process and tape is my reference."

For Wyatt, Karlsson, and Winnberg, Miike Snow is a synonym for adaptability. "Producing is architecture, so you have to have balance and the ability to build the structure that works for the environment you want a song to exist in," says Wyatt.

"One thing trap music has is its sparsity, so it allows for perfect sonic balance between 808, hi-hat, snare—sub bass, mids, and highs—and it's easy and clear to know what's what, while in a lot of bands all those frequencies are mixing together. And I'm not saying that music isn't perfect for what it is, but if you're hearing your song on the radio and in playlists with trap kinds of songs, it has to have sonic integrity that stacks up ... so that's what I'm most proud of in terms of our songs is that shit is sonically murdering." ■



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Moderat

Berlin electronic supergroup **Sascha Ring**, **Gernot Bronsert**, and **Sebastian Szary** warp vocals, tweak modulators, and always aim for first takes on the haunting, intimate *III*.

BY KEN MICALLEF

IN THE 21ST CENTURY, why make music that sounds like, well, music? With zillions of software options available, we can sample the Dalai Lama, for instance, sift his vocal through myriad filters and effects, then add some tape echo for old-school, analog appeal. Bass support can be created by sampling aquatic animals, their struggles detuned to recall a Roland TR-808 squiggle. Rhodes or Moog (software or hardware) patterns can be transmogrified into squirming rhythms via your Akai MPC—played live to give it that “human feel.”

Moderat's *III* (Monkeytown Records/Mute) seemingly follows these 21st-century directives. It's an album of eerily serene vocals, wraithlike synth pads, tribal rhythms, and subsonic low-end thrusts. Moderat blends club sounds and pop melodies for stellar results, not heard this effectively since Everything But the Girl's global smash, “Missing.” The gentle vocals of Sascha Ring (aka Apparat) are expressed, surprisingly, via the traditional verse/chorus format. Gernot Bronsert and Sebastian Szary (aka Modeselektor) ply their trademark bass

behemoth tones. As bittersweet melodies bend the ear, Ring, Bronsert, and Szary cleverly merge the hooligan racket of Underworld and Radiohead's more fizzy electronic moments with a kind of 21st-century angst. Throughout the album can be heard the sound of disembodied voices scalloped and sliced to form spooky counter-melodies and counter-rhythms. This moody magnificence is also expressed in Ring's elastic vocals, which appear totally at the mercy of the music's clambering, nightmarish, but ultimately womb-like web.





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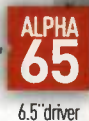
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"Szary is the quiet one who analyzes the music and gives his input," explains engineer Felix Zoepf. "Sascha is the lead singer and creates a lot of the arrangements and produces many sounds. Gernot produces arrangements and beats and the *sound* of the beats. Gernot and Szary are more techno-oriented and beat-influenced while Sascha is more of the songwriter and producer for the band. Sascha took the lead role in the mixes; the album was mastered by Bo Kondren at Calyx. Moderat are unique in Berlin; they're not part of a similar scene, but it all comes from raves and techno from the 1990s."

Working in their Berlin studio complex, which also houses the trio's Monkeytown Records label, booking agency, and store, Moderat split duties between the main recording/mixing room, Studio One, and the experimental Smoker Studio. In studio and out, Moderat's members worked in Logic Pro/Macbook. A Universal Audio Apollo Quad Audio Interface/Universal Audio Apollo Thunderbolt 2 Card joined instruments to console.

"We call it Smoker Studio because that is where Szary smokes a lot of cigarettes," Zoepf laughs. "It's more of a session room which is also a proper mixing suite that has been acoustically treated."

Smoker Studio's lineup includes an older pair of Genelec 1038A and 8040A monitors, Berlin-based EVE Audio SC407 four-way monitors, and EVE Audio TS112 sub (the latter also in Studio One). "EVE Audio measured the room to get the best tone and best position for the speakers," Zoepf says. A Vermonta DRM-1, two Roland TR-808s ("one modded so Szary can tune the bass drum"), TR-909, TR-

707, TR-303s, TR-606s, Roland Juno-60 and Roland Juno-106, and Korg MS-10 and Korg MS-20 were translated via a Midas Venice F32 or smaller Mackie mixer and older quad-core Mac.

"Studio One was the main recording and mixing room," Felix explained. "Smoker was for experimenting and recording bits of modular stuff and hardware, and finding different starting points and/or different adding points for the songs. In Studio One, Sascha brought in an SSL X-Desk paired to a Universal Audio Apollo Quad Audio Interface. Everything was recorded though this setup with two EL Distressors and the Chandler TG1 Limiter inserted in the X-Desk."

The trio did some work in the box, but "they used the SSL X-Desk to have good preamps in the system," explained Zoepf. "They recorded vibraphones, shakers, and wood instruments through the SSL using AKG C414 mics."

Moderat's last album, *II*, was recorded in 2009. Surely technology has changed the band's working methods in measureable ways? "Not so much," says Zoepf. "The guys have more gear but they still work in Logic Pro and laptops, and a big iMac, so it hasn't changed so much. They used to work with MaxMSP patches and trade files. Sascha modified a Max patch for Kid Clayton back in the day and called it Gihad. It manipulated audio quite drastically. They used that live until 2012. And they are still swapping files and sessions."

Szary divulges his love of foot pedals, which played a large role on *III*. The Electro-Harmonix Big Muff pedal, Strymon blueSky Reverberator, and the Strymon Dig Dual Digital Delay hold special

places of honor at Smoker Studio. "I love foot pedals," he says. "I grew up with techno, Atari computers, and drum machines. They provided another way to compose. Making music can be simple, but at some point you come under complex structures and you need a little knowledge. I never learned to play guitar or piano, but I love the little guitar pedals which are good for other stuff. I am not addicted, but I really like to collect pedals. Strymon makes really good pedals. Their blueSky reverb pedal is insane; the longest decay for any pedal."

Moderat's software effects includes iZotope Iris, a sample-based plug-in; Native Instruments Reactor and Konkakt sampler; and for bass, copious dosing of NI's Razor.

"It's still the best soft synthesizer you can get," Szary says. "There's a lot of soft synthesizers in the world, but Razor has a crystal clear sound for some purposes. The Crumar Multiman-S has a great bass sound and string sound too."

A Korg Arp Odyssey synth and SoundToys Decapitator effects processing were also employed. "Sometimes we will send a synth through an effects chain," Szary says. "We may resample it which gives it another quality, or pitch it down 300 Hz and it will go all crispy. Sometimes we record the sound outside the studio with a microphone so the synth sounds like it is somewhere in the distance, or in another room. We also used a Roland RE-201 Space Echo a lot, to have that spring reverb sound."

"It's very important when you play a synth line that you play it manually," he adds, "then do a little detune of the synth. The Roland Juno-60 has a little

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screw on the back where you can tune the synth; it's an old trick. But that makes the sound float."

And what makes NI Razor tick? "Its oscillator is so clean," Szary notes. "We use it for bass sounds. On the second album there's a track, 'Bad Kingdom': The bass sound and behavior of the filter and the LFO made with Razor there is really hard to describe. It's the behavior between the virtual circuits and its complement. The way it modulates the LFO and its bass behavior in the lower frequencies, that's unique to Razor."

The first single off *III*, "Reminder," begins with the sound of tribal percussion. Bass blobs permeate the rhythmic clatter, followed by a massive synth pad and a low-end growl that sounds like a voice but may be something else. A screeching jolt consistently sounds out through the track, followed by guttural moans and drum and bass menace. A desolate breakdown section is swiftly swallowed up by alien shouts and Ring's vocal cries, cut-up and repeated.

"The percussion in 'Reminder' was done in the first session as a sketch," Szary explains. "We needed wood sounds. We looked in the Kontakt libraries under 'African drums.' But that's bullshit, you have to search. We needed real wood. Then we found a wooden pallet stacked with records. We put the pallet on top of a vibraphone and Sascha and Gernot played the pallet by hand, miked

by two AKG C414s. That gave the track the specific sound we were looking for."

The deep, wobbly bass sound heard in "Reminder" was created in NI Razor, followed by a siren synth also created in Razor. "Sometimes we have five instances of Razor in one track," Szary explains. "We also used Massive. It's good for some things."

U-He's Diva (Dinosaur Impersonating Virtual Analogue) plug-in created the track's brief string synth pad, then, as the song grows more ominous, what sounds like Sascha's vocal spoken through Darth Vader's helmet surges through the mix.

"That's a harmonizer," Szary recalls. "We often use Antares, or Pitch Control in Logic Pro. We also sampled Sascha's voice and used it in an MPC, putting the samples into a sequence sampler and then playing with different tunings to have that crispy sound. That's the difference to prior albums. We used more stuff from Sascha's voice for this album."

The band's defacto and primary songwriter, vocalist, mixer and producer, Sascha Ring finds that composing and vocal tracking go hand-in-hand.

"The music comes first," Ring says. "Often on the road I am working on sound design in NI Reaktor. Later, I think about the words. I make sure I have the words when I have something musically that inspires me to sing. Gernot or Szary might give me a song idea that may inspire me and I'll improvise a

vocal right away. I've realized that it's really important to have the right lyrics. Very often the first take is the magic take and you can't often get that back. That little bit of hesitation and self-doubt can make a take more personal and I always go for that."

The bizarre use of vocal snippets as melodies, rhythms and pads is also Ring's responsibility. Using a handful of small modular synthesizers, Ring warped his vocals 100 ways.

"When I'm using modular systems I'm looking for something different from the usual synth sounds," Ring explains. "That's what you hear in 'Finder' and 'Reminder.' The main voice sequence that starts 'Reminder' was made with a modular system and my voice as a choir triggered by some weird African rhythm module that gave it that strange rhythm structure."

Ring "borrowed" a small Make Noise modular system meant for making musique concrète or experimental drone music, which included the Soundhack Echophon (pitch-shifter). The QU-Bit Electronix [Nebulae] modular sampler and Mutable Instruments' Clouds Texture Synthesizer ("for its granular effect") were also enlisted.

"QU-Bit is a great American company that makes granular samplers," Ring says. "I put my voice fragments into Nebulae, and sequenced it with the modular system from Make Noise using

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INSIDE

the Echophon. It twists things.”

Like a growing list of talented vocalists, Ring recorded vocals solo. His stripped-down, layered vocals were further treated with Soundtoys’ De-capitor plug-in, and “lots of pitched-down and multi-pitched vocals using a mixture of Auto-Tune and the Pitch Correction plug-in in Logic Pro, a little EQ and reverb.

“I’m using a Bock Audio 251 microphone through an API 512 preamp,” Ring adds. “I had an API Lunchbox loaded with two Shadow Hills Mono Gamma mic pre’s, the API pre and API EQ, straight into the Apollo. Most of the time I’m using the API ‘cause I quite like it. I run it very hot as I sing rather quietly very often. I’m using an API EQ, and EQing the vocal as I’m recording it because I want that sound. I want that feeling of a final vocal sound while I am singing it because that is also part of the performance.”

Throughout *III*, Sascha Ring’s intimate vocals cling to the music’s haunting sonic palette like deep-space parasites riding a Mars orbiter. Like Moderat’s instrumental choices, Ring’s vocals are visceral and palpable, giving the music its personal appeal. It doesn’t take long to become one with Moderat’s churning beats and corporeal melodies.

“I absolutely go for first vocal takes,” Ring says. “But every so often there may be a mistake so you



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ANDY STOTT *TOO MANY VOICES*

MODERN LOVE

Andy Stott's unearthly electronic music continues its deep-space orbit on *Too Many Voices*. Unlike electronic artists who include an element of the human in their work, Stott makes no allowances. His latest album is as frigid as an icepick. Bass notes are truncated, melodies equally so. The fascination lies in the music's unvarying textures. Stott upturns the usual palette of softsynths and machine beats into a crispy collection of stuttering rhythms, disembodied syllabic cries, dry string pads, and moon-walking drum sounds; the sum effect is like a dance club set in an ice palace.

KEN MICALLEF



DÄLEK *ASPHALT FOR EDEN*

PROFOUND LORE

Ending a too-long half-decade hiatus, Newark's industrial hip-hop singularity däleK has lost no stellar mass despite time and lineup changes. Will "MC däleK" Brooks, joined by coproducer Mikey Manteca and DJ rEk, exerts inescapable gravitational force, folding shudder and snap across 38 overdriven minutes. Crunched boom-bap, tectonic subbass, and charred harmonics threaten to suffocate blistering lyrics, but Brooks' snarling cautions skirt the event horizon as he ciphers against his white-noise abyss.

TONY WARE



FANTASTIC NEGrito *THE LAST DAYS OF OAKLAND*

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At last, a full-length from soul/blues artist Xavier Dphrepaulezz, aka Fantastic Negrito. This versatile singer changes tone and style on a dime—from wailing blues to something like musical theater to rock 'n' roll or R&B—using his impressive command of folk and electric sounds to dynamic effect. Rhythm-heavy and packed with energy, Dphrepaulezz's songs also employ spoken-word parts that give voice to young African-Americans. A strong musical statement from a brilliant artist.

BARBARA SCHULTZ



UNDERWORLD *BARBARA, BARBARA, WE ARE FACING A SHINING FUTURE*

ASTRALWERKS

Underworld's members are verging on 60 years of age and have spent half their lives making influential electronic music, defying its boundaries and shelf life. The inimitable duo's seventh album references its patented blueprint of fractured lyricism and hypnotic basslines on "I Exhale," at the same time stepping away from it on the vocal-free, organic Spanish/Middle Eastern strings of "Santiago Cuatro," and the digital ballad, "Motorhome."

LILY MOAYERI



THE RANGE *POTENTIAL*

DOMINO

Rhode Island producer James Hinton hones computative, contemplative dance music. His algorithm is simple and hard to perfect: lift life's weight with heavy bass's kinetic force. Thick pads, resonant low end, plucked synths and animated kicks cycle into resolute phase, while shaky YouTube-sourced vocal hooks bleed intimate uncertainties. Resounding piano chords and blunt snares recall the catalytic bliss-outs of early '90s Hardkiss and 'ardcore records. Delicate nuances stir heart as well as sole.

TONY WARE



ROBERT GLASPER *EVERYTHING'S BEAUTIFUL*

BLUE NOTE

On this collection of re-imagined Miles Davis tracks and outtakes, Glasper applies his boundless imagination and elegant keyboard playing to music he loves, in totally new ways. And, as on his Grammy-winning Robert Glasper Experiment albums, the artist/producer has gathered some of his favorite vocalists—Bilal, Erykah Badu, Ledisi, and Stevie Wonder, to name a few—to help realize each unique piece. Hip-hop beats, Latin rhythms, and jazz choirs are just some of the musical elements that fascinate.

BARBARA SCHULTZ



THE JAYHAWKS *PAGING MR. PROUST*

THIRTY TIGERS

The original Jayhawks' songwriting team of Gary Louris and Mark Olson composed some of the finest country rock ever, *Hollywood Town Hall* (1992) and *Tomorrow the Green Grass* (1995) rivaling Graham Parsons and Buffalo Springfield. *Paging Mr. Proust* continues The Jayhawks' legacy of songwriting excellence, Louris leading the band's late-'90s lineup in such beautifully rocking and emotionally resonant songs as "Quiet Corners . . .," "Lover of the Sun," and "Comeback Kids." Feel the yearning.

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Once upon a time, synthesizers could play only one note at a time. The quest to create a polyphonic synth—one that could play many notes simultaneously—presented first-generation synth designers with difficult challenges. One primordial polysynth was the Moog Apollo, a prototype instrument built in 1973 that two years later evolved into the desirable but notoriously unreliable Polymoog.

Late last year, French developer UVI converted a meticulously sampled collection of Apollo sounds into a software instrument that exceeds the original in every way. Like all UVI soundware, it needs host software to run—either UVI Workstation or Falcon.

FORWARD INTO THE PAST

In 2013, the nonprofit Bob Moog Foundation acquired one of only three known Apollos with the goal of restoring and preserving it in their archival collection. Once it was cleaned and repaired, the

BMF possessed the only known working Moog Apollo in existence. Foundation personnel then sampled it in painstaking detail, capturing every note of every preset numerous times to allow for round-robin switching when you press a key repeatedly.

The BMF's Apollo has 71 velocity-sensitive keys and 14 preset sounds. It also has 12 oscillators—one for each pitch in a single octave—and their frequencies are subdivided into enough pitches to cover the keyboard's entire range, much like a Farfisa organ or ARP String Ensemble. It has a global filter, and you can split the keys to play bass with your left hand.

SAVED BY ONES AND ZEROS

For PX Apollo, UVI created a graphical user interface that resembles the Moog Apollo's front panel. It loads as a single UVI Workstation or Falcon preset, and you select the original master voice pre-

The 14 Master Voice presets perfectly capture the sound of the original instrument. One sounds rather vocal-like, two resemble strings, two are brassy, and two others resemble a harpsichord. The seven remaining timbres are not quite organs and not quite pianos.



PX Apollo's Arp page supplies separate user-programmable arpeggiators for each oscillator.

sets using 14 buttons, and load more than 150 UVI-designed variations using a browser menu and scroll buttons. Although master voice presets are only numbered, the others are named and divided

into 11 categories such as Sweeps, Strings, and Arpeggio. The GUI is scattered across five pages accessed with buttons labeled Main, Edit, Mid, FX, and Arp.

The Main page displays two oscillators and a bass oscillator you can toggle on or off. Oscillator A plays samples from the Apollo sampling sessions, and Oscillator B generates 12 supplementary waveforms. Oscillators A and B each have their own volume, pan, resonant lowpass/bandpass/highpass filter, amplitude ADSR, and filter ADSR. Enabling the bass oscillator splits the keyboard. The bass oscillator has its own subtly resonant filter, but its only user control is cutoff frequency.

The Edit page supplies controls for oscillator tuning, stereo variables, and mod-wheel assignments, and FX accesses overdrive, chorus, phase, delay, and reverb parameters. The Mod page has a 4-waveform LFO and a 16-step sequencer for modulating oscillator and filter parameters (but not pitch), and the Arp page has

controls for arpeggiator parameters, including two 16-step sequencers for velocity.

The 14 Master Voice presets perfectly capture the sound of the original instrument. One sounds rather vocal-like, two resemble strings, two are brassy, and two others resemble a harpsichord. The seven remaining timbres are not quite organs and not quite pianos. All are available in mono or stereo. UVI's factory presets all begin with the original sounds but take advantage of the host's architecture to make them more exciting, often with effects and arpeggiation.

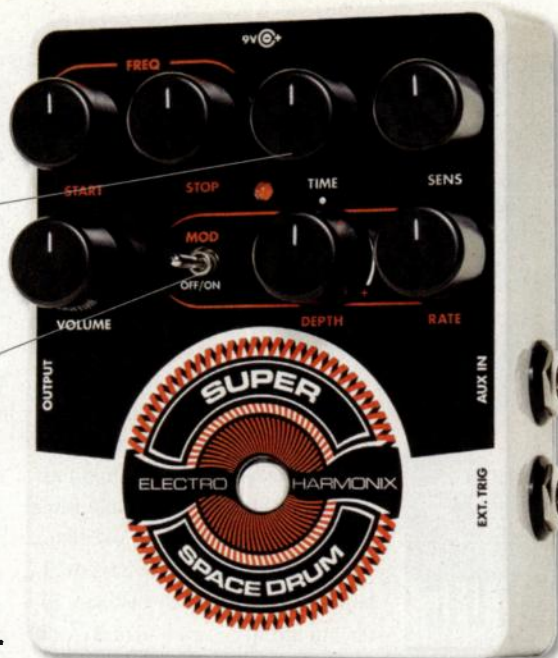
Although I found PX Apollo's sounds unique and useable, I experienced an aggravating problem running it in UVI Workstation. Whenever I changed presets or certain parameters and started playing within a second or two, the timbre was momentarily garbled. Changing the audio buffer size to at least 256 samples fixed the problem, but that introduced more latency than any of my other UVI libraries. Fortunately, I had no such problem in Falcon.

Nonetheless, I've really enjoyed having a piece of synthesizer history as another color in my timbral palette. The cost is quite reasonable, many of the sounds are unique, and its GUI makes using PX Apollo straightforward enough for live performance or studio work. ■



ELECTRO-
HARMONIX

New Time control

On/off switch for
modulation

The reissue of the Super Space Drum is smaller than the original, yet includes a couple of useful enhancements. You can trigger the synth using the white button or with an external source, as well as gate audio through the unit.

Aux input for gating
audio signals

Super Space Drum

AN AFFORDABLE
SYNTH VOICE
FOR STAGE AND
STUDIO

BY GINO ROBAIR

Gino Robair is *EM*'s
technical editor, and
the editor of *Keyboard*
magazine.

STRENGTHS
Small and lightweight.
External trigger and
audio inputs. Modula-
tion goes into audio
range. Powers from
battery or AC.

LIMITATIONS
Trigger button doesn't
provide dynamic con-
trol over synth sound.

\$117.50
ehx.com

One of the most interesting Electro-Harmonix products of the late '70s was the Super Space Drum, an analog drum-synth in a stompbox format. Although it could easily make electronic-tom sounds befitting the disco era, the Super Space Drum was capable of generating a wide enough variety of synth tones that it remains sonically relevant to this day. It even had its own beer coaster-sized trigger pad, suitable for sticks or fingers, which gave the synth dynamic sensitivity.

Electro-Harmonix has reintroduced the Super Space Drum in a more compact format (less than half the size of the original) and with additional features—an output volume knob and a Time control to set the length of the tone (a few milliseconds to about 7 seconds). Moreover, you can power the unit with a 9V battery or the included power supply (the original model had a captive power cable). However, the update replaces the cork-like trigger pad with a nondynamic button: That's no surprise since the new Super Space Drum is only slightly bigger than the original trigger pad itself, making it more suitable for table-top use.

To achieve dynamic control over the synth, plug an acoustic trigger or clock source into the External Trigger input and use the Sensitivity knob to set the response. I used a homemade piezo, a Eurorack modular synth, and the Electro-Harmonix Clockworks as triggers—everything was plug-and-play.

The Start and Stop knobs determine the tone of the synth—from kick drum territory to bell tone—and whether the pitch is steady or sweeps up or down: When the Stop control is set lower than Start, the pitch sweeps downward; set Stop above the Start level to get an upward sweep.

The modulation section provides a sawtooth waveform with Depth and Rate controls that can shape the timbre from subtle warbles to complex FM sonorities. The Depth knob is bipolar and center-detented, yielding different timbres when you turn it counter-clockwise (creating a falling sawtooth shape) rather than clockwise (with its rising sawtooth waveform).


And, like the original model, Super Space Drum can be used as a quasi-keyed gate if you plug an audio signal into the Aux In and use either the onboard button or an external source to trigger the audio. When you patch into the Aux In, the internal synth voice is muted and the only controls that work are Volume and Time, the latter shaping the gate length once a trigger is received. Unfortunately, you cannot add modulation to the external audio signal.

Note that the modulation switch lets you quickly change the synth tone between the modulated and unmodulated states—very useful, especially when you're driving the Super Space Drum from a sequenced trigger source. The only thing I missed is having an expression pedal (or CV) input, like the one provided in the Electro-Harmonix Crash Pad (\$117.50) to control the filter sweep.

Yet, with all of these options, the new Super Space Drum is more versatile than the original model and sounds just as good. Far from being a one-trick pony that only says *pew-pew-pew*, it's a robust and powerful synth that offers everything from snappy kicks to long modulated sweeps—great for a variety of performance and studio situations. Highly recommended. ■

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HANDHELDSOUND

Scoring Mallets

AUTHENTIC PERCUSSION SOUNDS FROM NEW SAMPLE LIBRARY

BY GEARY YELTON

STRENGTHS

Detailed, true-to-life sound. Intuitive real-time control of idiomatic articulations. Versatile and affordable.

LIMITATIONS

Requires full version of Kontakt.

\$199

handheldsound.com



Scoring Mallets not only sounds convincing, but it also allows you to perform using techniques that sound as if an accomplished mallet percussionist were playing.

From Yamaha FM patches to pricey sample collections, I've never been satisfied with mallet percussion presets. Nothing quite duplicated the live sound of the real thing until I heard Scoring Mallets, a new Kontakt-compatible sample library from Editors' Choice Award winners HandheldSound.

Scoring Mallets comprises just over 15 GB of samples from three instruments—a Yamaha vibraphone, a Malletech xylophone, and a Marimba One marimba—played with mallets made of soft material surrounding a hard inner core for both warmth and bite. Approximately 39,000 individual samples were recorded in a scoring room using a variety of mic perspectives.

LOOKING TO SCORE

To play Scoring Mallets, load it from Kontakt's Files browser and select one of the instruments. You can't access it from the Library tab because it's incompatible with Kontakt's Add Library feature.

The GUI's top section has two tabs, Performance and Pattern, and you can toggle between them using keyswitches. The Performance panel controls the tempo of rolls, trills, and glisses and enables 4-mallet techniques such as ripple rolls. The Pattern tab reveals a 16-step sequencer.

The bottom has Mixer, Stage, and Settings tabs. Mixer and Stage are spatial positioning modes. In Mixer, you can toggle four mic perspectives: Loose, Stage, Wide, and either Tight or Tight Center. You can adjust the level and balance of each, plus the width and symmetry of the stereo field for all except Tight Center, which was recorded with a single mic. All knobs and sliders map to MIDI CCs.

The Stage tab reveals the Acoustic Positioner, which places the instrument on a virtual scoring

stage. Sliders control stereo image and location in two dimensions. Settings reveals another pair of tabs: Velocity lets you tailor your playing preferences for velocity response, while Performances specifies parameters for rolls, trills, and glisses.

MALLETS AFORETHOUGHT

In basic performance mode, you play as you would most keyboard instruments. Every note has velocity layers, release samples, and round robin versions. When Auto is enabled in Performances, you can trigger glissandi and trills by pressing the keys hard enough to exceed an Aftertouch threshold. When Auto is off, you trigger the same articulations using keyswitches.

All three instruments are based on some of the most lifelike samples I've ever heard. It doesn't take long to master the same articulations you'd hear an experienced mallet percussionist use, because triggering them with Aftertouch, keyswitches, or your sustain pedal are intuitive playing techniques. Rolls and trills sound especially convincing, partially because left- and right-hand sounds alternate, and you can control dynamics continuously by playing legato with the sustain pedal down.

Most of all, Scoring Mallets is fun to play. The only other features I might suggest—additional instruments and mallet types or the ability to load Scoring Mallets from the Library tab—would increase its cost and size. But I have no complaints just the way it is, especially considering its affordability. To my ears, recordings made with Scoring Mallets are indistinguishable from recordings made with real marimba, xylophone, and vibraphone, and that's the ultimate test of any sample library. ■

BATTLE OF THE BANDS



THE ORIGINAL TRIO



NEW! TRIO+ WITH LOOPER

Back To Back "Best In Show" Winners at the 2015 & 2016 Winter Namm Shows:

The TRIO pedal listens and learns the chords and rhythm you play and automatically creates drum and bass accompaniment. The NEW TRIO+ now also allows you to loop your guitar parts and arrange custom looped sequences to create full songs on the fly. Additional features like: Expanded Styles, FX send/return, SD card memory expansion, and simplified bass make TRIO+ irresistible.

Four Macro controls

Phase knob for each oscillator

Drift adds subtle pitch change



REVEAL SOUND

Spire

A POWERFUL SOFTWARE SYNTH FOR MODERN STYLES

BY FRANCIS PRÈVE

Producer Francis Prêve has been designing synthesizer presets professionally since 2000. You can check out his new soundware company at symplesound.com.

STRENGTHS

Extremely powerful synthesis tools with sophisticated modulation options. Huge EDM preset library.

LIMITATIONS

User interface is a tad cumbersome, especially for newcomers.

\$189

reveal-sound.com

With testimonials from massive EDM artists such as Hardwell, Armin van Buuren, and Dada Life, Reveal Sound's Spire has quickly become one of dance music's go-to softsynths. Looking over its synthesis architecture, it's easy to see why.

With four incredibly flexible oscillators feeding a pair of multimode filters with tons of options, its audio signal path is capable of a huge assortment of textures. On the modulation side, there are four envelopes, four LFOs, and two step-sequencers that can be assigned to virtually any parameter. Finishing out the package is an assortment of effects, EQ, and compression, so that even the factory presets sound like finished products inside the synth.

OSCILLATORS

Each of Spire's four oscillators operates in one of five modes—Classic, Noise, FM, AM/sync, and Saw/PWM. Each mode then offers a huge array of wavetables that can be blended into its core sound. From there, you can fine-tune the wavetable position, phase and several other options that are unique to each mode. While these wavetables don't offer quite the same detail as other softsynths (notably Xfer Records Serum and Waldorf Nave), they are still extremely useful for creating exotic harmonic spectra with a digital sharpness that really cuts through a mix.

From there, the four oscillators feed an innovative unison section that does a lot more than just add that super-saw effect. Here, you can select up to nine voices of unison, then select from nine more types of detuning modes ranging from massive multi-octaves to a musical array of six different chord types, including both major and

minor seventh options for fans of house genres. Tinkering with this feature alone, it's immediately obvious why Spire is currently dominating the sound of trance and big room EDM.

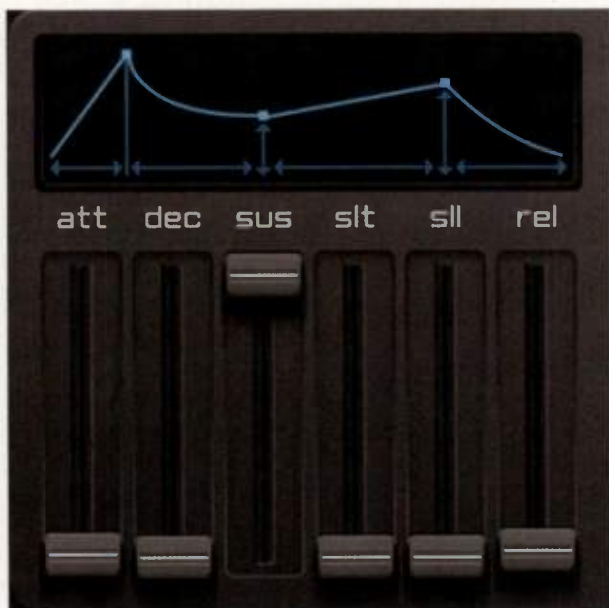
FILTERS

Spire's dual filters can be configured in series, in parallel, or linked, which is flexible enough in itself, but the assortment of filtering options takes the whole package into really deep territory. At the top level, there are five filter categories with quirky names like Acido and Scorpio. In practice, these are basically filter models that correspond with various classic synths (e.g., Acido is based on the TB-303) and each has its own flavor. Within the categories, there is an array of filter types like lowpass, highpass, bandpass, and peak, some with different roll-off slopes, as well. Even if you're not a filter geek, it's clear that the various algorithms all have distinct applications, depending on the type of sound you're after. Personally, I really liked the Perfecto and Scorpio models. With these, even simply switching filter types within a given preset can alter a patch dramatically.

Once the filter category and type are selected, the rest of the parameters are extremely straightforward. Each filter has its own cutoff and resonance parameters, with additional knobs for balancing between the two filters and adding keytracking. I must say, I would have liked access to an overdrive parameter within the filters, but some of the categories have that character baked into them, so it's not absent, just disguised.

MODULATION AND EFFECTS

As with the filter and oscillators, Spire's modula-



Reveal Sound Spire features four 6-stage envelopes. Each envelope includes multiple curve options.

you adjust the values for attack, decay, and so on, the diagram doesn't change to reflect those adjustments. Not a huge deal, but a tad confusing at first.

Spire's LFOs are insanely flexible, including all of the same waveshapes as the audio oscillators, including the wavetables! In practice, these are absolutely amazing for adding chaotic motion to the various oscillator and filter parameters, especially when synced to tempo. These waveforms can be further tweaked with phase and symmetry offsets, so you can dial

in exotic rhythms without resorting to the dual step-sequencers.

tion amenities are extensive. There are four ADSR envelopes that include some interesting slope and time options for the sustain segment. What's more, each envelope includes multiple curve options, individually selectable for every segment. The only wrinkle in this approach lies in the fact that every envelope includes a static diagram above it that's strictly used for selecting the curve types, so when

And speaking of those step-sequencers, they're incredibly powerful in a way that is reminiscent of Native Instruments Massive, with adjustable curves for every step segment. All of these modulation options, along with MIDI control and an integrated arpeggiator can be easily assigned and

scaled using Spire's matrix window, which is arranged in a suitably familiar manner.

At the end of Spire's signal path is a collection of effects that includes all of the standards, such as saturation, phaser, chorus, delay, and reverb. Digging a little deeper, it becomes clear that these effects are quite versatile, too, with formant effects available in the phaser and flanger options in the chorus. There is also a simple compressor and EQ at the end of this chain for adding final polish to the end result.

TO THE TOP

Sonically, Spire is a powerhouse that excels at bright, fat, decidedly digital textures that really cut through a mix. After spending a couple of weeks with it, it's obvious that its rock star testimonials are well-deserved.

That said, this power comes at the expense of a certain amount of intuitiveness, especially if you're not a full-on synth nerd. In a way, there are almost too many options to consider when developing your own patches because of the way the interface is laid out. Fortunately, the six factory preset banks cover so much territory that you can find a great starting point for almost any type of texture. All in all, Spire is a powerful package that belongs in every big-room dance producer's arsenal. ■

Capture More Detail On Stage

That said, this power comes at the expense of a certain amount of intuitiveness, especially if you're not a full-on synth nerd. In a way, there are almost too many options to consider when developing your own patches because of the way the interface is laid out. Fortunately, the six factory preset banks cover so much territory that you can find a great starting point for almost any type of texture. All in all, Spire is a powerful package that belongs in every big-room dance producer's arsenal. ■

Learn more about how Chris uses Earthworks mics on stage at earthworksaudio.com/chrismitchell



"I get a lot of compliments on our guitar sound now that we started miking our guitar amps with Earthworks SR25s. My guitar player has been a ribbon mic fanatic, as he likes the high frequency drop off associated with ribbon mics, and felt that warmth was necessary for a rock & roll guitar tone. After I started miking his guitar amp with SR25s, he came back to me a couple weeks later and said that he could actually hear the difference between a worn plastic guitar pick and new plastic pick, because of the detail coming from the Earthworks microphone."

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Phrase pads



The Juno-DS, available in 61- and 88-key models, includes a vocoder with pitch quantization, trigger pads, and a stereo audio interface. In addition to a full range of presets, Juno-DS offers the ability to load additional sounds downloaded from Roland's Axial website.

ROLAND

Juno-DS

FEATURE RICH WORKSTATION PRICED FOR THE MUSICIAN

BY FRANCIS PRÉVE

STRENGTHS

128-voice synthesis engine. User-loadable samples. Massive collection of presets and drum kits. Pattern sequencer. Phrase pads can trigger samples or songs, or toggle sequencer tracks. Stereo audio interface.

LIMITATIONS

Analog sounds have a decidedly digital feel.

Juno-DS61, \$699 street
Juno-DS88, \$999 street
rolandus.com

In the seven years since Roland introduced the Juno-Di—itself a successor to 2005's Juno-D—the synth has dominated the affordable workstation market, thanks to its ability to nail the trifecta of features, price, and roadworthy construction. Seven years is a long time for a product to remain relevant in the synthesizer market, so it was high time that Roland released a successor to the line—the Juno-DS.

Wisely, they kept the original features, while adding modern amenities—the ability to load your own samples into its synth engine, additional controls for parameter tweaking, eight pads for triggering sequences and samples, and pitch quantization to go with the built-in vocoder. Rounding out the package is an integrated stereo audio interface. I received the 61-key model for review; a version with 88 semi-weighted keys is also available.

SOUNDS, SYNTHESIS AND EFFECTS

The DS is packed to the rafters with presets; over 1200 synth patches along with 30+ drum kits and 64 performance slots for customizing sound sets, sequences and the new phrase pads for specific songs in your repertoire. If you're a current Juno-Di user, you'll be pleased to know that its soundbank is represented in the new DS. Moreover, several of the new pianos and organs are compelling in a live performance context.

In addition to the original Di sounds and more than 200 new ones, the DS can load sounds from Roland's Axial website, which includes over 1,000 well-crafted downloadable presets. I checked out the factory sounds and a few Axial add-ons, and

the overall vibe of the collection is solidly in the workstation camp—perfect for gigging, commercial and video work, and studio tasks. The only real downside to the presets is that the “analog” sounds have a decidedly in-the-box feel; but hey, that's what the Roland Aira line is for, right?

The Juno-DS's synthesis engine remains largely unchanged from the Di's, with every patch consisting of up to four layered tones, each based on a different sampled instrument, with digital resonant filters, detailed time/level envelopes, and a pair of LFOs. Editing these from the LCD is challenging. But with so many presets, you're bound to find something that can be quickly shaped using the four front-panel knobs, which include essentials like cutoff, resonance, attack, release, and effects, as well as custom options.

If you want to create your own sounds, the original Juno-Di's free, downloadable editor works flawlessly with the DS. Once downloaded, I was quickly up and running, crafting my own sounds and checking out the onboard collection of multi-sampled data, which is quite deep. In fact, the synth features really come to life when you import your own samples into its engine. (The supported WAV file resolution is 44.1kHz/16-bit.)

The Juno-DS also includes a massive array of effects. Everything from phasers to pitch-shifters to modeled piano resonances are available, in addition to the usual chorus and reverb options. The caveat is that insert effects that are tied to patches can be lost when those patches are applied to the DS performances (which have their own effects

assignments). Not a deal-breaker, but definitely something to note.

Each performance can consist of up to 16 parts, which include patch information, a few parameter offsets, adjustments to portamento and vibrato, and effects send routing. You can split the keyboard up to sixteen ways, allocate parts for sequencing, and create custom 12-tone tunings for every individual part. Granted, you wouldn't realize this from squinting at the LCD panel, but in conjunction with the Juno-Di's software editor, everything becomes crystal clear. I hope Roland creates an updated DS editor to access its newer features.

SEQUENCER AND PHRASE PADS

In addition to playing back complete songs from a connected USB stick (AIFF WAV, or MP3 format supported), the Juno-DS includes an 8-track pattern sequencer optimized for live performance. The pattern-based system makes creating eight-

part looped sequences a breeze. I was able to whip up credible quantized backing tracks that were easily manipulated in real time via the new Phrase Pads. I could envision creating different song sections with the sequencer and switching between them quickly in a performance situation. If you're in a band and the guitarist decides to vamp for an extra 16 bars during the final choruses, these pads could be a lifesaver.

As for the sequencer itself, Roland markets it as a scratchpad, and it's great for that. But with some forethought, you can do clever interactive tricks with it, too.

EXTRAS

Whereas the Juno-Di offered vocoding and reverb for its microphone input, the Juno-DS ups the ante with a pitch quantizer for pop, R&B and EDM. While some may tire of this sound, it's now as essential as distortion on a guitar for certain genres.

As a bonus, the Juno-DS includes basic DAW control for a variety of platforms including Apple Logic Pro, Cakewalk Sonar and Steinberg Cubase. With this you can integrate sync, transport, and some basic control surface features. Unfortunately, there's no baked-in support for Ableton Live or Avid Pro Tools, though a user-configurable mode is available if you don't mind spending the time to set it up.

Moreover, the Juno-DS supports audio over USB. The resolution of this interface is conspicuously absent from both the website and manual, but since the Juno's preferred audio format is 44.1/16, it's a safe bet that that's the specification.

FOR ALL OCCASIONS

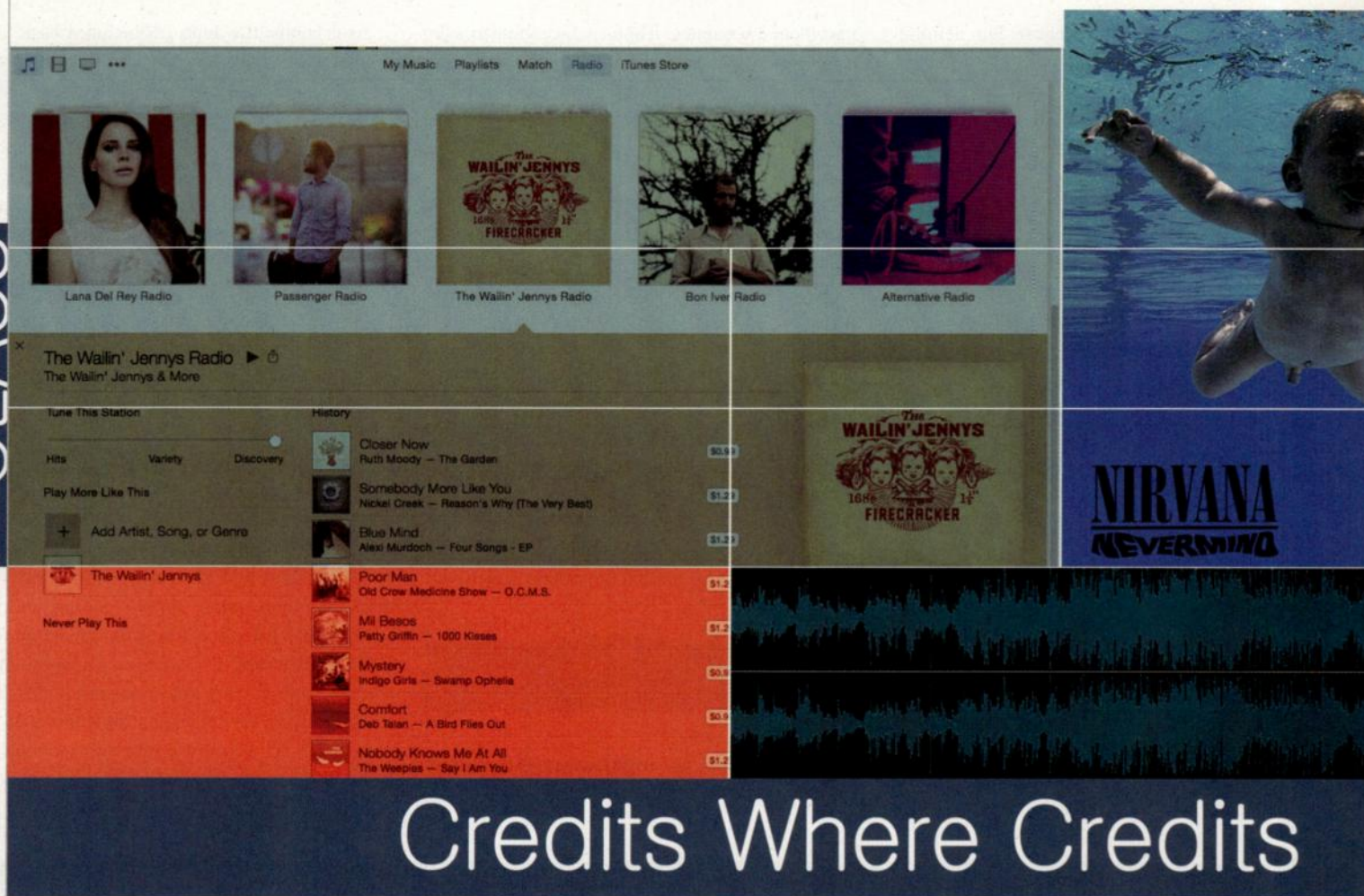
I didn't get around to checking out the Juno-DS61's price until late in the review, and I was completely blown away to find it priced around \$700. Between the 128-voice synth, pattern sequencer, phrase pads, sample loading, and integrated audio interface, it's no exaggeration to say that this keyboard workstation is a genuinely affordable Swiss Army knife for casual gigs, small theater work, school bands and house-of-worship duties. The Juno-DS resets the standard for price vs. performance in a keyboard meant for light gigging. ■



The Roland Juno-DS (the 61-key model shown here) can run on AC or batteries. It includes a 1/4" mic input with level control, audio over USB, MIDI DIN I/O, an external audio input, stereo outs and headphone jack.

CHROMAPHONE 2 ACOUSTIC OBJECT SYNTHESIZER





Credits Where Credits

Registering release information with these databases can be just as important as signing on with revenue-generating rights groups.

**BY RANDY CHERTKOW AND
JASON FEEHAN**

Randy Chertkow and Jason Feehan are authors of *The Indie Band Survival Guide: The Complete Manual for the Do-It-Yourself Musician* and founders of the open and free musician resource IndieGuide.com.

When you release music, it's natural to focus on registering it with revenue-generating sources like Performance Rights Organizations (PROs), SoundExchange, and services like YouTube's ContentID. As we discussed in the Master Class article "Song Release Checklist," doing so ensures you get all the royalties you're owed. But taking advantage of these resources alone means you're only doing half of your homework.



Are Due

There's another set of registrations you need to do to credit everyone who worked on your song properly. Who played which instrument? Who was the vocalist? Who wrote the lyrics? And who produced, engineered, and mastered it? To attach proper credits to your release requires registering with public database sources and uploading your credit information. Updating this information is important for historical and cultural reasons; it can also improve your credibility and visibility in the music industry; and it provides fans with ways to learn about you and discover the other music you make.

For instance, music distribution sources and media like Spotify, Apple Music, MTV, and iTunes pull credits from a specific set of databases. If your credit information isn't in those databases, then you're losing out because these services aren't informing their customers and listeners who's behind the music they're enjoying. It's ironic that in this information age, once we lost the physical record and CD, tracking the people behind the music became harder to do. As it's often said, if the information in iTunes today was all of the credit information we had, we'd only know of a band called Led Zeppelin and wouldn't know anything about a

guitarist named Jimmy Page.

But registering song credits is not just about music distribution. Music industry associations—such as the National Academy of Recording Arts and Sciences (NARAS), which honors talent every year via the Grammys—rely on credit information in these databases. If your credit information and history aren't there, then you lose out. Plus, credit information can let licensors know who you are so they know whom to contact to license your music.

Registering your credits for an album is not difficult and can be done in an evening; you just need to get organized and collect all of the information needed. Read on to find out which credits you should track, the various databases and services where you should register, and the information each one covers so you'll know what to provide for each.

WHAT TO TRACK

The time to collect your credit information, or metadata as it's known, is during the recording process. At this point in time, fields for recording credits are being added to new DAWs—a logical place to capture this information. If your DAW has this feature, you should use it. Otherwise, track all

your credits and lyrics in a place that's easy to use, like Google Docs or a spreadsheet.

The credits you should track include the following categories, at a minimum:

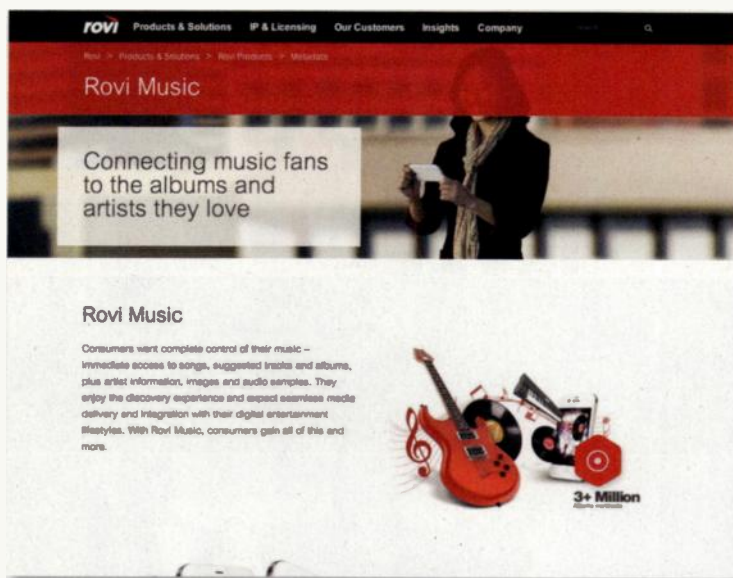
- Vocalists
- Instrumentalists (list each instrument separately)
- Songwriters/Composers
- Arrangers/Conductors
- Producers
- Recording, Mixing, and Mastering Engineers

Note that these match the categories of eligibility with the Recording Academy. (And if you're interested in becoming a voting member, you must have worked on 12 qualifying tracks in at least one of the categories found at grammypro.com/join.)

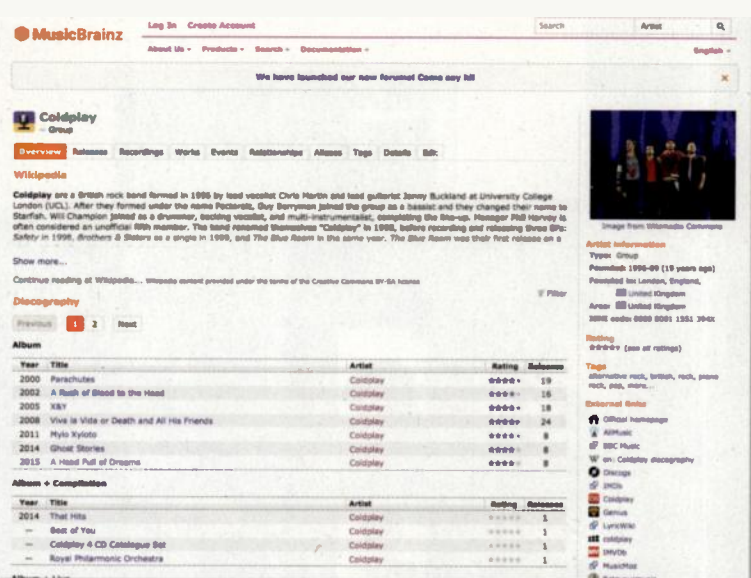
You should also consider including additional credits:

- Photography
- Design
- Art Direction

You should insist that your contributions as a guest musician on other artists' music be document-



Visit Rovicorp.com to see the way rovi tracks credits for musicians and releases.



MusicBrainz offers Coldplay as an example, to show the type of information in its database.

ed and registered at the same database services, so your contribution can be properly credited. Your work on someone else's song might get noticed and lead people to you and your other music. This could result in more work and opportunities for you. For instance, this is how producers grow their word of mouth. Of course, you should extend the same courtesy to anyone who appears on your releases.

ROVI AND ALLMUSIC

If you had to choose just one place to upload your credit information, you would choose Rovi (rovi.com). Rovi tracks credit information and metadata for music, TV, and music players like Windows Media Player. The easiest way to find out what information Rovi provides to its media clients is to visit the AllMusic website (allmusic.com).

Go to AllMusic and get a feel for what they track for each artist and release. Make sure to click on each available tab. For example, for artists, you will see that the site tracks the biography, discography, song history, photos, and credits of all the releases where a given artist appears. Keep in mind that every bandmember is a separate artist, as is the band itself. In order to assign each credit to the right person, each bandmember must have an artist page. Also, if a person has multiple roles on an album, you need to track all of those roles when you submit the credits list. Most independent artists won't have information listed here, and this is where the information you've collected needs to be entered.

The best way to start with Rovi is to search AllMusic for your name (and your band name if you have one) and see if your information is already listed. If it is, check it over carefully, and keep an eye out for any errors or omissions. To make changes, click the Submit Corrections link that's on every page.

If you're not on AllMusic as an artist and none of

your releases are listed, then you'll need to follow the instructions on the product submissions page. This contains Rovi email addresses so that Rovi can update its database, and therefore AllMusic. To learn more about this process, read the AllMusic FAQ, which details the information you'll need (credits info for albums, your bio, photos, etc.), and the timeline for submissions. Note that Rovi provides no time guarantees for additions or modifications. This means that if you want to make sure that your information is up when your album releases, you should complete the submission process as soon as possible.

If you've ever wondered how iTunes knows the track information when you put in a CD, it's likely coming from Gracenote.

Because the method of adding a new album or artist is manual—it's done via email—group things carefully by artist and release, providing careful groupings by each tab that you see on AllMusic to make it easy for them to update. Make it cut-and-paste ready since this will make the process go more smoothly.

MUSICBRAINZ

MusicBrainz (musicbrainz.org) is an open music database. It began as a place to store CD metadata.

But it's now a database for all music, whether it's released on CD or not. Similar to the Rovi database service, MusicBrainz is used by many music sources, including BBC Music, so it's worth the time to enter your information and credits here, too.

Note that MusicBrainz goes beyond basic track titles, album names, and artist information; it contains space for credits similar to those in Rovi's database, as well. So this is another place where you should list each contributor to your release.

To add your information, you'll need to register to add new entries and edit existing ones. A good way to get started is to read the beginner's guide on their site; it walks you through adding a release. There is a peer review and voting system that verifies the data you've uploaded, and this can take as many as seven days to process. You'll find an explanation of the voting process online as well.

DISCOGS

Similar to MusicBrainz, Discogs (discogs.com) is a crowdsourced database of music. It began as a database that tracked electronic music, but moved beyond it to cover all genres. It's still known as a more complete source for electronic music, but it has more than 6 million releases in its database. To add your information here, you'll need to create an account and then submit your releases. You can find a quick-start guide on the site. Similar to both Rovi and MusicBrainz, Discogs tracks extended credit information, so you should submit the same data on all of these sites.

GRACENOTE

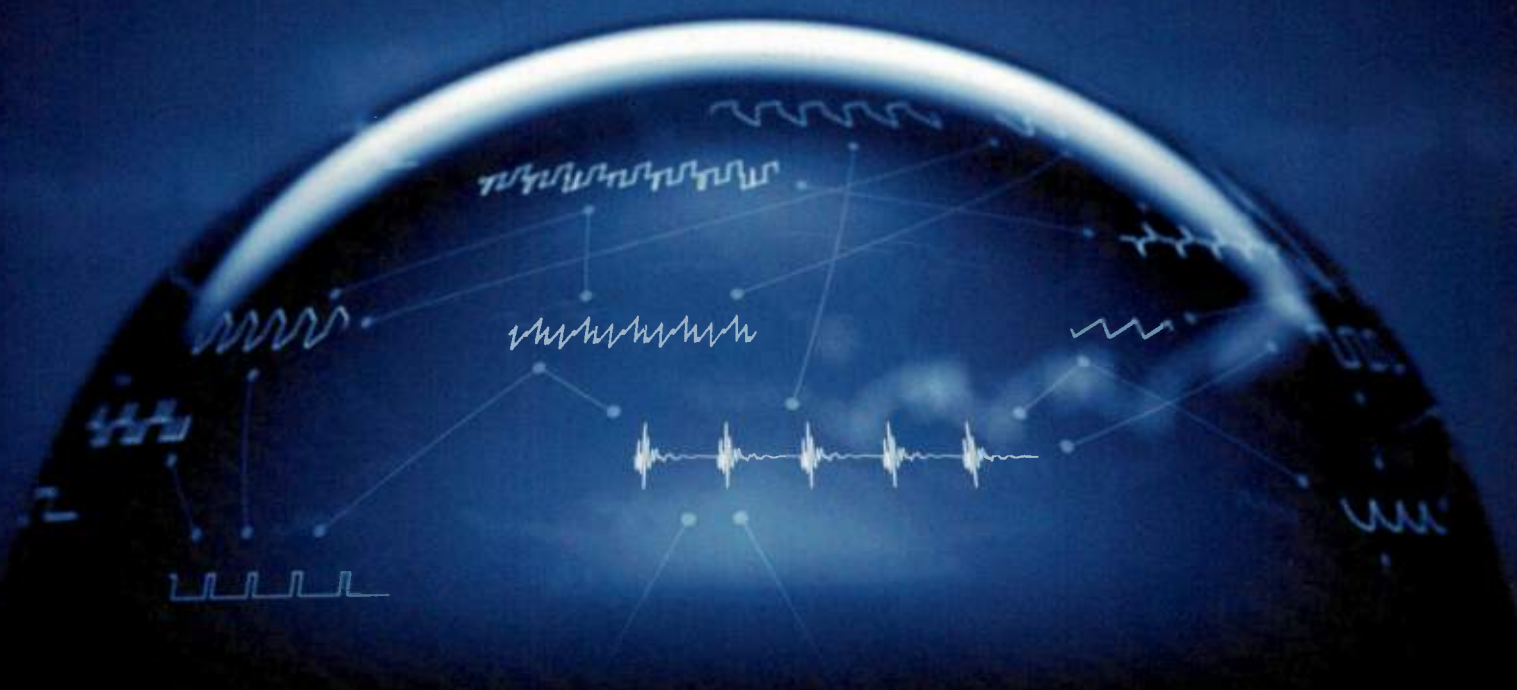
Gracenote (gracenote.com) is a service that tracks CD metadata and powers music players like iTunes and WinAmp. If you've ever wondered why iTunes knows the track information when you put



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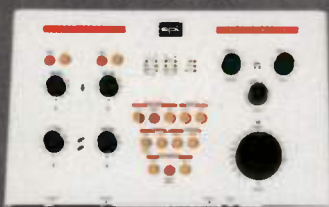
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If you're not registered with Gracenote, online credits for your album will come up blank.

in a CD, it's likely coming from Gracenote.

If you still produce CDs, entering your information into Gracenote is a must. If you aren't listed, when your fans play your album or rip it, the artist, album, and track information will all come up blank. Many music distributors and aggregators, such as CDBaby, include a service that will automatically upload your album information to Gracenote. Otherwise, the easiest way to enter your data into Gracenote is to insert your CD into a computer that has an optical drive and iTunes, carefully edit the artist, album, and track information, and then submit the data. Note that while the artist and credit information is tracked in Gracenote, this service lacks the credit information that the other databases like Rovi, MusicBrainz, and Discogs all contain. Still, Gracenote is an important part of making sure that your artist data is out there when your fans are looking for it.

FREEDB

FreeDB (freedb.org) is an open-source version of Gracenote; it contains CD metadata such as artist name, album name, and a track listing. It competes against Gracenote mainly by being free to access and use by other services. To ensure your information is uploaded, you'll need to submit it to FreeDB; the method is similar to Gracenote's. To do this, you need to use one of the FreeDB-aware applications to enter your information, such as Plex, Feurio, and more.

LYRICFIND

LyricFind (lyricfind.com) is the source of the

lyric information you see at AllMusic, as well as many other sites, apps, and media. If you've ever typed in a random lyric hoping to discover what the name of the song was, it's possibly powered by LyricFind. Registering all of your lyrics can therefore help people discover your music. It also can make it easier for other musicians to look up your lyrics and cover your song—something you usually want to encourage, because it can increase your performance royalties through PROs.

LYRIC WIKIA

Lyric Wikia (lyrics.wikia.com) bills itself as an open wiki website where anyone can get lyrics for any song by any artist. And, since it's open and free, some services pull lyrics from it. Since wikis are sites that allow anyone to create or edit pages, you can easily create an account and add any lyrics from your music to the site.

LAST.FM

Last.fm (last.fm) collects listening information from fans all over the world who use the service. It lists artist biographical information and discographies, and it includes a page that displays the names of Last.fm members who are listening to your music—a unique way to connect with fans. The listening information is collected using a program called a Scrobbler, which tracks all of the songs you listen to on your devices so it can be shared with friends as well as compiled and aggregated by Last.fm.

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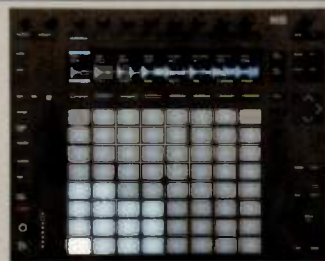
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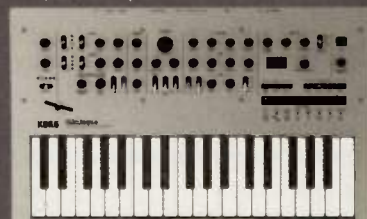


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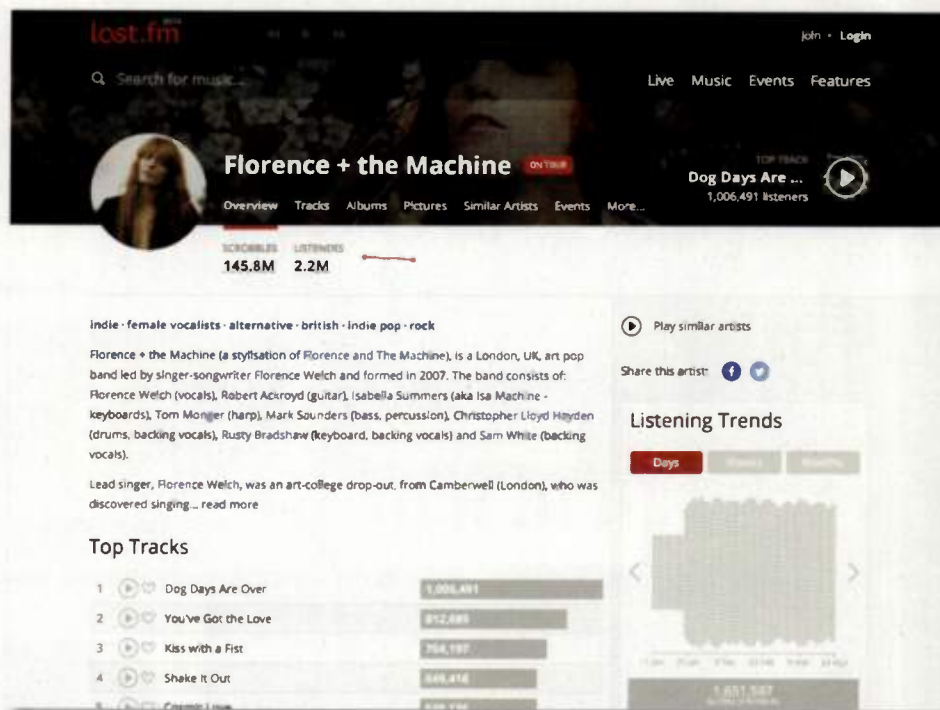
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WIKIPEDIA

Some music services (and fans) pull their data from Wikipedia, so it's yet another place where people find credit and biographical information about you and your music. If you have an entry, you'll want to make sure that it's up to date and accurate, and contains your latest discography.

If you don't have a page, keep in mind that Wikipedia is an encyclopedia and requires references to justify the entry. To have the best chance of having your entry stay on the site, you'll need objective proof of your stature as an artist. This is where reviews, articles, and websites that talk about your music come in handy, as they provide references for the footnotes. Note that the credit information databases we discussed above are a big help for this purpose and can be used to help justify content that you add to the Wikipedia page. Because you'll be entering that biographical information, you can then influence what ap-

pears on your Wikipedia page with an "objective source" such as an AllMusic page.

INITIATIVES TO IMPROVE METADATA

Currently, entering credit information so that music distributors, media, and other services will credit and present you correctly is very much a manual process. Luckily, there are numerous organizations working on improving this process for musicians, producers, engineers, and the industry as a whole. The Recording Academy is very involved, and its Producers and Engineers Wing is working on an initiative to address the current lack of visible recording credits and various metadata. And, if you're curious to learn more about the technical side of metadata tracking—getting it captured during the recording process and standardizing the digital supply chain into a universal format—then explore the technical organization DDEX (ddex.net).

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Your fans deserve to know the behind-the-scenes information on your releases. They want to know who did what on each song. And your place in the music industry is partially determined by this information being accurate, up-to-date, and publicly available in all the right places. Going through all of the registrations listed here is your way to show your accomplishments to the press, the music community, and the world. Given that it only takes an evening to pull the data together, register for the services, and enter the info, these tasks should go hand in hand with every album release. ■



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Fig. 1. To protect your data backups from ransomware infection or deletion, keep Time Machine turned off and your backup drives powered down and disconnected in between backup operations.

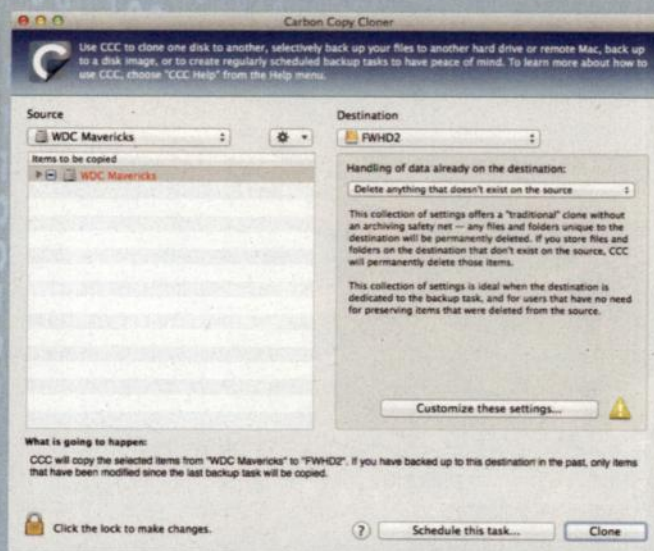


Fig. 2. Carbon Copy Cloner can make an exact clone—on a bootable drive—of your boot drive. Unlike with using Time Machine, versioned backups are not possible but data recovery is instantaneous on boot.

Protect Your Mac from Ransomware

Safeguard your precious files from this growing malware threat

BY MICHAEL COOPER

Michael Cooper is a recording, mix, mastering, and post-production engineer, and a contributing editor for *Mix* magazine.

In early March of this year, the first fully functional ransomware attack coded for the Mac platform was launched. The malware had infected an official update for Transmission, the BitTorrent client application used by millions to illegally download content on P2P networks. While most in the pro audio industry likely considered the victims' woes to be karmic justice for their theft of intellectual property, it was also immediately recognized that Mac users' long-enjoyed invulnerability to ransomware attacks was now over. Ransomware can infect many types of files, not just BitTorrent applications.

For those not yet in the know, ransomware is malware that maliciously encrypts files on an infected computer, preventing the owner from accessing his or her data. The perpetrators demand a ransom (typically hundreds or thousands of dollars) be paid to them before they will decrypt the files. There is no guarantee the criminals will unlock your data after you pay up.

In this article, I'll share some strategies for protecting your Mac from ransomware and, should the worst happen and your computer becomes infected, recovering your data without paying the criminals.

ON GUARD

Obviously, your first line of defense against ransomware is never to download any files from a

website you don't completely trust. But that's not always enough; after all, it was an official update for Transmission, posted on the manufacturer's website, that was infected in March.

Your best insurance is to backup your data in a way that shields it from infection. While many (hopefully most) of us already backup our data to protect against unintentional file corruption or loss, ransomware attacks now impel us to alter our backup routines to address this new threat specifically.

In the case of the March attack, the ransomware (named KeyRanger) waited three days following infection before encrypting the computers' files. (Other ransomware may encrypt on a different schedule.) Any backup drives (and cloud services) that were connected to the infected Mac and boot-

ed or synchronized during that period—or there-
after, until the malware was purged—were also
potentially vulnerable to the hidden attack. While
KeyRanger can't currently encrypt a Time Machine
backup, ransomware can potentially delete your
backup to prevent data recovery. And restoring
your data using a backup that unwittingly archived
the malware only serves to re-infect your Mac.

Because you might not realize your Mac was
infected until days after you unknowingly archive
the malicious code, frequently backing up to the
same hard drive no longer provides reliable secu-
rity. By backing up your data successively to alter-
nate external drives, at spaced intervals in time,
you increase the odds that one of your backups will
remain intact and uninfected after an attack. Power
down and disconnect your backup drives in be-
tween backups to limit the amount of time they're
potentially exposed to infection (see Figure 1).

My long-standing backup routine has involved
alternately using Time Machine and Bombich Soft-
ware's Carbon Copy Cloner to make backups of my
data to separate external (USB or FireWire) drives.
Each application has its benefits: In a nutshell, Car-
bon Copy Cloner can make a bootable backup copy
of your data's most recent state, while Time Machine
can't use a booting drive but saves multiple updates
of your data somewhat like the way DAWs record an
Undo History (see Figure 2). (For more details on the
benefits of using both Time Machine and Carbon
Copy Cloner, please see my article "In Recovery" in
the February 2012 issue of *Electronic Musician*.)

In light of the new ransomware threat to Macs,
I now backup once daily to Time Machine—al-
ternating between two external drives—and only
once per week using Carbon Copy Cloner (on a
third external drive).

RECOVERY AFTER AN ATTACK

Apple has incorporated various security features
into OS X to help protect Macs from malware at-
tacks, but that didn't initially stop the KeyRanger
attack in March. Should your Mac become infected
and an Apple fix isn't forthcoming, you have two
options to consider using before attempting to
restore your data from an external backup drive:
Erase the infected drive by overwriting its parti-
tion table with zeros, or discard the infected drive
and replace it with a new, pristine drive. Because
you can't wipe a boot drive without booting from
another drive—and risking it also getting infected—I
feel safer replacing the infected drive altogether.

Next, you'll want to restore your backup data
to your new drive. You need to determine which
backups were unlikely to have been exposed to the
ransomware. First, use trusted online resources
to learn how soon the ransomware encrypts files
after infecting computers; these details usually
become available within 48 hours after an attack.

Then review the backup schedule you used for
each external drive, and use a backup that pre-
dates when your Mac was infected.

If you used Time Machine to make daily back-
ups, the last few made prior to the ransomware
encryption might have been infected. If you deem
your weekly Carbon Copy Cloner (CCC) backup
to be unaffected, boot your Mac from the CCC-
backup drive. You can continue to use the CCC-
backup drive as your boot drive as long as you like.
You can also use CCC again to backup your exist-
ing CCC clone to your new drive.

The main drawback to using a weekly CCC
backup to restore your data is you could lose as

much as a week's worth of work. If you have a
Time Machine backup that is more recent but
which predates the ransomware infection, you
can use that instead to restore your files. Because
a Time Machine backup drive isn't bootable, you'll
need to boot your Mac from your CCC-backup
drive and launch Time Machine from it. Then use
the most recent Time Machine backup you know
to be uncorrupted to restore your data—including
your System—to your new drive.

Mac users can no longer assume that ransom-
ware attacks will only affect Windows users. Be
safe. Develop an alternating backup routine and
use it. ■

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Fig. 1. Re-creating the rubbery thump of Dennis Davis' snare hits on David Bowie's "Sound and Vision" with the UAD plug-in.



Classic Harmonizer Effects, Plug-In Style

Re-create iconic rock sounds with Universal Audio's H910 plug-in

BY BARRY CLEVELAND

Barry Cleveland is a San Francisco-based journalist, guitarist, composer, recording artist, and audio engineer. Visit his website at barrycleveland.com.

Developed in 1974 by Tony Agnello and released the following year, the Eventide Clock Works Model H910 was arguably the first commercially available digital effects processor. Offering up to 112.5 ms of delay time with adjustable feedback, and \pm one octave of pitch change, it produced an impressive variety of unprecedented sounds. Although the H910 employed digital logic and primitive RAM memory, there was no software (DSP chips were still several years out), and filtering, companding, feedback, pitch change, and mixing were all handled in the analog domain. The H910's tuned LC clock was also notoriously unstable—resulting in random modulation shifts and other “glitches”—and its A/D and D/A converters were crude by later standards.



Fig. 2. Approximate engineer Tony Platt's fat snare sound on AC/DC's *Back in Black*.

It was that unique combination of circuitry that endowed the H910 with its singular sound, however, and Universal Audio painstakingly modeled all of those quirky characteristics when engineering the H910 Harmonizer plug-in.

The base H910 retailed for

“option”), and if you wanted a more musical way of selecting pitches than dialing in ratios manually, optional monophonic and polyphonic keyboards were available at \$500 and \$600, respectively. The H910 plug-in is the equivalent of a fully tricked-out hardware unit with the monophonic keyboard.

The H910 was used on countless records during the mid-to-late '70s (and beyond), including David Bowie's *Low*, produced by Tony Visconti, who used the box to add rubbery low thuds that descend in

\$1,500; another \$365 got you a second output and a Pitch Ratio readout (I've never seen one without this

continued on pg 63

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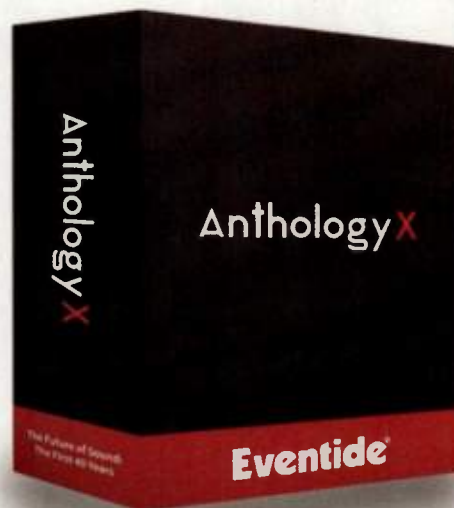
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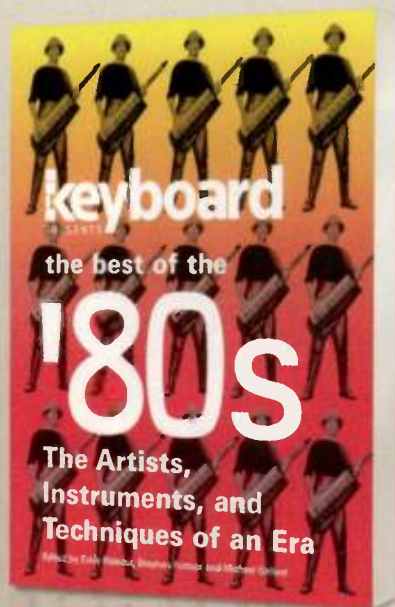
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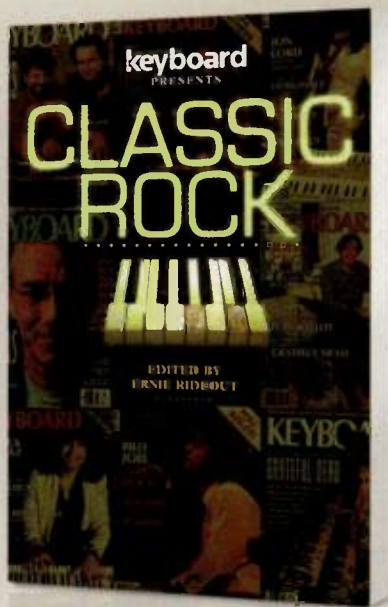
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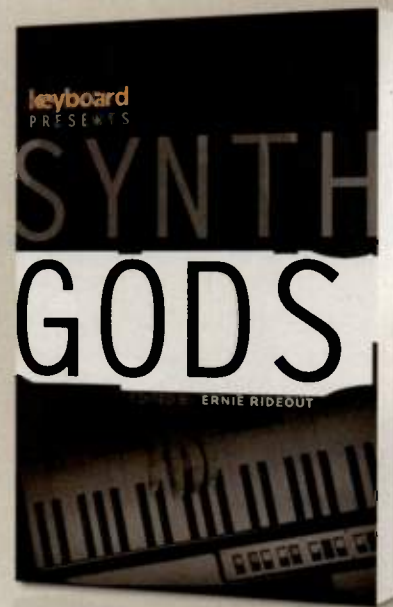
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Fig. 3. Create your own version of the dual-H910 effect used in the '80s on Steve Winwood's vocals and Eddie Van Halen's guitars.

continued from pg 58

pitch to Dennis Davis' snare hits. The effect is particularly evident at the beginning of "Sound and Vision": Each hit retriggers the modulated pitch, and the intensity and depth of the effect appear to be at least partially governed by the dynamics of the playing.

The sound may be approximated on the UAD plug-in by setting the controls as indicated in Figure 1. (In all examples the H910 is on an Aux track, with the Mix control set to 100 percent effect.) The base pitch is one octave down, there's enough delay time and feedback to create the pitch modulation, and the Envelope Follower provides the dynamics. Adjusting the Envelope Follower param-

eters, the time relationships between the outputs for Delay 1 and Delay 2, and the Feedback level can result in some wild variations.

The H910 was also frequently used to fatten up snare hits in less obvious ways. For example, engineer Tony Platt used the device all over AC/DC's *Back in Black* album, detuning to a ratio of about 93, with the Feedback and Anti Feedback controls turned up. It isn't clear what his delay and other settings were, but you can get close with the settings in Figure 2. Platt kept the effect well below the track in his mixes, but try bringing it forward a bit for modern styles, at least on, say, choruses or bridges to increase the energy.

Another classic technique involved using two H910s in tandem, panned hard right and left in a

mix with the dry sound in the center. Engineer Tom Lord-Alge used dual H910s in this way on Steve Winwood's vocals on his song "Back in the High Life Again," and Eddie Van Halen used the technique to process his guitar in the late 1980s. In Figure 3, the Harmonizer Pitch Ratios are set to 0.97 (left) and 1.02 (right), and the delay times are quite short (about 30ms), which closely approximates the sound—but try modifying these and other parameters to create more extreme versions of the effect.

The UAD Eventide H910 plug-in is obviously capable of many more sorts of effects than these iconic sounds. In Part 2, I'll share some examples of sounds I've crafted, including some that employ DAW automation and MIDI control. ■

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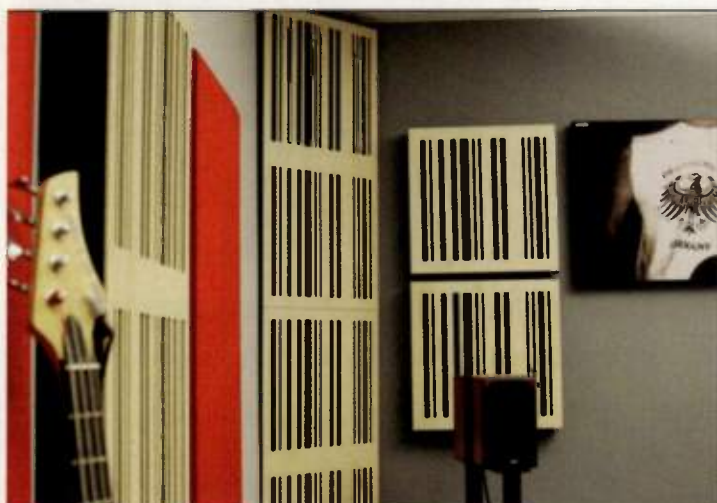
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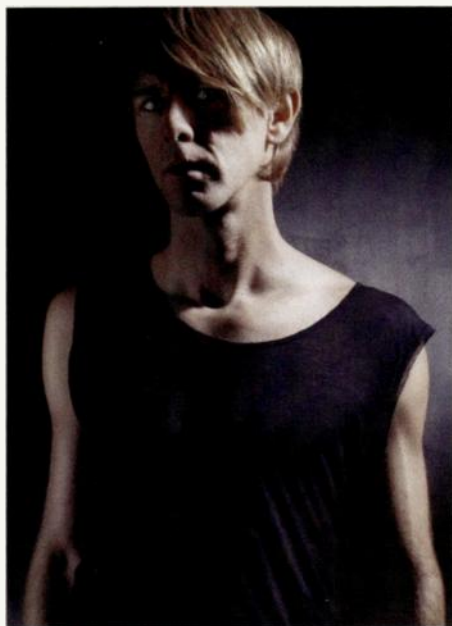
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MORPHED CINEMATIC ORCHESTRA



Richie Hawtin

The pioneering DJ and technology champion talks about his PLAYdifferently product venture



BY SARAH JONES

Richie Hawtin is one of the most in-demand DJs in the world, and one of EDM's biggest technology ambassadors. A pioneer of Detroit Techno's "Second Wave" of the 1990s, Hawtin is credited with shaping both the sounds of minimalist techno and the tools that create those sounds.

An early investor in Beatport, Hawtin also co-owns Liine, makers of Lemur and Kapture, and co-founded the CNTRL educational initiative to bring electronic music history and technology to young EDM fans.

At this year's Winter NAMM Show, Hawtin announced PLAYdifferently (playdifferently.org), a joint venture with development partner Andy Rigby-Jones, Allen and Heath, and DiGiCo, promising professional DJ tools that would "magnify the individuality and expand the creativity" of electronic artists. Although product details have been slim, Hawtin has already earned plenty of cred for his contributions to platforms ranging from the Final Scratch system to Allen and Heath's Xone Series.

Hawtin has been touring with prototype mixers to fine-tune development tweaks, and expects the first products to be available by June. I asked Hawtin to share few hints about what we can expect from PLAYdifferently this summer.

Tell me what led to the genesis of PLAYdifferently.

I've always been excited by being on both sides, playing and performing with technology but also helping with designing it, and who's best to help with the design of music and performance-related equipment than the very artists who are out there using it?

Throughout my career, I've had the honor of being involved in many exciting projects—the Livid CNTRL:R device, helping refine the early stages of the first DVS Final Scratch, modifying A&H [Xone] 62 and 92 mixers with my dad and [former Allen and Heath Xone design manager] Andy Rigby-Jones...but PLAYdifferently is on another level! I strongly believe it's time to develop DJ and performance devices and instruments that are uncompromising in design and quality and built for the artists who understand and appreciate pure quality of sound and components. There's plenty of equipment out there for the newcomer and aspiring DJ; now it's time to bring back instruments for a level of artist that has been left out in the cold for way too long!

At NAMM, you talked about PLAYdifferently "magnifying the creative impulse." Can you talk about ways you envision technology serving DJs in a performance context?

The tools we use can help or hinder the creative impulses that we have in our heads as we play and perform. With PLAYdifferently, we hope to bring a new level of quality in both sound and components and inspire performers to interact with our instruments in new and exciting ways. Finding the right feel of the knobs, the correct curves of the faders, and the perfect pressure for our buttons connected to the functions that they control is one of the most important parts of designing a device

that fluidly transcribes our human movements and interactions into the technology that we use, and allows each of us to manipulate sound and frequencies in our own unique and personal way.

Why partner with Allen and Heath and DiGiCo?

Both DiGiCo and Allen and Heath bring both manufacturing and distribution expertise and allow us to reach the level of quality that we have envisioned for our mixer. Although our mixer is not part of the A&H Xone series, it does draw a lot of inspiration from their Xone 62 & 92 mixers, which were designed by my PLAYdifferently partner Andy Rigby-Jones, so it makes sense to keep things in the family as we launch this exciting new level of DJ technology.

You're taking prototypes on the road this spring; when will DJs be able to get their hands on some gear?

The design is already locked down and now during our Prototypes Tour we're really perfecting curves, feel, and finding the right balance so that everyone feels at their best with our new instrument. As soon as that's complete, we'll be ready to launch and introduce our baby to the world and then start building our first units. We hope to have finished mixers into the hands of like-minded artists towards the end of June!

Will we be hearing new music from you soon?

The PLAYdifferently project has been one of the most inspiring and challenging undertakings of my career, but the energy and inspiration has pushed me to squeeze and bend time and find some very interesting moments in the studio and to continue the update of how I play as a DJ. After last year's *From My Minds to Yours* release, I'm now feeling a lot of freedom in the studio to work on whatever I feel at that moment, and I expect you'll be hearing some new Hawtin-based material by the end of the year. Lots going on! ■



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