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MusicTech

Issue 163
October 2016

The magazine for producers, engineers and recording musicians

FREEWARE 50
MAKE MUSIC FOR NOTHING!

The ALL-NEW guide to the BEST FREEWARE synths, effects and more. Plus 50 TO TRY on the DVD!

behringer

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- **Korg minilogue** update
- **AIRA latest** on test

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The **iconic** studios where **Elvis** & **Sinatra** recorded

MusicTech
Expert Panel

Studio Hardware John Pickford
A studio engineer for over 25 years, John's a keen sound-recording historian who has a passion for valve-driven analogue equipment and classic recording techniques.

Mixing/Mastering/Logic Mark Cousins
Mark specialises in sound design and cinematic productions. He's recorded with orchestras across Europe and is heavily involved in soundtrack composition.

Production Matthew Mann
Matthew Mann is a keyboardist, composer, singer, writer and educator who spends much of his time doing voiceover work, composing original electronic music and fronting an 80s tribute band.

Digital/Composition Andy Price
With a Masters in songwriting and a vast interest in music history and recording techniques, Andy works daily on MusicTech.net and is currently heading up our songwriting and Cubase series.

Recording & Guitar Tech Huw Price
A recording engineer since 1987, Huw has worked with the likes of David Bowie, My Bloody Valentine, Primal Scream, Depeche Mode, Nick Cave, Heidi Berry and Fad Gadget.

Ableton Live Martin Delaney
Martin was one of the first UK Ableton-Certified Trainers. He's taught everyone from musicians to psychiatric patients and written three books about Live. Martin also designed the Kenton Killamix Mini USB MIDI controller and is now the editor of Ableton Live Expert.

Synthesisers/Modular Dave Gale
Dave is an award-winning media composer, orchestrator and producer, with a passion for synths and modulars in all their forms, whether software, hardware, vintage or contemporary.

Electronic Music Alex Holmes
Alex has been a computer musician for 15 years, having a keen passion for beats, bass and all forms of electronic music. He's currently involved in three different dance-music projects.

Pro Tools Mike Hillier
Mike spent five years at Metropolis Studios, working alongside some of the best-known mix and mastering engineers in the world. He now works out of his own studio in London.

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Welcome to *MusicTech*: The Extreme Issue. It's not quite intentional, believe me, but we do seem to have covered the extreme edges of many aspects of music production, all within one issue. First up, of course, we start at the free end of things with our – now annual – round up of the very best freeware plug-ins out there. 50 of the blighters, mostly all-new for 2016, and all assembled on p18…

From free synths, we move to *quite* expensive ones, with an exclusive look at the new Behringer DeepMind 12 on p6. We've also got a bumper batch of reader studios on p12 and, again, at the very other end of the scale, we also recently visited EastWest Studios in Los Angeles, surely one of the biggest and most important studios in the world. It's a facility that has, thankfully, returned to its iconic glory days during which every big name in US music history recorded every big track. Okay, not *every* one, but as we stepped through the studios, it certainly felt that way – an incredible experience.

Like I say, extremes: from making computer music for free to making musical history, it's all here. Enjoy the issue…

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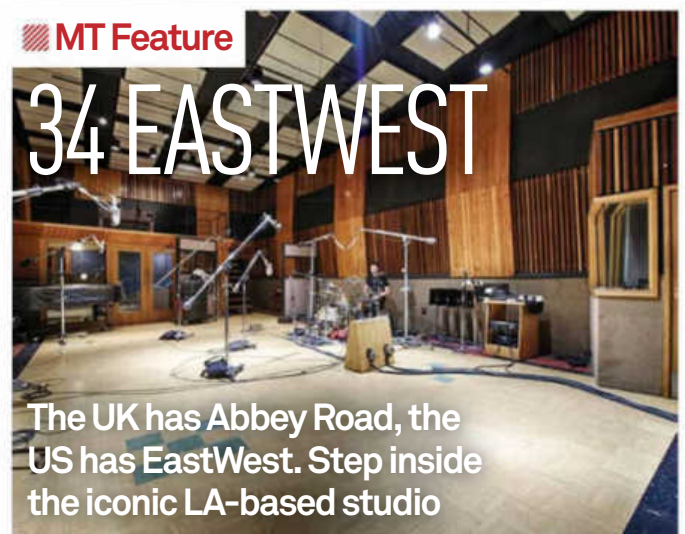**We round up the best free software for all kinds of music production – check your *MT* DVD to explore it for yourself**

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DEEPMIND 12
HANDS-ON PREVIEW

Behringer has been teasing its new synth for a while now. *MT* modular and synth expert **Dave Gale** got the inside news that it would make its UK debut at the Leeds Modular Meet, so made it his mission to get this exclusive hands-on preview…

f you use the internet, and have searched for anything synth-related recently, you cannot help but have been very intrigued by the continued drip-feed of information, regarding the new and highly anticipated synth from Behringer, the DeepMind 12. On its first public appearance, at the Leeds Modular Meet, the new synth turned many heads – and I was lucky enough to spend some time with the synth, and also meet the designers behind the project.

We first heard that Behringer was planning to get back into producing synths about two years ago, when we visited

Above: Casting a beautiful shadow in Leeds, the DeepMind 12 from Behringer experiences its first public outing

Left: Everything you need to know about is mirrored for you as you tweak on the beautifully crisp display

Behringer's new factory in China. We say 'get back to producing synths', as it's a lesser known fact that a synth was the first product from the founder of the company, Uli Behringer. The UB-1 was the name of the synth that Uli produced back in the early 80s, before he started the company proper, and he told us that he wanted to return to his first love when we spoke to him in China.

On to the new synth, and first things first: the DeepMind 12 is an analogue, 12-note polyphonic synthesiser, with plenty of scope for full polyphonic operation, and stacking of all 24 oscillators (that's right – 24… There are two DCOs per voice). One of the starting points for this design was a nod towards one of the best of the vintage guard, the classic Roland Juno-106, but this is absolutely not designed to be a clone of the Juno – more what the Juno might have become, if it were alive today, with its traditional roots intact.

Let's start with the aesthetic; it has a beautiful form factor, with a full-size, four-octave keyboard, and a control panel which every synthesist dreams of. It's all there! A long row of clearly labelled, long-throw faders, each with a dedicated task to hand. There is admittedly some doubling, but it's very clear what does what, as can be seen from the illuminated buttons in the pictures here.

So from left to right, there are controls for the inbuilt sequencer/arpeggiator; two LFOs, with a whopping seven

waveform options, two DCOs per voice, offering saw and Pulse-Variable Square waves, along with noise.

There is a beautifully crisp LCD display, right in the centre, with a data-entry pot and fader, alongside a Poly Unison Detune fader, nestling to the right. Moving on to the VCF, the ubiquitous Cut Off and Resonance are present, along with the modulation controls for the filter. There's a High Pass filter too, and a VCA control, to allow for programming of volume within a patch, and finally, there's an ADSR envelope – to the power of three, thanks to the illuminated buttons below it.

So the DeepMind 12 tugs its forelock very firmly in the direction of the Juno, with beautiful reverence, but what of the sound? Well, it sounds great. The oscillators offer a Japanese quality of sound, which is pure and tight. It doesn't sound bloated like its American cousins, but crisp. Reaching for the filter, and pushing some resonance into play, it shrieked and howled like a 101 in the hands of William Orbit. The envelopes, of which there are essentially three, are fast and efficient, with a beautiful release time that's just enough to not leave you wanting more.

Generally, the whole synth feels quick to react, which is just as well when you consider the temptation of the control

Above: DeepMind 12 is not Behringer's first synth. That was the UB-1 (above), a synth produced by Uli Behringer when he was just 16 years old

Below, left: It's a proper performance synth, with wheels, portamento, and much more…

Below, right: Filters, envelopes and those all-important LEDs, which indicate how many voices are being used

panel. The top end sounds bright and characterful, while the bottom end is weighty, but not bloated, again with a nod to its inspirational roots.

What really brings this synth into sharp focus, though, is the use of the arpeggiator and sequencer, coupled with the large helpings of polyphony. It sounds huge, and with all those oscillators dancing around, a smidgen of detuning is all you need to transport you to a place where you feel like an excited teenager again. Just think for a moment how 24 analogue oscillators sound, with a bit of detuning. Ram the detuning all the way home, and you're in super-saw heaven, which keeps the DeepMind 12 bang up to date.

Add into the mix the extensive Effects section, LCD display, full MIDI/USB implementation and a price point which is just south of £1,000, and I think Behringer has a bit of a winner. It's even got real wooden end cheeks!

Needless to say, we will be putting this synth though its paces in more detail very soon, but for now, it's made a very marked impression. It's a synth for players, and for people who want to play synths, and I can't wait to get hold of one and get lost in some arpeggiation. **MT**

LEEDS MODULAR
MEET REPORT

Reporting from one of the major highlights
of the Modular Meet calendar, **Dave Gale**
patches in from Leeds…

**Above: A live
performance from
modular master,
Radek Rudnicki**

**Far left: A modular
modular case, from
Lamond Design –
in pieces and
fully assembled**

**Left: Expert Sleepers'
ES-8 Audio Interface,
all patched up with a
mini iPad**

**Right: The venue was
the suitably cool
Belgrave Music Hall
& Canteen**

O n a day that felt more autumnal than a summer's day in August, *MusicTech* headed north to catch the latest synth and Eurorack sights and sounds from this year's Leeds Modular Meet, being hosted at the über-cool Belgrave Music Hall & Canteen venue.

There was a great selection of live music this year, with a line up of artists who were keen to share their modular artform. Radek Rudnicki started live proceedings with a short set featuring music drawn from his catalogue. His new album, RPE Duo, is due for release in October. Further information is available from www.wavefolder.net.

Blue Wolf Se7en started his set with some absolutely outstanding sonic interest, as the varying tonal colours and folded waveforms swept and stuttered across the stereo image; but one of the most anticipated performances of the day came from the Vile Electrodes. Apart from putting in a stunning performance, which left the room silent and reverent, the short set of three songs was performed exclusively on the new Behringer DeepMind 12 synthesiser, which was also getting its first public outing, at the event. Their third song made exceptional use of the arpeggiator, demonstrating the richness available from this new powerhouse of synthetic goodness (more on that on p6). The day ended with a set from live modular supremo, VCOADSR, which bought the afternoon to a suitable close.

A reassuring number of companies were in attendance, as always, keen to show their latest wares. Abstract Data was demonstrating its new and rather interesting module, the ADE-32-2. Billed as a Rhythmic Manipulator, the new module uses a combination of logic gates, along with other variables, to output interesting and altered rhythmic pulses. These could, in turn, find a number of applications: from triggering drums to pulsing synth tones. Intriguing and capable, the ADE-32-2 is a perfect companion to other Abstract Data products, such as the wonderful Octocontroller.

Lamond Design, legend of the Eurorack cabinet world, was showing off a new range of Eurorack Modular cases, with a rather different twist. These cases, available in either 6u or 12u, are essentially in kit form, in the shape of plywood panels which are cut to size and ready to assemble, allowing the owner to put together a Eurorack case, and decorate it as they see fit, with a minimum of fuss. Everything you need is included – from case to rails – with the exception of power, which is easily added by the end user. All that is required are a couple of basic tools and you're away. The two sizes are available, at a cost of £180 and £280 plus VAT.

Expert Sleepers was demonstrating its latest firmware upgrade to the

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Rokit 8, 6, 5

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disting mk3 (reviewed in *MusicTech* 159). However, its latest product, the ES-8, is a rather nifty USB-based audio interface, that sits right in a Eurorack. Connection is made via analogue mini-jack sockets, as well as connection via ADAT light pipe, which offers a total combination of 12 inputs and 16 outputs.

Hugely impressive credentials, then, but made even more so by the ES-8's ability to connect to either a Mac or iOS device – meaning that if you have an iPad-based synth, you can run it right into your Eurorack, ready for manipulation, or take advantage of the power of an iPad or computer for effects processing. It's another exceptionally handy product.

Erica Synths flew in from Latvia to demonstrate its two new products, added to the ever-expanding Fusion range. Its VCO and Delay/Flanger/ Vintage Ensemble modules place a valve or two right in the heart of the unit. Analogue goodness, and then some... Look out for our Erica reviews. AJH Synth was demonstrating its two new products, in the shape of the Rings SM (reviewed in issue 161) and Sonic XV Filter, both sounding excellent. Studio Electronics also had its Sensei System on demo, along with *MusicTech* favourite, the Tonestar 2600 (reviewed in issue 161).

Winning the prize for the coolest looking modern modular was Dreadbox, with its latest line of modules, complete

Below, main image: Dreadbox displays its jaw-droppingly lovely system

Below, far left: Abstract Data's technical guru, Justin Owen, with his superb minimal skiff

Below, left: The Oscitron, from Soulsby. More Germanic-sounding than four guys from Düsseldorf

Below: The new ADE-32-2 module from Abstract Data. It's pure logic

Below right: And all of this for free – get along to the next Modular Meet

with matching case. There was quite a stir among the crowd of seasoned professionals looking on. I'm sure I saw some drooling.

And finally, Soulsby Synths was demonstrating its new Eurorack Oscitron module, which is an 8-bit oscillator, with built in filter and effects. With technology which is largely drawn from the Atmegatron, this oscillator has a few cool tricks up its sleeve, in the shape of a wavetable-sample capture mode which, when coupled with a vocal, produces something akin to the most classic of Germanic vocoders. Very exciting stuff.

Another great day, organised by Ben 'DivKid' Wilson, with much to offer all concerned – and great pizza, too! **MT**

Wow. Just…wow

Orb Recording Studios

Interviewee: Charles Moon

Contact: **charles@orbrecordingstudios.com, www.orbrecordingstudios.com**

MusicTech: Give us a run down of the gear at Orb?
An SSL 6048 G Series Console; Allen Sides Ocean Way HR2; Genelec 1037s and a pair of Yamaha NS-10 monitors; Sony C-800G, vintage Neumann U67 microphones;

Tube-Tech CL 1B Compressor; Neve 1073 preamp and various outboard compressors, preamps and EQs.

MT: Which DAW do you use at the studio and why?
Pro Tools is our DAW of choice,

mainly because it is the industry standard and is what we find easiest to navigate when it comes to working within our group and the outside clients that bring their projects to us.

MT: What is your favourite gear at

Show off your studio

We ask you to **Show Off Your Studios** via the *MusicTech* **Facebook** page, and we put the best – big, small, hobby and pro – on these pages. This month, we're on a big and professional tip as we visit Orb Recording Studios in Texas…

the studio?
The Ocean Way monitors, 100 per cent, because it's always fun to sit back and enjoy the work that was just put in on such a monstrous set of speakers. Not only do they help you enjoy super-clean, high-quality music, but they are also designed to provide a true stereo listening experience, regardless of where you're located in the room.

MT: How much time do you get to spend in the studio each week?
Easily 60 hours. When we're not running sessions for clients that come in, we use the free time to keep the studio in the best shape possible, as well as work on in-house production projects as well.

MT: How do you use your studio? Is it mainly for recording bands,

projects or music for TV and film?
We are a fully functioning recording studio that is open to the public.

We spend most of our time working with local talent as well as touring musicians when they're coming through town for tours or festivals. We mix records in-house, and we love what we do, so every day is fun around here, and that's the culture we like to maintain.

Orb Studios (cont'd)

→ **MT: What's next on your shopping list gear-wise, and why?** It will either be more UAD plug-ins because they are the best-sounding plug-ins on the planet at the moment and we're also taking a look at some keyboards. Gotta love the sounds of the Juno-60 and any of the Nord Lead keyboards.

One of the owners, Matt Noveskey (Blue October), also has an awesome collection of bass guitars and is adding the Pink Flea Jazz Bass to the collection that will be a great add to what we already have.

MT: Does anything annoy you about the set-up? Nothing that we can think of, off the top of our heads. We've been blessed with the vision of a great studio designer, Mark Genefan, who ensured we'd have the easiest workflow when it comes to navigating the studio.

MT: What is your dream piece of gear and why? Even though we have this piece of gear, it's more like a dream come true. The go-to has to be the Tube-Tech CL 1B, because we can throw almost anything through it and it sounds amazing.

MT: What advice would you give anyone starting a studio? Really, the best advice to anyone, we think, is to learn how to use what you have to the best ability you can. The amount and price of the gear you have doesn't really matter. What it comes down to is… innovation, and the most important question: 'Does it sound good?'. So with that, build on what you have – but knowledge and creativity trumps technical skills.

MT: Any studio anecdotes? Even though some teachers may not agree with me here, we like to clip some instruments from time to time in the tracking stage, to give a sound extra character. We love breaking all the rules here. There are rules of thumb, of course, but at the core, there are no rules.

Top to bottom: The live room is as impressive as the main studio room; plenty of vintage and classic keyboards; at the SSL G Series desk
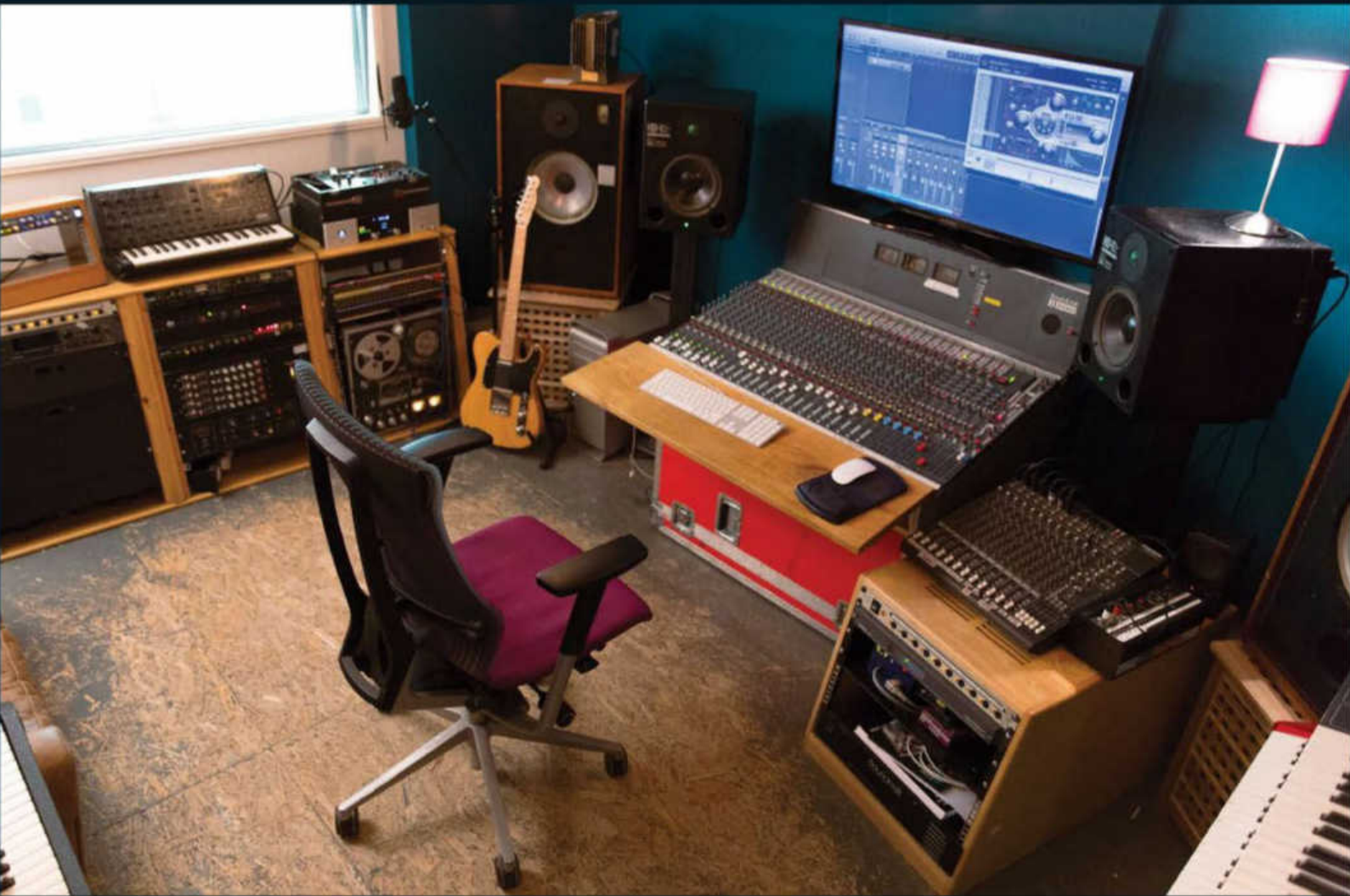
Secretsundaze Studios

Interviewee: **Luke Hopper** Contact: **0208 525 2838 (London, UK) www.secretsundaze.net**

A big desk, big speakers and big screen make a big studio…

MT: Key components? 24-channel B800 broadcast desk with Penny & Giles faders, Studer preamps, AMEK/Neve channel strip, preamp and EQ plus Neve Pure Path; 1968 Drawmer MkII Tube Compressor; Audio & Design compressor; Akai Valve Tape; WEM Copycat delay.

MT: Which DAW? Logic Pro X and Ableton Live. We use a combination of both, suited to our artists' needs.

MT: Favourite gear? Probably the Akai Valve Tape Machine – a perfect bit of kit to make things sound full and old, which we love to do. Just a little touch is enough to make a difference. It features valve in and valve out, to provide a warming distortion that sounds amazing.

MT: How do you use your setup? It's a professional working studio,

as well as the creative home of our in-house artists, engineers and producers: George Levings (Endian/Commix), Tony Nwachukwu (CDR/Attica Blues) and Sam Jones (Soundthread). We offer dry hire, hire with an engineer, mixing and mastering plus courses and training. We have projects going on all the time, with clients, artists and students taking part in classes and workshops. We also have our monthly 'Out The Box' feedback sessions for unsigned producers, run in collaboration with CDR, and we're going to be hosting regular artist masterclasses, too.

MT: Next on your shopping list? An MPC for the studio – great for sampling and the groove is amazing. We'd be keen to get a Eurorack going to create out-there sounds. We also love the new Eventide multi-FX unit.

MT: Anything annoy you? Working with older gear can be a little tricky, but it's all worth it when you hear the character and warmth of the sound.

MT: Any advice? Take your time and be sure to choose the right setup for you, and shop around!

Ironworks Studios

Interviewee: **Kev Jones** Contact: **kevrobjones@googlemail.com, www.ironworksstudio.co.uk**

Ironworks was a self-build, but what an outcome…

MT: Key components? The studio was built around the Toft Audio ATB. I must have been one of the first people in the UK to own one. It was such amazing value that it was a no-brainer. The preamps are great, but I felt I needed something a bit more refined and so I've also got four channels of SSL VHD, two Universal Audio 610s and Neve Portico 511s. For monitoring, I use the HS80s, which I've really grown to love, and my main monitors are Quested H208s, driven by an MC2 amplifier. I have many mics; the Blue Kiwi is my favourite, as well as the usual AKG and Sennheisers.

MT: Which DAW? Logic X is my go-to DAW. To be honest, the question of which DAW you use is a bit redundant now, as all the DAWs offer the same features and so it's just a matter of personal preference. I never really got on with Pro Tools: although I have mixed several albums with it, it was always less intuitive than Logic, in my opinion.

MT: Favourite gear? I have to say the Toft Audio EQ, because they are some of the nicest EQs ever made. Over the years, they have really been a lifesaver when mixing some bad recordings given to me.

MT: How do you use your setup? For many purposes! My main work is recording bands, but I also run a small record label called BLINC (www.blincrecords.com) which works with Welsh-speaking artists. These days, most of my work comes through the label – recording, mixing and mastering the work for our bands and artists. Currently,

I'm not living in the UK: For the past six months, I've been working on a project as a senior music producer for Bollywood in Mumbai (India). The studio is being used and leased by another young Welsh company called Drwm (www.drwm.cymru).

MT: Next on your shopping list? A brand-new headphone system. So far, I've just been making headphone mixes on the desk and sending them to the cans, which is less than ideal, but it works. The new Behringer P-16 personalised headphone system looks amazing value for money.

MT: Anything annoy you about it? I have a love-hate relationship with the Mackie controllers. They were the best on the market at the time. Over the years, there's been a real lack of good affordable MIDI controllers. The

best ones are the Euphonix and SSL, but they are so overpriced and most of the features on them are not really necessary for me. I'm not really into the whole touch-screen thing, which every manufacturer seems to be developing. I just wish there was an affordable C24 system for Logic.

MT: Dream gear, and why? This is going to sound contradictory, but even though the Toft has served me well over the years, recently, I feel I've outgrown it. My dream would be to upgrade to a fully equipped API 1608 console with 550 EQ. Which brings me to another important point for anybody starting out. Limitations taught me a lot. My kit list has grown and developed over the years not by some lust for new expensive gear, but by necessity. Working with the Toft over many years has made me appreciate what I like and what things I don't like. I just think if we all had the luxury of owning a Neve or SSL console, I certainly wouldn't be as good as I am today. Having less-than-ideal equipment makes you think outside the box and develop your problem-solving skills.

MT: Any advice? Don't skimp on the build. Better to get it right first time than to have to go back and re-do. But saying that, don't get bogged down in too much of the detail. Understand the basics of acoustics and soundproofing and don't be afraid to make mistakes. We are music makers, not scientists. Some of the best records were made in less-than-ideal environments. The way you present the studio, its vibe and its character, is way more important than acoustics.

MT: Any studio anecdotes? The name Ironworks has a story. The studio is built in what was my late father's steel-fabrication workshop. I didn't fancy becoming a welder, so decided to transform it into a recording studio, which took nearly two years. I would work all day at the council and spend the nights and weekends building. I did everything: foundations, brickwork and roofing. I even had to divert a stream! I built all the acoustics and furniture using leftover steel and wood from the workshop. I knew nothing about building, but had to do it myself as I didn't have any money. But that's what gives it a unique character. MT

Top to bottom: The Ironworks live room; a close up on the Toft; and Kev at the bottom who built the whole studio from scratch. Hats off to you, sir!

MT Cover Feature

TOP 50 FREEWARE 2016

It's time for our annual *MusicTech* freeware roundup! We've gathered the best free software titles in a variety of music-production categories and presented them here – with as many as we could get on this month's *MT* DVD. Want to make music for nothing? Look no further…

Last year, we predicted that this would become an annual event here at *MusicTech,* and we were right! So successful was 2015's Freeware 50 that we've decided to do it again for 2016 – that is, list the best 50 freeware plug-ins in the world, right now!

The freeware scene has been around since the birth of software. It highlights either free versions of paid-for apps (these might act as an advert for a more fully featured version), or complete fully functioning software from a small company which programs for fun. There are a huge number of developers – from big names like Native Instruments right

down to one-person companies. We admit that we have some favourites, but this year we've kept a tight rein on things, with firm rules for our list of the best free software out there. These are:

1. It's an-all new list, apart from half a dozen that just had to be included again and, yes, Crystal is one of them.

2. We've included both real and synth instruments; effects (creative, mixing and mastering); plus other studio production options, including utilities.

3. We've also chosen all (bar one!) titles that are available on Mac or PC.

So, sit back and enjoy *MusicTech's* freeware of 2016… and don't spend a penny on any of it.

We kick off with freeware synths and a whole host of newbies, plus a comeback king and a couple that will never go away…

TOGU AUDIO LINE NOISE MAKER
Wavetable synth

We included TAL's Elek7ro last year and its BassLine is a firm SH-101 freeware favourite. Add the fact that this is but one of three TAL inclusions this year, and you could conclude that we like the company a lot. NoiseM4k3r (as it's stylised) is a new and improved version of Elek7ro and includes a couple of oscillators plus sub, LFOs, ADSR and four oversampled filters. The effects really give it a nice pro edge with reverb, delay and bitcrusher on offer among others. But 256 presets also explore the full sonic palette of a virtual analogue synth, with leads, pads, arps and basses aplenty. An essential freebie.
W: tal-software.com/products/ tal-noisemaker
Platform: Mac, PC

NUSOFTING SINNAH
Complex waveshape synth

They say: 'Sinnah the sinner, is it a sin to be free, or is it a sin to sound so lush?' We'd say 'no' on both scores, but Sinnah certainly stands out in the freeware-synth world. It only has one oscillator, but delivers a wide sound with complex waveshapes, a noise element and a rather bold and fully featured Delay Matrix, which takes up almost half the space on the GUI. It results in some complex presets and some fairly mediocre ones on first listen. But there's plenty to get these beefed up – and a fantastic, clean GUI to do this – and the bank of 50 free presets has got to be worth downloading, too.
W: nusofting.liqihsynth.com/Sinnah_ VA_synth.html
Platform: Mac, PC

FUTUCRAFT KAIRATUNE
Electronic synth

We admire honesty, so we appreciate Futucraft's claim that Kairatune is not an all-in-one synth, but one aimed at electronic-music composers. And for that, it does a great job, delivering a tight, punchy sound that will sit well in stripped-back dance mixes. We really like the preset-management system that allows you to get in there by category and then select your presets with absolutely no fuss whatsoever. There's an almost bewildering number of controls on offer, but happily, the values are shown by great dial-type indicators. The Delay section, including phaser, delay and EQ components, is particularly welcome.
W: futucraft.com/category/kairatune/ release
Platform: Mac, PC

DATSOUNDS OBXD
Classic synth emulation

There's no getting away from what OBXd is emulating: a classic Oberheim synth, as is everyone and his dog at the moment (including, thankfully, Tom Oberheim!). OB-Xd does it very well, and claims to take some of the features further than the original. There are a dozen banks of presets to explore including bass, drums, pads, leads, keys and brass and, in the main, it offers a great stab at all of them (even though we all know that brass emulations should really be made illegal in this day and age). The front panel is functional and large, with a Voice Variation section particularly handy. A very solid and useful synth.
W: obxd.wordpress.com
Platform: Mac, PC

U-HE TRIPLE CHEESE
Comb-filter synth

Like Frohmage, this is another cheese-based freeware plug-in that's been around for a while, but now deserves a bit of a comeback. We suppose you could say they have 'matured well' (sorry). Triple Cheese is a comb-filter based synth that first appeared a decade ago. Since then, it's been updated, had presets added and should run in whatever DAW you have. We had it up and running in Logic (although needed to reinstall it) and were soon enjoying its rather more unusual presets. There are lots to get your teeth into across more than a dozen banks: lots of percussive and out-there types, plus some great delayed sounds. Superb.
W: u-he.com/cms/triple-cheese
Platform: Mac, PC

GREEN OAK CRYSTAL
Semi-modular synth

Yes, we included Crystal last year, and yes, we included Crystal the year before and yes, we will probably include it next year. If you're new to freeware, we need to tell you: Crystal is where it's at and probably always will be. It's been around since 2002, and some say it will never stop working. Okay, that's not quite true, but we downloaded version 2.5.4 (released last April) and it slotted in straight away within our sleek and modern DAW setup. It looks old but sounds amazing, with a huge variety of presets from a semi-modular synth with both subtractive and FM synthesis. There are also plenty of control and modulation options, too.
W: greenoak.com
Platform: Mac, PC

MATT TYTEL HELM
Original synth

Despite stating it's free, Helm is one of those downloads that makes you feel guilty for not donating at least a dollar, and maybe you should because while you can download this for free, it's quite an object to behold. The GUI is great and very modern with some neat graphical representations of the various parameters and the sound is anything but boring with swirls, drones and even a gameshow theme to tempt you. It might be a little too out there for some but has masses of potential.
W: tytel.org/helm
Platform: Mac, PC

ARCHETYPE INSTRUMENTS LOCAMOTIV Synth

Another out-and-out dance-type synth, Locomotiv might not be that pretty – it's pretty dark and just black and white – but has a fat sound. It has some fantastic basses and leads, and is ultra clean and perfect for today's electronic music producer. However, the developer's site was down as we wrote this – which could be a shame – but the plug-in is downloadable at other sites.
W: archetype-instruments.com (not presently live)
Platform: Mac/PC

SYNTH1
Virtual Nord Lead

Synth1 is another freeware synth classic that we have to include every year, or people will march on the MT offices with virtual pitchforks. It's apparently modelled on a Nord Lead 2 (sonically, not visually). We managed to get it working in the latest Logic pretty much straight away, although issues are creeping in, like odd mouse movements. Worth persevering with for the sound, but possibly its last inclusion (sound of protest march starts – oh dear).
W: www.geocities.jp/ daichi1969/softsynth
Platform: Mac, PC

→ **FREEWARE** Synths continued...

DIGITAL SUBURBAN DEXED
DX-type FM synth

We've had Dexed in our plug-in folder for some time, but for some reason, have never included it as a recommendation. This could be down to an interface that attempts to expose FM synthesis in all its glory – something that not many have been brave enough to try. Yes, it might put you off wrestling with it, but actually all the controls are there to make some pretty dramatic real-time changes, something that FM is not known for but also something that both Yamaha and Korg have attempted in hardware. So dive in, enjoy the 32 percussive, chimey and dreamy presets and give FM a go. It's never been easier. Okay, we mean it's never been cheaper.
W: le-son666.com/asb2m10
Platform: Mac, PC

BRAIN CONTROL TUNEFISH 4
Virtual Analogue synth

We're quite chuffed that a) we've managed to get all Mac and PC freebies on to this list of synths and b) that they're not all virtual analogue. Not that there's anything particularly wrong with VA, but there are rather a lot of them about.

Tunefish 4 is, thankfully, an example of a good one that not only has a good analogue signal flow, but offers enough extras – the kind of thing you should get with software. So you get stacking effects, loads of modulation routing possibilities and loads of hands on and clean-looking controls to get to the heart of programming quickly. A fine looking and sounding synth.
W: tunefish-synth.com/?action=about
Platform: Mac, PC

NUSOFTING DA HORNET
Virtual Wasp synth

Slight caveat with this one. We included Da Hornet as a fun version of the well regarded UK Wasp synth – itself becoming legendary, as it was one of the first truly affordable synths in the country and had odd touch-sensitive keys. The software version is available as a Mac and PC freeware synth, but only as a 32-bit version (so you'll need to use bridging software for 64-bit installation). There is now a new 64-bit version – another reason it's back in our list –but you are urged to donate at least $9 to keep support going for the plug-in which we'd recommend, because it is a great, if slightly noisy – but that is the point – synth.
W: nusofting.liqihsynth.com/freeplugins.html
Platform: Mac, PC

FREEWARE Drums and drum machines

Free beats with our round-up of six of the best...

MELDA MDRUMMER SMALL
Virtual drummer

Melda Production has loads of freeware and MDrummer Small is, not surprisingly, a free version of the company's MDrummer Large. Nevertheless, it's quite a substantial product and download itself. It comes with 500MB of sounds and data, which includes 30+ drumsets, 400+ drumset components, 200+ samples, 50+ multisamples, 60+ rhythms, 200+ base-rhythms and 2,500+ loops. There's an onboard arranger/sequencer and effects, plus loads of hands-on controls for creating varied machine or human-like beats. This is sadly one of the few [only! – Ed] plug-ins that we've included that is PC-only, but it is that good!
W: meldaproduction.com/MDrummer%20Small
Platform: PC

MONADE SOUNDS MINI909
TR-909 emulator

We like this because it's simple. Yes, like other plug-ins – particularly drum-based ones – it is trying to sell something else (in this case, the full Monade Sounds Pure909 which has 19 kits). However, Mini909 is easy to get and use and you do get a usable 909 kit, one of our (and many other people's) favourite kits and the backbone to many a dance track. The sounds are there and it certainly does its selling job well, as after listening, we were intrigued enough by the full version's processed 909 kits, which only cost marginally more than a tenner to get. If you're poor (or tight), this will fill a sizeable 909 gap on its own.
W: www.monadesounds.com/2016/06/pure909-plugin.html
Platform: Mac, PC

VINTAGE DRUM ELEMENTS
Yamaha RX5 emulator

You can download this in return for your email address (and a voluntary donation) and what you get is a drum-pad player loaded with RX5 kits plus instruments, including DX bass, ethnic and synth. Usefully, you get Standard, Vinyl, Sub and Tremolo effects to add which can really vary the sound.

As to the core sounds, we weren't convinced that this was the classic drumkit we needed until the developers SampleScience reminded us that Cocteau Twins, Bomb The Bass, Masters At Work, OMD, Vangelis, Depeche Mode, and The Pet Shop Boys all made rather good use of it. So an absolute bargain, after all...
W: samplescience.ca/2015/08/vintage-drum-elements.html
Platform: Mac, PC

FREEWARE Drums and drum machines (cont'd)

BEATSKILLZ BEATFACTORY DRUMS
Drum- synth module

It's fair to say that a lot of the free drum plug-ins here could well be player shells that you pay extra to get sound packs for. This one might well follow along those lines, but does come with 10 kits (808, Trap, 80s, Dubstep, Indian and Sample kits, among others) to start with. Each pad can be edited and an envelope shape applied to the list: plus there's a useful reverb effect. One of the big selling points of the plug-in – yes, we know you don't actually buy it – is that it was recorded using an MPC through some pretty high-end outboard gear and the results do sound good: snappy and contemporary and ideal for a slew of polished genres, including hip-hop, trap and EDM.
W: beatskillz.com/drums
Platform: Mac, PC

DISTOCORE BAZZ MURDA
Kick-drum synth

One that could have gone in the synth section, as the results are more than percussion! Kick synths are all the rage, not only in software (with lots of paid for apps), but hardware, too, like Korg's Volca Kick. Bazz Murda is a cut-down piece of kick-synth freeware, but there's still a lot left in terms of control.

This is a full-featured synth dedicated to hard kicks for the harder side of dance, and it doesn't disappoint. Those after something with less bite might be shocked at the attitude that this plug-in is capable of reaching – pop producers look away now, as this is strictly for dubstep, gabber, drum 'n' bass. For kicks with added extras, and plenty of them.
W: distocore.net/bazz_murda.html
Platform: Mac, PC
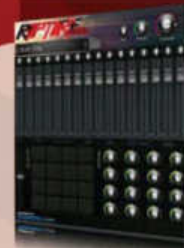
DOPEKITZ RUPTURE
16-part drum machine

Finally – something light on your processor and easy to use, a 16-part drum machine and sample player. DopeKitz's Rupture comes with five kits – West Coast, Tribeca, Ever 1da, Crunk'd and Danger Drumz – so enough to get your teeth into. Yes, there are more expansion packs available for your money, but these will show off the flexibility of Rupture. With sliders, pads and Attack rotaries, there's enough here to give your beats an edge.

You can create and mix kits, too, and pitch the whole lot up and down. A useful plug-in that is both simple and effective.
W: dopekitz.com/rupture-virtual-drum-machine.html
Platform: Mac, PC

→ **FREEWARE** Effects

Freeware effects that you can use creatively for sound mangling, or for mixing your music …

TOGU AUDIO LINE REVERB-4
Modulated vintage reverb

There's no doubting that freeware often offers you a simple version of a piece of paid-for software, and TAL's Reverb-4 is just that. You were never going to get a convolution reverb with a gazillion room and modelling parameters to adjust now, were you? Instead, you get a high-quality and simple-to-use plug-in, a version of which appears in TAL's own Sampler. There are Wet, Dry, Delay and Size parameters to adjust – with sizeable ranges for each for dramatic effect – but maybe most useful are the Hi- and Lo-cut dials, with a nice dose of variation across the frequencies. It's simple but sonically very useful.
W: tal-software.com/products/ tal-reverb-4
Platform: Mac, PC

AUDIO DAMAGE FUZZPLUS 3
Vintage distortion pedal effect

FuzzPlus 3 is "back by popular demand" and a "ground-up rewrite of our popular FuzzPlus series", according to Audio Damage. And whereas its aim is vintage – with claims that it accurately models vintage distortion-pedal circuitry, as well as the filter characteristics from a Korg MS-20 synth – it's a very modern-looking plug-in with neat meters and dials for Frequency, Feedback, Resonance, Distortion and Level. In practice, it offers a hell of a bite and kick, really livening up whatever you throw at it, especially beats. With many presets, you'll be bringing this one into your mix more than most. Dirty or clean, it certainly has an attitude you'll want.
W: audiodamage.com
Platform: Mac, PC

DDMF COLOUREQ
Five-band parametric EQ

With five bands of EQ and Frequency, Gain, Q and Mix dials per band, ColourEQ is already just a point-and-drag away from being as fully featured as many a paid for plug-in. Okay, the front panel might not be the prettiest, but the GUI is colour adjustable, as is the window size. The sound clicked on occasion in Logic, but otherwise swept along nicely, with a useful Gain slider really ramping things up when you need it. Not perhaps as accurate as some – but nor would you expect it to be – ColourEQ is a versatile plug-in that is more creative than you might at first suspect. Lots of potential for sonic tweaking, for zero cash outlay.
W: ddmf.eu/freeware
Platform: Mac, PC

IZOTOPE VINYL
Dusty old vinyl-record simulator

With vinyl back in fashion again – to the point that we're launching a sister magazine about it – this 15-year-old plug-in is now freely available, in return for your registration details at iZotope's website. You too can add noise, dust, hiss and wear to your recordings, so if you're fed up with the ultra clean and pristine, then this is for you. Yes, we can't believe we wrote that, either. Vinyl does seem to go against everything you stood for – as does the resurgence of the format, in some ways (ooh, being a bit controversial there) – but actually, one listen to it and you will find a place in your hearts and mixes for this plug-in.
W: izotope.com/en/products/create-and-design/vinyl.html
Platform: Mac, PC

BLUE CAT AUDIO CHORUS 4 Vintage chorus module

This is another 'vintage' effect, but there's more to it than just creating vocal chorus effects. The front-panel controls allow you to get in and change the original sound beyond recognition. You get the usual Gain, Rate, Depth, Dry and Wet controls, but the Delay dial brings in the most drama, and a useful Stereo Spread dial offers even more presence. It's simple, yes, but as transparent or as in-depth and colourful as you want it to be, thanks to a varied range of onboard presets. Blue Cat Audio does a freeware bundle which we'd highly recommend (with at least two of the plug-ins from it listed here).
W: bluecataudio.com/Products/ Product_Chorus
Platform: Mac, PC

VLADG MOLOT
Colourful compressor

We should admit that we were taken in by the Russian military looks of Molot before checking the sound. We'll say it again, we've been overwhelmed how good freeware GUIs have got over the last year and this is one of the best. The look simply screams that it's a compressor that will add colour and character – indeed, the developer says that if you want transparency, you've come to the wrong place! We also love the straight-to-the-point instructions like 'Too noisy? Turn off the dithering. Too complex? This plug-in is not for beginners'. It might not be – but a bombastic compressor it is…
W: vladgsound.wordpress.com/ plugins/molot
Platform: Mac, PC

→ **FREEWARE** Effects (cont'd)

More free effects for creative mixing and fabulous, free sound design…

CABLEGUYS PANCAKE
Dynamic panner

We were initially unsure as to whether to slot this one into our Utilities list, as it looked like 'just' a stereo spreader at first, but Cableguys PanCake is a lot more than that. Sure, you can pan your audio hard left or right with it, but you'd be missing out on a whole load of functionality. The main draw is the ability to pan according to modulations sync'd with your audio, so put a beat loop through it and it can, for example, pan left and right in time with beats, creating a more musical movement than you might otherwise achieve. Obviously, you can go OTT with this kind of thing, so be careful. What are we, your mothers, now? Having to warn you to be careful with effects? Sheesh.
W: cableguys.com/pan-cake.html
Platform: Mac, PC

TRITIK KRUSH
Modulating bitcrusher

Out of all the effects on offer in this year's roundup, this one perhaps offers the most instant, smile-on-your face fun when booting it up for the first time, not to mention having yet another clean and modern GUI (we've been really impressed with the modernity of a lot of the interfaces on the freeware we've looked at this time around, we have to say). Krush is just that – a bitcrusher with Drive and Krush dials plus Frequency and Resonance filter controls. There's a sync'able Modulation section that is well worth exploring, and which offers some fine rhythmic additions, plus plenty of presets to get your teeth into. If you're going to try any of this year's roundup, give this a go – we dare you try it and not smile.
W: tritik.com/products/krush
Platform: Mac, PC

OHM FORCE FROHMAGE
Resonant filter

Ohmforce was one of the first high-profile plug-in companies, boasting odd-sounding, cheesy (in name) effects and oddities. Frohmage was one of our first experiences with a piece of freeware – yes, it's been around for a while – and we've shied away from its inclusion in the past, simply because we used it so much we thought everyone might be sick of it! But such are musical fashions, we reckon Frohmage is due a revival – and after loading it back into our rack, we're right back on it – as it's one of those effects you can use (and easily over-use) on everything. Now it has a new list of possible applications. Welcome back, Mr Cheese.
W: ohmforce.com/ViewProduct. do?p=Frohmage
Platform: Mac, PC

SMART ELECTRONIX AMBIENCE
Reverb

If ever you'd choose a plug-in on its name, it's probably this one. Who doesn't want a bit of ambience now and again? You certainly wouldn't choose it on looks – even the knob view (as opposed to the slider shown) is not great, but it does it sound great. We still have a tendency to overdo reverbs – it's an 'age' thing, believe us – and it's VERY easy to do with Ambience. You can quickly be inside the biggest cathedral and then put that inside a planet for OTT dreaminess. Yes, it's easy to get a bit lost in dreamland, but why not, once in a while? Ambience genuinely does sound better – on many occasions – than a paid-for reverb, so don't judge a plug-in by its cover, please don't…
W: magnus.smartelectronix.com
Platform: Mac, PC

TAL-FILTER-2
Host-synced filter

It'd be easy for us to fill these pages with TOGU Audio Line (or TAL) products, as they have so many freebies up for grabs and they are all good. We've been restrained this time around and only included three(!) and this is a sync'able filter that's got oodles of potential. Sync'ing, of course, means lots of rhythmic fun, a little like Frohmage above, but this is perhaps a little easier to control. There are four TAL NoiseMaker filters (LP 24dB, LP 18dB, LP 12dB, LP 6dB, HP 12dB, BP 12dB, N12dB for you filter fans), and modulation, saturation, distortion – and any other word with 'tion' at the end – are all easy to conjure up. And while you're downloading it, get the other TAL plug-ins while you're there, eh?
W: tal-software.com/products/ tal-filter
Platform: Mac, PC

ADAM SZABO PHAZOR
Access Virus-type phaser

There are specific effects for very specific things, and this is certainly one of them. The Access Virus synth has certainly picked up a lot of fans over the years (the editor of this magazine has spent the last four trying to get one) and Adam Szabo has coded – with the help of J. Bradford Hunter – a simple phaser plug-in to emulate a characteristic of the synth that earned it much of its reputation. The Virus is a virtual analogue that has been used across many dance genres, including a lot of trance, and this will give you that hard-edged phasing and movement that a lot of the sounds in that genre use. It's simple and not that flexible, but if you want specifics, then this is it.
W: adamszabo.com/phazor
Platform: Mac, PC

FREEWARE Effects (cont'd)

IGNITE AMPS PTEQ-X
Three-part EQ emulator

Take one look at PTEq-X and you'll recognise the EQ type that it is attempting to emulate – it certainly has an air of authority and a touch of the Pultecs (not an illness). The plug-in actually features three types of EQ and four valve types, so offers your productions more flexibility than you might initially think.

There are plenty of options and controls around the outside of the main GUI, which offer more than the original models but at the same time, don't detract or distract you away from the great GUI – and all-in-all, it's a mighty fine emulation.
W: igniteamps.com/en/audio-plug-ins
Platform: Mac, PC

STAGECRAFT SOFTWARE
Bitcrusher and filter

How many times do we have to say it? 2016 is the year of great-looking freeware. SC Software should certainly be applauded for making this interface so vibrant and very 'now'. There's a Stereo Spread and Noise main window that pulses with your music and large LFO and Filter windows to allow you to tweak and twist with ease (the filter applied to the noise and the LFO to the filter). Bit rates and rate reduction processes are as easy to do, as they are dramatic in impact. With plenty of presets and more being added, this plug-in sounds as good as it looks.
W: stagecraftsoftware.com/products/bitcrusher/
Platform: Mac, PC

ACON DIGITAL MULTIPLY
Chorus effect

Digital Multiply is yet another good-looking freebie with simple-to-use controls and one that's nicely sectioned, so that you instantly get your head around the GUI. Multiply processes each voice with what Acon Digital describes as "a phase-randomising filter, so that unpleasant comb filter effects are avoided".

The result is that you get a more realistic emulation of several players, rather than the often more fake multiplier and pitch-shifting you might end up with in other plug-ins. The results are very good indeed, as is the onboard EQ.
W: acondigital.com/products/multiply
Platform: Mac, PC

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→ FREEWARE Utilities

Add-ons and mastering applications that, once used, you'll wonder how you managed without ...

PSP VINTAGEMETER
Analogue-style VU meter

The message this year with freeware, is quite definitely vintage. Play your vintage synth plug-in through your vintage effects, and now monitor the output on your vintage meter. While a free set of meters might not be too exciting, a) these are by *MT* favourites PSP and b) they're a tad more useful than you might imagine. The metering features in your DAW may not be the best or the most accurate, but Vintage Meter can have its VU level set from -20 to +3 or a wider -40 to +6 (or click a PPM pseudo-peak option), plus you can adjust sensitivity of the meters.
**W: pspaudioware.com/free_psp
_plug-ins**
Platform: Mac, PC

VOXENGO STEREO TOUCH
Mono-to-stereo processor

A simple mono-to-stereo plug-in would probably not have made this list, but Voxengo's uses the classic mid-side technique to create a more realistic stereo image using mid/side coding. So whereas you might think just by doubling and panning will get you stereo, this uses a technique used in mastering and precise EQ-ing to get you the stereo results. And the results are pretty darn good. We used it on traditionally mono tracks to see how it would cope, and it was neither too retrained nor too OTT. The presets help you get started and should be used as a platform to explore. Sounds far better than it looks.
W: voxengo.com/product/stereotouch
Platform: Mac, PC

LVC AUDIO LIMITED-Z
Easy-to-use limiter

We've included limiters in our utilities list as they're arguably less creative than in-your-face mix and sound design effects. This is one of the best out there, certainly in terms of ease of use, and is based on LVC's fully fledged Limited-MAX mastering limiter. You get metering, look-ahead brick-wall limiting, and several onboard algorithms to provide transparent limiting. Again, it's the interface that grabbed us, with its almost liquid action and dynamic algorithm graphics, you'll soon learn the ropes of limiting – it's very easy to get your head around.
**W: lvcaudio.com/plugins/limited-
z/#Download**
Platform: Mac, PC

AUDIO VITAMINS CONTRA FREE
Workflow plug-in

If you have a stack of similar outboard plug-ins that perform a same-ish but subtly different task, then Contra could be the plug-in that helps you stop the endless faffing that goes with the territory of multi-plug-in auditioning. You're probably used to setting up multiple plug-ins on a track and muting like a demon. Contra allows presets to be created that represent your favourite outboard – compressors for example – and how they might be good for a particular sound. Working on a bass sound? Load up your favourite compressors, set audio levels and easily audition them on the fly. Simple!
W: audiovitamins.com/contra-free
Platform: Mac, PC

BLUE CAT AUDIO FREQ ANALYST 2
Spectrum analyser

It's another free Blue Cat plug-in, and while these are adverts for bigger paid-for plugs, they still offer a tremendous range of features for the buck, or lack of it. This spectrum analyser lets you get to the heart of your sound by allowing you to monitor its spectral content in real time and in high definition, thanks to its 'unique smooth interpolation algorithms'. You get various view modes, including left and right channels, maximum and average plus Instant and Peak Modes. Controls include Transform and Envelope and you can adjust GUI transparency. Indeed, you wonder what the paid-for version can offer over it (a lot as it goes).
**W: bluecataudio.com/Products/
Product_FreqAnalyst**
Platform: Mac, PC

TB PRO AUDIO DPMETER II
Multichannel meter

Again, metering is important, and if your setup is multi-channel, then this freebie offers you a great way to keep tabs on your various signals. The meter includes RMS, EBU R 128 and TruePeak measurements and includes manual loudness matching (something V1 didn't have). Surround and multi-channel processing is tailored for with two to six RMS channels, 2.0 stereo, 4.0, 4.1 and 5.1 surround. The GUI is good – not the best here, but still a cut above many, and there's a hell of a lot crammed in there including several Modes, six RMS and Peak readings and seven Loudness parameters. Lots to get your teeth into for multi-channel metering action.
**W: tb-software.com/TBProAudio/
dpmeter2.html**
Platform: Mac, PC

→ **FREEWARE** Real instruments

The best free plug-ins for emulating real or acoustic instruments…

UVI WORKSTATION
Multitimbral instrument host

There are a couple of players that we simply have to include in every freeware roundup's 'real' section. Essentially, they are adverts for paid-for collections, but they're by big companies who tend to a) be good at making plug-ins and b) be generous with their demo sounds. So UVI's is first. The company makes great sound libraries hosted in this free player, but you also get a few free demo instruments like an electric piano, strings, drums, guitar and bass. With built-in effects and the option to run in standalone mode, there's enough here to warrant the download.
W: uvi.net
Platform: Mac, PC

KONTAKT PLAYER FREE
Multitimbral VI host

Another of the big gun's free players that we simply have to include in this roundup is Native Instruments' Kontakt Player. This is probably used more than any other piece of music software, as it hosts not only NI's wares but those of many other companies.

The free Player version will run Kontakt Factory Selection, which is a mighty 650MB free download and contains 13 instruments from NI's Band, six from World, 12 from Synth, 13 from Vintage and six lots of Urban Beats. That adds up to an impressive 50 instruments. You really can't afford not to have them…
W: native-instruments.com/en/ products/komplete
Platform: Mac, PC

BIGTICK TICKY CLAV
Hohner Clavinet emulator

One of the few single instruments we've brought over from last year, if only to highlight Big Tick's range of freeware plug-ins, which is now available if you register at its site and which includes this and Cheeze Machine, which is a great string instrument – 32-bit only, but well worth the download. Ticky Clav on the other hand, emulates a Hohner Clavinet, using a physical modelling synth engine that emulates the string vibration and the pickups specifically from the Clavinet Model C. The 'click' is the key click that was such a big part of the characterful sound of the original. There's also a built-in wah effect and selectable manual and auto-wah.
W: www.bigtickaudio.com
Platform: Mac, PC

VERSILIAN UPRIGHT PIANO Piano plug-in

By now, you'll have probably realised that most of our 'real' instrument plug-in developers have lots of freebies available, so with this particular list, while we're focusing on a particular plug-in from said developer, we're also introducing their ranges, too. And so it is with Versilian. The upright piano is a great little freebie – an emulation of the kind of upright piano you might have at home – and very good it is, too. You may also be interested in the free harp from the same company, or indeed a complete orchestra plug-in that features 14 instruments. We haven't tried them all, but the piano is great – try out the others if you have the drive space.
W: vis.versilstudios.net/ upright-1.html
Platform: Mac, PC

4FRONT R-PIANO
Electric-piano emulator

4Front has been doing freeware for donkey's years now and have a range of simple plug-ins, some so simple that they have absolutely no parameters to adjust – the standard electric piano, for example, just plays one sound. The Rhodes-based R-piano, however, has a lot to adjust and is all the better for it.

You get Dynamic and Drive sliders to enable you to get to the heart of the Rhodes sound, but there are also controls for Q, Release, Decay, Cutoff and Ambience, and an onboard reverb effect with its own pop-up parameters to adjust.

In short, there's a lot of variation to be had from one solitary piano type, along with preset locations to save your results. So, another simple but good-sounding plug-in.
W: yohng.com/software/rpiano.html
Platform: Mac, PC

ALAN VISTA CYMBALISTIC
Cymbal percussion

Yes, arguably this could have been included in the drums section, but it does actually lack drums, concentrating as it does on cymbals, and lots of them. They – a hi-hat, ride, four crashes and two Chinese cymbals – are sampled and mapped across eight channels and four stereo outputs.

There are useful volume, pan and release controls per channel and an overall Dynamic dial. If it sounds simple, it is, which is part of its charm (and indeed a lot of Alan's other VSTs – see the website for more). It is a very specific plug-in and at 190MB, quite a large download – but it does encourage you to play and experiment with a little top-end percussion, an oft-undervalued way of lifting a song.
W: alanvista.com/cymbalistic
Platform: Mac, PC

FREEWARE Guitar

The guitar gets the last freebie laugh, with five amp- and instrument-based plug-ins…

AMPLESOUND AGM LITE II
Guitar emulator

It's very much the 'lite' version of AmpleSound's Ample Guitar M, which is a Martin Guitar emulator. The full version is a mighty 6GB instrument, but this version lacks over 5GB of that content, some of the articulations and is 16-bit as opposed to 24-bit. However, it does give you a good flavour of the Martin and is a very playable plug-in, one of the best ways to see proper guitar emulation in action without paying for it. There are tab and effects options and a keyboard for playing it (we'll assume if you can play a guitar, you'll opt for the real thing, anyway). While it is free, we think you'll be sorely tempted to upgrade, which will set you back $169.
W: amplesound.net/en/pro-pd.asp?id=7
Platform: Mac, PC

VB-1
Virtual bass instrument

One of two guitar plug-ins that we've carried over from last year, VB-1 is one of the older plug-ins that Steinberg once sold and, along with the fantastic Model-E synth, is still available for download. As you might expect from the picture and the name, it emulates a proper bass guitar – not the easiest instrument to properly reproduce electronically. However, this makes a pretty good stab at it with four-voice polyphony, a damper, pickup position, pick position and wave-morph controls as well as a randomiser.
W: steinberg.net/en/support/ unsupported_products/vst_classics_ vol_1.html
Platform: Mac, PC

LEPOU AMP SIM SUITE
Guitar-amp simulators

This is a suite of five plug-ins – yes, we said this was a Top 50, so now it's a Top 55 – which are all amp simulators. There's no fuss, no bother, just download and boot up five great little plug-ins that you can feed your guitar audio through. Better still, experiment by feeding your synths through them for even wilder results…
W: lepouplugins.blogspot.co.uk
Platform: Mac, PC

IGNITE AMPS SUITE
Stompboxes to amp sims

Right at the end of our roundup, we're spoiling you with suites of freeware. Here's another. We've already included Ignite's EQ in our effects listing, but the developer's list of guitar effects is impressive enough to include all. We've highlighted the TS-999 overdrive stompbox but The Anvil is equally as impressive, as is the Emissary tube amp.
W: igniteamps.com
Platform: Mac, PC

NI GUITAR RIG PLAYER FREE Guitar processing suite

This version of NI's Guitar Rig is a free giveaway, expandable with the free Guitar Rig Factory selection. You get an amp and cab, distortion, modulation, reverb, delay, EQ and dynamic effects, all for free! Like NI's Kontakt Player, it's well worth checking out.
W: native-instruments.com
Platform: Mac, PC

Last year

Highlights of *MusicTech*'s 2015 freeware roundup include these beauties…

Synths
Angular Momentum Freehand (PC) • EVM Synths UltraSonique (PC) • Novaflash Uniwave (PC) • HG Fortune Alien Space Weaver (PC) • LinPlug FreeAlpha (Mac, PC) • Solcito Musica SuperTron (PC) • Steinberg Model–E (Mac, PC) • TAL Software Elek7ro (Mac, PC) • TubeOhm Alpha-Ray 4Free (PC) • U-He Zebralette (Mac, PC) • Volt Kitchen Arppe 2600 (PC) • Wollo Drone (PC)
Drums
Cubix (PC) • Hahaha DS-01 (Mac, PC) • TS-808 (PC) • MiniSpillage (Mac) • DSK SynthDrums (PC) • Teragon Audio KickMaker (Mac)
Effects
A1 Audio A1 TriggerGate (Mac, PC) • A1 Stereo Control (Mac, PC) • BaxterEQ (PC) • Acon Digital Multiply (Mac, PC) • Camel Audio CamelCrusher (Mac, PC) • Ferric TDS (PC) • Flux Bittersweet 3 (Mac, PC) • Klanghelm IVGI (Mac, PC) • LKJB Luftikus (Mac, PC) • LVC Audio ClipShifter 2 (Mac, PC) • MIDI FX Freeze (Mac) • Minimal System Instruments Filter Bank (Mac, PC) • Sinevibes Atom (iOS) • Sinevibes Zap (Mac) • TAL Chorus (Mac, PC) • TDR Kotelnikov (Mac, PC) • Vladg Sound Limiter No. 6 (Mac, PC) • Voxengo Stereo Touch (Mac, PC)
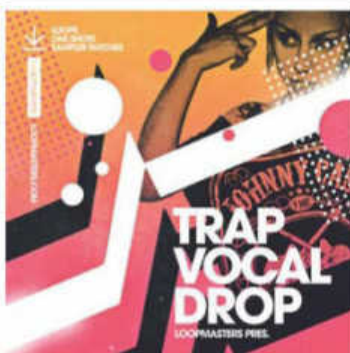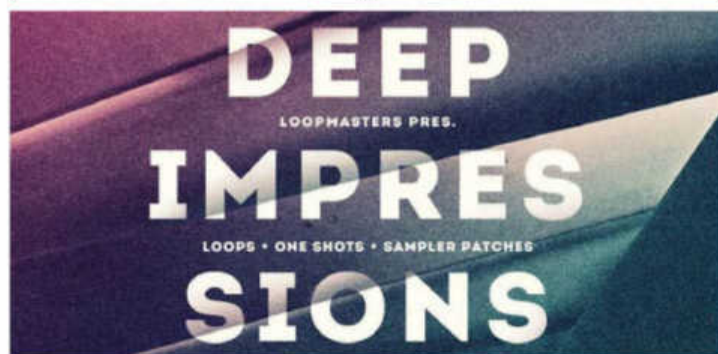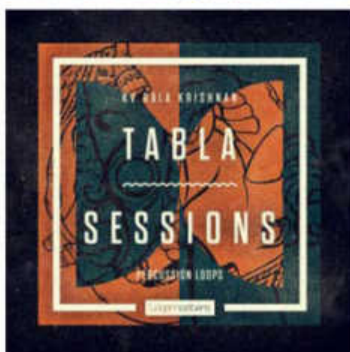**Real Instruments**
AZR3 (PC) • Combo Model F (Mac, PC) • • NI Kontakt Player (Mac, PC) • UVI Workstation (Mac, PC)
Guitar
Keolab Spicy Guitar (Mac, PC) • SimulAnalog (PC) • Voxengo Tube Amp (Mac, PC)

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A US Recording

MusicTech visits EastWest Studios, arguably Los Angeles' most iconic recording facility, in which everyone from Frank Sinatra to Michael Jackson has recorded, and finds a studio at home with both its history and future…

t would be easy of us – and somewhat lazy – to compare LA's EastWest Studios to London's Abbey Road. Both have been at the core of some of the most iconic recordings in music history and both have had to diversify into film soundtracks and other events, to survive in the harsher climate of 21st-century recording. EastWest's history, though, is somewhat more complicated than that of its UK counterpart.

The studio as such began in the 1950s, when Bill Putnam wanted to set up a studio in LA to rival those on the East Coast of the US. With Frank Sinatra in tow, the studio quickly gained a huge reputation and has now attracted every big name in US recording history, including Elvis, Bing Crosby, Michael Jackson and Madonna. In the 1980s, Allen Sides bought out Bill Putnam and both buildings

within the complex became known as Ocean Way Recording Studios, itself now a huge name in recording history.

In the 1990s, the two building were split, with the large Studio 1 facility becoming Cello Studios (after being sold to Rick Adams in 1999), while the building opposite retained the Ocean Way name.

Cello Studios became known for its rockier output with Rage Against the Machine, System Of A Down, Muse, blink-182 and The Red Hot Chili Peppers all coming through the doors.

However, in 2005, Cello Studios was closed and due for demolition before EastWest owner Doug Rogers came in to rescue it, and it sounds like this was just in the nick of time…

"We came in 2006," says the studio's Blake Rogers, our guide for the day. "That's when we took

Above: Studio 1's live room has seen everyone from Sinatra to Elvis perform
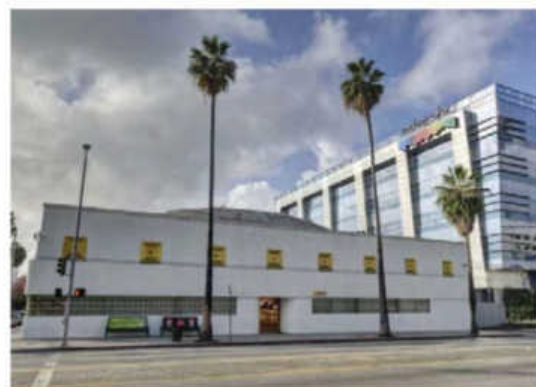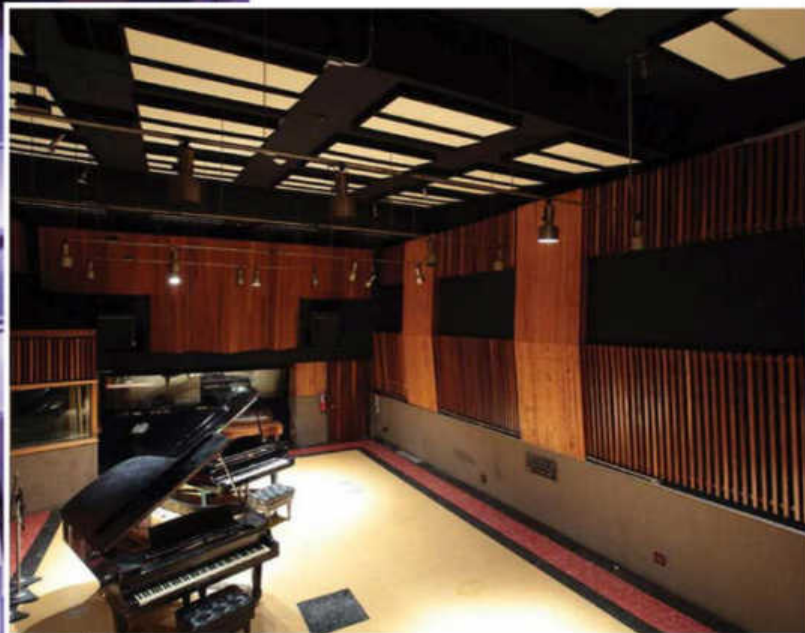
Icon

over Cello. It had already been closed for a year and had unfortunately suffered terrible water damage – not in the studios themselves, as they're freestanding structures inside the main building – but in the lobby and hallways. So it was all just left for a year… it was very sad. We were the only people who showed up at the auction. If we hadn't bought the place, it was going to be one of two things: a parking lot or a Baby Gap. All that history would have gone and it seemed like it didn't matter, as no one except us wanted to save this wreck.

"When we took it over, the initial intention was that we would record all of our libraries in these fantastic rooms and when we weren't recording them, we would rent the rooms out like regular recording studios, so we kind of had the best of both worlds. The studio wasn't cheap to buy [in the

Above right: One of the pianos in Studio 2 is a Yamaha, as played by Elton John

Right: EastWest Studios from the outside. We parked next to it on the left…

auction] but cheaper than you might imagine, which allowed us to spend a lot more money fixing it up, and when we took it over, we knew we'd need to spend millions to restore it exactly the way it was.

"We put in a new electricity setup in the building itself, completely new AC, all the utilities updated for the next century. We brought in Philippe Starck to redo the lobby, the artist lounges etc, but he was determined to keep the recording rooms exactly the way they were. He was a big fan and this is the only studio he's done. He was like: 'You've got five jewels here', meaning the recording rooms, 'but you've got a terrible jewel box', because everything was horrible. So he wanted to create that atmosphere in the lobby where it's kind of old Hollywood, a rock 'n' roll palace, and different things representing different things in music. That's what's different about us: where we do rock sessions, orchestral sessions, rap, EDM, hip-hop, jazz – we do everything and our staff and gear are well known for that."

As far as the five jewels of the studios go, we ask, did you recreate the original sound and setups? "Creating rooms as they were is such an important thing – you'd be surprised that even the Abbey Road guys don't seem to have grasped that if they were to use the original gear used in the 60s, new bands would love to record in that environment. So we still have a lot of the gear and Bill Putnam made much of →

it here originally. Some was made over the road and then brought back here."

STUDIO BY STUDIO

We start out in the main studio at EastWest, certainly the biggest, too… "You're standing in Studio 1 right now – one of the most iconic recording rooms in the world. The building itself goes back to the 1930s. It was originally constructed as a grocery market and in the 1940s, it was turned into Madame Zucca's Casino with lots of live shows and not-so-legal gambling. In the 1950s, it was turned into a radio broadcast centre and in the late 50s, Bill Putnam started Universal Audio in Chicago – which was a big, not-only-recording studio, but also where he made outboard gear still in existence today.

"The recording scene at this time was centred in Chicago, Detroit and New York City and the scene in LA was very much in its infant stage. Bill was Frank Sinatra's personal engineer and he went through a

bad divorce, but Frank called him up and said 'come and move to the West Coast', because he wanted to start a recording studio. 'You'd be great at it,' he said to Bill. 'Everyone's here and it'd be genius.'

"So Bill moved here and he first bought what is the 6050 building across the street – United Recorders – and then bought this one, Western Recorders. When he had control of both buildings they were collectively known as United Western Recorders and Sinatra recorded a lot of stuff over there but also here – especially the big stuff, in this room, where he recorded *That's Life*, *The Lady Is A Tramp*, *New York New York* and *Something Stupid*, the duet with his daughter, Nancy.

"So you have the Sinatra history, but also Bing Crosby and then Elvis did his comeback Christmas Special here – the really iconic one in the black suit, which really revitalised his career at the time.

"Everything is as it was. Only the light in here's different – the walls turn different colours"

Anyone and everyone came through this studio at the time: Barbara Streisand did *The Way We Were* here and Peggy Lee did *Is That All There Is?*"

And that's just the start of it. Blake goes on to detail just some of the other iconic recordings that have been made at the studio: tracks for *Thriller*, Madonna's *Like A Prayer*, *Bat Out Of Hell*, Whitney Houston's *The Bodyguard,* right up to date to both
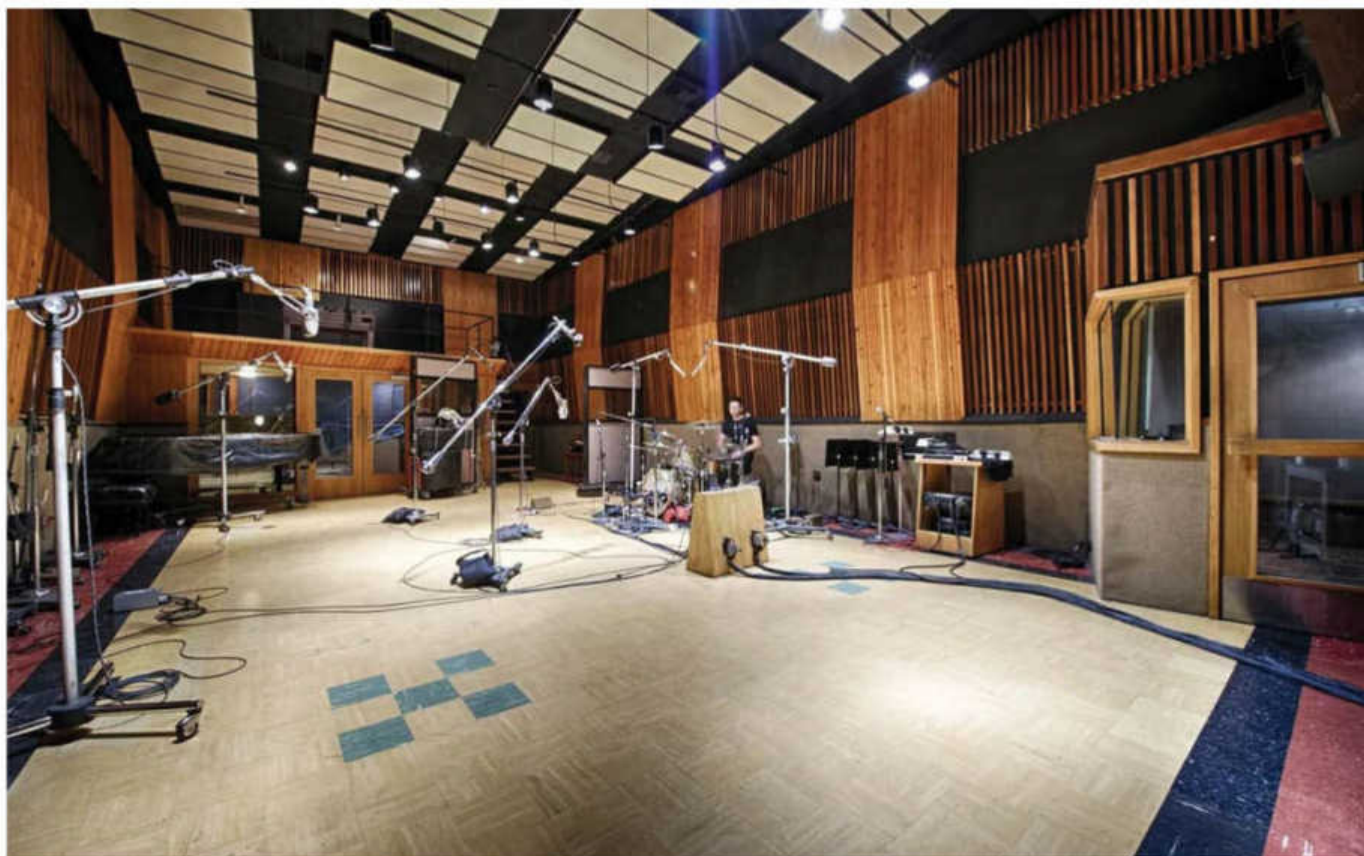
Justins – Timberlake and Bieber – Michael Bublé and, of course, the recordings for many EastWest sample libraries. And then there's the film soundtracks, including everything from the *Theme From Mission Impossible*, through the *Godfather* trilogy and *Rocky* series.

Like we said, this is the Abbey Road of America… "So many iconic soundtracks have come out of this room and all the others, that we've actually kept them preserved as they were in the 1960s. So everything you see is as it was. The only thing that is different is the light in here – when they're on, the walls turn all different colours and things like that."

Like all studios these days, EastWest has to rely on other types of bookings, aside from recordings, to tick over, so has now become a venue for video shoots, live showcases, corporate events, DJ events… "When you have an iconic place, you do attract recording sessions a lot of the time, but we also host a lot of corporate events. Recording studios nowadays need to be pretty flexible. We also work with shows like *The Voice* and *American Idol*, so you'll see here there's a large drop-down screen. It's the screen they do a lot to picture with and over there is the original projector. We also have flatscreen TVs, which can travel around the room.

As for the gear, as you might expect, it doesn't get much better than what we find… "We have a

Right: Studio 3 control room
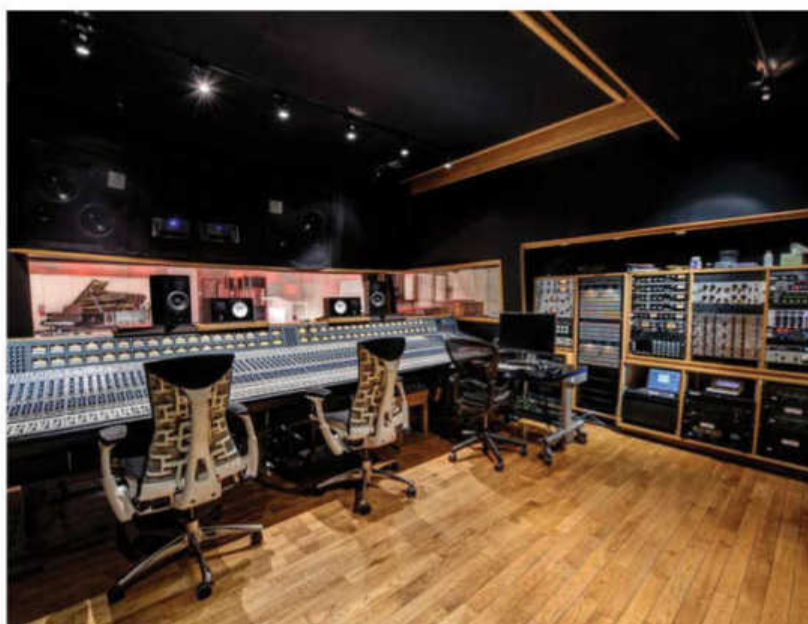
fantastic Bechstein piano – people come from all over the world just to record on that piano, it has a really great sound and this is just a really big, great fantastic room with a lot of history in it to record it.

"This is a Neve 8078 board – it was originally two Neve consoles put together for Michael Jackson's *Dangerous* album – 80 channels, and it was a beast of a console. It's the perfect kind of console for a huge room like studio one – it's good for precision and big recording rooms to hear what you're getting. We do offer tape at the studio. It's becoming more rare, as prices are going up for tape and so on, so it's more boutique.

Top: Studio 3's live room might be small, but the Beach Boys recorded their classics here

Above: The Studio 1 control room with the Neve desk. Even the chairs are impressive…

"But it's still an option if artists, especially those with the money, want that warmth tape offers. You get the same thing with these analogue consoles. We've two Neves, a Trident A-Range and SSL, but the Neves and Trident add that bit of colour. That is the reason why they're magic – Rupert Neve is a genius. The SSL more or less gives you what you need."

We leave Studio 1 and walk past several plush artist lounges, plus a tech-support area. The studio still retains some of the historical features from its varied past, including meat-locker doors from its time as a grocery store: "Bill Putnam always wanted to keep as much as possible authentic to the old days," Blake explains.

On to Studio 2, and we find a studio behind a lot more of recent American pop history… "It has its own fantastic unique story," says Blake. "Back in the day, this room was rented a lot by Warner Bros., so a lot of old TV was done in here, including many famous TV themes from shows like *I Dream Of Genie*, *The Beverly Hillbillies* and *Hawaii Five-0*."

Not to say that there wasn't the odd musical legend recording in here, too…

"Besides those TV shows, you also had The Righteous Brothers, Phil Spector and Ike & Tina Turner did *River Deep Mountain High*. In around the mid-70s, people started taking the drums out the drum booth over here and set them in this area, which is a sweet spot for drums. That's when this room's history as a rock room came into being, so it's known as the rock room today – and it corresponded with the changing landscape of the music at the time. By the early 80s, drums were much bigger and boomier in tracks. In the 80s,

Above: Studio 5 has the SSL desk

you had a lot of Stevie Nicks, Tom Petty And The Heartbreakers and even early REM in here. In the 90s, blink-182, Weezer, System Of A Down, Rage Against The Machine and all the Chilis stuff was in here. Rick Rubin [producer] really likes this room so always comes with them when he works with them. Nowadays, a lot of Muse, Slayer, and Metallica is

done here and a lot of Latin artists like Sérgio Mendes from Brazil."

Hiding in a booth there's a Yamaha piano, which we ask about. Needless to say, it's witnessed some high-profile use… "It's very different to the Bechstein in that it's a much brighter, honky-tonk piano. Elton John did *Songs From The West Coast* on this piano.

"This is the control room for Studio 2 – again, ATC monitors and again, a Neve desk. This is a Neve 8028 console; it's even older than the one in Studio 1 and originally from RCA Studios, which is now at the site of an LA film school. David Bowie mixed Iggy Pop's *Raw Power* on this desk – a lot of people don't know he mixed that album. This board and the room is the reason why so many rock bands come here over and over again – you have to be a really bad engineer to get a bad sound of it!

"There's also a great Fairchild, for example, these are very expensive but great for vocal tunes… We have original plate rooms in here. Bill Putnam was basically the inventor of the echo chamber and reverberation: we have seven hiding around the building in nooks and crannies!"

We then enter a smaller studio area, Studio 3. And if you think that the smaller the studio, the smaller the artist, you'd be wrong…

"This is a really small room, but this room is very much beloved as Studio 3 is the Beach Boys room.   →

Above: The Bechstein piano in Studio 1

Right: Studio 2 also has a Neve that was used to record all sorts of classic US TV shows. Bowie mixed on it, too…

All of their stuff was done in here back in the day: *God Only Knows*, *Surfin' USA* and *California Girls*. The production crew that filmed the recent Brian Wilson movie *Love & Mercy* actually came in last year to redo all the Beach Boys' sessions, recreating everything, right down to what they were wearing at the time…

"The first thing you'll notice is that it's a very small room. The Beach Boys were originally with Capital, but they didn't like recording there because it was all a bit corporate. Over here could be a lot more independent and it was a little cheaper, so they would be in here for much longer (back then, studio time and musicians were much more expensive). So being here for longer hours gave them more time to experiment more.

"In the 1960s, this room was exploding. We had The Mamas And The Papas, the Beach Boys, Scott McKenzie did *San Francisco*. In the 70s, Dolly Parton did *9 To 5*; in the 1980s, Blondie did *Rapture* and *The Tide Is High* and in the 90s, Natalie Cole did *Unforgettable*. A lot of people who worked in this room, and others like Lou Adler for instance, went on to organise the Monterey music festival. They chose this room because it was quite small, a very well designed room and a really unique sound is created here."

Finally, we go to Studio 3's control room. It's the last studio on our tour (we only briefly touch upon the SSL-centric Studio 5), but we've saved the best until last… if you're a Bowie or Beatles fan.

"Here, we have a Trident A-Range desk," says Blake, but you'll know by now that this isn't just any desk. "There's only about 13 of these left, five in really good condition and I'd put this one up as being the best condition. This was at Trident Studios in London and so much stuff was done on it at the time, including David Bowie's *Hunky Dory*, and The Beatles' 'White Album' which were recorded on it, and Queen's *A Night At The Opera* was mixed on it – a lot of great stuff like that.

"In the 1980s, it was sold to Cherokee Studios and David Bowie also worked on it with *Station To Station*. In 2000, Cherokee closed down and it went to Massachusetts, where Aerosmith recorded on it for a while, but unfortunately, it fell into a state of disrepair.
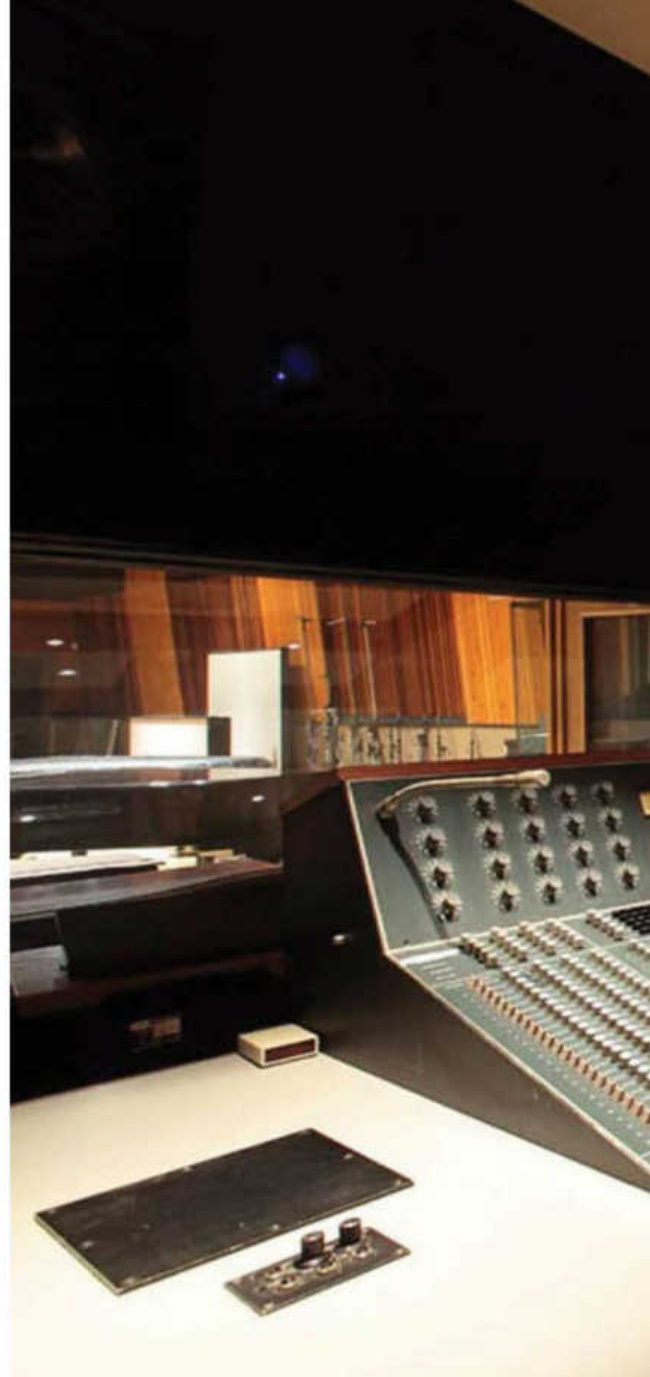
"So when we bought the console in 2009, we shipped it back and spent a year recapping it,

"We have a **Trident A-Range desk** which was used for *Hunky Dory* and '**The White Album**'"

putting all new flying faders in it, fixing all the internal wiring – a big work of love and it's just in the best condition."

So how does the studio work in the present day, then, we ask… Did EastWest's original plan to use it primarily to record its own collections pan out?

"That's hard to qualify. In terms of us recording as a software company, we're only recording at certain points of the year in different rooms, as when we do a library we try to get all the forces to

be here in for a couple of weeks. When we do an orchestral library, we only have those musicians for a certain amount of time. So, the rest of the year, it has to survive on its own as a recording company.

"The thing about it is that these rooms have incredible history that lends legitimacy to the sounds that we get in the libraries and we get to meet so many people, the world's best artists, producers, musicians, engineers, that we have made so many relationships having this studio. That makes amazing connections for us and when you have people who keep coming in, we might make other libraries with them, for example.

"And we've gotten something like 73 Grammy nominations since EastWest owned it – supposedly, this place has had more Grammy nominations than any other recording studio, including Abbey Road. That's not wins, but still a win in itself.

"So people continue to come and bring that history and legacy to our product. We see the business as a business intertwined, not separate parts. We are very passionate people, passionate about music, I think that shows in our libraries, too, that we don't just go and record an instrument.

We know we have reference points in our heads to sound, for example, like that Queen album in '77. We're music lovers and having the recording studio here and having that organic creative energy is important for us."

What about the pressure from the rise of better-specified home studios – does EastWest suffer from the home-recording revolution?

"Nowadays, there's still going to be a certain level of artist who has to record in a recording studio. Maybe they've done the home studio 'thing' and hated it – because there's no collaborative nature in a home studio for these artists and that's the important thing from back in the day, which still happens here.

"When artists are recording in the studios, they meet each other in the hallway and think, 'Hey, why don't you come and record a set?' etc. We provide Happy Hour events to have a drink with each other and mingle – a lot of work comes from that because of the energy created.

"They have a good time, associate good memories – the things you cannot do at home. It's an indescribable vibe." **MT**

HAKEN

The English rock band Haken have just released their fourth album, *Affinity*. *MusicTech* caught up with keyboardist and producer Diego Tejeida to talk about rock recording and how technology can deliver a perfect progressive sound…

Haken have been around for the best part of a decade and have released four albums on Sensory Records, Laser's Edge and Inside Out. The band is very much part of the recent new wave of progressive rock and utilises all sorts of studio technology to produce an intricate crossover sound on their albums. They've successfully translated this sound to the road, too, playing many festivals across Europe, so we caught up with the band's keyboard player and tech guru Diego Tejeida to talk gear and the 'melting pot' that is the Haken sound…

MusicTech: What do you do in Haken?

Diego Tejeida: I'm a keyboardist and sound designer originally from Mexico City. I started playing piano when I was five, learnt some classical repertoire and the basics of the instrument back then. By my mid-teens, I discovered the synthesisers and the world of sound design, music production and synthesis – that's when I decided to take music seriously. In 2006, when I was 18, I moved to London to study Contemporary Music and subsequently Sound Design and Sound Engineering. Through the London years, I worked as a session musician, studio engineer and live sound engineer making contacts and meeting people that would eventually lead to meeting the Haken guys in 2008.

MT: Describe Haken's sound?

DT: Haken is a modern progressive rock/metal band. We have a 'melting pot mentality' whereby we throw in many (often contradictory) influences in our music. These can veer from classical music to jazz, from simple acoustic to electronic music, from metal to synth pop and so on.

As a keyboardist and sound designer in the band, I like to think I bring a wide, impressionistic approach. I'm a big fan of creating scaled sonic universes, especially when it comes to ambient, sound-designed sections. You can get as detailed as you want; have as many elements living in this imaginary space until the sum of them paints the picture, have background layers that give an illusion of moving space with occasional or accidental elements. It includes things that might seem random at first glance, but help give an organic sensation.

MT: It sounds like you're bringing in part of the traditional producer role into your work with the band. Is that true, or do you also work with a separate producer?

DT: I guess the concept varies from person to person. The textbook definition of a producer would be the person that sees the bigger picture of all aspects of a record and takes part in directing all of them, including the musical arrangements and the

"What's the point of being the reincarnation of Bach if you're only playing in your bedroom?"

function of all the instruments, vocal melodies, vocal harmonies and so on. They also deal with the sonic and technical aspects – why, for example, you'd choose a 70s-sounding kit for a certain tune and a modern-sounding kit for another one.

In my experience, it seems that nowadays, musicians act as their own producers. Mixing engineers work as producers, too: even a recording engineer has to assume the role of a producer from time to time. It seems music production is an aspect that cannot be detached from the rest of the other creative processes any more.

Haken (l to r): Diego Tejeida (keys), Charles Griffiths (guitar), Ross Jennings (vocals), Richard Henshall (guitar, keys), Conner Green (bass) and Raymond Hearne (drums)

MT: It seems like you and the band have managed to carve out quite a niche without the support of a major record company. What advice would you give others to do this?

DT: One of the most important elements of the music industry is contacts and connections. Of course, talent, knowledge and skills are absolutely crucial, but what's the point of being the reincarnation of Bach if you're only playing in your bedroom?

MT: And you've already touched upon the fact that you self-produce, so what tips would you have for others on this?

DT: The mentality of 'it's okay, we'll fix it in the mix' is the best recipe for disaster. Always having a sonic aim in mind and getting a source recording as close as possible to that mental aim works better. This will always have much better results in the end than trying to 'fix' it later.

THE GEAR

MT: Tell us a little about your studio…

DT: It is called The Bunker and is my very modest home studio. I mainly use it for keyboard production and sound design. Occasionally, I do recordings and audio production for vocalists, bands, film or media.

I put it together about three years ago when I had to move back from London to Mexico City and needed a decent place to work. Most of the sound treatment is made of recycled material; the wooden sound diffusers were made of recycled closet doors, for instance.

It has a small live room, big enough to fit a whole drum kit. Normally, I have my acoustic piano in there and have all sorts of weird instruments lying around, including ethnic Mayan percussive instruments, a couple of mandolins, didgeridoos, toy pianos, guitars etc.

As you can imagine, I'm mainly surrounded by the keyboards and rack units I've been collecting over the years. My most recent acquisition is a Seaboard RISE 49 by ROLI. My audio interface is a reliable Mackie Onyx1620i and have a couple of dbx266 compressor/expanders. At the centre is a MacBook Pro running Logic and I also have a pair of

→ PreSonus E8 monitors that I'm currently considering upgrading.

MT: What are your favourite sound-generating studio tools?
DT: My philosophy is to add the right spice at the right time – everything is about context and concept! So, honestly? Anything can be used in a creative way or modified to become that 'right spice at the right time'. For instance, during the recording of Haken's new album, *Affinity*, I made an interesting pad texture out of two didgeridoos – one is tuned to E0 and the other one is an A#1. I recorded both, tuned them and sampled them into Logic's EXS24 sampler and extended the keyboard range, added some FX magic and there you have it – a very interesting, polyphonic, harmonically rich pad out of two didgeridoos!

MT: What outboard gear do you use?
DT: Distortion, amp designers and saturators. They are essential tools to add character to sounds. Some of my favourites are Waves GTR Amp, Brainworx bx_saturator, Audio Damage's Kombinat and everything in the PSP catalogue.

I also use delay-based effects like choruses, doublers, flangers, delays and so on. They're great and very powerful, as they can act as subtle stereo wideners to really destroy a sound if used intensively. Some of my favourites are The Lexicon Suite, Audio Damage Liquid, Expert Sleepers Meringue and Logic's Tape Delay.

Left: The usual Haken picnic standoff, with no one willing to admit they've forgotten to bring the hamper

Below: Studio 1. You can tell Diego is a keyboard player as some classics sit alongside modern keys. There's a healthy smattering of laptop-production gear, too…

MT: What is on your wishlist, studio-gear wise?
DT: In my uni days, I got used to tracking vocals with an Avalon VT-737sp, as that what they had in the studio and I really loved the sound of that. Then maybe a Steinway Grand, Hammond C3 and Mellotron.

MT: What would you like to see developed in terms of studio technology?
DT: An improvement to software user interfaces. I know there's some multi-touch screen surfaces to control your DAW out there and they're great. I'm

"Ideally, we'd have the organic interaction of analogue and the precision and flexibility of digital"

very excited to see what else the future will bring to enhance the user-software interaction. I think the main reason why people prefer the experience of the analogue world is because it's much more intuitive and organic. In an ideal world, we would have the organic interaction of the analogue world with the precision and flexibility of the digital world.

MT: How does a Haken track come into being?
DT: Specifically when writing with Haken, most of the time, the first thing that comes out is the music in a very basic form. The most important point is the arrangement and intention of the tune. Once the backbone is sound and interesting enough, we build on top of it, orchestrating, arranging, layering etc. Usually lyrics come last. When it comes to me recording the parts on a project, I normally think first in terms of sounds. I spend quite a bit of time programming the sound I have in my mind and the actual musical line is what comes last.

MT: Plug the latest album… now!
DT: *Affinity is* our latest album and our fourth studio album. It explores and combines many contrasting influences while keeping the Progressive Rock flag flying high. The most notorious influence on *Affinity* is 80s synth pop-rock. This is an era that often gets overlooked under the assumption it was not the brightest decade for music. However, there's plenty of truly amazing music that occurred over that decade; Vince DiCola and all of his soundtrack catalogue, Toto's *IV*, Van Halen's *1984*, just to mention a few. Nevertheless, there are many more influences in *Affinity*; post rock, downtempo, trip hop, ambient, orchestral, EDM, psychedelic… *Affinity* is our most collaborative album yet. We wanted to explore new dimensions by having each member contribute initial ideas from scratch. Lyrically, it touches on some social psychology grounds and raises questions about our often irrational human behaviour and human interaction.

Haken's fourth album, *Affinity*, is out now on Inside Out. More info: www.hakenmusic.com MT

Technique Logic In Depth

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Stem mixing in Logic

Stems can transform the way you mix, and can be a versatile means of archiving and delivering your music output. **Mark Cousins** takes a closer look…

Like many buzzwords in the audio industry, the term 'stems' can mean different things to different people. For some audio engineers, stems are about mixing – a means of strategically combining groups of sounds to then apply compression as a form of glue. For other engineers, especially those working in the film industry, stems are a means of archiving and delivering music, offering greater flexibilities for changes further down the production process. Going further still, many mastering engineers suggest stems as being a more suitable means of mastering, rather than the restricted two-channel format of a stereo mix.

Stem cell
Whatever your reasons for using stems, it's clear that there are a variety of ways the process can dictate or influence

On the disc

DVD ROM

Accompanying project file included on the DVD

Stems allow you to **recreate the stereo mix** and subsequent users **can then tweak it**…

your workflow. On a basic level, you could choose to bounce the mix multiple times, each time muting and un-muting the components to produce a series of stems grouped by instrument type. If done correctly, the stems allow you to recreate the complete stereo mix with all the stem files aligned at the same time point and all faders set to 0dB. In theory, subsequent users – like a mastering engineer or a film's dubbing mixer – can then tweak the mix (maybe lifting the vocal, or dropping the level of the drums) without a complete mix recall.

If you don't produce a lot of music and have plenty of time on your hands, then the manual approach to stem creation may well be the best solution. If, however, you need to produce stems on a more regular basis, or indeed, you want to explore different ways of mixing, archiving and delivering your music, then a more automated means of

working with stems can be a better solution. By embedding stems directly into your workflow, you'll be able to produce both stereo and stem-based mixes at a moment's notice, as well as looking at the sonic possibilities of mixing in a more segmented and incremental fashion.

Logical stems
When it comes to a stem-based workflow in Logic Pro X, there are several key points to consider, and indeed, it's only since the release of 10.2.2 that Logic offered a true end-to-end solution. Firstly, you'll need to consider how you want to divide and organise your mix, balancing too many stems against too few. As a start, consider the principle instrument groups – like drums, guitars, keys and vocals – which might need further separation to split off key parts of the track, like lead vocals, or bass, as a separate stem.

For the task of separating the stems, begin by reordering your tracks, followed by colour coding and the creation of a new Track Stack for each required stem. Make sure you pick a summing stack so that you end up with a separate aux-bus fader for each stem. At this stage, you should find the mix easier to navigate, especially if you remember the Alt modifier, which allows you to expand or close all the stems in one move.

Stem processing
For the application of effects, you need to remember to stay within the confines of the stem.

CUSTOM STEM MIXER

If you've got space on your monitor, consider opening a second mixer window – Window > Open Mixer. This second mixer can be used solely to display the stem masters, so they can be muted, solo'd or rebalanced at any point. To slim the mixer down, deactivate the Audio and Inst selection from the top right-hand corner of the window, leaving just the aux channels (being used as the stem masters) and the main output faders. Consider using the local menu option View > Channel Strip Components to remove anything superfluous from the channel strip, making the mixer even clearer and focused on its specific task.

MT Step-by-Step | Stem mixing

01 Working from the project included on the DVD, order the tracks so that they broadly conform with the stems you want to construct. In this case, we're creating stems for wind, brass, percussion, high strings and low strings.

02 For clarity, it's worth using colour coding. Use View > Show Colors and colour code each of the channel's strips on a stem-by-stem basis. Use the local-menu option Functions > Color Regions by Track Color to change the regions accordingly.
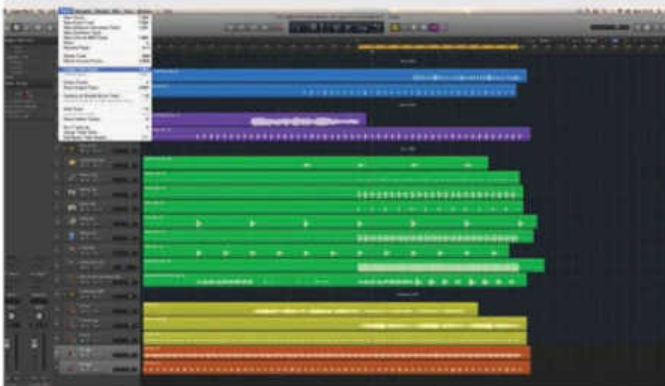

03 Select the tracks you want to stem and then use the menu option Track > Create Track Stack. Ensure you pick the Summing option, so that a corresponding aux bus is created. Name the aux fader accordingly, arguably with an _STM suffix.
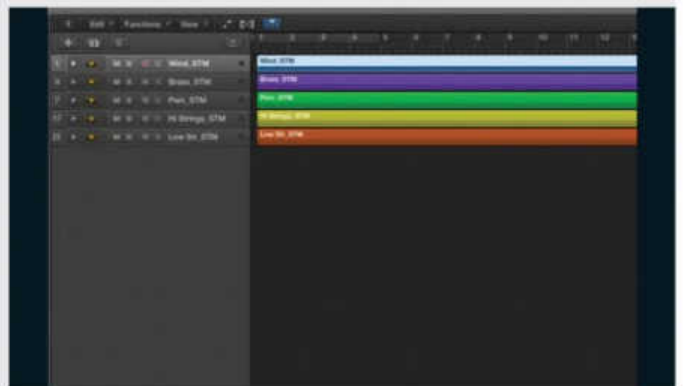
04 A handy way of moving from the micro to macro level of your mix is to use the Alt key modifier as you click on a track stack. This lets you quickly move from stem-level modifications to the individual tracks in the mix.

05 Send effects like reverb and delay should be kept within the stem, so that no other signals outside of the stem share the same reverb. In our example, try applying some reverb to sounds in the percussion stem.
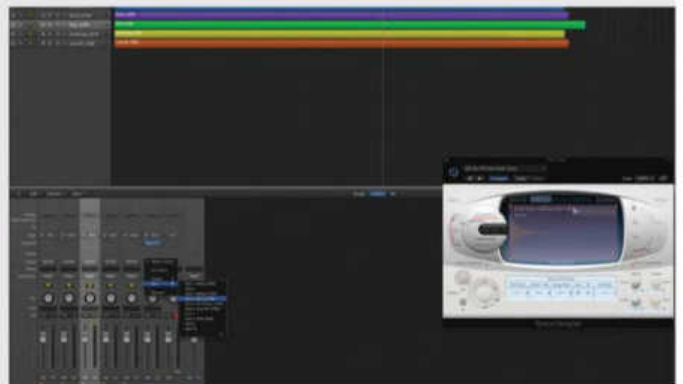
06 When it comes to the reverb's aux fader, you have a choice of leaving it 'floating' on the top level of the mix, or placing it inside the stem folder. Either way, it's essential that the outputs are routed to the same stem bus.

So, rather than having a single reverb for the whole mix routed to the stereo outputs, you'll need an individual reverb instance for each stem, itself routed to the corresponding stem bus. Once you've created the reverb for the stem, you can either choose to pack the reverb into the same Track Stack (keeping a cleaner 'top level' of your mix) or keep the reverbs and delays running free from the folder. In that case, ensure you route the output of the reverb so that it uses the corresponding stem bus.

Treat the stem bus faders much the same as your main stereo output channel. A purist approach, for example, might keep the stem busses at their default 0dB setting and devoid of any form of plug-in processing (this might be the case if you're simply stemming an existing finished mix). At the other end, you could consider using the stem busses for macro levelling across instrument groups, as well as potentially adding 'bus sweetening' effects like EQ and compression. As with a stereo master, even if you

decide to apply these effects, be wary of using an approach that's too heavy handed.

Special delivery

Having created your stemmed stereo mix, now comes the task of rendering the final stems ready for delivery. Ideally, what we want is a means of exporting the mix in one pass, but rather than creating a single stereo file (as we would if we used the bounce feature), we need the mix rendered as

a series of files, each of which represents the exact state of the stem busses (complete with level adjustments and additional plug-in processing).

Rather than using the bounce feature, therefore, you want to use Logic Pro X's Track Export feature: which, since version 10.2.2, lets you export a series of selected tracks (alongside exporting all tracks or a single track). By selecting just the stem busses you can therefore export only the stems into your project's Bounces folder. In the

MT Step-by-Step Stem mixing
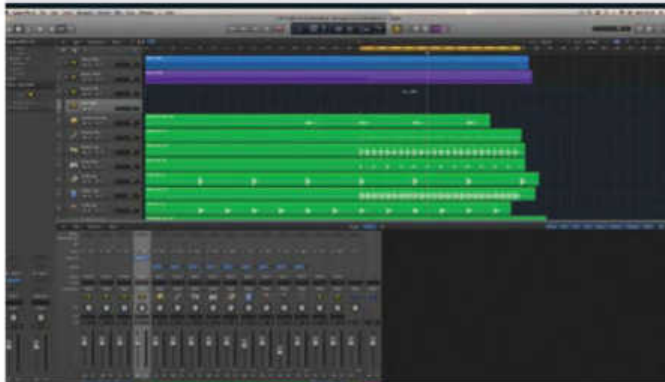
07 To put the reverb's aux fader into the stem, you'll first need to create an accompanying arrangement track – Options > Create Tracks for Selected Channel Strips. Once created, the aux fader can be dragged into the stem on the arrange area.

08 As with reverb and delay, any sounds that you want to compress together have to all reside in the same stem. With the percussion stem, for example, we can route some low percussion through to a bus, which we then compress.
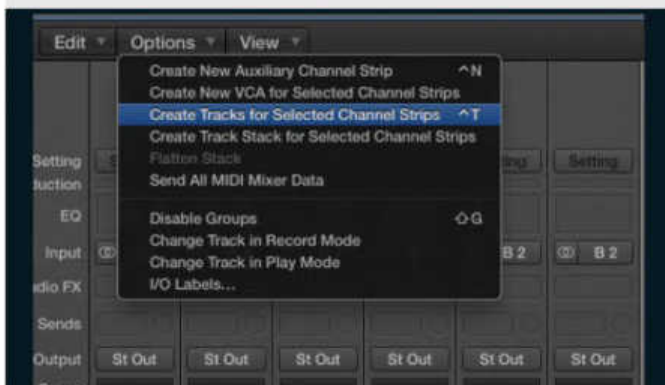
09 Keep the compression bus floating at the top level of the mix (remembering to route its output to the corresponding bus), or using the Options > Create Tracks for Selected Channel Strips to place it in the folder.

10 If you intend to keep the stem faders at unity, you might need to do some level control using a fader group. We're setting a group for the percussion stem, only grouping instrument channels that feed the stem directly.

11 Treat the stem fader like the main output fader in Logic. A purist will leave it at unity, but you could choose to apply a small amount of 'stem glue' using a low-ratio compressor, yielding at 2 to 3dB of gain reduction.

12 Along with the compression, you can also apply some stem-sweetening EQ. Approach the EQ as if you're mastering – in this case, applying some bass roll-off, following with a broad mid-frequency dip and air lift.

→ accompanying dialogue box, uncheck the option to bypass plug-ins so that any compression or equalisation you've applied is carried through into the bounced stems.

The final caveat with the process involves any levelling you might have done across the stem faders. By default, Logic exports a track pre any form of fader adjustment, which makes most sense if you're using the export function to move over to mixing on another DAW. By adding automation into the track lane, even just a single node at

the start of the track, you can make use of the Include Volume/Pan Automation option, so that the export is made post-fade. **MT**

This tutorial is endorsed by Point Blank Music School, which specialises in courses on production, sound engineering, the music business, singing, radio production, DJ skills and film production, all run by top British music producers and media professionals, with regular visits from legends in music and media. For more information, go to www.pointblanklondon.com

MT Step-by-Step | Stem mixing

13 You can leave the stem faders at unity, but should you wish to rebalance the mix, you can use the stem faders as a form of macro control. This is especially important for large mixes, where hundreds of single faders can become unwieldy.

14 If you do adjust the stem-fader levels, it's important that you write the static-fader level in as an automation node, irrespective of whether the levels changes throughout the track. If the faders are at unity, skip this step.
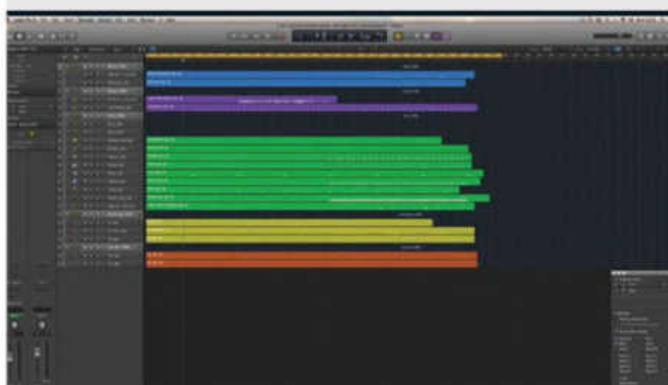
15 To print the stems, you'll need to use Logic Pro X's Track Export feature rather than the Bounce button. Start by expanding all the stems, but then only select the stem master faders in the track list.
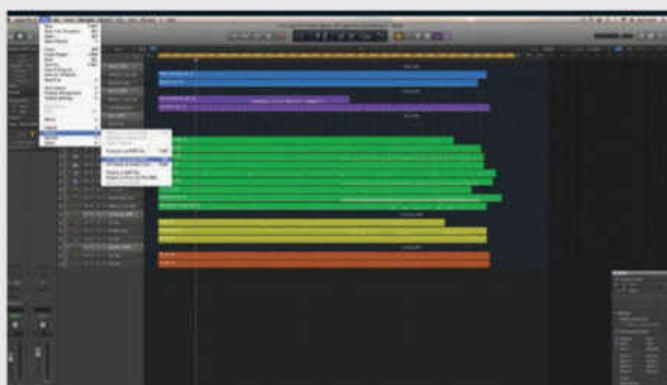
16 Since version 10.2.1, Logic has featured a Selective Track Export feature. Go to the File menu and select Export > 5 Tracks as Audio Files. This will allow you to print the stems in one pass, rather than having to print them separately.

17 In the dialogue box, ensure you haven't checked the Bypass Effect plug-ins option (otherwise the stems will be printed pre any plug-ins), as well as enabling the Include Volume/Pan Automation if you've adjusted the stem faders away from unity.

18 As a final check, it's well worth creating a new project and importing the stems, which should have been placed in the Bounces folder. Balancing all the faders at 0dB should recreate the full stereo mix, complete with the FX.

Ableton Live Live In Depth – Part 8

Follow Actions and what they can do for you

It's so easy to let software lock everything down nice and tight and be predictable. And yet, says **Martin Delaney**, it doesn't have to be like that…

Follow Actions are settings we can make in Ableton Live's Session View clips that determine how and when one playing clip will automatically move on to another, and what will happen when it gets there. We can use Follow Actions for creative purposes, such as in evolving sound-art installations, or to create unpredictable sequences of instrument parts: but we can also use them as purely practical tools, for example creating timed intervals in a live performance – they're very flexible. Follow Actions can be thought of as Ableton's take on generative music – music which composes or arranges itself in a semi-automatic way. Brian Eno fans will know what I'm talking about. Go back to his *Discreet Music* album from 1975, which would've been made with hardware devices and tape in those days, to the *Generative Music 1* album from 1996, which he made using SSEYO's Koan software. If you want to get some of that old-school Eno action, Koan evolved into Noatikl 3, and it's still available from www.intermorphic.com.

Follow Actions only work in Session View, and only vertically with adjoining clips in the same track. If or when the Follow Action clips arrive at an empty clip slot, they stop, so that's worth remembering when you're trying to prevent Follow Actions from running on into the 'wrong' areas of your set.

Follow Actions let your clips behave in a genuinely random way, or you can limit their freedom by applying two different Chance values, and combining two different behaviours, selecting from Stop, Play Again, Previous, Next, First, Last, Any, and Other. I guess those names are mostly self-explanatory, although the difference between Any and Other is that with an Any Follow Action there's a chance it will play the current one again immediately, whereas with Other, it'll never repeat the current one straight after playing it once. Personally, I lean towards Other and the more random selections in general, as that's what I like about them in the first place!

Just like (nearly) everything in Live, Follow Actions can be recorded, in this case, into the Arrangement View timeline. One of my favourite Follow Action moments is to trigger and record a group of clips which have short Follow Actions of 1 or 2 beats, then go to the Arrangement View, select the captured clips, and consolidate them, creating one new clip which contains all of those little parts – this works equally well with MIDI or audio clips. If you prefer to do it all inside Session View, like maybe during a live performance, you could create a new audio track, and use the resampling option to capture either the entire mix back

GOING OUT OF THE BOX

Follow Actions get even better when you integrate them into a larger setup. Why not send notes from those randomly launching MIDI clips out to connected hardware synths and drum machines? You can randomise your hardware, too – just use Live's External Instrument device in each of your Follow Action tracks. Use Program Changes in the clips to load specific hardware presets on-demand, and of course Clip Envelopes to send automated parameter changes. This is all pretty easy to organise, though you might have to check your hardware manuals to get the correct information about MIDI channels, Program Changes, and control messages.

MT Step-by-Step | Follow Actions
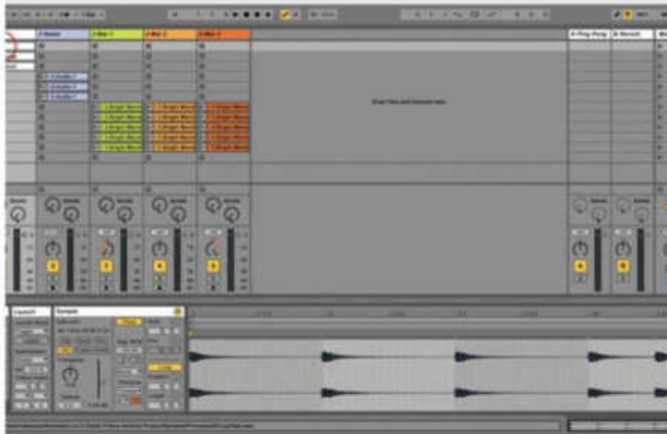
01 We'll be using Follow Actions in Session View to create random and not-so-random behaviour between adjoining clips in the same track. You should use the example Live set provided.

02 Let's use the three adjoining white clips in track 1. Click to select the top clip, then hold down Shift and click on the bottom one: this will highlight all of the clips in that block.

03 If you're not seeing the Clip View, click the Clip View Selector near the bottom right. Also make sure you can see the Launch Box – you might need to click the small L button at bottom left.

04 You can see a section of Follow Action controls in the Launch Box. The top three relate to timing – how long the clip will play before Follow Action occurs, in bars/beats/16ths. Leave that for now.

05 The middle boxes let you choose what the Follow Action will be. For now, choose 'Other' from the first box and leave the second one. Finally, choose a Chance value – set it to max out at 999.
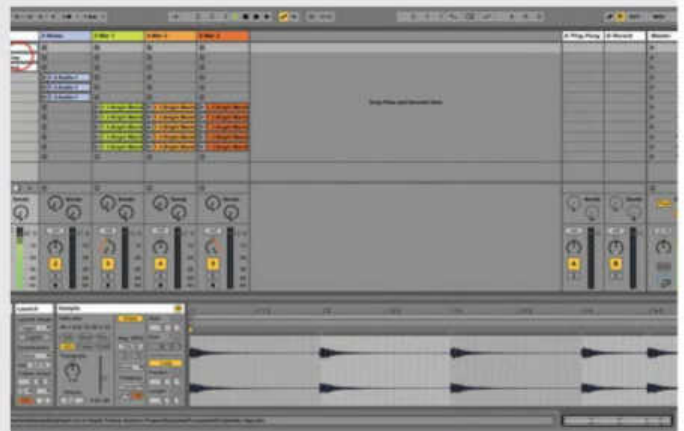
06 Launch one of those clips and Follow Actions begin – they'll play in a random order, and keep going forever unless you stop them. You could hit record and capture them into the Arrangement View.

into the new track, or else just select the source track with Follow Actions, and record it as incoming 'live' audio.

These are great techniques if you're stuck on a project and you need a new sound, a new perspective, or just a bit of spontaneous reorganisation. Plus, of course (unless you choose not to let them), Follow Actions are always synced to the rest of your project. Follow Actions are really hypnotic and totally addictive – it's as though we can use

an arpeggiator on Live clips. It can get even more hypnotic, though, if we use more than one track of them at the same time. Of course, two (or more) tracks of randomly launching clips have far more potential for non-repeating patterns. As stated in the tutorial, though, there is also more risk of sounds clashing then, so you can't always just dump two lots of sounds into parallel tracks and expect them to play nicely together – you might have to tinker with the timings,
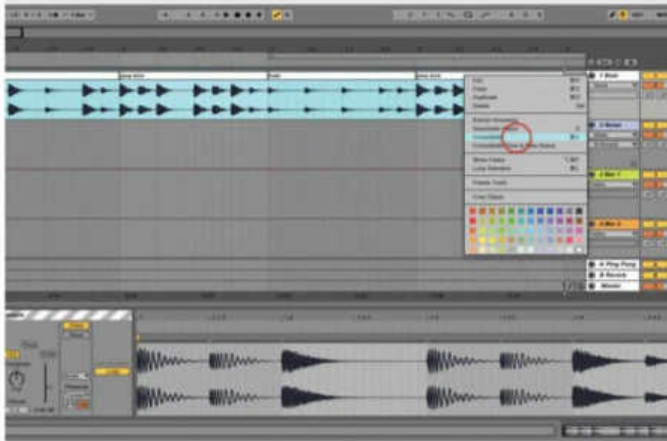
07 For bonus coolness, consolidate clips in the Arrangement View with Cmd>J, creating a new clip you can paste back into Session View. Follow Actions and Consolidate work with MIDI and audio clips.
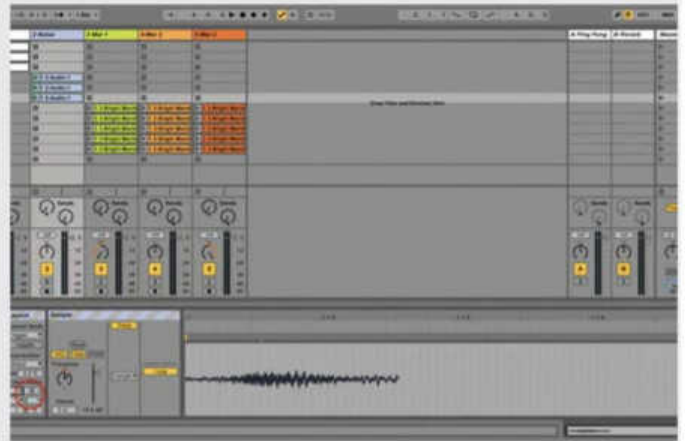
08 More? Let's use the clips in track 2. Make sure all clips in track 1 are off. Select all the clips again, as we did before, and this time choose a time value of 0/2/0.

09 Choose the Next action, and set the Chance to 999. Select the last clip alone, and choose the Stop action. Launch the top clip, and they'll play in sequence, until they reach the last one and stop.

10 To make things sound more interesting, send Sends A and B to the 12 o'clock position – those are going to Delay and Reverb. I love adding Ping Pong Delay, especially, to these kinds of sounds.
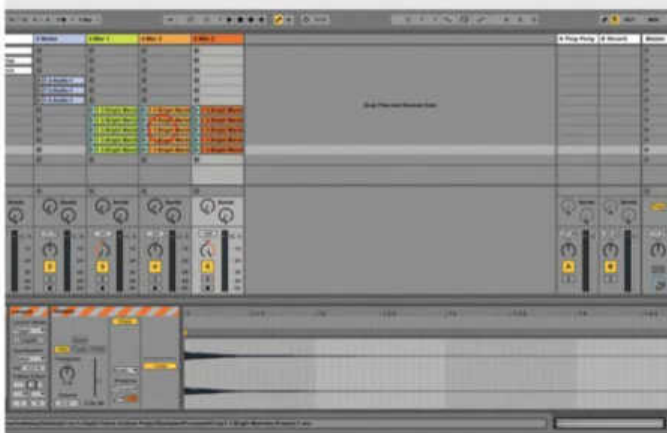
11 Stop all those clips. In fact, you can use the Stop All Clips button under the master track. Now go to tracks 3, 4, and 5. Select all of those clips and go to the Launch Box.
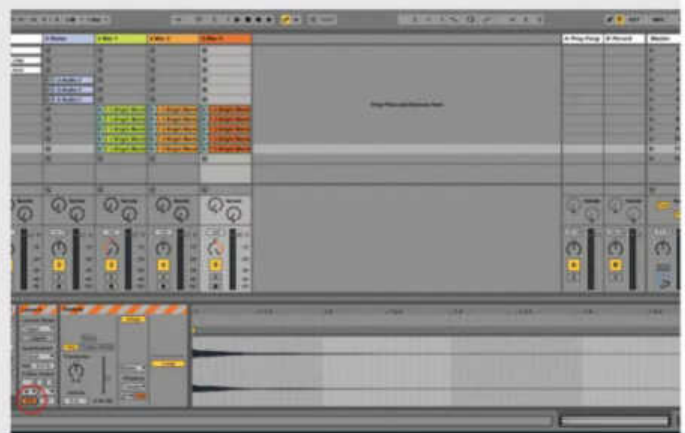
12 Set the timing value to 0/2/0. You'll see this affects clips across all three tracks. Choose the Any action in the left-hand box, and set Chance to 999 again.

and adjust parameters and EQ to get a nice fit – basic mixing, in other words.

You can blur the lines between organisation and chaos by adjusting the Chance settings for each action – an action assigned to a value of '0' will never happen, while identical Chance values will give an equal likelihood of occurrence. But going further, you can dictate specific

steps and create regular, predictable, outcomes, so you can have a set of instrument parts that play and move on of their own accord while you sing or play along, like a little interactive backing track. You want a clip to stop playing after eight bars? Easy. You can always add empty MIDI clips, or silenced audio clips, to insert timed pauses or breaks into the flow as well. Taken to extremes, you could

MT Step-by-Step | **Follow Actions**
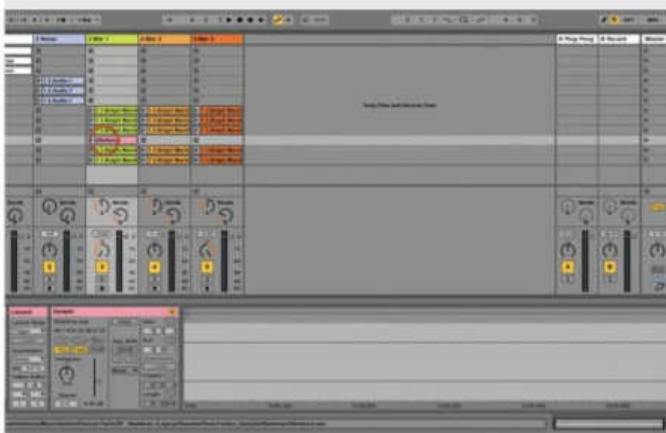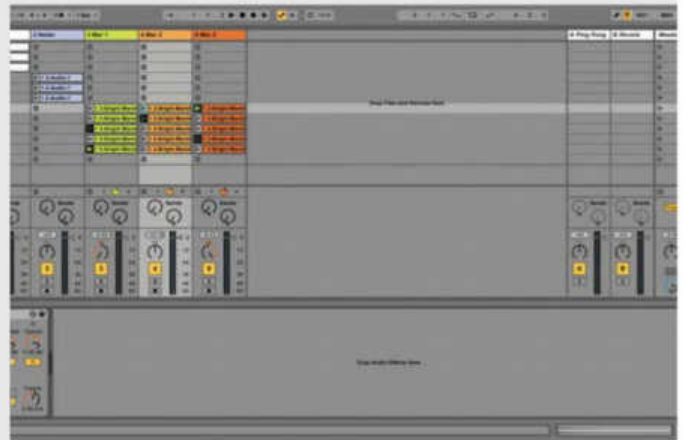

13 Instead of launching each track individually, use a scene from the Master track to fire the top clip in each track. Clip playback diverges, building a more interesting and unpredictable sequence.
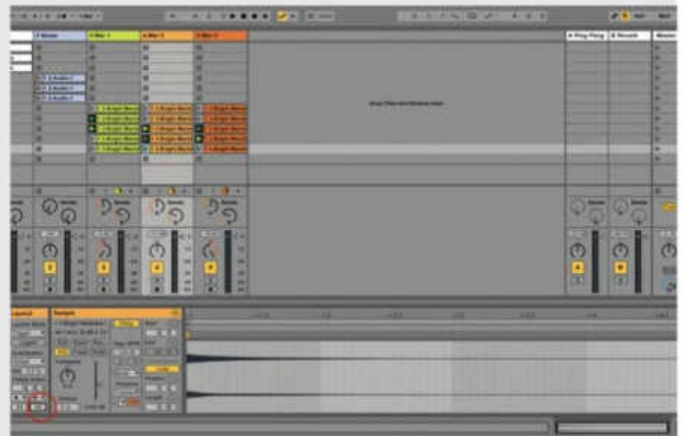

14 Sounds good, but track 4 is clashing with the others in the low end. So add an EQ Three to track 4 and roll off the low end a bit. That thins it out some more.

15 Having fixed that EQ issue, now you once again add delay and reverb Sends to give more depth and even more rhythmic variety to the parts. Experiment with different project tempos as well.

16 Go to the bottom clip in track 4 and set one Follow Action to Stop, the other to Any and their Chances to 50 each. Now, when the Follow Action reaches that one, the track 4 clips sometimes stop.

17 Follow Actions only apply to blocks of adjoining clips in the same track. They stop when then arrive at an empty clip slot. If you need a silence section, add a silent audio or MIDI clip!
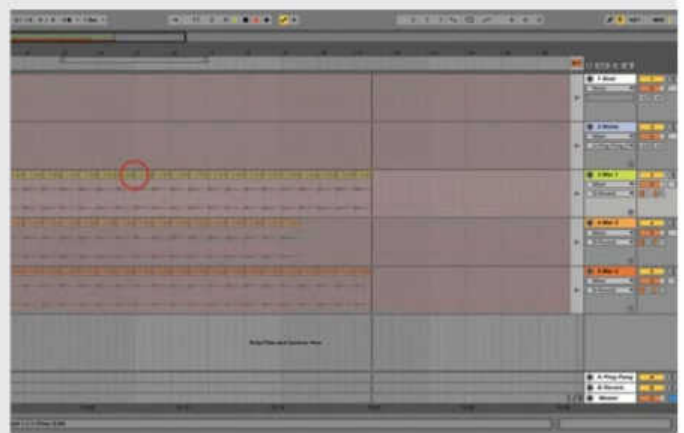
18 As we've already seen, Follow Actions are recorded just like everything else that happens in Live, so it's easy to use them as a way of semi-randomly generating new parts and even mixes.

have just one track that plays through an entire song structure following just one click to launch the first scene – especially if you combine with instruments racks, Simpler, and the Chain Select Envelope so you can have different clips loading different instruments, audio loops (that's why I mentioned Simpler), and audio effects! It's as always with Live: the individual features are really cool, but once you get the combinations going, it comes alive. You might have noticed that I'm quite partial to Follow Actions. It's true, I'm a fanboy, and not ashamed to admit it. Follow Actions are built into every version of Live, and you don't need any extra hardware or plug-ins, just some audio or MIDI clips to play with. No matter how you use Live, there's room for Follow Actions in your workflow. **MT**

Creating snares with a Eurorack

Creating an electronic snare timbre, with a modular, is not as difficult as you might think. **Dave Gale** patches up some tonal white noise…

Acoustic snare drums haven't changed much over the years. Their construction has largely remained the same since time immemorial, so what is a snare and is it more than just a rattly noise? Well, simply put, a typical acoustic snare will consist of a round metal ring that has a width (height) of anything between three and eight inches. Top and bottom, you will find a skin, which is known as the 'head', and if struck, will create anything from a thud-like sound, to something quite tonal. The factor that dictates the pitch (frequency) of this tone is how stretched the head is across the surface, coupled with the depth of the drum itself. The trick is to tune the drum so that as you strike the upper head, often referred to as the 'batter head', the tone rings true in all areas of pitch, bearing in mind that there are a number of points around the edge of the head where it can be further tightened and stretched. Some music, notably rock, tends to use a lower pitched tonal centre as a tuning for the drum, and hence also uses larger drums, whereas styles such as jazz and funk might use something higher in pitch. The snare component is connected with the lower head. This is a set of tightly coiled springs which come into contact with the lower head, and hence rattle in sympathy, as the lower head vibrates. The snare rattles with quite high and bright tonal colours, which could be compared to white noise.

The rattle of a physical snare has quite a high and bright tonality, which can be emulated using white noise

▓ White noise? I'm hearing static

As a friend of mine said, "there's white noise, and then there's white noise!" Despite the fact that all white noise should be the same, each offers its own distinct characteristics. I like something bright, so favourites of mine include the AJH Glide & Noise, Music Thing Turing Machine, Doepfer A-118 and SE Sci Fi. Of course, a byproduct is that a lot of these modules have additional functionality, so research what else you might need and you may well find it has other uses. For example, the AJH Glide & Noise is an exceptionally good CV portamento module, so buy it and you get two things for the price of one.

Snare and snare alike

At this stage, and with the mention of white noise, you may well be ahead of me. In order to make something convincing as an acoustic model, you are going to need two tone sources; an oscillator which is capable of producing sine- or triangle-like tones, and a white-noise generator. If you don't have an oscillator with sines available, use a filter to either filter out a rich waveform, or raise the resonance and use it in self-oscillation mode. You will also need at least one envelope generator, with a snappy front end, as well as a mixer and VCA.

Let's start by patching up a facsimile or construct of the drum itself. Take a sine output (or something filtered, if you don't have a sine) and run that into your mixer. Set the frequency of your sine to somewhere around a middle C on a regular piano. If you don't have

access to a tuned instrument, aim for a middle-pitched note – not to high, or low, in pitch. Now take your white noise and also run that into your mixer. Ensuring your mix output is going to your VCA with the play-through turned up, you should be hearing something consisting of white noise, and a tone. Blend the two signals in volume level; I would suggest that the white noise should be louder than the tone.

At the moment, it's not really sounding much like a snare, so in order to proceed to the next stage, we'll need to deploy the envelope, and give it a heavy transient at the front, akin to being struck with a drum stick. Keeping your attack phase short, and your decay phase fairly short, send your envelope's CV in the direction of your VCA, and you should start to hear something more snare-like. It's also worth mentioning

Tiptop Audio's SD808 module is designed to provide an authentic 1980s TR-808 snare sound
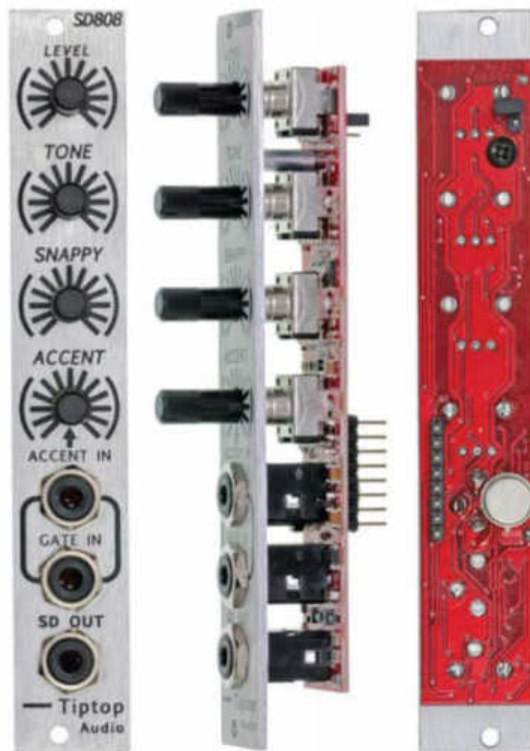
No **drum-timbre tutorial** would be complete **without mentioning** the **ubiquitous 808**

that your envelope sustain will need to be set to zero, and depending on the nature of your trigger, your release may need to be shortened or elongated to create the desired effect.
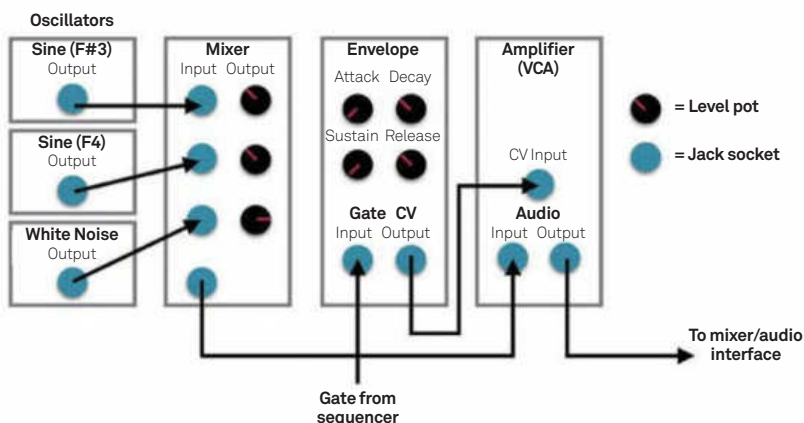
So now you're hopefully getting something which is sounding more snare-like, it's time to draw comparisons with the past masters. No drum-timbre tutorial would be complete without mentioning the ubiquitous 808. As we know, 808s are pretty popular in sound right now, so it's worth considering how their makeup compares. It's a popular misconception that the tonal element of the 808 snare is tunable – it isn't. But what it does allow for is the blending of three tonal sources, which includes not one but two sine sources. The two sines are tuned (roughly) at F# below middle C (F#3) and F above middle C (F4). If you'd prefer this as a

frequency measurement, aim for 185Hz and 349Hz. The 808 drum channel would then allow a balance between the two, via the 'tone' pot, which would simply see-saw between the two sine tones. Add the Snappy control into the mix and this would simply increase the volume of the white noise. It was that simple. See the schematic for more info.

Whizz, whoosh, bang

If you're after something other than an 808 timbre, then that's not such a bad idea, as it may well set your timbre apart from the default timbre palette. You could go for something with character and humour, verging on 80s, by sending your envelope in the direction of the pitch/frequency of your tonal element(s). A downward glide on this tone will offer up another tonal colour, which sounds pretty cool, and is reminiscent of 1980s Simmons drums. You could bring a second envelope into play, which you could use to control the tonal element exclusively. This offers more control over what you can do, and enables you to create something more complicated against the basic settings of the amplitude envelope.

Above all, while some will always like the old faves, my money is on going to a different place. If you're feeling brave, try building up more tonal elements to create chords, which you can detune, a little like an acoustic drum. This will sound nice and aggressive and could be perfect in that techno track. **MT**

Oscillators

Sine (F#3) Output	Mixer Input Output	Envelope Attack Decay	Amplifier (VCA)

Sustain Release

Sine (F4) Output

CV Input

White Noise Output

Gate CV Input Output

Audio Input Output

= Level pot

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Gate from sequencer

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MT Lead Review

Hardware ▧ Software ▧ Mobile Tech ▧ Accessories

Choice
9/10
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Choice
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ROLAND

Aira – Torcido, Bitrazer, Scooper & Demora

Now the dust has settled on Roland's Aira range, **Dave Gale** sees how the four FX-men of the Eurorack fit into a modern system…

■ **Details**

Manufacturer Roland
Price £245 (per module, street price)
Contact 01792 702701
Web
www.roland.co.uk

■ **Features**

● Four distinct FX modules
● Patchable and controllable over CV
● Usable in a Eurorack or standalone
● Powered via Eurorack or included PSU
● Programmable via Mac/PC or iOS/Android
● Width: 20HP
● Current draw: 450mA

Around 18 months or so ago, Roland took the decision that many of us had been hoping for, with its acceptance of the established market in Eurorack and the announcement of a number of Eurorack products. So now it's time to give the company's FX modules a closer look, and see what they might offer an existing system.

Rack it up or standalone

The first thing to note is that these modules do not have to be used in a Eurorack. They have rubber feet and will happily reside on a desktop, which for some may be just as well, as they are a little hungry on the power front. Each module comes with a 'wall wart' power supply, but when installed in a Eurorack, each module draws a not inconsiderable 450mA. Is this excessive? Well, think of it this way. If you have all four modules, that's a whopping 1800mA in an 80HP space, so if you do plump for all four, make sure that your Euro-power is up to the mark, otherwise mysterious things may start to develop in your rig, as units clamber for adequate consumption. The other option is to use the included external PSUs, which ship with the modules and will not impinge on your system-wide power demands – but of course, this will mean you have a cable or two hanging out of the back of your

▧ These modules **don't have to be used in a Eurorack**, and will happily **reside on a desktop** ▧

a very helpful Bass Boost switch, which puts some of the low frequencies back into play that are reduced as the distortion is applied. This distortion, like many, reacts far better to more colourful signals – in fact, signals which are already overdriving – so ramping up some screechy resonance did start to induce further overtones, but as already mentioned, it felt a tad light. Where this module will excel is under CV control, and of course it's possible to control pretty much everything on the front panel via CV, including a handy Bypass, which will enable FX to be applied and withdrawn at the sense of a trigger input.

There is no doubt that the strength of the Torcido lies in the immediacy of the controls which are temptingly at your fingertips, but there is a feeling of 'pot wobble' as you tweak the Moog-style knobs. The largest pots are the two labelled Distortion and Tone, and it's delightfully tempting to just get

**From left to right:
Demora – a delay in Eurorack clothing, the Demora brings the time-honoured form to a modular setting, with a large amount of CV control**

Scooper – time to get Stuttering. The Scooper brings stutter technology to the Eurorack form. The Sync Trig input ensures that your effects stay true to the beat

Torcido – offering digital distortion, with a degree of tube warmth, the Torcido brings distortion colours to your Eurorack, with plenty of CV control

Bitrazer

Moving on to the next module, there is at least a bit (no pun intended) of a clue as to the direction of this unit. Bitcrushing, apart from being very fashionable currently, can also be considered a type of distortion, but somehow, unlike the Torcido's offerings, as an effect, it feels more contemporary and in keeping with the current times, so here, we have something with more obvious character.

Apart from the ability to mangle both bit rate and sample rate, reducing both down to their lowest common denominators, there is also the helpful addition of a filter, which can be placed into either Low Pass or High Pass mode. This immediately adds another element to the interface, which again, lends it weight for live performance. The sample-rate reduction induces some interesting colours, particularly when paired with the bitcrusher, and with added modulation in play, some of the sweeping effects that can be achieved sounded pretty glorious – but do you really want a bitcrusher to sound this nice? Again, I found myself wanting more and felt that Roland doesn't share my urge for a bitcrusher that really rips. Don't get me wrong here, it sounds great, but like the Torcido, I get the sense that it could have just gone that bit further.

All elements are available to CV control, which again makes it an attractive proposition for inclusion in a live rig, and certainly, having a switchable filter built right in is a fantastic plus-point for live usage. Once again, however, I have to say that I found the processing a little light, compared to the noise-induced haze that can be achieved using software within a DAW. Many people rate the most basic of bitcrushing software, a good example being the Bitcrusher which can be found in Logic Pro. You only have to listen to *Immunity* by John Hopkins, to hear how effective and frankly downright dirty this can be, with the beautiful tails of bitcrushed reverbs, which also induce further harmonic content and add to the tonal colouration, but I just wasn't getting this level of distorted colour from the Bitrazer. Yet it's not all bad news… It's a pretty usable unit and could be considered a real boon for a live rig, especially with the added filter.

Scooper

With the third module in line, we move away from distortion, in favour of

cabinet, which you may not want. The reason they're so hungry is largely down to the fact that they're digital, and many digital units eat power like no tomorrow, so you would be well advised to spread the load to take the heat off, literally! Power aside, there is no doubting that the lineup appears impressive, with

▨ Having a **switchable filter built right in** is a fantastic **plus-point for live usage** ▨

plenty of credentials, so let's start getting them patched in.

Torcido

The next point to fathom is what on earth does what, and with a name like Torcido, you'd be forgiven for guessing incorrectly what the module does. The first unit in line is in fact a distortion unit, and distort it certainly does! Ever since the first days of Acid House, it's become a pretty stable practice that squelchy tones will want to be mangled, but I have to say that I found the distortion a tad light when applied. There didn't appear to be any of the inherent ramping of harmonic overtones that I might have expected, as would be associated with the 303-esque distortions of old. Certainly, there is some colour there, and there is

stuck in and see what comes back, hence it'll lend itself very nicely to a live setup or rig.

I don't feel as though the Torcido had a vast amount to offer sonically, particularly when compared with other favourites in the distortion arena (which admittedly live more in the world of the DAW) – but I was expecting to hear something far more akin to an MXR Distortion pedal or even the software-based SoundToys Decapitator, the latter being one of the darlings of production, and with good reason. The Torcido certainly distorts, but it will stroke an incoming tonal colour, rather than rip its head off and throw it back at you. It's always nice to have more than you actually want, and I was left feeling like I needed an '11', for that extra push over the cliff.

→ something completely different. Again, without much hint from the name, the Scooper is actually a stutter module, which keeps to the tradition of the Aira family and offers similar stutter effects to those found on the TR-8 Rhythm Performer drum machine. This module

previous modules, I suddenly found myself fully engaged. After some initial wrangling, I patched up the Sync Trig socket, which allows the input of a gate pulse, which will in turn keep the trigger tight. It makes sense to use a clock trigger from something like a Clock

editing from artists in the late-90s. This editing was closely followed by the ability to get the same results with DAW based plug-ins, and now we see stutter options on many commercial-based units, even those as cheap as the Korg Volca range (and very good they are, too). So it's no surprise that Roland thought this technology might have a home in Eurorack, and can immediately bring a sense of digital to a voltage control-based system.

▨▨ Scooper takes a piece of audio and plays it back while stutter effects are applied ▨▨

works on the principle of taking a piece of audio – or sample if you prefer – and playing it back while the stutter effects are applied, with a sampling time of up to 10 seconds. I have to say that this was the turning point for me, having been left wanting more from both of the

Divider, and with this engaged, recording and triggering was easy, and moreover allowed me to fully explore the stutter capabilities.
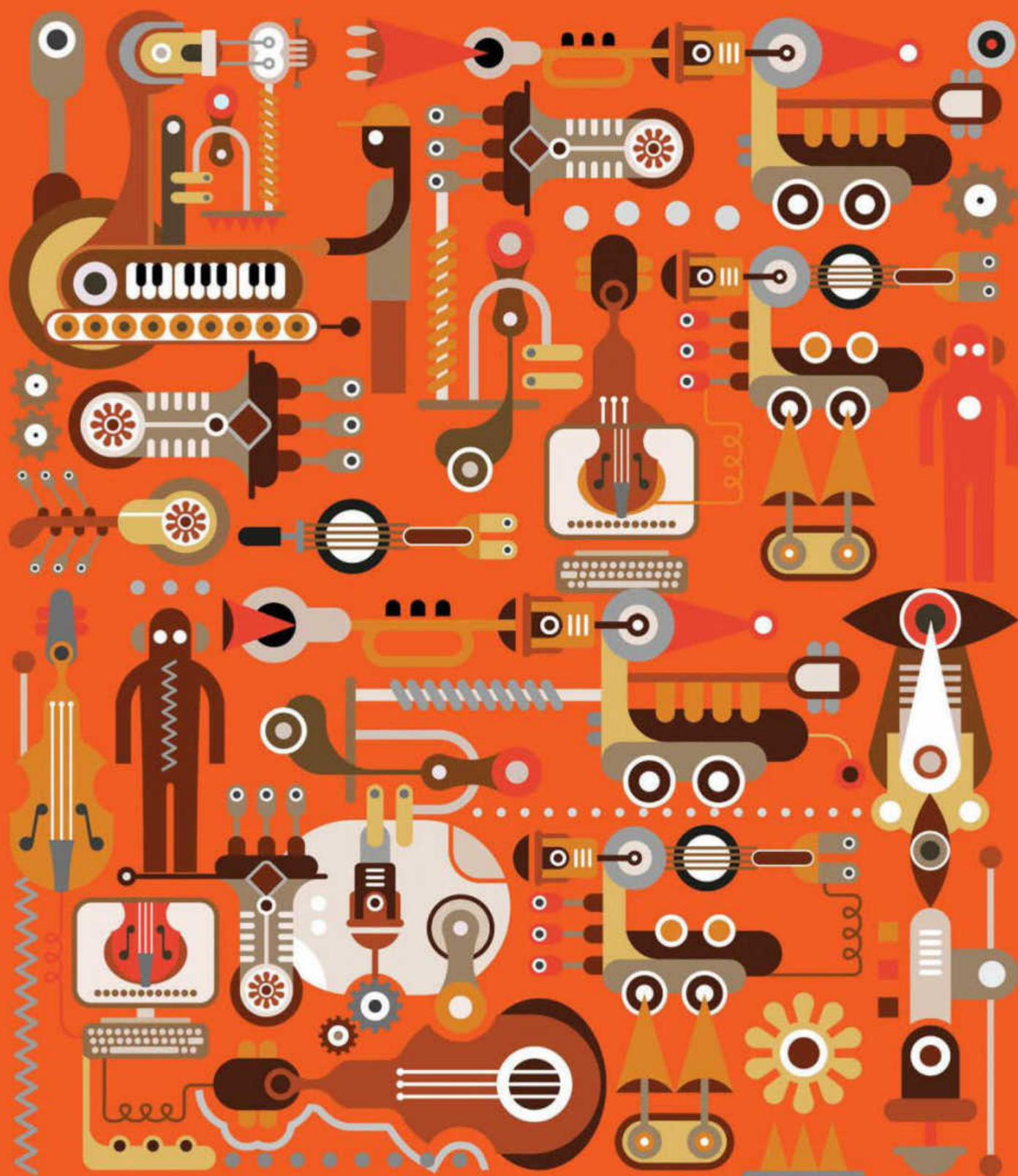
Stuttering is a relatively new concept, and has largely come about thanks to some clever post-production

To my ears, the Scooper feels more complete when added to the back end of the signal chain, as it is the inclusion of the drums, with accompanying components, that seems to offer the stutter concept more to play with. So, to this end, I found myself capturing anything from a single bar up to four-bar phrases, and stuttering to my heart's content. It's worth noting that the Scooper will only process the audio →

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recorded in its buffer, so you will have to capture what you want to stutter before you can stutter it, if that makes sense. But once the audio is captured, audio will be repeated in markedly quick succession, have beats moved to different locations, and even be reversed, all in varying amounts, according to how hard you crank the Depth control.

There's no doubt that time is required here to explore the numerous possibilities, but equally, there is much fun and creativity to be had. The Stutter Depth and amount are easily controlled from the larger pots, while other filtering and pitch-based duties are available from the smaller pots beneath: it's a shame the stutter only occurs on recorded material, via capturing audio on the fly, so synchronisation of the module with a clock is pretty essential to get the best out of it, otherwise there will most likely be a break in the groove as you move from live to recorded forms.

The strength here is undoubtedly the ability to noodle with the stutter live, with the added facility to automate all of the available parameters. This makes the Scooper at home in the Eurorack, but there's no doubt this is a very stylised effect that won't sit well with all Eurorack users. I am tempted to use a word like 'commercial', strictly in the musical sense, but I can't deny that it's an awful lot of fun to use.

Demora

Finally comes the Demora, which is in fact a delay. Again, the larger pots are

assigned to the most common duties, in this case, delay Time and Feedback, with lesser duties being assigned to the smaller pots below. These lesser duties include delay Width and Wet/Dry, the former of which affects the spread of the delay. The Demora offers a hint of stereo via this effect width, but I imagine that the general concentration on mono has more to do with the historical structure of Eurorack, rather than anything else.

The delay itself is a one-size-fits-all affair, operating as you would hope it might – akin to a tape delay, with the winding up and down of the spooling tape, giving the desired effect. Again, all elements are under CV control, including a rather useful Bypass, which I could immediately see would be useful to prematurely end those merciless feedback loops.

▨ The **Scooper's strength** is to **noodle** with the **stutter live**, while **automating parameters** ▨

I immediately found myself wanting to clock the delay, hoping that it would fall into line with note subdivisions to boot. But alas, there is no labelled clock input. It is possible to create a clock input, using Roland software (more on this later), but straight out of the box, clocking the delay is not possible. I find this a little mystifying as, to my mind, and with a firm Eurorack head on my shoulders, I would've thought that a clock input on a modular-based delay, would be pretty high on the wishlist. So in the first instance, it's a case of using your ears to get it to sit where you want it to, a little bit like a Space Echo of old. No harm in that, of course.

Not withstanding, as a regular delay it's pretty capable, but not great on character, and I feel that again, this is a flaw. There are lots of superb delay pedals in the guitar world, many of which infiltrate the modular world, and when you consider what £245 can buy you, I think the Demora really doesn't offer enough… or does it? Read on and you might have a different take on this.

The bigger picture

Now don't get me wrong here, I am an enormous fan of Roland products. Let's face it, Roland (unknowingly) pretty much invented dance music as we know it today, with the numerous

offshoots that also owe a lot to the legacy, which still lives on 30 or more years later. It's important to point out the whole remit for this review is about taking the modules outside of the Aira 'safe place', and seeing how well they play in the Eurorack-centric auditorium. I get the sense that Roland has tried to implement a set of four modules that will work seamlessly with other Aira products, and by now, I'm sure we've all seen the demos with the heavy beats and flashing lights. Is this what Eurorack is about? Well, it is in part, but somehow I have always thought of Eurorack as a more sensitive beast, with a real yearning for creativity which goes beyond the simply commercial. In this regard, I find myself wanting to really like the Roland modules, but wondering how well they integrate into an existing setup, and also what role they play, particularly against stiff competition in both the Eurorack scene, and what is available in software and hardware form.

And then there's the build quality. The sum of £245 is a pretty premium price point for a Eurorack module, and one would expect a certain build quality. The module pots do not feel terrifically solid; they're not awful, but there's lateral movement there, which disappoints me. I want Roland to inspire confidence in their products in me, in an arena where metal fascias and good quality potentiometers rule the roost.

But then, this happened…

There is one further aspect, though, which is something of an overlooked point, and may well change our view on these modules forever. All four modules are fully programmable, either via Mac/PC, or from a rather nifty iOS/Android tablet app. What this means is that by purchasing one module, you have the ability to change its functionality, and turn it into one of the other modules. So you can, in essence, turn the Scooper into a Torcido, or any other incarnation. So you won't have the nice legend and graphics on the front, but you can try out all four modules, by only buying one.

This concept goes far further, though, as it is also possible to build up

BITRAZER

GRF1 SAMPLE RATE

FILTER CUTOFF GRF2

LEVEL   LEVEL

GRF3 BIT DOWN   RESONANCE GRF4

GRF5 LPF/HPF   BYPASS GRF6

VOLUME

1 — INPUT — 2   REMOTE IN   1 — OUTPUT — 2

Roland

You can create **a virtual modular synth**, in software, which **will run on the module**

Bitrazer – the Bitrazer brings a bitcrusher and sample-rate reducer to your modular, complete with a switchable Low Pass/High Pass resonant filter

a Eurorack cable to the front panel. This is an ideal solution for tablet owners, as its simplicity is simplicity itself.

Conclusion

Roland has made great strides recently to engage with the Eurorack world, and I think that part of the willingness to embrace it is the notion that the company wants to try something a bit different. Plaudits for that, of course – however, creating effects units that can be integrated within a Eurorack is certainly a brave route to take. There's no doubt that these units have a place, but I'm less convinced by the sound of the distortion-related modules. The Scooper and Demora, on the other hand, do have something to offer, and when you can have both in one module, it's certainly worth exploring further. **MT**

MT Verdict

+ Plenty of choice and something for everyone
+ Good clean effects
+ Eurorack and standalone operation
+ Large amount of CV control
+ Fully programmable via software
+ Could be considered to offer numerous effects in one module
+ 9-volt PSU included

− Pretty high power consumption per module
− Build quality not the greatest

Roland's first entry into Eurorack effects is very welcome, and it has been very brave in its approach, which is something that should be hugely applauded.

Torcido **7/10**
Bitrazer **8/10**
Scooper **9/10**
Demora **9/10**

complete sets of virtual modules, building up your own design of effect or even synth. One of the cleverest parts of this is that you can create a virtual modular synth, in software, which will then run on the effects module. Pretty cool! So, when you buy one module, you could in fact argue that you are buying them all, and more. Is this enough to convince us? Well, it's certainly a useful addition to the armoury, and it's great to know that the flexibility is there, should you need it.

You remember my clocking issue on the Demora? That can be fully rectified by using this software, and will be

retained in the non-volatile memory of the unit. So once you've got it set, that's it – although the software is also highly capable of storing patches, so you can retrieve your creations at will, through the file-storage hierarchy of the app.

Programming a required patch on a tablet is pretty easy, as is getting it into the module itself. You can connect a micro-USB cable to the the rear of the module, but this is a little clumsy if you're going to host the module in your Eurorack – so even tastier is the ability to deliver the change of patch via an audio burst, which can be sent from your device straight into the module, via

WARM AUDIO
WA-2A Optical Compressor

Another classic piece of 1960s kit is cloned – and **John Pickford** is on hand to see if it's a warm sound that we need in 2016…

Details

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Web
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Features

- CineMag input/output transformers
- Tung-Sol and Electro-Harmonix valves
- Kenetek T4B optical attenuator
- Pre-emphasis HPF
- Gain reduction: -40dB +/- 3dB
- Frequency response: 15Hz to 20kHz

Texas-based company Warm Audio has made quite a name for itself producing superb, affordable clones (or close copies) of classic hardware. Its Urei 1176 clone, the WA76, impressed me enough to invest in a couple for our review studio. Similarly, Warm's EQP-WA equaliser compared favourably with the studio's own, considerably more expensive, Pultec copies. Full reviews of both of these units can be found on our website. Now, Bryce Young – Warm Audio's main man – has turned his attention to the legendary Teletronix LA-2A Leveling Amplifier, which first appeared in 1962.

This optical tube compressor is the company's second foray into valve land and, like its other units, makes use of modern, premium-grade components to reproduce the authentic tone and characteristics of the original, vintage units. Input and output transformers are from the highly regarded CineMag brand, while Tung-Sol and Electro-Harmonix manufacture the valves, or tubes as our transatlantic friends would say. Two 12AX7s and a 12BH7 are employed, the same types as found in original units; however, a 6P1 miniature power valve is used in place of the original's 6AQ5, which is now a rare valve. New Old Stock (NOS) 6AQ5s are available, however, so Warm has provided a suitable socket adjacent to the one holding the 6P1 for those who

value authenticity above all else. While we're talking tubes, it's worth mentioning that they do generate heat, so a gap of an inch or two should be left above the unit for ventilation when rack-mounting.

While the transformers and valves contribute a great deal to the unit's sound, the compression character is defined by the T4B optical gain-reduction module, which operates by mating pairs of photo-resistors with an electroluminescent panel. The panel is driven by the unit's audio sidechain, becoming brighter as transient peaks increase in volume.

Optical compressors are known for their smooth response characteristics and none more so than the classic LA-2A design. The unit's attack time is fixed at 10 milliseconds while the release time is a more complex, multi-stage response; the first half of the release time is 60ms, while the following stages of recovery take between half a second and five seconds, as determined by the audio content.

One of the great things about programme-dependent compressors such as this is that the unit does all the clever stuff, while using it couldn't be simpler. The only user-adjustable controls on the front panel are indented rotary pots for Peak Reduction – the amount of compression applied – and Output Level, and a switch to choose between compression and limiting.

In Compress mode, the compression ratio starts around 4:1, rising to

> The **WA-2A** is based on the **legendary Teletronix LA-2A** Leveling Amplifier, from **1962**

something approaching infinity when used as a hard limiting. The difference between these two modes can be quite subtle at gentle settings. However, when the unit is driven hard, the difference is far more dramatic.

Round the back
The only other front-panel controls are the power switch and a Meter Select switch that shows either gain reduction, the industry-standard +4 output level and output level at +10dB, useful when more dynamic contrast needs to be visually monitored. So then, the front-panel controls are simple and

intuitive to use; that's only half the story, though, because on the back panel, there's more going on than just the usual IEC power socket and balanced XLR/TRS input and output connectors. Firstly, there's a Meter Adjust control that allows you to calibrate the VU meter, should it drift out of true. Then there is a Stereo Link control along with a jack socket, which enables two units to be linked for true stereo operation; full instructions on how to set up these features are included in the WA-2A's operating manual. The final back-panel control is called Pre-emphasis and is somewhat similar, although not identical, to the high-pass filter control found on many modern compressors. In standard setting, the compressor reacts to the full bandwidth of audio processed through it; however, as the control is adjusted counter-clockwise, the unit becomes increasingly more sensitive to high-frequency information. While this type of sidechain filtering was originally designed for use in FM radio broadcast applications, its unique tonal shaping properties are suitable for enhancing audio in many modern recording situations.

Straight out of the box, I was impressed with the WA-2A's build and finish, particularly the revised Warm Audio logo, which is more elegant than the earlier design (which I once described as a 'steaming turd'!) found on the early WA76 and EQP-WA units; current models now sport the revised logo. The gently indented pots feel smooth in operation, while allowing

The high-quality components inside are neat and tidy

precise recall of settings, while a look inside the unit revealed all of the high-quality components neatly laid out.

As with all analogue equipment, valve or solid-state, It's worth powering up a good 30 minutes or so before use in order to reach optimum performance. Nicely warmed up, I strapped one WA-2A (I was sent two units for stereo evaluation) across a previously recorded male lead vocal that had already had its dynamic peaks tamed with our WA76 limiter. In Compress mode, I turned up the Peak Reduction control until the VU meter registered around 5dB of gain reduction on the loudest passages, resulting in a smooth, natural and transparent sound. →

▨ The **gently indented pots** feel **smooth** in operation, allowing **precise recall of settings** ▨

Dialling in more compression and increasing the output level gave a more obviously processed sound perfectly suited to modern pop vocal styles.

At this point, I experimented with the Pre-emphasis control with surprising results. As more Pre-emphasis was dialled in, the top end took on a lovely sheen which was quite unlike adding high-frequency EQ. In fact, it reminded me somewhat of the effect produced by the Aphex Aural Exciter, which was a must-have product when I entered the recording industry in the mid-1980s. With this in mind, it's a shame that the control is situated on the back panel, as once the unit is rack-mounted, easy access will be impaired. I envisage some users modifying their units so that the effect can be used via a control on the front panel.

Bass response

Engineers long ago discovered the

compression using the Peak Reduction control and make up the gain with the Output Level control. The multi-stage release characteristic of the unit really comes into its own in this application, responding smoothly to bass signals with no unwanted pumping artefacts.

Linking two units together in stereo, we strapped the pair across our main stereo mix buss during a final mixdown and found that in Compress mode, with just a couple of dB of compression, the WA-2A provided just the right amount of glue to help the lead vocal sit nicely in the mix.

As the WA-2A does not have a bypass switch, the Peak Reduction control has to be turned down to compare the dynamically reduced signal with the unprocessed signal. However, as the audio passes through the unit, the uncompressed signal will take on some of the compressor's colouration. This may not be ideal for comparison purposes, but running audio – especially digitally generated sounds – through the unit with no level reduction results in the addition of a degree of analogue warmth.

Everyone who heard the WA-2As during the review period remarked upon

units as good as this can be bought for these prices, you have to ask yourself, why pay more?

The WA-2A is a most welcome addition to Warm Audio's catalogue of legendary outboard units. It's not as aggressive as many modern VCA or FET designs and extreme compression effects are not its forte: and yet, with its classic style, performance and bang-for-buck, it re-levels the playing field for units of this kind.

In use

For a great pop vocal sound, try using the WA-2A in conjunction with another dynamics controller such as Warm Audio's WA76 limiter, based as we mentioned on the Urei 1176.

Great results were achieved when using the WA-2A to compress a lead vocal that had been previously processed with our WA76. For a slightly different, but equally great effect, the order of processing can be reversed, using the optical compressor first. before taming any remaining peaks with the limiter. **MT**

With its classic **performance, style** and **bang-for-buck**, it re-levels the playing field

original LA-2A's abilities when processing bass guitar and this new unit shows exactly why. Getting the response time right when processing bass is one of the trickier aspects of dynamics control and one that trips up many a rookie engineer when faced with a multitude of user-adjustable parameters. Using the WA-2A to compress bass couldn't be easier; simply select either Compress or Limit mode, dial in the desired amount of

how superbly they performed and the simplicity in creating great sounds. Bryce Young is at the head of a revolution in audio hardware, bringing out top-quality recreations of iconic processors at bargain prices. He can do this by having units built in large numbers, keeping manufacturing costs to a minimum and passing on the savings to customers. There will always be a market for expensive, hand-built boutique equipment; however, when

The variable Pre-emphasis control enables unique tone sculpting

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AJH SYNTH
Sonic XV Diode Ladder Filter

There's plenty of choice in the Eurorack filter marketplace, so any new design is going to need an edge. **Dave Gale** examines the new AJH Synth Sonic XV, to see if it stands out from the crowd…

Features
- Diode Ladder filter design
- Low-pass and band-pass filters
- 6dB and 24dB LPF modes
- Available in Silver and Vintage Black
- Power draw: 70mA
- Width: 14HP
- Depth: 38mm (w/power cable)

A recreation of the Moog Musonics Diode Ladder design, which packs in loads of extras. Talk about bang for buck…

Next to oscillators, there are probably more filters out there than any other Eurorack product type. So if you're hell bent on bringing yet another filter to the market, you'd better have an angle. And so, AJH appears – with an angle and a half which, in typical AJH style, harks back to the roots of synthesiser design and architecture.

The Sonic secret
The Sonic V was a synthesiser made by Moog Musonics back in the early 1970s, the design relating to a former Moog employee who originally conceived the idea so as not to infringe the patent of the Moog Transistor Ladder design held by Bob Moog. So there is arguably a Moog connection, keeping this AJH module close to its existing product line.

First things first, you want the Cut Off control to be pretty large and central, with the Resonance pot close by, so that's two big ticks immediately. Next in line, we have two rows of smaller pots, which control many of the basic parameters, such as the Cut Off under CV control, and Input Level, but what's this? Input Wave and Res Wave? Surely, not a filter that allows wave-shaping of both the input waveform and resonance? Hell, yeah! That sounds a bit 'Ed Miliband', so reverting to my more usual BBC-like tones, this thing has more than a few sonic surprises.

The raw detail
Reaching for a couple of patch cables, it was now time to put it through some tests, so my obvious starting point was to hook up two AJH VCOs, with one heading to the excellent Moog Model D-style AJH filter, and the other heading toward the Sonic. In 24dB (four-pole) mode, the Sonic has a beautifully wispy top end. I adore character in a filter, and the charming brightness is wonderful, and that's with a triangle – so next to be applied was a sawtooth. Here, there is a certain harshness to be found, against the Mini Mod filter, even in 24dB mode, but this is absolutely not a negative point. In fact, far from it, it's got teeth that will help any timbre cut, but somehow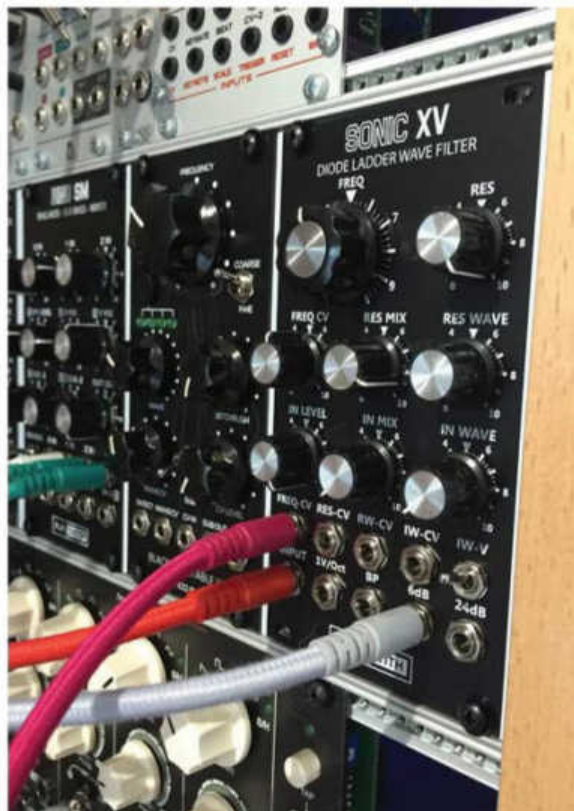 even with the whistling resonance, it never seems to overpower, unless of course you take the resonance all the way up to 11, at which point it will rip your head off. This one's a wolf in sheep's clothing.

I mentioned that AJH likes to reinvent the wheel, by adding much more than one might expect, and this is where the wave shaping enters the arena, but in two stages. Firstly, wave shaping can be accomplished from the source/input waveform. The harmonic variation is fascinating and sounds beautiful when swept, so the obligatory LFO modulation was applied, at which point, the wave-shaping pot changes mode and becomes a positive →

> ☒ If you're **hell bent** on bringing yet another **filter to the market**, you'd better have an angle ☒

All patched in, the crunchiness of the 6dB/one-pole output is very alluring

→ attenuator for the incoming signal. A stroke of genius.

Next, we find that further wave shaping can also be applied to the resonance aspect of the timbre, meaning that the usual self oscillation can be mangled. Now, this has more uses than at first sight, due to a quirk in the original design of the filter. Self oscillation only occurs above the circa 2kHz mark, which might be a bit of a bind in use, but thanks to the wave shaping, it's possible to keep the drive going, right into the depths of pitch. It's also possible to induce states of self modulation, and without anything inputting to the filter, I had some amazing Theremin-like effects emanating from the module, as it seemed to almost modulate itself.

The filter doesn't suffer from any huge reduction of bottom end, which

many traditional filters exhibit, as resonance is applied. But you do inevitably get this with wave shaping as lower harmonic content is reduced, so both input and resonance wave folders allow a mix of the original signal via two dedicated pots, so if you miss that low-end grunt, the original signal can be fed back in.

Anything else? Oh yes… While the 24dB/four-pole filter is beautiful, the 6dB/one-pole output is outrageous –

gnarly by design and desperate for those hardcore techno sounds, and more besides. There's also a useful Band Pass filter option, with all three filter types available simultaneously, from separate outputs.

Conclusion
What I love about AJH's most recent modules is the desire to look at things differently, by starting with something as classic as a filter, but then going out
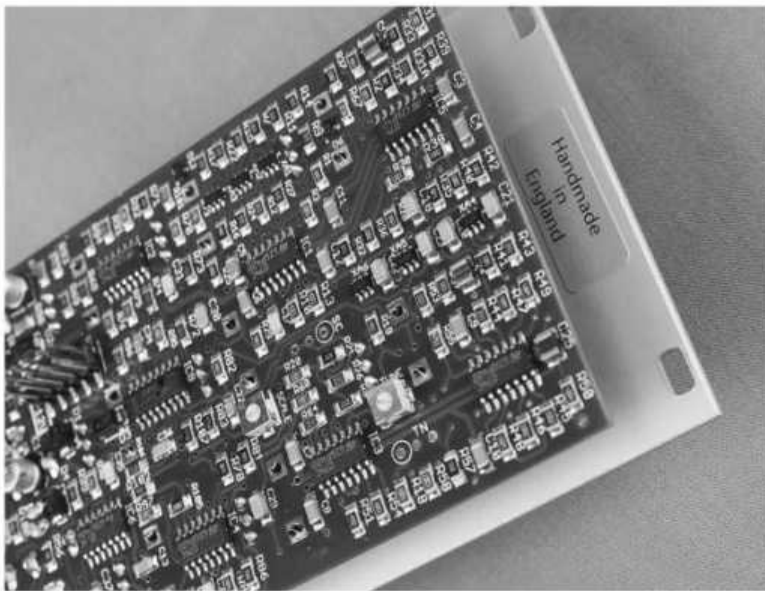
The British-built unit is as sturdy as a tank

to find something that nobody else really does, and as if that weren't enough, put the spin of wave shaping and drive into the equation, and introduce oddities not available on the original design, such as the 6dB/one-pole output. If this was the only filter you considered, in a smaller setup,

you would be thrilled with your choice, but as an addition to a larger setup, to operate alongside other classic designs, it's a must-have.

And finally, lest we forget, there is the build quality – British-built, like an absolute tank. One day, all modules will be built this well. **MT**

Do I really need this?

We all need filters. They're a fundamental part of any subtractive-based system, which includes just about everyone, so the question is more 'do you need this filter'? The additional options available on it make it very enticing, and that's before we've discussed the virtues of how good the filter actually is, and the fact that it's flexible, by offering three filter modes simultaneously. As a filter, it offers a certain richness I haven't heard elsewhere, but add in the wave shaping and it's a steal.

MT Verdict

+ **Really characterful filter**
+ **The wave shaping is very addictive**
+ **Beautiful and cutting in similar amounts**
+ **It has a richness of timbre that is really unique**
+ **The 6dB/one-pole output packs loads of grunt**
+ **As with all AJH modules, build quality is outstanding**

- **None that I can think of**

This is a very, very classy filter – and one that offers far more than just filtering.

10/10

THINK OUTSIDE THE BOX

Choice 9/10 MusicTech

KORG
minilogue v1.2

Korg's just updated minologue to v1.2. Does the polyphonic, pint-sized analogue pack a punch? **Dave Gale** powers one up to find out…

■ Details

Manufacturer **Korg**
Price **£469 (RRP)**
Contact
01908 304600
Web
www.korg.com/uk

■ Features

● **Four-voice polyphonic analogue synthesiser**
● **Full subtractive synthesis architecture**
● **Mono, Duo and Poly voice modes**
● **Arpeggiator and Polyphonic Sequencer**
● **Sync'able with other analogue devices**

At the risk of stating the obvious, analogue is having something of a renaissance at the moment. If there was ever a time to get into traditional analogue subtractive synthesis, this would be it, and that's not just down to the wealth of equipment that has recently become available, but also the price points at which these things are appearing. The field has its big players, such as Moog and Dave Smith Instruments, who are offering beautiful premium products, but at a premium price; however, Korg surprised us all with the release of the minilogue, announced earlier this year at the music fairs. Now updated to v1.2, with stock levels starting to rise, it's time we put this machine under the microscope, to see what it can offer.

The design factor

Now I make no bones about it, I am an absolute sucker for an interesting aesthetic design, and this one is a real beauty. Upon releasing the minilogue from the box, I am immediately struck by the simple yet very striking nature of its design. It reminds me of the original Audi TT, beautiful in its curvature and most alluring in aluminium silver, which is exactly what we have here. The front panel just sweeps away from you, in a

pleasing, rising manner, with all the controls laid out on display in that common-sense way that we old-school synthesists like. You then peer over the back to find a comprehensive and useful set of sockets; but the design doesn't end here, as we're treated to a beautiful wood panel, into which the sockets are sunk. To bastardise a quote from Steve Jobs, when talking about the original iMac – the minilogue looks

▨ **The minilogue** looks **better from the back** than many synths do **from the front** ▨

better from the back than many synths do from the front… Yes, I know, it should be more about how a machine sounds, of course – but actually, if you have to work with a machine on a regular basis, I believe it's really important to be drawn in visually, and that's why I feel that design is so important, and why it matters that the basic concept of a piece of equipment is beautiful, functional and just makes you want to sit down and work with it, so that's where we shall go next.

Subtractive architecture

Starting on the far left, the sonic palette begins with two Voltage Controlled Oscillators (VCOs) per voice. There is the choice of three waveforms per voice; sawtooth, triangle and square, all of which can be 'shaped'. You would expect this with any square/pulse wave, but the ability to also adapt the tonal characteristics of the saw and triangle waveforms is a lovely addition to the

palette. The Shape pot, which turns to induce the change in tonal colour, is a little bit 'keen'. As I started to tweak, I could see things occurring on the display, yet the reflection of this audibly took a little while to kick in – although kick in it did, with a little bit of a thump. But the rest of the pot curve was pretty smooth, with little hint of any stepping, and certainly not enough to cause offence. Bearing in mind that there are two VCOs on offer, the sound can immediately be pretty damn huge,

thanks to the tuning pot, available in both VCO camps. It's a full sweepable affair, and will rise and fall to the tune of an octave either side, and comes into play nicely with the VCO Octave switch, which will allow for four positions of register. As if the analogue credentials didn't need to be rammed home even further, with both VCOs supposedly tuned to the same 0 tuning point, there was beautiful cycling occurring, as the minute drift played with the pitch. If you

noise should really sound the same, but to my ears it never does and here, the noise seems pleasingly bright; perfect for those percussive whooshes that many of us enjoy.

Next up, we have the Filter section, which is a true voltage-controlled design, offering both two- and four-pole functionality, and can be driven into self oscillation in both modes – excellent. The filter can key-track to the tune of both 50 and 100 per cent, and most

▨ I can't believe **how much is on offer** here. It's **the architecture** of a **pretty substantial synth** ▨

fancy being a little more brutish, the oscillators can be sync'd and also passed through a ring mod. Strange that both these switches need to be in the 'up' position to apply, rather than the 'down' position which one might expect.

Next to the VCOs is a mixer, allowing for the mixture of both VCOs and some welcome white noise. I know all white

helpful of all, there's a switch dedicated to the effect that the keyboard velocity will have on the filter. Why is this a big deal? Vintage machines never had velocity control of filter, and I've always found it vaguely distracting, so having a switch in the heart of the filter section to turn this on or off is a blissfully simple idea many makers overlook.

The Envelope section boasts two full ADSR envelopes, which look after the usual amplitude and filter duties, the latter being linked to the Envelope Generator amount pot, located in the filter section. This helpfully works in both positive and negative polarity, thanks to the +/- polarity of the pot. The second envelope can also be assigned to the pitch of VCO 2. Beneath the envelopes resides the LFO section, with similar options for amount and direction of modulation.

This seems like a sensible point to just take a moment to draw breath, because I can't quite believe how much we have on offer here. What I've so far described is the architecture of a pretty substantial synth, the specification of →

Nestling alongside its older, bigger brother, the minilogue is a great addition to the classic MS-20 or Volca range
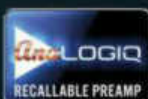
The back of the minilogue is just as beautiful to look at as the front

which would be up there with the best of them, yet Korg has managed this with such seeming simplicity that it's a joy to use, and use it we shall…

Having crept through a series of preset and programmed patches, I found the initialised patches, allowing me to start my sound exploration from scratch. The VCOs sound excellent, with a notably short warm-up time, and even just detuning the two VCOs makes for an enormous sound. Thanks to the wave-shaping, there is plenty of local contrast available and character in abundance. The filter is bright and punchy, and opens and closes to the extreme, giving plenty of control.

Picture this

Having drawn so much delight and inspiration from the basic architecture, we're not done yet, not by any means. Korg has included a small OLED display, which acts as a very helpful point of reference when tweaking those sounds, but they have gone one step further and turned the OLED into an oscilloscope. I ask you, what synthesist wouldn't like to have an oscilloscope built into their synth? Moreover, it's unobtrusive, and is incredibly useful as any pot is brought into play.

In performance

Because we are dealing with a polysynth, and four voices, it brings into play all manner of performance options. There is an obvious four-voice poly mode, but there are also Mono, Duo and Unison modes, the latter of which will stack all eight VCOs (two per voice) and sound instantly huge and thunderous.

Now the Voice Depth mode will come into play. This discrete and ambiguous pot will add further colour, depending on your voice mode. In Unison Mode, detuning will occur across all eight VCOs, resulting in whopping timbres that will make the floorboards shake. In Mono Mode, this pot adds a sub oscillator – a brilliant additon!

I'm getting the sense that these guys at Korg really thought about what performers would want in a synthesiser, and looked after each sensibility in turn. Alongside the manual performance

possibilities, there are also a number of useful additions, including an Arpeggiator and a rather handy 16-step polyphonic sequencer. The sequencer is very easy to work with, thanks to the dedicated buttons on the front panel, and the multi-purpose display, which gives a guiding clue as to which step is being programmed.

I ask you, what **synthesist** wouldn't like **an oscilloscope built into their synth**?

The ins and outs

As already mentioned, the back of this machine looks pretty special, with its Korg emblazoned rear-wood panel. It's such a shame to plug in cables to spoil it, but doubtless you will need to, if you want to hear something! So, on offer are the usual options: headphone and mono audio outputs, as well as MIDI connectivity via dedicated In and Out sockets and over USB. Audio input is also available, but for current Volca owners, there is a very handy 'Sync' In and Out, providing a clock pulse for immediate connection to other analogue devices, or even to allow a sync with a modular. This is a really nice touch, and a welcome one for anyone who has already managed to accumulate other analogue-friendly Korg boxes.

This became an incredibly useful conduit for getting sequential ideas down, quickly and easily. Korg has also implemented 100 factory presets, and another 100 user locations, so storing patches will not be an issue while keeping the full factory set intact.

As a helpful finishing touch, Korg has also included a delay on the backend of the signal flow, which is switchable from pre- and post-filter, or bypass, and all from the flick of the dedicated switch on the front panel.
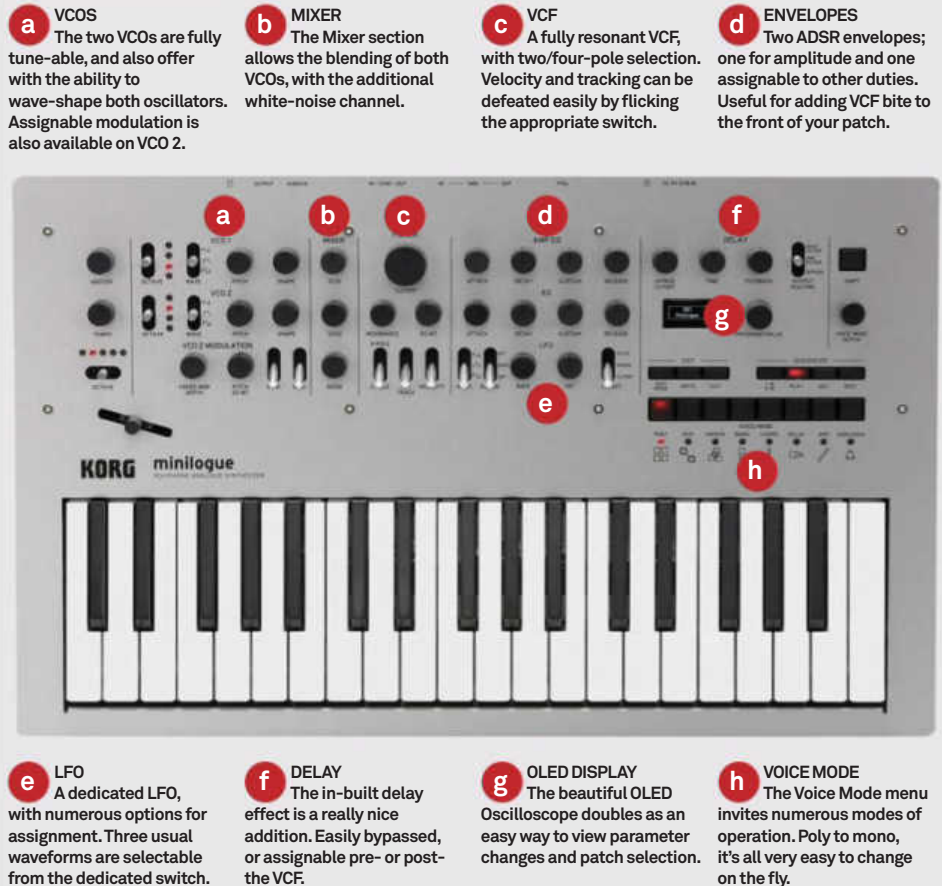
This is another suitable moment to draw breath and reflect on the fact that there are next-to-no multi-button presses to be had here. Admittedly, there are some button presses that need more clues, such as the two-button press which retunes the oscillators – but this is a huge joy to use, because there is no head scratching involved from trying to work out how to do something. You press a button, and up pops a description on the OLED display.

Yet despite the impressive performance credentials, there is a small gripe. While there is a pitch lever, there is no additional wheel or button for modulation. It is possible to assign the pitch lever to other duties, but this would take it away from the preferred 'pitch' assignment, which feels like a bit of a shame.

Conclusion

There is no doubt that this synth is a pretty wonderful product. It's full of great analogue character, rock-solid in stability with the new v1.2 firmware,

Korg minilogue overview

a VCOS
The two VCOs are fully tune-able, and also offer with the ability to wave-shape both oscillators. Assignable modulation is also available on VCO 2.

b MIXER
The Mixer section allows the blending of both VCOs, with the additional white-noise channel.

c VCF
A fully resonant VCF, with two/four-pole selection. Velocity and tracking can be defeated easily by flicking the appropriate switch.

d ENVELOPES
Two ADSR envelopes; one for amplitude and one assignable to other duties. Useful for adding VCF bite to the front of your patch.

e LFO
A dedicated LFO, with numerous options for assignment. Three usual waveforms are selectable from the dedicated switch.

f DELAY
The in-built delay effect is a really nice addition. Easily bypassed, or assignable pre- or post-the VCF.

g OLED DISPLAY
The beautiful OLED Oscilloscope doubles as an easy way to view parameter changes and patch selection.

h VOICE MODE
The Voice Mode menu invites numerous modes of operation. Poly to mono, it's all very easy to change on the fly.

position of each pot – something which would have bought it in line with some of the other Korg family members, such as the MS-20. However, there is one overbearing elephant in the room, in the shape of the keyboard, or to be more

It is highly possible to plug this little monster into a larger keyboard, but then doing so defies the whole point of the wonderful interface, right at your fingertips. This aside, though, if you're happy to work with those mini keys, then at this price, the minilogue is something of a no-brainer. Eight top-quality VCOs for under £500? That makes this a bargain. **MT**

There is one **overbearing elephant in the room**, in the shape of **the mini keyboard**

and is nothing short of a joy to use. There are a couple of drawbacks, such as the lack of a modulation wheel or button, and it would have been helpful to see some white line markings on the pot knobs, to make it clearer as to the

precise, the mini keyboard. I have to confess, I am continually confounded by the concept of putting mini keys on keyboards that would make such great performance synths. Korg is by no means the only company that does this, but it is a continued trait in a series of analogue machines which, to my mind, really taints the concept of a synth keyboard. I am yet to meet anyone that wishes a synth was fitted with mini keys, so I don't know where the preference comes from, unless of course it is from Japan, which is most likely, for whatever reason.

MT Verdict

+ **Superb analogue synthesiser**
+ **Four voice/two VCO-per-voice architecture**
+ **Various performance modes**
+ **Equipped with Sequencer and Arpeggiator**
+ **Excellently thought-through**
+ **LED oscillator display**
+ **Outstanding value for money**

- **Mini keys**
- **No dedicated modulation wheel**
- **Tricky-to-see pot position**

Korg really has done a great job here, so if you can work past the notion of a polysynth with mini keys, it's a great machine.

9/10

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**Excellence
10/10
MusicTech**

RUPERT NEVE DESIGNS
551 EQ

Want a 500-series Neve EQ designed by Rupert himself?
The RND 551 is just that. **Mike Hillier** enjoys its curves…

While there are dozens of companies building more-or-less accurate clones of Rupert Neve's early designs, Mr Neve himself has never been one to rely on past glories, always improving and experimenting with new designs. The Rupert Neve Designs 551 EQ is a three-band 500-series EQ, sharing the same inductor-based design with the three-band EQ built into both the Shelford 5051 EQ/Compressor and

low-end of the 1064 can now be switched from a shelving to a peak filter, and while the high-frequency band shares some design features with the classic 1073, it incorporates a newer capacitor-based topology alongside the inductor design for a best-of-both-worlds approach.

Top quality

The 551 feels solid, and slid into one of the remaining empty slots in our chassis with ease. The olive-coloured

It has been a while since we tested the Shelford series, but as soon as we put a signal through the 551 and lifted the top-end shelf, we were instantly reminded of the incredible quality of the EQ on those modules. There's a wonderful silky smooth quality to the top end of this EQ, which perfectly captures that British sound which Rupert Neve essentially defined.

Our first proper test of the 551 came from strapping it across a male hip-hop vocal during mixdown. We placed the 551 at the end of a chain (which already included an instance of FabFilter Pro-Q2 which we were using to cut out unwanted frequencies); after compression, the vocal was starting to sound close to where we wanted it, but it wasn't sounding polished in the way that we were looking for. A small boost using the top shelf at 15kHz added some air around the vocal, helping to lift it above the instrumental bed.

Switching to the 8kHz shelf brought more clarity, but also an edginess that we weren't keen on. Clearly, there was something in there that would benefit from boosting, but not with a shelf this low. There is an option to switch to a peak filter in the high band, but at 8kHz, this simply lifted the edginess and

There's a **silky smooth quality** to the **top end of this EQ** which captures the **British sound**

Features

- Three-band analogue EQ
- Fixed 80Hz high-pass filter
- Class A circuitry
- Inductor-based mid band
- Hybrid inductor/ capacitor high frequency

Shelford 5052 Mic Pre/EQ. This EQ can be thought of as a 'best-of' of Rupert Neve's designs over the years, taking inspiration from the 1064 low-frequency band, while the midrange and high-frequency bands take their lead from the famous 1073 EQ.

Not content with resting on these laurels, though, the designs have been further improved. The creamy, resonant

fascia with red-and-blue knobs is in keeping with the Shelford series, but marks a change from the grey frontplate of all the other RND modules – themselves based on the Portico series designs. While this is only a minor cosmetic change, it is one we definitely prefer, and the 551 looks comfortable in our rack alongside the other darker modules.

break up around the top of the vocalist's voice, without the polish of the air frequencies above.

Sheen machine

To try and bring some of that clarity out without the edginess, we switched the top shelf back to 15kHz and then went looking with the mid band. A small boost at 3kHz gave us some of the detail and clarity we wanted, without the edginess of the 8kHz peak, and

have a strong, deep quality, so we engaged the low band in peak mode adding a boost at 200Hz. As our 551 was being placed at the end of the chain, there was no need to engage the high-pass filter – the FabFilter Pro-Q2 was already on that – and comparing the two by bypassing the filter on the Pro-Q2 proved we needed the filter before we hit the compression stage. The end result of our EQing was a strong, vibrant, modern-sounding male

551 is one of the best-sounding EQs we've ever heard. Everything is switched, so is very easy to recall. Variable high-and low-pass filters would be more useful than the single fixed frequency high-pass filter, but this is nit-picking on what is a fantastic tool, and a great addition to any studio. **MT**

▨ Being able to **grab something physical** and **dial in a sound** is worth its **weight in gold** ▨

while moving this band down an octave to 1.5kHz provided more energy into the vocal, it started to contest with the pads in a way that the 3kHz peak didn't. Finally, we felt the high-frequency boosts we had given the signal were starting to thin the vocal a little. This being hip-hop, we wanted the vocal to

vocal. The colouration from the 551 is subtle, but there is definitely something in the sheen of this module that gives us the polish we were looking for. There are plenty of great-sounding digital EQs, but sometimes, being able to grab something physical and dial in a sound quickly is worth its weight in gold. The

Rupert Neve's Greatest Hits? Inspiration here comes from the 1064 for the low band, and 1073 for the mid- and high-frequency bands

▨ Alternatives

The Neve 551 aims to be a 'best-of' for Rupert Neve's designs, but if you wanted a more authentic 1073 EQ sound, the AMS-Neve 1073LBEQ is the one to go for. It is more limited than the 551, being an exact clone rather than simply an 'inspired by' unit. Clones of the 1073 are also available from BAE, Heritage Audio and AML.

MT Verdict

+ **Great-sounding EQ**
+ **Three bands**
+ **Switched gain and frequency controls**

- **Fixed frequency high-pass filter**

We love this EQ – it truly is one of Rupert Neve's best designs.

10/10

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**Choice
9/10
MusicTech**

KRK

KRK 8s, KRK 10s & KRK 12s Subwoofers

KRK has updated its popular range of subwoofers with three new units. **Alex Holmes** finds out if bass is in the place…

Details

Manufacturer KRK
Price **8s £339,
10s £399, 12s £699**
Contact
**01494 462246
(Focusrite)**
Web
**www.krksys.com
www.focusrite.com**

Bass and low end is widely considered as one of the trickiest elements of a mix to get right, and given the prominence that bass is given in modern music that means hard times for your average producer/engineer. One of the issues, particularly in writing

A perfect match

There's often a misconception that adding a sub will suddenly give you trouser-flapping bass that will annoy your neighbours, and while they're certainly capable of that, a well-balanced system will actually be fairly unnoticeable and just smoothly extend

and 12s2 models. There's also a flagship 12sHO model, but that weighs almost as much as the other three combined so for this review, we're just going to look at the others.

The low-down

The new designs have a sleek, curved look and trademark yellow woofer (made from glass-Aramid composite on the 8s and 10s, and from Kevlar on the 12s) that mimics KRKs Rokit, VXT and Expose monitors. This curved baffle isn't just for show, however, and helps to eliminate diffraction distortion. There's also a front-facing port that helps to provide low-frequency extension while avoiding firing too much bass at the walls, which will colour the mix. You also have a detachable metal grille, although it's recommended that you keep it fixed on if the sub is likely to be in range of a potential kicking! As you would expect, the models increase in size and weight as they go up, with the 8s weighing in at a reasonable 11.8kg, the 10s at 17.7kg, and the 12s at a back-breaking 30.14kg. Of course, you're unlikely to actually move the sub once it's set up, but be aware that the 12s is quite a beast at just under half-a-metre square, so

To **truly represent** your **low end** in **all its glory**, you'll want to **add a dedicated subwoofer**

Features

- **8", 10" and 12" Subwoofers**
- **Down to 35Hz, 31Hz and 29Hz respectively**
- **Glass-aramid/ woven Kevlar woofers**
- **Curved baffle, front-facing port**
- **4-way HPF crossover switch**
- **Sub and HPF bypass footswitch input**
- **Volume, Polarity, Standby and Ground Lift controls**

music aimed at the club or live environment, is it's impossible to replicate in your own studio the visceral experience of standing in front of a massive stack of full-range speakers. Most nearfield monitors will go down to around 40Hz, with the larger models going a little lower, but they're not reproducing these frequencies with great finesse. To truly represent the low end in all its glory, you'll want to add a dedicated subwoofer that can extend down to 30Hz and take the heavy-lifting work away from your main monitors.

down into the frequency nether regions. Depending on how big your room is, you'll want to get an appropriate-sized sub speaker, so as not to totally swamp your main monitors. KRK's new V Series 2 range now includes four different models covering eight-inch, 10-inch and two 12-inch subs, making it easier than ever to get a suitable fit for your studio. We've been using the older KRK 10s sub for over five years now, and were keen to see how the new models stacked up as we took delivery of three large boxes containing the 8s2, 10s2

→ you'll need a fair amount of space if you're looking to add one to your setup.

Get connected

Around the back, you'll find several stereo connections, including unbalanced RCA inputs for home audio and DJ equipment, balanced TRS jack and XLR inputs for a mixer or audio interface, and balanced TRS and XLR outputs that send the signal to your nearfield monitors. This is an improvement on the previous design on the 10s, which lacked the option to use balanced outputs. The full-range stereo signal comes in to the sub and is then split using a high-pass filter and an accompanying dial for selecting 60, 70, 80 or 90Hz as the crossover point. Then the resulting audio, minus the low end, is sent to your monitors. Typically, it's recommended that the crossover is double the lowest response of your main speakers, so around 80Hz is a good starting point. Although having just four settings makes it easier to compare, it seems like a step back from the sweepable dial found on the older models, which offered more finesse for fine-tuning the sub to your setup and room. To round things off on the input side of things, the 10s and 12s also have LFE (Low Frequency Effects) connection, intended for use with a 5.1 Surround system.

Other controls include a Volume knob for balancing the levels with your main speakers; an Input Sensitivity switch that can be bumped from normal to high for connecting consumer electronics; a Polarity switch that can be set to 0 or 180 degrees in order to combat phase issues, and Ground Lift

to help eliminate electrical noise. As a nice new feature, there's also a power-saving Standby option that mutes the subwoofer after 30 minutes of not receiving a signal. Finally, you have the option of connecting a footswitch to quickly bypass the sub and hear just the main monitors. As a nice touch as well as an upgrade on the previous models, this now bypasses the crossover circuit, so you can go straight to the full-range output of your speakers. Although a footswitch pedal isn't included, you can use any old quarter-inch guitar-switch pedal if you've got one lying around.

Get deeper

So how do these subwoofers stack up when it comes to their low-end performance? Well, the 8s is recommended for use supporting smaller speakers and goes down to 35Hz; the 10s for use with six-inch to eight-inch speakers and goes down to 31Hz, and the 12s with six-inch to 10-inch speakers and goes further down to 29Hz. It's worth noting that all three subs technically extend a little lower down than this, but the volume rolls off steeply. We loaded up a bunch of bass-heavy dance tracks that we knew intimately and fired up each sub in turn with similar settings, to compare the results. The 8s gave a significant boost to our KRK V6 speakers, filling in some low end which, from a volume perspective, easily filled our medium-sized studio. The low end was punchy, but couldn't quite do justice to the full weight of the lower sub frequencies and we couldn't 'feel' it as much. That said, if you're willing to put in the time to fine-tune it, some careful use of the boundary effect by placing the sub close to a wall could actually help improve the power of the sound. The 10s fared better, and the improved, deeper frequency response and cabinet design provided a slightly more punchy sound than our older 10s model.

Finally, the 12s was unsurprisingly the most satisfying of the three, with a more noticeable smoothness to the frequency distribution and crossover, and more weight and power that filled the room, yet still retained the transient punch of the kicks and bass. To double-check the frequency responses, we also played a sine sweep through the system using FuzzMeasure Pro, and recorded the results with a measurement microphone. As expected, you could see extra bass extension and slightly smoother peaks

on the 12s on the resulting graph, but all three subs gave solid results.

Sub-genre

Your decision will be largely based on the size and frequency response of your current monitors, and the size of your room. If you're mixing extremely bass-heavy music with fundamentals that often go below 40Hz, then you might be best off looking to invest in the larger models that will give you the clearest representation of hearing those frequencies in a club. However, for most genres, you probably won't be going quite so low, so you may find the other models are adequate. The 8s is a decent, feature-rich option for anyone with a smaller studio who mixes more traditional music. However, if you have the space and can afford the extra £60, the 10s will give significantly better and smoother results. The 12s is quite a hike up in price, so you may want to audition it alongside some other units, but if you're after a deeper, louder and more even response, then it definitely delivers. Overall, though, all three models are well thought out and designed, with a few useful features you won't find elsewhere. **MT**

MT Verdict

+ **Good-looking speakers**
+ **Well designed, with useful extra features**
+ **Low distortion**
+ **12s is powerful**
+ **8s is compact**

- **Only four crossover frequencies**
- **Smaller model sounds less smooth**
- **Some other competitors offer deeper response**

A well-designed collection of subs to cover most studio needs, with some useful features, decent, low-distortion volume output and good low-frequency response.

8s2 **8/10**

10s2 **9/10**

12s2 **8/10**

Details

Manufacturer
H&K Audio
Price £1,499
Contact John Hornby
Skews 01132 865 381

Features

- **Power rating:**
  460W (300W +
  2x 80W) Class D
  (EIA)
- **Frequency**
  response:
  +/- 3 dB,
  43Hz to 20kHz
- **8-channel mixer**
  with built-in
  DSP preamp and
  effects section,
  Bluetooth audio
  streaming
  and Bluetooth
  remote control
  for additional
  DSP functions
  (via NANO
  REMOTE app)
- **Inputs: 4x**
  XLR Combo,
  2x 1/4", RCA/
  mini jack 3.5mm,
  Bluetooth
  audio streaming,
  Link In for Twin
  Stereo Mode
- **Outputs:**
  Speaker Out,
  Easy-Click, Rec
  Out, Footswitch/
  Aux Send Out,
  Link Out for Twin
  Stereo Mode
- **NANO REMOTE**
  app for iPad
- **Weight: 16.3kg**
  / 36lbs

HK AUDIO
Lucas Nano 608i

HK's ultra-compact system with iPad mixer could be a PA to suit all kinds of modern gig situations. **Marcus Leadley** plugs in…

While many readers can be justifiably proud of their mastery of studio-based practice, playing live offers a completely different set of challenges, which are often less well understood. This is especially so in an era when gigs come in all shapes and sizes and occur in a diverse range of settings – often in environments that don't provide any sort of PA. So when we spotted the Lucas Nano 608i at NAMM this year, we got all excited and featured it as one of the six 'great products of 2016 you might have missed'.

The Nano 608i is a self-contained portable PA system. Two small satellite speakers stow away neatly in the back of the moulded polypropylene bass subwoofer unit – which also hosts an eight-channel mixer and all the required connectivity. It can function in mono or stereo and, while all the basic features can be accessed from the physical controls, it's really designed to be controlled wirelessly by an iPad app that allows you to access many more features. There's an onboard effects processor and you can even stream

music directly via Bluetooth. While the 608i is certainly portable, it still weighs in at 16.3kgs (35.9lbs) – about the same as a 1x12 guitar combo, so I'd be thinking twice before heading off alone across the fields to the marquee. Among the many accessories available is a solid-looking bag on wheels for

under £100, which might be a good investment. The unit itself feels chunky and reliably solid. There are two grab-bar handles – these also help to protect the recessed mixer controls and the satellite speakers when stowed. These are securely retained by quick-release twist locks. Each satellite is roughly 14.5cm square and features HK's patented Multicell Transformer Technology which combines a 4.5-inch

woofer with a one-inch HF driver. If you really want to travel light, both satellites can be clipped together and then clipped directly onto the top of the bass unit to deliver a fully functioning mono column. You can also use an optional S-Connect Pole (£119), which supports the satellites, extends up to 137cm and

Nowadays, **gigs occur** in a **diverse range of settings** – often in **environments with no PA**

contains the cable connection. For stereo use, there's a set of solid HK stereo stands (£129; the kit includes cables and carry bag), or you can use ordinary mic stands, though you'll need a pair of Speakon cables to connect the units to the back of the bass module.

Set up

In its most basic mono mode, the 608i can be up and running in little more

than a minute – literally. Release and mount the satellites, plug in, say, a mic, a keyboard and laptop and turn on. This works extremely well, but I am a little concerned that the plastic retaining lugs could prove to be a weak point – especially as the mount functions like a camera hot shoe. Any artist using voice and electro-acoustic guitar or keyboard will find this an incredibly simple sound-reinforcement solution. The mixer gives you four combi jacks for mic/line sources and a pair of TS ¼-inch sockets. Channels 7/8 have a pair of RCA sockets, a mini-jack input and is switchable for a Bluetooth digital audio stream. So that's most options covered! Channels 1 to 6 have independent Gain/Volume controls (with Overload LEDs) and contour EQ with a centre-notched rotary control. These channels also have an Aux/ Reverb rotary and another rotary offers seven room-size settings and an Aux Send option. This cleverly routes the signal to the dual-function footswitch socket (reverb on/off), so you can

connect an external effects processor. It's suggested you use channel 7/8 as the return. The mixer also has a Master output control and there is independent Level control for the sub and the satellites and a L/R Balance control. There's a pair of Output jacks, to which you can route the whole mix (to go to a recording device), or just the outputs of channels 3 and 4, which enables a monitor mix to be established.

Finally, there's a Link socket, so you can expand the system by adding the more basic Nano 600 or a second 608i. As well as more power, you also get more mixer channels this way. On the back of the unit, you'll find a phantom power switch (essential if you plan to use condenser mics or DIs), a Remote switch to enable iPad connectivity, Speakon connectors and a Mono/ Stereo setup switch.

If you use voice and guitar or keyboard, this is a simple **sound-reinforcement** solution

Above: The onboard controls are fine, but the iPad app opens up many more useful possibilities

Above left: The 608i is compact and portable, as you can see – but still weighs as much as a typical 1x12 guitar amp

Above right: The app's simplified interface offers easy access to important parameters

Mono or stereo?

When it comes to PA systems, stereo can be far more problematic than you might at first anticipate. In many situations, it can only work effectively for a small percentage of the audience who are centrally located.

Improved system design in the last 20 years has done much to improve overall diffusion characteristics, but anyone at the periphery of the experience is still likely to hear an unbalanced mix or, if completely out of earshot of one array, a total absence of hard-panned content. This is why in the live environment, it's common to use panning very judiciously – principally moving instruments off-axis in order to clear space for a central vocal or lead performance. Phase issues, as a result of sound travelling different distances to the listener's ears, can be more apparent in stereo situations where sonic relationships between sources are naturally more complex. However, two-channel mono setups are not immune from phase issues, either. And these problems can be exaggerated when working in the open air. This is one reason why a single-line array (partially emulated by the Nano's mono, vertical option) still has its uses. Ever experienced weird, washy sound at a carnival? This can be largely overcome by diffusing the sound from a single location.

Top left: If you've never had the opportunity before, EQing from anywhere in the room using the iPad app is a revelatory experience

Top right: The app's Expert mode offers touch-screen control over a much deeper set of features

Below: The 608i can be used as a mono PA, a 2.1 setup or in Twin Stereo configuration

→ App attack

Working with the onboard controls is fine, but you will be at a disadvantage if you're not running the free iPad app. If you don't own one, HK does make a more conventional Nano 600 with the same power output (at a considerably lower price), but this only offers a three-channel mixer. Once installed, a rock-solid connection is established and it's pretty much instantaneous when the devices are powered up. The app is extremely well thought out and easy to engage with. The mixer page offers nice big faders, which respond well to the touch. Channels 1 and 2 are independent; 3 and 4 can be independent or linked; 5 and 6 and 7 and 8 are stereo pairs and there's fader control for reverb and master volume. Each channel can be muted and pressing the global edit button gives you access to master EQ and other primary functions. The individual track-edit buttons give you access to a range of features, and there are two modes of operation. There's a simple interface with rotary controls for Contour (bass cut/treble boost or bass cut/mid cut), Panorama (L-R panning) and Reverb/Aux, an equaliser (Low, Low-Mid, Hi-Mid, High) and a compressor. However, accessing Expert mode (from the setup menu) loads a new set of modules that give you much deeper control. There, a DAW-style EQ with touch-

screen manipulation gives you fine control over frequency, gain boost, cut and Q factor. Rather than a single knob for more or less compression, you get Attack, Release, Ratio, Knee, Threshold and Gain controls. There's also a Scene Memory function, which allows you to

potentially huge – indeed, it's too much in many situations. HK makes a good deal of the success of its Anti-Resonance Bracing. However, it's much better to be dialling the bass

> ▨ There's also a **Scene Memory function**, which allows you to **save a range of setups** ▨

save a range of setups – fantastic news if you play a number of venues regularly, or if you work with different input configurations.

Sound

If you're used to listening to near-field monitors in the studio, this is a very different sonic proposition. The sound is impressively hi-fi and well diffused, rather than accurate – so you wouldn't want to mix on the system. However, you could certainly use it in the context of a home-entertainment system when not gigging. In basic mono mode (satellites clipped to the bass unit) and tested with CDs, MP3s and mics, the system delivers plenty of top-end clarity. Despite the summed stereo image, the mids perform creditably and there is little cluttering at low-to-mid volumes. The bass output is solid, well defined and

back rather than trying to conjure it out of thin air. There is, however, some inevitable acoustic coupling between the bass unit and satellites in this configuration and the sound becomes confused and messy as we approach higher volume settings. This can be cured by the using the S-Connect pole. Lifting the satellites higher into the air generally improves mono performance immensely. Offering a combined output of 460 watts (300 plus 2x 80 watts), 608i →

■ In use tip

Unfortunately, the Lucas Nano 608i only lets you use one reverb model at a time, so you might want to reserve its use for vocals, or use it for instruments and feed the vocals in via something like a TC-Helicon VoiceLive – especially if you're hoping to create a stadium sound in a shoebox venue. In a small venue, you probably won't need to mic acoustic drums – however, if you have spare channels then a pair of overheads and a hint of reverb can add a professional sheen to cymbals and snares. And putting a little kick into the PA can also work wonders.
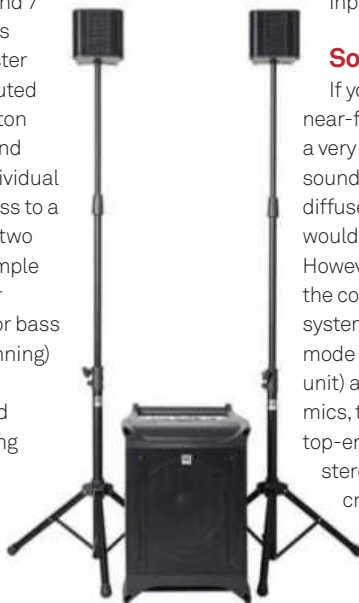
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The app's mixer page provides large and touch-responsive faders for tweaks in the heat of live battle

→ lets you get plenty loud in a small venue – and HK proposes that in mono mode, is ideal for audiences in the range of 80 to 120.

Moving to stereo operation is quite an ear opener. Initial tests with recorded material evidenced an extraordinarily stable image. I tested the system in an untreated room approximately 8x7x3 (high) metres, so not too dissimilar from many small bar/pub/church/art gallery spaces. I found I could move anywhere in a 180-degree arc without experiencing any apparent loss of left or right satellite performance. While there was some top-end roll off when I passed behind the satellites, the sound remained clear and the stereo image seemed to remain essentially (and a little spookily) intact. This means that a performer/band stationed behind the satellites will still get excellent sound quality to work with. If you're working with electronic sound sources or recordings, the onboard mixer controls are adequate for many situations. If you're plugging instruments straight into the 608i, DI boxes will still be an essential part of your kit. As soon as you start to work with mics and live instruments, the iPad app becomes your best friend. The Expert mode EQ is

excellent for notching out feedback and you have the tools to tweak individual channel performance to create a considered and well-balanced overall mix. Being able to mix from anywhere in the room is superb. As an artist mixing him or herself, the iPad can be attached to a stand and the whole system becomes something of an instrument in its own right. The reverbs sound good, but need to be applied with caution. They can certainly invigorate your sound in a very dead environment. HK suggests the Nano 608i can function effectively for a crowd of up to 200 in stereo mode. Well, yes, maybe – if you're working from a raised stage and dealing with a seated and respectful crowd – otherwise, I feel it would struggle. You can run the system flat-out without any issues, it seems, but obviously, you then have nothing extra in reserve. **MT**

■ The **stereo diffusion** is truly outstanding and the **iPad app** makes it extremely flexible ▨

MT Verdict

+ **Excellent sound**
+ **Stable stereo image or mono operation**
+ **Portable**

- **Underpowered if you're looking to play larger venues**
- **Less attractive if you don't own an iPad**

A solidly built mini PA with a big sound. The stereo diffusion capabilities are truly outstanding and the iPad app makes it an extremely flexible solution for solo performers, small ensembles and bands that play small venues or need a PA for a rehearsal room. The system could also be used in the domestic environment for practising and could seriously augment a home-theatre setup.

9/10

POP AUDIO
Pop Filter Studio Edition

Pop filters aren't ever going to be exciting – but **Mike Hillier** finds out they needn't be a chore, either…

Pop filters are generally considered inexpensive bits of studio equipment – something you can pick up from your local audio electronics store for around £10 to £15. We all know how important a pop filter can be, for preventing plosives reaching the mic capsule, but very little thought ever goes into what effect it has on the audio, despite engineers being willing to spend hours debating the audio qualities of different XLR cables. So little thought goes into pop filters that we often hear tales of engineers making their own from little more than a coat hanger, some old tights and a roll of gaffer tape. Yet, despite this, we've all experienced trying to clip a pop filter to a stand and having it droop, or slip, or simply fail to clip at all and just fall off. We've grabbed separate mic stands to try and place the pop filter so it's actually between the capsule and the vocalist, where we want it, rather than simply in the only place we can get it.

Pop Audio believes it has the answer. The company has developed a pop filter suitable for the professional studio, one which aims to take the concept and advance it, to something so good, you'll forget it's there at all.

Pop goes the…
The Pop Audio Pop Filter Studio Edition comes with three swappable filter attachments. The first of these is a classic fabric-style filter, which uses a dual layer of acoustically-transparent fabric to block plosives while allowing everything else through. The second is a metal filter, which replaces the dual layers of fabric with two metal discs.

This filter option is designed for use on the road, where the extra strength and ability to wipe it clean could potentially make it more useful than the fabric filter. The last option provided with the Studio Edition is a foam filter, which uses a very lightweight 20ppi hydrophobic foam mesh to keep out plosives in the most acoustically transparent way possible.

The filters each clip on to the main arm with a simple push and twist bayonet mechanism. The arm itself is made up of a series of ball and socket joints, rather than a standard gooseneck. This mechanism makes it much easier to precisely position the filter with no risk of drooping – which is handy considering the inevitable jokes that will be heard whenever a band sees this device. The arm terminates in a solid butterfly clamp with a tight grip and high-friction rubber grips.

As an extra trick up its sleeve, the filter attachment end of the arm can be unscrewed and removed, revealing a 3/8-inch screw thread which can be used to hold mic clips. This little detail means that the Pop Audio Pop Filter can still find a use even when you're not tracking vocals, for holding an additional mic off the same stand as another mic. For instance, to hold a hi-hat mic on the same stand as the snare mic, or for a second snare mic.

Hands on
The Pop Audio Pop Filter really is as easy to use as the company claims. Compared to our no-brand studio pop filters this is not only better looking – a factor that you shouldn't rule out,

aesthetics can do a lot to improve a performance – but also considerably easier to set up. The clamp doesn't droop or sag, and the arm allows for positioning the filter very quickly with no problems at all. We tried all three of the interchangeable filters, asking our vocalist to repeat the tongue twister "Peter Piper", thanks to its considerable plosive elements. The differences were so slight that the differences in each performance more than outweighed the differences between the filters. In all three examples, though, it was obvious that the plosives had been removed, and we'd be happy to use any one of them in the studio. In fact, unless you often work out on the road and need the strength of the metal filter, we'd suggest purchasing the Classic Edition, which comes with just the fabric filter. And at £40 for the Classic Edition, this has to go on every studio's gear list. **MT**

Details
Manufacturer
Pop Audio
Price £55 (Classic Edition; £40 with fabric filter only)
Contact www.popaudio.co.uk

Features
- Ball and socket joint arm
- Three interchangeable filters
- Strong, high-friction butterfly clamp
- 3/8-inch mic clip

Alternatively
The Pop Audio Pop Filter is so simple and so effective, that it's hard to even consider an alternative. If you ever intend to record vocals, this is something you're going to want to add to your kit list immediately.

MT Verdict
+ Simple to use
+ Incredibly well designed
+ Can be used to hold a mic clip

- Only avoid it if you don't record vocals!

Quite simply the best pop filter we've ever seen.

10/10

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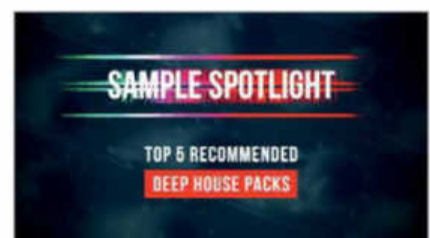**Studio Tips & Techniques**

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MUSIC KNOW-HOW

Spectrum

Publisher Wave Alchemy

Price £59.95 (requires Kontakt 5.5.1 or above)

Contact via website

Web www.wavealchemy.co.uk
www.loopmasters.com/labels/4-Wave-Alchemy

Choice 9/10 MusicTech

Key Features
- 10,000 samples from 15 iconic synthesisers
- 185 multi-sampled instruments and 250 snapshot Kontakt presets
- Layer up to four Waves
- Built-in multi-lane sequencer, FX and channel strip
- Requires 12GB of HD space

Wave Alchemy has spent over 18 months producing its new release, Spectrum. The Kontakt instrument includes 185 characterful, multi-sampled waveforms that can be layered into four slots, with controls for amp and filter envelopes, a choice of four filters, a gentle HPF, unison and width controls, LFOs for the filter and the pitch and a useful randomise wave function. There's also an excellent in-depth Sequencer page for modulating a range of parameters, a chord memoriser function, and a fairly simple, but well-thought-out FX page. The waveforms include more raw waves alongside some satisfying, well-programmed analogue shapes that can be stacked up to build massive-sounding patches. Just be aware that some patches can take up a fairly hefty amount of RAM. MT

MT Verdict

A fantastic collection of unique and lively multi-sampled synth waves that can be layered in near endless ways to create modern and retro synth gold.
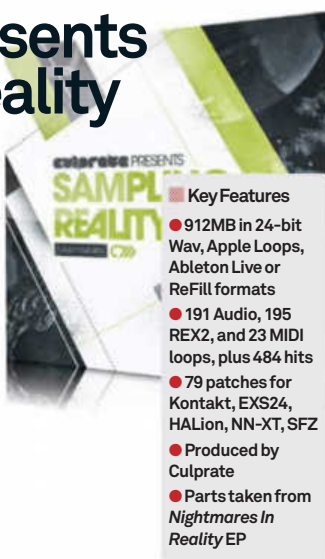
9/10

How to Create A Killer Live Set
Using Ableton Live & External Instruments

Publisher MusicGurus

Price £25

Contact via website

Web www.musicgurus.com

Key Features
- Learn techniques for setting up an Ableton Live set
- 16 videos streamed online
- 2 hours and 16 minutes
- Uses Live plus an array of hardware
- Written and presented by Mark Burnett

Although there are no end of tutorials showing how to program and mix using Ableton Live, there aren't so many on the art of crafting and delivering a dynamic, pro live set. This new course from MusicGurus sees producer and Ableton Certified Trainer Mark Burnett work through his setup that includes Ableton Push, an Elektron RYTM, Korg volca beats, Vestax VCM 600 mixing desk and more. The 16 lessons start simply with some clear explanations on how to cable and set up the equipment and software, before moving on to more complex explanations on MIDI mapping, racks, macros, using microphones and loopers, and performance FX, before finally showing some sections of performance. Although things get specific to Burnett's own methods, this is an interesting insight. Use MUSICTECH20 to get a discount. MT

MT Verdict

Starts out simply but quickly develops into an in-depth look at a specific, pro live setup with useful tips and insights.

8/10

Culprate Presents Sampling Reality

Publisher Loopmasters

Price £24.95

Contact info@loopmasters.com

Web www.loopmasters.com

Key Features
- 912MB in 24-bit Wav, Apple Loops, Ableton Live or ReFill formats
- 191 Audio, 195 REX2, and 23 MIDI loops, plus 484 hits
- 79 patches for Kontakt, EXS24, HALion, NN-XT, SFZ
- Produced by Culprate
- Parts taken from *Nightmares In Reality* EP

This new pack from producer Culprate fuses dubstep with 2-step garage, d'n'b and breaks influences across 912MB, with 191 loops, 484 single hits and 79 sampler patches. These loops cover some aggressive and powerful synth basses, a variety of industrial-strength beats, top loops and percussion grooves, plus some surprisingly deep-sounding chords and musical loops. Many of the thicker sounds are provided with individual layers, which cuts down on the number of unique riffs, but offers an insight into how Culprate sculpts his huge sound. There's also a decent collection of powerful bass, synth, drums, vox and FX one-shots and multi-samples. The only downer is the fact that the parts have been dissected from Culprate's previously released *Nightmares In Reality* EP, so you'll need to work extra hard to make some of the sounds and loops your own. MT

MT Verdict

A well-produced library with crisp, tight and powerful production throughout, which offers a few surprises beyond your average dubstep pack.

8/10

Defected Old School House Rogue D

Publisher Loopmasters

Price £19.95

Contact info@loopmasters.com

Web www.loopmasters.com

Key Features
- House drum, bass and chord loops by Rogue D
- 225MB worth of 24-bit audio WAV, Apple Loops & REX2
- 122BPM
- 15 drum hits with one patch for Kontakt, EXS24, HALion, NN-XT, SFZ
- Rough and warm old-school sound

If you love the sound of warm, fat and saturated old-school house, then you might be interested in this new pack from Defected Records and veteran producer Rogue D. The collection features a relatively modest 225MB worth of 24-bit audio, with 101 drum, top and fill loops, 20 bass loops and 44 chord loops, plus a small collection of 15 drum machine hits. It's not a massive pack, and it won't win any awards for originality, but everything here – from the chunky, kick heavy drums to the warm and creamy filtered down basses and dusty chord chops – has an appealing rough and analogue-sounding edge to it. Our only gripe is that we found the layout of the drums and their component loops a little confusing, and would have liked some more kick-only parts to aid with arrangement. MT

MT Verdict

A small, simple but effective pack of warm and chunky house beats, basses and chord stabs.

8/10

Six of the best

Hardware ▨ Software ▨ Mobile Tech ▨ Accessories

Welcome to the ***MusicTech* Buyer's Guide**, where we round up some of the best products recently reviewed in *MusicTech*. This month, we look at some of the **headphones** we've tested for all ears and studio uses…

BEST In-ear

Audio Technica ATH-E70

Details
Price **£280**
Contact
**Audio Technica
0113 277 1441**
Web
**eu.audio-
technica.com/en**

We like pretty much all the models in the ATH IEM series of in-ear 'phones. The cheapest E-40s are particularly good for just £70 but if you want the best in-ear experience, you'll have to go for the top-end E-70s. Yes they're four times the price but, well, here's what reviewer Andy Jones said: "The 70s are the best all round, as you might expect for the money, and the best in-ear 'phones I've mixed on, translating all I'd done on much more expensive headphones and £1,300 monitors. They will take some getting used to, but if you want your music making streamlined and free of excess weight and size distractions, these are as good as it gets. ***It's the old 'you gets what you pays for' message, as these sound the best of the AT IEM range."***

Details
Price **£239**
Contact **Synthax
+44(0)1727 821870**
Web
**www.synthax.
co.uk**

BEST Mixing

Ultrasone P880

The Holy Grail of headphones is to get comfort, accuracy and something that doesn't fatigue over long sessions, and these might just fit all bills. Andy Jones said: "The 880s are a great fit and feel snug and assured. The sound is flat and accurate, and surprisingly not too fatiguing which – like flat monitors – can happen with such responses over long sessions. So flat, comfortable *and* suitable for long sessions? That is a rare and great combination to achieve. ***Good price, great sound, accurate and comfortable. Win, win, win and win!"***

BEST Looking

Blue Mo-Fi

Okay, we admit that we were drawn to these more through their looks than anything else when we saw them on display at last year's NAMM show. Luckily, they not only sound as good as they look but are also easily as comfortable. We said: "They fit incredibly well around your head. The headband extends from a compact, sprung storage position outwards, and if this wasn't enough, both 'phones extend downwards, too. This is the clever bit; rather than notching them down, you gently pull the 'phones away from you and they drop – very cool! Sound-wise, these are right up there with our reference phones and they translated a mix we were working on very well indeed – all of the detail we expected was there. ***They look and sound great – the amp and unique design set them apart from the rest."***

Details
Price **£274**
Contact
via website
Web
**http://blue-
headphones.com**

→ **BEST** Budget(ish)

Fostex TR Series

These might not be budget for some people, weighing in, as they do, at £155, but as with studio monitors, we recommend spending as much as you can on your cans, so this is cheap believe us! There are actually three models in the TR range: open back, closed back and semi-open and these will very much suit whatever you are used to. We find that open back, for example, might offer a more immersive experience but do need to be driven harder and are not as good at insulating the outside world. Of the range, reviewer Andy Price said: "Overall comfort scores highly and the unique slider bars are easily scalable to get the perfect fit. For the all-important sound quality we tried out a variety genres, finding that the Fostex TR Series offered a magnificent and dynamic listening experience, balanced between the weighty low end, detailed mids and sharp trebles." He concluded: ***"Our new go-to 'phone choice for music listening."***

Details
Price **£155**
Contact **SCV Distribution**
Web **www. scvdistribution. co.uk**

BEST Accuracy

Details
Price **£165**
Contact **Pioneer 0208 836 3500**
Web **www.pioneer proaudio.com**

Pioneer HRM-7

With a frequency response of 5 to 40kHz you can expect these to deliver accuracy… and they do. They are also comfortable and offer good isolation, but that accuracy can fatigue over longer periods. We said: "As with monitors, you want them to be as accurate as possible and these 'phones are good for critical listening. Use with caution and they can open up parts of your mix that others don't reach. ***You really can hear that response. A fine addition to your studio."***

"Money should be **no object with monitoring –** but try explaining **£1,300 for a pair of 'phones to your wife.** If you can, though, **your mixes will benefit**…"

BEST Ultimate!

AKG K812

At the best part of £1,300 (retail, you can get them for under a grand street) these are the most expensive 'phones we have tested but they do certainly sound it. You can literally hear everything you need to within an airy environment that exudes quality. We said: "These are the best-sounding 'phones we've used, bar none. Price will be an issue. Even though we've said that money should be no object when monitoring, try explaining £1,300 for some headphones to your wife. If you can, however, your mixes and masters won't regret it. ***Accurate, vibey, spacious, comfortable and perfect for mixing, these are the ultimate 'phones (at a price!)"***
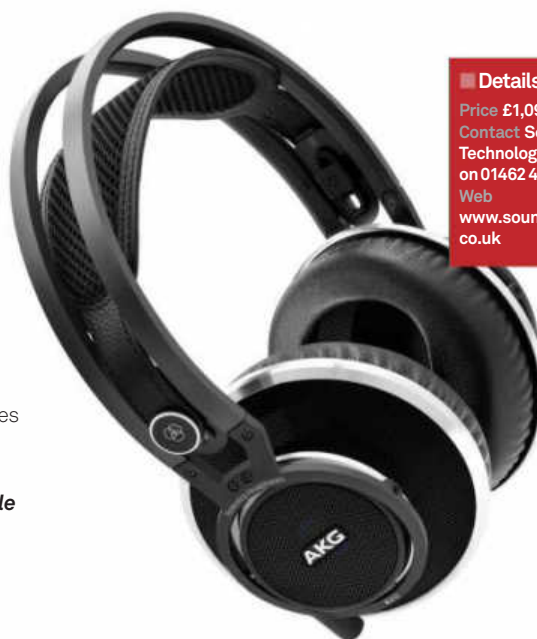
Details
Price **£1,099 +VAT**
Contact **Sound Technology on 01462 480000**
Web **www.soundtech. co.uk**

MT Industry Gurus Spitfire Audio

INDUSTRY GURUS

SPITFIRE AUDIO

In the latest of our industry spotlights, we talk to **Paul Thomson** and **Christian Henson**, the founders of Spitfire Audio, fast becoming the go-to library company for composers everywhere, and flying the flag for British music technology…

Every month, we highlight some of the big players in the music-production industry. This time, we've tracked down the founders of Spitfire Audio, a company that has been around for less than a decade but has already made its mark with some of the best sample libraries out there, and has quickly become the number-one name for film and TV composers across the globe. Paul Thomson and Christian Henson are the founders of the company and responsible for libraries like Albion and a vast range of orchestral collections…

MusicTech: Tell us a little about how Spitfire came about…
Spitfire Audio: Spitfire began as a private sample library born of our frustrations with the existing tools available to composers and producers back in 2007. It started as a two-man cottage industry which gathered a small group of A-list film composers together to create a new kind of orchestral sample library, recorded exactly the same way the biggest Hollywood scores are recorded, in the same studio, with the same players in London. As it started to expand, we saw that there was an opportunity to reinvent the way orchestral samples are recorded. We approached things from a slightly

> ## "We saw there **was an opportunity** to reinvent the **way orchestral samples are recorded**"

maverick point of view, with an instinct for what would keep life and musicality in the sounds. We'd say, "instead of recording samples, we'd record film scores, but one note at a time."

MT: What was your original goal when you set the company up?
SA: We wanted to create inspiring tools and collaborate with fellow soundsmiths.

Rather than try to imitate what the great creatives do in our field, we wanted to work with them to achieve really inspirational products that help people write better music. We also wanted to make sure the musicians were central to the process, so agreed from the get go that they would be paid a royalty. In those days, sampling felt like something companies on the periphery of the music industry did to leach off it. We wanted sampling to be a central process, from within the music industry.

MT: What is it that sets your products apart from other libraries?
SA: We have an affluent approach across the board. Every element of our signal chain, from the performer to the desk, is absolutely uncompromisingly the best available. We use tape where we think it benefits the end recording, irrespective of how difficult it is to achieve. An example is

Christian Henson: "We use tape where we think it benefits the recording…"

be a part of and is something that will continue into the future.

We would like Spitfire to be ushering in a new enthusiasm for orchestral music among the young, and helping to educate a new generation of music makers in the beauty of orchestral instruments and the joy of collaboration with live players. We also see a shocking disparity between the number of male users we have versus female and we really want to figure out how we can address that. We were watching a video in the office the other day, an interview with two of our heroes, Pharrell Williams and Daniel Lanois, geeking out about guitar amps, corridors and Pulteq EQs. There is a really shocking moment about halfway in. In using this as a template of how NOT to make educational content, we all agreed, "Well, surely it would be a start just to NOT have naked women in their 20s appearing in our edu content serving tap water to middle-aged men!". I think we were all depressed to see how far we still have to go in the music industry.

MT: How would you like to be remembered in terms of your company profile?

SA: Spitfire worked from within the industry, rather than leeching off the outside of it; helping to sustain and grow orchestral music via its voluntary royalties on sales to players and technicians, via its regular and increasingly inventive recording sessions in the top studios, and via promoting the work of a community artists and creatives worldwide. I guess ethical and non-

setting up a 48-track mobile studio with all Neve mic pres in the beautiful Headley Grange, to record some legendary drummers where Bonham and Johns created the 'Levee' drum sound.

We also place a huge premium on life and musicality. We despair to hear clinical and mechanical sounding virtual instruments. A colleague of ours worked with George Clinton a few years back, and wanted to correct a specific note on a guitar take citing an erroneous F#. George Clinton said "that's not a mistake, that's the funk". This resonates with us – it's not knowing what to abandon which is the secret, it's knowing what to keep!

MT: Which have been your most successful products and why do you think that is?
SA: Our Albion range, for its ease of use and 'out of the box' sound; also our Hans Zimmer collaborations, due to the extraordinary attention to detail and huge creativity and care he approaches everything with. Then there are our collaborations with the inventive talent that is Ólafur Arnalds, due to his singular creative vision and uniqueness as an artist; and then products like our Swarms (nine harps, 19 guitarists); and our Evogrids for their new approach to creativity, and for allowing the user to substitute a curiously beautiful and yet unrecognisable sound for what would usually be in its place. I guess that's when

being composers, not software developers becomes really fun. It's like the world's biggest musical train set!

MT: Where would you like Spitfire to be as a company in five years' time?

SA: We've been going for 10 years now, and in the last five, we've been building a team of fantastic people from far and wide with countless and disparate disciplines. This enrichment of our business is an honour to

> "**Being composers** rather than developers **is really fun.** It's like using **the world's biggest musical train set**"

Paul Thomson in just one of the Spitfire studios

→ exploitative, the latter of which so many areas of the music industry can be.

MT: What do you think about the way music production has gone over the last decade in terms of technology? What has been the good, and the not so good?
SA: We love the 'unusual' in music production technology. We welcome interesting and unique approaches to increasing creativity. We love analogue hardware as well as computers. We appreciate the quest for excellence in all fields – microphones, instrument design (our good friend and incredible trumpeter Mike Lovatt has just released an amazing new trumpet); and synth design (we love our Moogs and our Zebras). Our 10-year journey has also given us a fascination in the spaces we work and how that can affect the performance. Whether it be the Wigmore Hall or Headley Grange, we believe places have a part to play in the history of music and feel that many artists are waking up to this and not recording every instrument like your ear was right next to it, which has characterised a lot of recordings in recent times.

MT: Music production did become a little obsessed with being 'in the box', but has properly broken out in recent years. As a software company, what is your take?
SA: It has unlocked a huge amount of potential. The ability to create and collaborate is hugely enhanced. As users, we must always ensure that we are working with

Air Studios during the recording of a Spitfire library
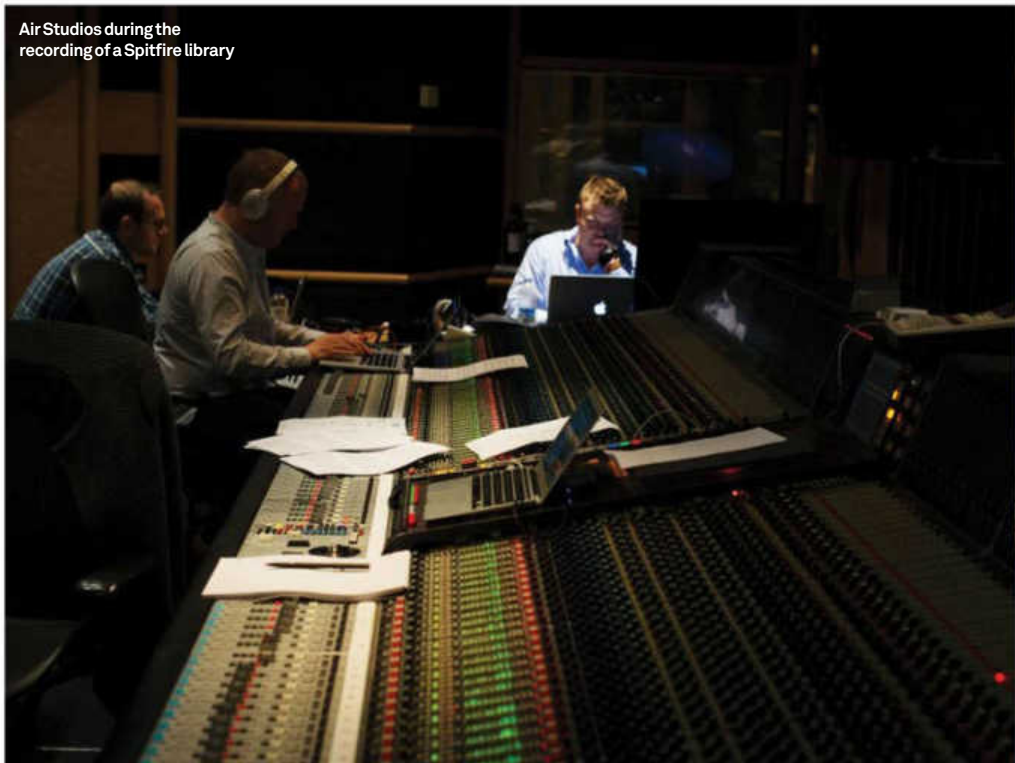
musicality, whether creating a synth line, programming beats, or recording audio. Avoid the soulless at all costs! Work with

"Avoid the soulless at all costs. Work with your DAW until you can play it like a concert pianist"

your DAW until you can play it like a concert pianist… Make the computer an instrument. But there is one major lesson

we have learned over the years, though, and that is to get it right before it goes in the box. We see so often a temptation to fix things with acres of plug-ins. Experience has shown us that getting the performance right, into the right mic, positioned correctly and recorded via the best possible signal path, will reduce the need for post-operative interventions.

MT: Which production techniques are you most commonly asked about and why do you think that is?
SA: Whether tape really sounds better. I was accused of it being a marketing stunt by another dev and had to defend our position vehemently. For us, sampling has enabled us to analyse such processes with an atomic microscope. With our line of work, you have the immediate challenge of duplication. The minute you play more than one note, you duplicate the number of players, the number of halls and microphones you have. By the time you're playing an entire symphony orchestra, you could be talking several hundred halls, and several thousand microphones. So while the minute amount of bevelling and varnish that tape adds to a single recording may seem minimal, its net result, when using our samples in a symphonic sense, can be absolutely enormous. Someone was asking me why

Spitfire sounded so unique and it's one of the rare opportunities for retort with a single word… "tape!".

MT: So when asked, what is your reply, in less than 100 words!?
SA: "TAPE!"

MT: Similarly, what is the biggest production mistake that you hear and what is your cure-all advice for it?
SA: Not making the most of what you have got. Work with your parts and elements – make sure everything is there for a reason and make each element sing proudly. Massage it until it purrs like a cat and don't, whatever you do, record a piano in the winter and then do a recall in the summer. It won't work!

MT: What advice would you give anyone entering the world of music or production to make a living these days?
SA: This may seem like dev suicide, but I think everyone agrees you need a computer, some speakers, a controller and a DAW. Many would say "then you need some samples". I always say, "no, the next thing you need is a microphone." If you want to sound original, take what is around you and capture it. When you get too busy to do this after the BAFTAs and Ivors, then come to Spitfire for that original spirit of sound making and we'll keep you happy, but until then, find your sound. I would also recommend keeping an open mind. I have been wanting to be a film composer since I was five. Thing is, I now have a five year old, and he's not at a stage to make career choices! So, while it may seem nice to say "I've been dreaming of doing this since I was a baby", since when do you engage a toddler to do your career planning? I see countless people discover areas of the business that give them pleasure and satisfaction way above what their original ambition was. Whether that be teaching, or supervising, orchestrating, or writing for ballet… Or indeed setting up a sample company where you travel the world while you're playing train sets with your childhood heroes!

MT: What's music production's future?
SA: Hybrid. Computerisation of the studio, and indeed our bedrooms has ruled supreme for a decade – I see people now thinking more out of the box. I look forward to a future where fixed tempo, quantisation, pitch corrected and virtual are mere tools of our trade, not obligations.

MT: And finally, a gratuitous plug for your company and any upcoming products?
SA: I'll do a gratuitous tease, if I may… We have a series called Albion, which, as we mentioned, has been hugely successful. There's four so far. So far… **MT**

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//HEAVYWEIGHT KICKS

Size 13MB **Format** 24bit/44.1kHz WAV

Our main pack this month focuses on the all-important kick drum. Sound designer Richard James has crafted 100 unique-sounding kicks using Sonic Academy's Kick 2 instrument and the Boz Digital Manic Compressor, with additional processing courtesy of Ableton Live. You'll find a range of beefy-sounding hits divided into ambient, EDM, house, techno and trance categories, although these are just suggestions as they can, of course, be used how you please...

//ETHNIC STRING LOOPS

Size 405MB **Format** 24bit/44.1kHz WAV, MIDI

Equinox Sounds has provided a pack of 30 ethnic string melodies featuring instruments from different parts of the world such as Koto, Western violins, Asian guitars and more. These melodies have been designed to work across a wide array of genres, with tempos ranging from 90 to 141 BPM and folders containing full mixes and component parts. There's also a folder with the main melodies in MIDI format for maximum flexibility. **Web** www.equinoxsounds.com

// NEURO DNB, OLD SCHOOL HOUSE & MORE

Size 250MB **Format** 24-bit/44.1kHz WAV

Loopmasters has provided another collection of cutting-edge samples for you to check out. To accompany this month's reviews, there are saturated house grooves from Underground Old School House Rogue D, and wonky beats from Culprate Sampling Reality. You'll also find futuristic sequences from Fractal Sound, main room chords from Flashmob, nasty bass from DnB Neuro Science, and live drums and instruments from Cinematic Indie Rock Vol 2. Use the code MUSICTECH10 for an exclusive discount at Loopmasters.com. **Web** www.Loopmasters.com

//VIDEO TUTORIALS

//LIVE PERFORMANCE AND EXTERNAL INSTRUMENTS WITH ABLETON

Size 504MB **Format** MP4 **Video Feature** 29mins

Tuition experts MusicGurus and Ableton-certified trainer Mark Burnett look at setting up a live set, plus how to use the Korg volca beats with Ableton Live. There's also a video with producer and DJ John Watson, who looks at writing and record basslines using the Doepfer Dark Energy II analogue synth. Use the code MGTECH20 for an exclusive discount. **Web** www.musicgurus.com

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//HISTORY OF 909S IN HOUSE AND HOUSE MUSIC IN LIVE

Size 345MB **Format** MP4 **Video Feature** 45mins

We've got two videos from Point Blank Music School with veteran producer James Wiltshire (F9 Audio, Freemasons) detailing the history of house music and explaining why the TR-909 is such an important piece of kit. In the second video, Wiltshire explores some techniques for creating classic house sounds directly in Ableton Live, and adds some effects using an external sampler. **Web** www.pointblanklondon.com

//CRYOGEN, XPAND!2 AND FILTER PLUG-IN ROUND-UP

Size 158MB **Format** MOV **Video Feature** 15mins

Loop+ has provided a Summer bundle of plug-in know-how videos, including the in-house team at Plugin Boutique taking a look at the Cryogen multi-effect by Glitchmachines, and the Xpand!2 workstation now available independently from Pro Tools. You'll also find another Flash Focus roundup, this time exploring some of the most accessible filter plugins currently available across differing price brackets. **Web** www.loopmasters.com/loopplus