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Subscribe online at: www.myfavouriteitemagazines.co.uk
NEXT ISSUE ON SALE: October 20

Printed in the UK by Polestar, Colchester on behalf of Future.
Distributed in the UK by Seymour Distribution Ltd,
2 East Poultry Avenue, London, EC1A 9PT. Tel: 0207 429 4000

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Future p.l.c is a public company
quoted on the London Stock
Exchange (symbol: FUTR).

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welcome

As you may or may not be aware, there's rather a lot more to *Computer Music* than just *Computer Music*. As well as the magazine you're currently holding, we also publish **cm Specials**, which get to the heart of a specific music production matter every other month – the issue currently on sale rounds up the best in mobile music-making apps (see p52).

“You can now subscribe to **cm Specials** as well as the main mag”

Regular readers will be glad to hear that you can now subscribe to *Specials* as well as the main mag. There's long been huge demand for this to happen, and I'm very happy to be able to announce that

the necessary system is finally in place. Hooo-rah! See p19 for more.

Even more special than **cm Specials**, though, are our *Ultimate Guides*, the second of which – *Ableton Live: The Ultimate Guide* – is on sale now. Comprising a wealth of Live tutorials, it's essential reading for anyone using Ableton's mighty DAW, whether in the studio, on stage or both, and includes a DVD of exclusive samples and Live Packs from Loopmasters, T+S, Puremagnetik, Goldbaby and more.

ENJOY THE ISSUE...

Ronan Macdonald **Editor**



The cm Mission Our goal is to help you create great music with your PC or Mac. With that objective always in mind, we bring you step-by-step tutorials on all aspects of software-based music production, unbiased reviews of the latest products, technical Q&As, and a Dual Layer DVD-ROM packed with exclusive software and samples.

SUBSCRIBE AND SAVE! SEE P19

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THIS IS THE

Remix

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PDF GUIDES FOR NEWCOMERS

If you're a rookie, check out the **CM Beginners** folder on the DVD - a library of material put together to help you get your head around many basic computer music concepts

cm/inbox



Got something on your mind? Email cminbox@futurenet.co.uk

Message of the month

I subscribed to **cm** late last year. Toontrack's EZdrummer Lite was on the DVD and I wanted to test the water with this sort of drum program before taking the plunge and buying one. Since then I've craved for certain things to appear in your mag and by some sort of strange magic, they always do.

A few months ago I needed a decent set of acoustic drum kit samples and lo and behold, in the next issue you featured several GB of snares, hats and kicks, which I now use on a daily basis.

I've played guitar for ten years and recently begun lessons, mainly learning jazz theory - and you then feature a DVD full of jazz loops, which are a blessing when laying down parts to practice over.

I recently bought Cockos Reaper as I now do a lot of audio recording and my previous DAW just

wasn't cutting the mustard. After years of creating beats in a step sequencer, though, any other way seems clunky. I've struggled on for a few months hoping for a step sequencer-based program to appear on your DVD, and lo and behold, you provide me with Guru CM, which is just the ticket.

I play in a funk band and I've been recording some of our musical forays into Reaper. I've followed lots of tricks and tips from the magazine over the last six months, which have helped greatly, but I've craved some specific advice on mixing funk. I received my new edition of **cm** today and there's a feature on mixing a funk band - I'm speechless!

I've come to the conclusion that this can't possibly be down to coincidence, and so have begun building a thought-conducting helmet from tin foil in the hope that it will amplify my musical desires and you may include more of them in your magazine.

Thank you and keep up the good work.

AI, Lancashire

Presumably, then, you've also recently been considering buying a set of premium effects plug-ins... **RM**

The writer of our Message of the Month will receive u-he's superb Uhbik effects bundle for Mac and PC, worth \$149!

www.u-he.com



/Rant

I'm a musician with ten years' experience of writing songs with just me and my guitar. Recently, I've taken a leap into the world of IDM and House music. I love the energy I get from this - it's similar to what metal used to do for me.

I do find house one of the most unoriginal genres, though, to the point that some artists don't even try - which is a kick in the nads for the guys who are making good tunes worthy of 'club classic' branding.

I try my best to be original in any way, shape or form, and I find it shocking how people are openly using loops to create songs and branding them their own 'hot new track'.

I think the idea of using presets is an awesome way to

get started, but these guys - who throw a track together using their new 'Classic House' sample CD and using presets in Massive - are just a joke. If you wanna produce, then produce - even replicate a sound to recreate your own version. Have some dignity, try your best and don't take the most rewarding part out of this art - I'm finding it hard to even call it that sometimes. These people are as bad as the local club's laptop DJ! Yeah, that's right, mate: turn the volume down at the end of every fourth bar. Bravo!

Dean Taylor, Scotland

Aaand breathe out... OK, so it's very, very easy for anyone to throw together tracks of (deceptively) high quality using prefab sample libraries,

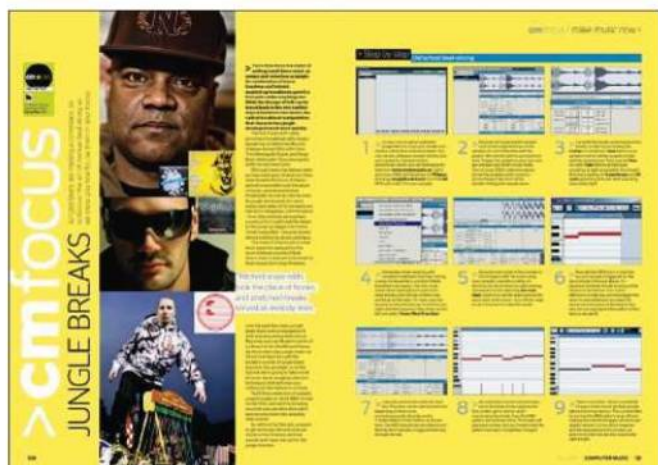
obvious synth presets, etc. However, we're talking about music here - a form of entertainment - and no matter how a tune is made, if people like it then its existence is justified. Ultimately, for the producer, making music should be its own reward, so if you're putting the effort in to keep things 100% original and artistic, just enjoy the immense satisfaction you get from that and don't fret about what anyone else is doing. It's not a competition, after all, as the old cliché goes. RM

Global love affair

I'm a female reader from Singapore. I'm writing to say that I feel really blessed to have



Our guide to FL Studio 9 went down well in Singapore, it would seem



If you haven't been to the jungle, open up CM152. You never know, you might like it...

stumbled upon *Computer Music* magazine. I've been an avid reader since starting out as a singer-songwriter in 2003 until now, as a music label owner.

I've been a keen user of the Magix Music Maker DAW, and your past reviews of MMM and Samplitude have kept me updated. As I freelance teach FL Studio, your Nov 09 guide to FL Studio 9 also helped me out. FL got so interesting that I experimented and produced a track entirely in it. Talk about getting out of my creative comfort zone!

Kudos to y'all at *Computer Music* and keep up the superb job.

Sri Sulastris, Singapore,

As a Magix fan, I suspect you'll be rather delighted with next issue's software giveaway - check it out on p138. RM

A chance encounter

Browsing the bookstore yesterday, I came across your magazine (June 2010 issue). At

"With the help of this tutorial, I feel like I've made a huge step towards making some serious jungle tunes"

\$16, I was a little hesitant to pick it up, but I'm definitely glad I did.

I've been a huge fan of jungle/drum 'n' bass since the late 90s, but only recently got into the production side of things. That's why I was so happy to find your magazine, and the *cm Focus* section on jungle breaks. It was a great place to start with the

basics of DnB production. I really appreciate the way that the samples were included on the DVD, and that you specified the programs used in each step.

With the help of this tutorial, the *Beginners' Guide to Mixing* and the various reviews of products throughout the magazine, I feel like I've made a huge step towards making some serious jungle tunes.

Thanks again for the great magazine, and big ups to everyone keeping drum 'n' bass alive worldwide!

Dean Lewandowski, Michigan, USA

We are rather partial to our jungle/DnB round these parts, it must be said. Stay tuned for some very, very big cm news in that particular department in the near future... RM

Fairlight forever

I don't know about others but I would love to see a software version of the Fairlight CMI, with a functional (yet true to form) sampler and some presets of the 'classic' sounds. I know that technology has progressed a lot since its release, but it would be great to be able to use the sounds that were created by its unique sampling method. I can't be alone! I don't know if a true emulation would be possible; I know the pen interface would be impossible to truly emulate, but with the use of a cursor that's no big deal.

Bob Lucas, Ipswich

There aren't any true emulations of the CMI out there, no, but there are some great sample packs available, perhaps most notably the one built into Best Service's Cult Sampler ROMpler, which is available from Time+Space. RM

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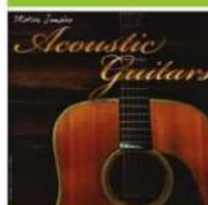
Legendary New York producer Victor Calderone and Mike Frade's debut sample pack, boasting a twisted selection of 380 pounding tech-house beats, glitched vocals, tribal rhythms, music loops and much more. **£22.49**

Sounds To Sample

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Exclusive | 10/10 CM Review

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cm/news

NEW RELEASES > COMMENT > INDUSTRY HAPPENINGS

Pro Tools warms up

At last, new hardware for Pro ToolsHD, and an unexpected analogue warmth emulation

> **Avid have released a raft of new interfaces for their Pro ToolsHD DAW, along with an analogue warmth plug-in.**

The latest HD interfaces offer "flexible configurations to support a variety of analogue and open digital formats for audio recording, mixing and playback." First up is HD I/O, which delivers high-quality audio recording and playback in one of three space-saving configurations (16x16 analogue, 16x16 digital and 8x8x8 analog and digital), all in a 2U rack-mountable interface.

HD Omni integrates various outboard components into an "all-in-one premium sound solution". It includes two mic preamps, headphone outputs, a surround monitor section and a 14x26 channel mixer that also works when the computer is off.

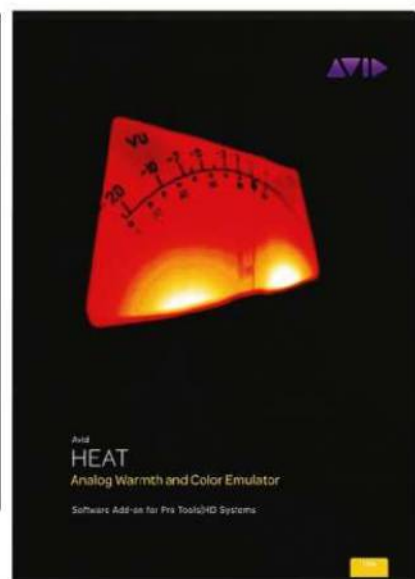
Finally, HD MADI is for connecting Pro ToolsHD systems to industry-standard

MADI infrastructures. It features built-in sample rate conversion on all inputs and outputs, allowing the users to "integrate into workflows with multiple sample rates".

On the software side of things, HEAT (Harmonically Enhanced Algorithm Technology) is a warmth plug-in that aims to "add the realism of vintage analogue sound to the Pro Tools mixer via a single global control". Interestingly, it's not implemented as a plug-in per se but instead is added invisibly to all mixer channels. Avid suggest that the single-control operation will circumvent the hassle of setting up plug-ins and dialling them in on multiple tracks.

The HD I/O, HD Omni, HD MADI and HEAT are all available now, for £3372, £2526, £4207 and £417 respectively.

www.avid.com



HEAT is Avid's appropriately named analogue warmth plug-in that's applied invisibly to all mixer channels and operated via a single global control



HD MADI seamlessly connects your Pro ToolsHD rig with MADI systems



HD Omni is an "all-in-one premium sound solution" that also functions as a standalone 14x26 channel mixer



HD I/O comes in three different I/O configurations: 16x16 analogue, 16x16 digital and 8x8x8 analog/digital

DJs take Kontrol

NI finally reveal their all-in-one DJ system!



We've been waiting years for NI to release a full-on controller for Traktor, and finally it's on the way



> Having teased the industry with titbits of information over the preceding months, Native Instruments have officially released the details of their new all-in-one DJ system. Traktor Kontrol S4 marries a special version of the Traktor Pro software with a new hardware controller in a union that NI say will "give DJs of all genres unparalleled creative possibilities".

The hardware controller features a four-channel mixer section with its own integrated low-latency 24-bit/96kHz audio interface. Essential controls such as looping,

"Traktor Kontrol S4 represents a new level of software and hardware integration"

Native Instruments

cueing, effects and track browsing are appropriately close at hand, and LED status displays, level metering and multicolour backlighting aims to "allow DJs to focus on their performance rather than the computer screen". The hardware also features dual touch-sensitive jog wheels that use patent-pending electromagnetic technology to give "extremely precise and responsive control".

On the software side of things, Traktor Pro S4 sees the addition of a new loop recorder that allows DJs to capture audio loops from the live mix, cue signal or external input and drop them back into their set at any point. The program is also home to some new performance functions, such as two mashup-tastic Sample Decks for adding "up to eight simultaneous one-shot samples or beat-synced loops".

Traktor Kontrol S4 will be available this winter for £729.

www.nativeinstruments.com

Mixdown



Our eagle-eared Deputy Editor goes over the top about sample rates

> While modern music software commonly uses 64-bit floating point processing, the use of higher sample rates is yet to become ubiquitous. Most computer musicians still run their projects at 44.1kHz, while plug-in developers are increasingly employing oversampling to combat the sonic

"Why are we not biting the bullet and switching to higher project sample rates?"

drawbacks of lower sample rates.

Oversampling itself is nothing new, but modern CPUs can comfortably handle this quality-improving process, and quite a few plug-ins nowadays give the user hands-on control over it. In short, the benefits are reduced aliasing and a more accurate treble response for EQs, filters, etc, the trade-off being an increased CPU hit. It works by processing audio at a higher internal rate.

Not all plug-ins use oversampling or offer it as an option, but there are wrappers you can use to provide this functionality, such as the one by Christian Budde. But isn't it about time that oversampling was built into our DAWs (or indeed, made part of the VST spec), making it an option for any plug-in? Oversampling could be handled much more intelligently at this level, but I'm not aware of any mainstream music apps that offer it. And just think: the first developer to implement such a feature will have a genuine claim to a superior audio engine. I'm already looking forward to the day when web forums are bulging with heated threads about which DAW has the best-sounding oversampling. They could even offer an 'undersampling' option, for use with those plug-ins that are just too CPU-hungry.

The extensive use of oversampling begs the question, though: why are we not biting the bullet and switching to higher project sample rates? If your project runs at 44.1kHz, and your plug-ins all use 2x oversampling, you may as well run the project at 88.2kHz without oversampling. The CPU hit should, in theory, be a tad lower, since the plug-ins don't have to upsample and downsample the audio on its way in and out. Downsides are that there's more audio data to shuttle about the system, which could have a negative impact on performance. In my experience, though, this is often negligible. It's something to think about, anyway.

Studio Devil VGA II

The trident-tested no-fuss amp sim is back for seconds

> Behorned amp modellers Studio Devil have announced Virtual Guitar Amp II. The plug-in features 18 improved tube-modelling preamp types covering a range of playing styles. In typical guitar amp style, there are Gain, Bass, Mids, Treble and Presence controls for each preamp, and tremolo, chorus and delay effects are also on hand for added dramatics when required. VGA II even features a built-in chromatic tuner so that your strumming won't offend the ear (unless you want it to, of course).



Devilishly good: Virtual Guitar Amp II features a ton of preamp models and a sizeable array of tone controls and effects

Virtual Guitar Amp II is available for PC and Mac for \$79. Those who own VGA1 or AMP can get their mitts on it for \$29.

www.studiodevil.com



SoftEgg's Rhythm Core Alpha brings a capable live performance interface to Nintendo's handheld at a bargain price

Rytmik (top) and Music On: Retro Keyboard join the DS' line-up of music apps

New DS music apps

Production software for Nintendo's ubiquitous console

> There's so much fuss surrounding the iPhone and iPad these days that it can seem like they're the only systems getting a look-in for handheld music production. The Nintendo DS won't take it lying down, though, and is fighting back with some nifty new apps.

Just released is SoftEgg's Rhythm Core Alpha, which is all about "creating and performing live music in front of an audience". Its four editors – Drum Grid, Note Grid, 2D Solo and Pattern Screen – are all geared towards making this as easy as possible. 2D Solo mode sees your stylus become a live musical instrument – make music by drawing with it, using over six octaves of notes, which are immediately available onscreen. Rhythm Core Alpha automatically detects the key and scale of music that's already playing, and you can lock the screen to these notes to avoid accidentally creating a particularly disgusting harmony. Alternatively, you can override this and pick any key you fancy. 2D Solo even enables you to tap out drum beats using your stylus, if you're overtaken by the groove mid-performance.

This isn't the only way to set up a rhythm, though: Rhythm Core Alpha's 12-track Drum Grid features 122 drum sounds created especially for the app. Melodies are taken care of by the Note Grid, which is an 8-track piano roll with 166 different instruments at its disposal. Both grids have an Edit menu for each track that includes a number of sequence automation options, and in the Sound Select screen you can adjust pan, volume and ADSR envelope for each sound.

Another nod to making performance as easy as possible is the Note Grid's chord/key change capabilities – the bumper buttons on the top of your DS can be preassigned to 24 different options, making changing chord

"easier than fingering a chord on a guitar, and just as quick".

All of these elements are brought together in the pattern screen, in which you can jump from one loop to another, edit one loop while another is playing and set loop-back points in order to create chord progressions. Rhythm Core Alpha is available on the DSiWare Store for €5.

Also worth a look is Rytmik, which focuses on audio clip creation. Described by developers Cinemax Games as a "powerful pocket music station", Rytmik features four tracks for sequencing clips, each of which can contain tunes for four instruments, with control over volume, pan and polyphony for each. You can arrange up to 128 clips on the tracks. Rytmik is available now on the DSiWare Store for 800 DSI Points.

Those seeking chip sounds should check out Music On: Retro Keyboard. Spanish developers Abylight say that the app will enable musicians "to perform the soundtrack of the best classic video games how they originally sounded", as all of its instruments are inspired by classic consoles and games. It includes some useful tools, such as an automatic accompaniment function with chord recognition, an integrated sequencer, independent drum, bass and chorus parts, and six octaves of 8-bit naughtiness to play with.

Finally, as we went to press, we received news that the legendary Korg M1 workstation is coming to the DS! The Korg M01 is an eight-track sequencer featuring more than 300 sounds, including those of the classic workstation. Pricing and availability are to be confirmed, but as far as we're concerned, they can charge what they like so long as they include *that* piano sound.

www.nintendo.com

Damaged



Chris Randall on why it takes much more than just great plug-ins to make great music

> In my role as co-owner of Audio Damage, Inc (as opposed to my roles as musician, writer, photographer, dilettante, and handsomely rugged man) I answer the majority of the support email that comes our way. This is a fairly easy job as most of the problems are simple user error or confusion, and only take one exchange to resolve.

There is one sort of email we get, though, that I just don't understand – and it happens with enough frequency to make it worth noting here. The email in question will read something to the effect of: 'I really want to get the snare sound from *When Doves Cry* and someone on a forum suggested Discord3 would do it for me.' I used to say something like: 'Well, Prince probably used an Eventide H910 or H949 on that, and Discord3 is 'inspired by' the H949, so yup, it'll do it.'

Audio Damage is one of the few plug-in

"While I'd like to put Prince's production chops in a plug-in and sell it, that can't be done"

companies with a return policy, and that bears on the next part of our little tale. For the purposes of this column, I went through my mail archives, and 100% of these people ask for a refund, most within hours of the purchase. And here's the reason...

If you want the snare sound from *When Doves Cry*, you'll need Prince, his LinnDrum, the sample ROMs in it and his production skills. Having a song of that quality wouldn't hurt either. There is no magic wand plug-in that can make X sound like Y, and that's a simple fact. The snare sound in *When Doves Cry* or Eno and Visconti's magic touch on various Bowie songs are the result of the musicians, the songs themselves, the studio, the instruments, a certain quantity of drugs, etc. While I would very much like to put Prince's production chops in a plug-in and sell it, that simply can't be done.

Plug-ins are just tools. You don't buy a hammer and expect it to come with a house. You have to use the hammer, along with a lot of other tools and raw material, to build it.

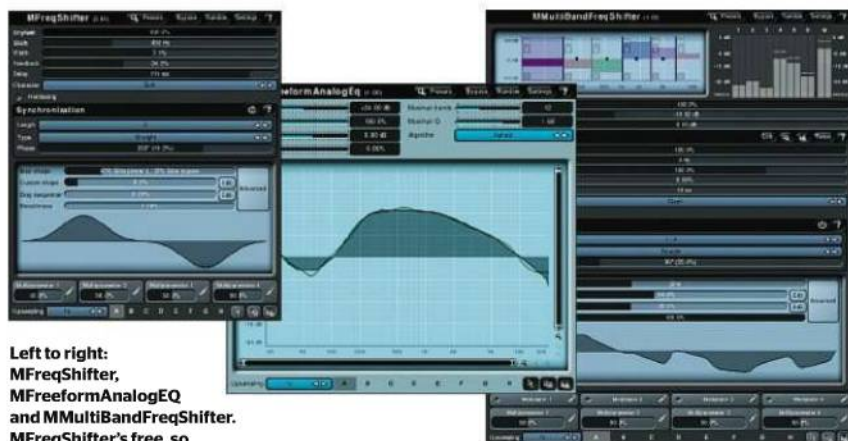
Chris Randall is the co-owner of Audio Damage, Inc, and proprietor of the Analog Industries blog, on which he regularly pulls no punches.

www.audiodamage.com
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Three from Melda

A trio of wild new plug-ins from MeldaProduction



Left to right:
MFreqShifter,
MFreeformAnalogEq
and MMultiBandFreqShifter.
MFreqShifter's free, so
download it today!

> Plug-in powerhouse MeldaProduction has released three new products. First up is MFreqShifter, a frequency shifter. In case you're unfamiliar with the concept, this shifts the frequency (ie, pitch) of a signal but – unlike a pitch-shifter – doesn't preserve harmonic relationships, so chords can get seriously bent out of shape. The official blurb claims it's able to "provide everything from mild stereo expansion to complete destruction". To further facilitate this sonic insanity, MFreqShifter features a continuously adjustable oscillator shape, up to eight channels of surround processing and a full randomisation system for generating new settings.

If that's not crazy enough, check out its beefy big brother, MMultiBandFreqShifter, which wraps up the same processing in MeldaProduction's multiband interface. In a nutshell, it has six bands, three crossover algorithms and four global modulators.

Less esoteric is MFreeformAnalogEq. Draw in the frequency response that you're

after and this plug-in will attempt to match it using analogue-style filters. It can cut or boost up to 64dB and, like its siblings, responds to MIDI, can handle up to eight channels of surround processing and uses up to 4x upsampling to minimise aliasing.

MeldaProduction have also been slaving away over their existing efforts, with many plug-in updates pouring out of the pipeline.

The basic MFreqShifter is free, MMultiBandFreqShifter costs €35 and MFreeformAnalogEq will set you back €80.

www.meldaproduction.com

"MMultiBandFreqShifter makes sound move in time, be less static and more interesting"

MeldaProduction

Trackers & Demoscene



Excellent news on the Psyche front as a new beta version gets released

> Only a few issues back we were talking about the worrying lack of development in the Psyche camp (psyche.pastnotecut.org). Indeed, main developer JAZ has said that he was close to abandoning Psyche altogether not so long ago. So we're happy to report that a brand-new beta has been announced and should be available by the time you read this. A number of fixes and improvements are expected, including a built-in wrapper for 64-bit VST plug-ins. Moreover, this encouraging

"This encouraging news has given us renewed hope for the future of one of our all-time favourite trackers"

news has given us renewed hope for the future of one of our all-time favourite trackers. Long may it continue!

Elsewhere, the OpenMPT Development Team have just released the latest stable version of their open source tracker. Grab it at openmpt.com.

DEMO OF THE MONTH

Happiness is Around the Bend by ASD

Now in its 19th year, the Assembly demo party is the stuff of legend. Started in 1992 by old-school crews Rebels, Future Crew and Complex, Assembly has grown into a large non-profit outfit that hosts the event at Helsinki's Hartwall Arena, the largest indoor venue Finland has. Many of the biggest names in the demoscene attend to battle it out in music, graphic and demo competitions. *Happiness is Around the Bend* fought off a superb entry from Fairlight to win the demo section, and we think it's ASD's finest production to date, which, considering their back catalogue, is saying something. Find it and more Assembly 2010 demos on the **cm** DVD.



Happiness is around the bend... or is it?

New **cm** Special

> If you're using your iPhone, iPad, Android device or WinMo phone to explore new territories in composition, bring freedom to your live shows or streamline your kit bag, you need our **cm** Special, 101 amazing apps.

From gig-friendly tuners, metronomes, and guitar FX pedals to synths, grooveboxes and beat-creation tools guaranteed to get producers re-inspired, we've got it all covered. There are tutorials on the more complex apps, plus techno legend Richie Hawtin reveals why he's already adopted the iPad into his setup for the eargasmic Plastikman tour.

cm Special 43: 101 amazing apps is out now. See p52 for stockist details.

www.computermusic.co.uk





Are music games getting serious?

> Games are a natural distraction for most computer musicians - if we're going to be having fun outside the world of music, it'd had better involve computers at the very least. In fact, some find games to be such a diversion that they make a point of not installing any on their tune-crafting computers for fear of being endlessly distracted. But when it's suggested that games might actually help you to create 'proper' music, most of us are inclined to scoff, no matter how much we love playing them. Things are changing, however...

The likes of Guitar Hero and Rock Band have proved to be hugely popular with musicians and non-musicians alike, but it's understandable that their dumbing down of the craft can be considered slightly offensive. However, there are

"Rock Band 3 adds a keyboard into the mix, and the ramifications of this are interesting"

signs that titles like these - and other music entertainment software releases - might be getting rather more sophisticated than they have been in the past, and could serve as an explicit gateway into the world of 'proper'

music performance and production for the uninitiated. Making clear distinctions between games and music creation apps might no longer be as easy as it once was.

Keyboard wizard

A current headline grabber is Harmonix' Rock Band 3, which is set to be released on October 26. This adds a keyboard into the mix for the first time, and the ramifications of that are interesting. Play the game on the easier settings and you'll only be required to hit notes in roughly the right area, but ramp up the difficulty level in Rock Band Pro mode and you'll experience what Harmonix are calling "pitch-accurate gameplay".

What this effectively means is that only by hitting the right notes will you succeed. This raises the intriguing prospect of Rock Band 3 actually being capable of teaching you how to play the piano. What's more, the keytar-style keyboard features a MIDI Out port, so when you're not gaming with it, you can use it to control soft synths in your DAW. We've seen people repurposing console controllers as musical ones before, but products like this usher in the concept of a device designed specifically as a practical music-making tool too.

Your eyebrows might raise a touch further when you learn that several new Rock Band 3 guitar controllers are also playable guitars, including the Rock Band 3 Squier Stratocaster. It seems that Harmonix are tackling the

accusation that their games are discouraging people from picking up real instruments head on. Oh, and there's the You Rock Guitar, too, which is also both a game and MIDI controller - check it out at www.yourockguitar.com.

It's also worth noting that the real-time vocal pitch-correction technology in Rock Band 3 comes from acclaimed plug-in/algorithm developer iZotope. Their CEO Mark Ethier says that it's an ideal platform for "showcasing" said technology, suggesting he's hopeful that those who get a taste for the game might like what they see and become the music producers - and hence iZotope customers - of the future.

Rock to the top

While the majority of people will welcome these moves to make Rock Band more... well, musical, it may still be something that serious producers view from afar. However, there's another part of the game's universe to consider: namely, the Rock Band Network.

Put simply, this allows anyone with an Xbox 360, a computer, an Xbox Live account, a Microsoft XNA creators account, Cockos' Reaper DAW and some free plug-ins to have a go at getting their own music into the Rock Band Network Store. Once there, it can be purchased and played by Rock Band owners the world over.

Rock Band songs have to be authored in Reaper by, among other things, mapping stem files as MIDI. Once a song is ready, it can be submitted to the Rock Band Network for peer review; if members of the RBN Creators Club community give it their seal of approval, it can go into the store. Obviously, there's some work involved here, but this global service does give aspiring producers another way of getting their music heard - and possibly even making a bit of cash along the way.

Will Littlejohn is the President/CEO of WaveGroup, an audio production company

"The line between 'game' and 'music-making app' is being blurred, especially in the mobile marketplace"

that's produced various Guitar Hero and Rock Band songs and has had a hand in developing the Rock Band Network with Harmonix. He says: "The RBN is a fantastic platform for any band to get exposure, and I'm sure it will play a vital role in breaking new artists. Lots of bands have already benefited greatly by being featured in rhythm music games such as Rock Band, and the RBN platform makes it possible for any artist to get their music out there for people to play. There are millions of Rock Band owners who have access to the songs on the RBN and are looking for the next great song to download."

That's how you get your song in a game, then, but what about using a game to create a releasable song? That's now possible too, as urban/grime producer Nocturnal recently proved with single *The Movement*. This features vocals from duo I Am One Project and was created using the music production tool built into online game *APB: All Points Bulletin*. It was released worldwide via iTunes on 13 September - check out the video at www.bit.ly/aeys6D.

App, app and away!

As a backdrop to all of this, we're also seeing the line between 'game' and 'music-making app' being blurred ever more frequently, particularly in the mobile marketplace. Japanese artist Toshio Iwai, one of the designers of the Yamaha Tenori-on, came to prominence in 2005 as the creator of *Electroplankton*, an interactive music game for the Nintendo DS. The same platform has also spawned AQ Interactive's Korg DS-10, which emulates the classic MS-20 synth (and a DS version of the Korg M1, called the M01, is currently being developed by the same company). Over on Sony's PSP, Rockstar Games - they of *Grand Theft Auto* fame - released the Timbaland-endorsed *Beaterator* in 2009, which has a game-like look and feel but, if you use the Studio mode, can actually get pretty involved.

And then there's the behemoth of all things mobile, Apple's iOS, which arguably has the potential to shake up the game/music software dynamic more than any other platform. Thanks to their multitouch interfaces, iOS apps are being designed in ways that we've never seen before, resulting in titles such as Smule's Magic Piano (for the iPad), which puts fun and instant gratification to the fore but is, nonetheless, a virtual instrument. The same company also produces I Am T-Pain, an app that's designed for entertainment, but is powered by Antares' Auto-Tune technology.

There's always going to be a demand for serious production software, of course, but releases such as the ones we've talked about here about indicate that, at the entry level at least, the worlds of gaming and music making no longer need to be considered in total isolation. The influence of each is being felt on the other, and it'll be fascinating to see where this convergence takes us next. **cm**

Ins & outs



ABLETON LIVE: THE ULTIMATE GUIDE

Do you live for Live? Then get *Ableton Live: The Ultimate Guide*! Our tutorial-stuffed tome comes with a DVD heaving with samples and Live packs.

KEITH BARR

Music technology innovator Keith Barr passed away on 24 August. Amongst many other achievements, he founded MXR and Alesis, and was the brains behind project studio classics like the Alesis MidiVerb effects processor and ADAT digital recorder.

CREATIVE CONTROL

Creative Commons licensing features have been integrated into SoundCloud, making it easier to make your content readily available for remixing, sampling, use in film and so on. If you're not familiar with SoundCloud, we urge you to try it.

ITUNES LOGO EJECTED

Apple have ushered in their iTunes 10 media hub, the most exciting aspect of which is not Ping or the slicker operation. Nope, it's the fact that they've *finally* ditched that bloody awful icon with the CD. Welcome to the future!



A IS FOR APPLE

Cedars School of Excellence in Scotland are booting paper and pen off the curriculum. Instead, each of their pupils will be getting an iPad to do all their work on. The lucky sods. We hope the school will kit them out with some music apps, too...

CTRL+AMIGA+AMIGA

As well as the PC64 outlined on p14, Commodore USA reckon they're relaunching the Amiga as a range of AROS-based all-in-one machines, presumably running on PowerPC chips. As much as we love the classic Amiga, this sounds like commercial suicide to us.

Busting jargon



Computer music terminology explained. This month: **Samples**

Samples are chunks of digital audio, either recorded from a real-world source (eg, a piano) or created digitally (eg, using soft synths). For example, a sample could be a snare drum "one-shot" (ie, a single drum hit with no other sounds present), two bars of a piano tune (which we'd call a loop because you can play it repeatedly to create a never-ending tune or rhythm), or perhaps a swooshing noise that builds up over a minute (such incidental sounds are often called 'FX', not to be confused with plug-in effects).

Samples are commonly stored as WAV and AIFF files, and there are two main ways in which to use them. The easiest method is to place them as 'clips' on the audio tracks in your DAW and arrange them visually. For example, import a kick drum WAV and then copy/paste it onto every beat - you now have a four-to-the-floor rhythm. Audio tracks are also useful for FX samples.

The other method of using samples is the more traditional one. Let's say you have a sample of a piano note. By loading it into a sampler instrument (such as Kontakt, HALion or EXS24), you'd then be able to play it up and down the keyboard, to create a tune.

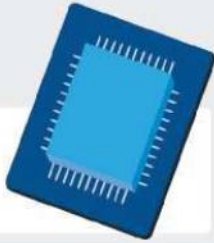
If you only have a sample of one note, the further you stray from the original pitch, the more unnatural it sounds. Far more natural results can be achieved by sampling every key of the piano, and assigning each of the resulting samples to the relevant MIDI note in the sampler. This is called multisampling and is also used to reproduce things like differences between soft and hard playing.

Another common sample format is REX2, which is designed for loops and contains extra data that allows programs to change the speed of the sample without the pitch changing too.



Some sample packs, such as Vengeance's Trance Sensation contain construction kits, which are 'mini songs' broken down into component parts

System check



Weird and wonderful goings-on in the wider world of computing



The PC64 should look a bit like this C64. Exactly like it, in fact

BEIGE OF LOVE

Here at **cm** we love our modern computers with their amazing music production capabilities, but in our more reflective moments, we can't help but miss the reassuring simplicity - and wicked bleeps 'n' boops, of course - of old-school home microcomputers like the Commodore 64. Well, the C64 is back, in a manner of sorts: Commodore USA have announced the Commodore PC64, a modern PC stuffed into what is described as "an exact replica" of the original C64 case. The machine will have an Intel Atom CPU, 4GB DDR3 RAM, SATA 1TB hard drive, HDMI output, and either a DVD or Blu-ray optical drive. It's due at the end of this year.

www.commodoreusa.net

YOU SPIN ME RIGHT ROUND

Brain-bound boffins at Ohio State University have demonstrated the first plastic memory device that utilises the spin of electrons to read and write data. Spin electronics - or spintronics - uses the spin of electrons rather than their charge, which means that microelectronic devices should be able to store more data in less space and process it faster.

The device is a thin magnetic strip layered with a metallic ferromagnet connected to two electrical leads. The eggheads used the kit to successfully record and retrieve data by controlling the spin of the electrons with a magnetic field.

One of the problems with modern computers is that chip-makers are limited as to how closely they can pack components together, as they need to avoid overheating. By contrast, spintronics produces hardly any heat at all and is more efficient, so the devices could potentially be lighter and more flexible, using smaller batteries.

www.osu.edu

NANO LIMIT

Yet another tale of memory miniaturisation: white-coated lab-dwellers at Rice University have shown how nanocrystal conductors could allow for huge 3D storage devices. The technology, which uses electrical currents to repeatedly break and reconnect tiny strips of graphite, could bring about a revolution in integrated circuit design and extend the limits of miniaturisation. As small as 5 nanometres, the nanocrystal wires are tinier than the components currently used in even the most advanced computers. There's some other sciencey stuff involving silicon oxide, but all you really need to know is that graphite could well be the future of memory.

www.rice.edu

Get with the programmers

The legendary Roger Linn discusses his move into native software and the intriguing LinnStrument



Roger Linn Design
Roger Linn

cm How did you make the jump from hardware to software?

RL In truth, I've always produced music software but my earlier products came with their own computers hidden inside. I prefer the idea of software - creating an ideal product in which every copy is as perfect (or imperfect) as the original. There used to be two reasons to make a hardware product: 1. You needed special circuitry because computers weren't fast enough, and 2. To have a music-specific human interface. These days, the first reason has pretty much gone away so software works great for sound-processing or sound-generation products.

cm Today's virtual drum kits are very close to the real thing. Will we ever see the day when all instruments are emulated so well?

RL I don't think there's any question that a skilled musician can create a very human-sounding drum, percussion or piano track from samples and sequences, but it's much more difficult to do the same with sax, violin, cello, solo guitar or other more expressive instruments, because the human-computer interfaces for music are still so poor. That's why I'm so excited about my development of the LinnStrument, a new sensor-based musical instrument for performance of highly expressive music. You can learn more about it at www.rogerlinndesign.com/products/linnstrument. This and other creative product ideas like the Haken Continuum and Eigen Labs Eigenharp make me hopeful that we may be reaching a tipping point in which people will finally accept new sensor-based musical instruments in a big way.

cm You co-designed the MPC60, which is famous for the 'feel' of its swing function. Is there actually anything special going on?

RL There's really nothing secret there. I merely wrote the MPC60's software so that the timing was very accurate, trimmed the starts of our drum samples well, and permitted a wide variety of swing

"In 50 years, most musicians will have abandoned guitars"

percentages. Because I first introduced record quantisation and swing timing in my 1979 LM-1 Drum Computer, I understood how best to implement them in order to create good-sounding grooves, like which swing percentages work well for different musical styles.

cm Is the LinnDrum II still on the way?

RL Yes, it certainly is. We're a small company and it's a big development project so it's taking a while. But it's coming - it has some exciting new ideas and I'm very excited about it. I'd prefer not to say any more about it at this time, but as soon as I can, I'll update the LinnDrum II page on our site and also send an update to everyone signed onto the LinnDrum II email list on our site.

cm What's next? Will you be making any more plug-ins?

RL An emphatic yes! But I must say that the LinnStrument project is my favorite project at this time. I figure that in about 50 years, most musicians will have abandoned guitars and keyboards for some new type of musical instrument, and I'd like it to be said that I contributed just a little to whatever it is.

Music from my ears

> Ever wished you could pipe the music in your head direct into your computer? The people behind the Music of the Mind project had the exact same thought, and they reckon their Brain Computer Interface (BCI) technology makes it possible.

Headed by musician Finn Peters, researcher Dr Mick Grierson and scientist/electronic musician Matthew Yee-King, the MOTM team have been working for two years to develop software that enables musicians to "literally think music into being". The resulting BCI technology translates brainwave data gathered using Electroencephalography (EEG) into notes/tones.

If you're the type who has to see (or hear) it before you'll believe it, you're in luck: Peters is taking the BCI software on the road. Following a launch event at the London Science Museum on 17 September, the team

"The idea of thinking music into existence has to be the ultimate goal of every composer. This could be a new era"

Music of the Mind



The Music of the Mind team claim that their software enables musicians to create music and control instruments directly with their grey matter

will travel to five destinations in the UK. The show will feature five musicians controlling electronic instruments with their minds as well as using more traditional means to express melodies previously recorded by Peters while hooked up to the BCI gubbins.

MOTM describe their tunes as "somewhere between Kraftwerk and Sun Ra". Have a listen to some examples at www.bit.ly/99Bce6. And if you make it to the live show, sit as close as you can to the brainwave receiver and think *really hard* about Chas & Dave's seminal hit *Snooker Loopy*. If BCI is for real, this should have some spectacularly comic effects.

www.musicofthemind.com

Soundware news

> In the world of dance music, summer never ends. Diginoid's **Urban Holiday Wave** (£24) aims to keep its spirit alive with 1.7GB of multi-format hip-hop kits, including drums, brass, strings, "tingling pianos and bottomless basses". Also keeping things hot is Soundscan's **Arabic Traditions** (£20), featuring over 330 loops and one-shots from luths, violins, male and female vocals, synths, percussion and ambience, to inject a little Eastern mystique into your productions.

For more in-your-face sounds, check out Sounds/To/Sample's **Electro Jack** (£13) - it's got over 200 24-bit "wonky beats, wobbly basslines, sleazy synths and twisted tops" for you to dirty up the dance floor with. And if you want some vocal treats for your glitchy beats, Sounds/To/Sample's **Electro-House MC Vocals** (£15) is packed with 80MB of spoken phrases, from grunts and laughs to multi-line rhymes.

Take things down a notch with Soundscan's **Dark Side of Trip Hop** (£20). Designed for those creating deep,

downtempo tracks, it features 395 loops and one-shots created and processed with analogue equipment for warmth and depth. www.soundsto-sample.com



Just as chilled out is Loopmasters' Live Lounge (£30), an "eclectic mix of soulful, blissed out and acoustic" beats, keys, guitars, strings, synths and basses. It includes over 60 drum loops, 60 basslines, 280 music loops and a percussion library.

Loopmasters' new **DJ Mix Tools** series is aimed more at deck-masters than producers. Each pack (£15) features four tracks broken down into royalty-free stems, such as drum grooves, synths, basslines, FX, breakdowns and drops, which can be banged straight into a set. The packs are genre-based, and with everything from tech house through dubstep to trance, you should find something to suit. www.loopmasters.com

On a different planet is Sample Logic's **Cinematic Guitars** (£221), a huge collection of "morphed guitar instruments" bundled with a core effects sequencer that enables users to create custom instruments. You get over 1000 24-bit instruments, 9GB of uncompressed samples and NI Kontakt Player 4 for your cash. www.timespace.com



News in brief

MOTU PLUG-INS BREAK FREE

The MasterWorks plug-ins in MOTU's Digital Performer DAW are now also available in standard VST3/AU/RTAS plug-in formats. They're sold as a bundle containing MasterWorks EQ, based on classic British console EQs; the MasterWorks Leveler, an LA-2A emulation; and ProVerb, a convolution reverb with a library of IRs ranging "from halls and stages, to plates and cathedrals".

The MasterWorks Collection is out now for Mac. It's \$295. www.motu.com



SPECTRALLY FOR YOU

Little Endian have released SpectrumWorx 2.0, which they big up as "the ultimate sound mangler", incorporating "the latest advances in frequency domain effects processing". The plug-in has over 50 processing modules, with zany names like Wobbler, Robotizer, Pitch Magnet and Exploder, all ready and waiting to manipulate, tweak and generally bugger up your sounds. You can use up to five of these modules at once, and apply LFOs to their parameters.

SpectrumWorx 2.0 is out now in Windows VST format, with Mac support to follow. It costs \$119. www.littleendian.com

TURN TO THE DARK SIDE

EastWest have a new virtual instrument, The Dark Side. It's "an unconventional, hip and exciting collection of virtual instruments", and contains 40GB of "dark and eerie" instruments, processed drums and percussion, basses, guitars, ethnic sounds, keyboards, FX and more.

The Dark Side is out now for PC and Mac, costing €380 for the DVD version and €460 for a preinstalled hard drive. www.soundsonline.com



COMPETITION WINNERS

In cm155's competition, we had three SoundToys Native Effects bundles up for grabs. The lucky winners of this superb 10/10-rated package are Frank Russell, Rachael Pickett and an as-yet-unidentified entrant who pitched in their entry via SMS. Well done, everyone!

Now turn to p98 for your chance to win every single Audio Damage plug-in!



Jack into the Grid and fire off Ableton clips with the lightest touch

App watch

New music-making apps for iPhone/iPod Touch/iPad

> Grid is a controller app for Ableton Live. This first version sees it function as a wireless clip launcher, but the overall concept is bigger than that: the boys at Liine plan to add new modules in future. Grid as it currently stands sees clips laid out in - wait for it - a grid, with names and colours corresponding to those in Live. You can launch, loop and stop clips through simple taps and easily accessible buttons.

If you like the look of Grid, you're in good company: techno club-smasher Richie Hawtin uses it in the setup for his Plastikman tour, and he actually played a part in the app's development.

Grid is available now in the App Store, with the Pro version for iPhone and iPod Touch costing £3.49. The iPad app costs substantially more at £14.99, but the increased screen real-estate should make it proportionately more useful. There's also a free Lite version of the iPhone version, if you want to try it out first.

www.liine.net

Guitarists should check out Peavey and AgilePartners' AmpKit+, a virtual amp app for the iPhone with a wide range of amps, pedals and cabinets as well as recording

and reamping facilities. You can choose from Peavey ValveKing, Peavey 3120, Colonel Vintage and Vintage Brit amps, each with a selection of cabinets, and dynamic and condenser mics with placement adjustment. Pedals include distortion, fuzz, compressor, chorus, phaser, flanger, reverb and 10-band EQ, and you can create and save unlimited custom setups. Even more kit is available in AgilePartner's in-app Gear Store.

There's also a tailor-made interface, AmpKit Link, that you can use to hook your axe up to your phone. It's a compact, active (battery-powered) unit that plugs into the headphone socket, giving a 1/4" guitar input and and 1/8" out for headphones or speakers.

AmpKit Link is £30 and AmpKit+ is £11.99 in the App Store. The basic AmpKit is free.

agilepartners.com



AmpKit for iPhone - to get plugged in, you'll also want to check out the AmpKit Link interface



Game overture

We grab an exclusive chat with the developer of the innovative *Substream*

> New indie developer Ben Bradley has announced *Substream*, a dynamically generated shooter that does some unusual things with its soundtrack. The game offers "a complex new approach to music synchronisation, which sees in-game events associated with the notes and intensity of individual instruments, melodies, drums or sounds within a song mix."

We caught up with Ben to have a chat about *Substream*. "I'm really going for variety because I like all types of music and I want to bring out as many different themes and emotions as I can," he explains. "So far the game includes nu-jazz, chiptune, funk, hip-hop, breakbeat, metal, tribal-electro and folk, and I will probably be looking for more."

"I'm making this game out of my savings, and because the music is more foreground music than background music, it has to be

"*Substream* sees in-game events associated with the notes and intensity of instruments, melodies, drums or sounds"

very good, and it has to have real personality. I also specifically need seven-minute long or more instrumentals!"

The game itself is probably best described as a bizarre cross between *Starfox* and *Audiosurf*, but as development continues, details could emerge that may prove us wrong! If all this has piqued your interest, check out the site at www.substream.info.

Ben is looking for music submissions for the game, so if you fancy yourself as a budding games musician and think you might have something suitable, drop him a line at mail@benbradley.com.



Reckon you could contribute some music to forthcoming game *Substream*? The developer would like to hear from you...

COMPUTER music 10 years back

December 2000 saw us seemingly split over whether new tech was good or bad

> December 2000's cover feature saw us wondering whether the new crop of software emulations were as good as the original hardware they mimicked. This was in response to an encounter we'd had with Karl Steinberg, who had theorised that "it will probably take until 2003" before the dance music world got bored of retro noises. While this hasn't proved to be the case (simple things for simple minds?), our investigation had some interesting results. The "veteran musicians" brought in to find out whether

"Karl Steinberg theorised that 'it will take until 2003' before we got bored of retro noises"

the software was as useful as the hardware decided, with some surprise, that it was. We ended with the sage observation that "technology has come a very long way: there's no reason to go back."

But while embracing the march of technology in our main feature, our then deputy editor was cautious: his column saw him worrying about the rise of online distribution models. He noted that "e-commerce is taking off at a frightening rate" and worried: "What happens if things go wrong and the company you bought from is sitting pretty on the other side of the world?" We'd love to nip back in time and reveal to him that come 2010, he'd have to ring the other side of the world just to sort out problems with his internet connection. Oh the irony!



Issue 27 saw us looking at the fast-approaching tech-led future with both excitement and trepidation



Drive time

D Ramirez

Globe-trotting DJ D Ramirez reveals his favourite software to get the dancefloor shaking

APPLE LOGIC PRO 9

"I've been using Logic since v4, after I found that Cubase didn't work so well on my Mac. I immediately fell in love with it. It's a real workhorse of a program and I'm finding myself using more of the built-in plugs each time I use it. I still haven't mastered the program fully, such is the complexity of it, but perversely that's what I love about it: the fact that there's so much you can get into."

FXPANSION GURU

"I got into this as it reminded me of the days of using hardware drum machines such as the Roland TR-808. I love that you can use sounds from anywhere, but I also love the included 3.5GB sound library. My favourite thing is the graph-editing page, where you can mess with parameters such as the filter setting for each drum hit, or a repeat setting for each hit or reverse individual hits."

SPECTRASONICS OMNISPHERE

"I've been into Spectrasonics for a long time as I really like Eric Persing's enthusiasm for his products. The sounds included have such depth and you can really hear the meticulous nature with which they have been programmed. Since version 1.3 you can now drag MIDI files in and the envelopes will follow the groove! It demands you to get

into programming it and it's actually a real pleasure to work with."

CAMEL AUDIO CAMELPHAT

"I was never satisfied with the sound of plug-in filters until I heard CamelPhat. It was the answer to my prayers and has been my 'go to' filter for many years now. It has a unique high- and low-pass section that can be linked together to create band-pass

"I still haven't mastered Logic fully, but that's what I love about it"

sounds, or you can high-pass as well as low-pass a sound at the same time. It's a very versatile filter that is highly creative."

SOUNDTOYS PANMAN

"This isn't another run-of-the-mill autopanner. There are many options for panning duties. You can specify things like the amount of steps it takes to go from left to right, the speed it does it and whether it moves smoothly or abruptly from each step. It means you can design the way your sound moves around the stereo image."

D Ramirez's new mix of Underworld's *Always Loved A Film* is out now. Check out more tracks at www.dramirez.co.uk

TAL-NoiseMaker

If you're hankering for a new synth, the latest offering from freeware stalwarts Togu Audio Line is well worth a gander



"Use TAL-NoiseMaker how you want - you can only damage your ears!"

Developer Togu Audio Line
Format PC VST, Mac AU/VST
Web kunz.corrupt.ch

It's been a while since the last synth release from Togu Audio Line, but our patience has been rewarded with TAL-NoiseMaker, a virtual analogue built on TAL-Elek7ro with some cool new features and a more intuitive interface. We caught up with Togu Audio Line main man Patrick Kunz to find out more.

How much of an improvement over TAL-Elek7ro does this synth represent?
"I improved nearly every component of TAL-Elek7ro, especially the envelopes and the filters. The new filters have a 'better' and more defined sound, but I continued to use Juno-60 with its beautiful filter and envelopes as a reference synth for ear testing and tuning. A completely new triangle waveform has been added, and it's possible to sync the triangle to the sub oscillator. The phase control for the LFOs is a useful add-on, too, and the LFOs in sync mode is triggered to the host now. A simple reverb and chorus effect were also added to give the synth the potential to make some stereo presets and wide pads."

What's so special about the envelopes?
"The volume envelope is now useful for pads, as very slow attacks are possible. The envelopes have a wider range and the synth is more suitable for resonant kicks and other drums."

What are the oscillator Phase controls for?
"All the oscillators are triggered by the Note On MIDI event. This means they start with the same phase if you play a note that does not overlap. The sub oscillator always starts at the same phase, and the Phase knob defines the starting phase of oscillator 1 and 2. This is useful if you have all oscillators in tune, or for short, percussive sounds with a fast attack."

How does the oscillator crush work?
"It affects the bit depth of oscillators 1 and 2, before the filter component. The effect is barely detectable - I'm working on it!"

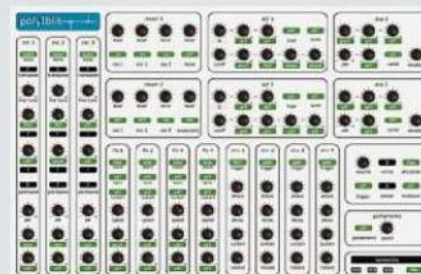
Finally, any tips for using TAL-NoiseMaker?
"Use it how you want - you can only damage your ears! Try the 6dB low-pass filter."

TAL-NoiseMaker is in the **Software** folder of this issue's **cm** DVD.

MUziq
MeldaProduction have released yet another free plug-in in the shape of **MUtiLity**, a veritable Swiss Army knife of a processor. Its capabilities include volume and panorama control, phase inversion, stereo swapping, a DC blocker, delay in samples and milliseconds, and a mono-stereo encoder and decoder, amongst other handy utilities. It's available in Mac AU/VST and PC VST formats.
www.meldaproduction.com

Plinth Regent
Zynewave have released a free version of their excellent Podium DAW. Podium Free is identical to the commercial version, aside from the fact that users are limited to a single physical MIDI input and output. The 64-bit mix engine, plug-in multi-processing, ReWire and surround-sound playback options are also disabled. Podium Free is available for PC only and is definitely worth checking out.
www.zynewave.com

Don't hate the Player
As we go to press, Native Instruments have released two new free players: **Reaktor Player** and **Guitar Rig 4 Player**. Both feature playback of a limited number of patches: Reaktor Player features three instruments, while Guitar Rig 4 Player allows you to use a selection of 20 effects. Both are available along with Kontakt 4 Player and Kore 2 Player as part of NI's **Komplete 7 Players** package.
www.native-instruments.com



Freeware Classic polyblit

Developer Andreas Ersson
Format PC VST
Web www.bostreammail.net/ers/vstplugins.html

Andreas Ersson has made several popular freeware plug-ins, and while his polyblit is a relatively simple virtual analogue synth, its straightforward approach to synthesis combined with its impressive flexibility and great sound mean it's still a useful instrument.

At the heart of polyblit are three oscillators that can be set to sine, triangle, sawtooth or pulse shapes. The latter has variable pulse width, and the oscillators can be detuned up or down 48 semitones. Each oscillator has an independent pitchbend control that can be set between -24 and +24 semitones, enabling patches that bend between unison tones and chords.

The filter section includes a single

"The modulators can be modulated, making crazy routings possible"

multimode filter that can be set to one-, two- or four-pole high-pass, band-pass or low-pass modes. The Resonance knob, referred to as Q here, can be switched into Enhanced mode for creating OTT filter sweeps.

Aside from a noise-generation oscillator, that's pretty much it on the sound creation front. Where polyblit excels is its modulation possibilities. There's no modulation matrix, but most parameters have a few assignable modulation sources, which is where the instrument's four LFOs and four envelopes come into play. These modulators themselves can be modulated, making crazy cross-modulation routings possible. polyblit might not be the most feature-packed synth out there, but for pure virtual analogue tweaking, it's definitely one to download for all you freeware fetishists. **cm**

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Swissonic MDR-2

Mobile digital audio recorder

44.1kHz, WAV/mp3, stereo, built-in flash memory (up to 2 hours of mp3 recording), slot for separate SD (16MB - 2GB) or SDHC (4GB) cards, built-in stereo condenser mic, 2x jack ins for external mics or guitar/line, headphone out, line out, mini speaker, USB 2.0 interface, 20Hz-20kHz, includes external stereo mic and USB cable. Dimensions: 15.5 x 8.5 x 3cm. Weight: 200g

€ 69.-
£ 56.-

order code 203423

Swissonic MDR-4

Mobile digital audio recorder

24bit, sample rate: 44.1/48kHz, record format: WAV (16/24bit) and MP3 (64/96/224/320kbps), 5 effects (delay, chorus, room, reverb, pitch shift), built-in speaker, 128 x 64 pixel LED display, 1/8" stereo line in, 1/8" external mic in, built-in stereo mic, 1/8" headphone out, Mini-B type USB connector, powered by PSU or 2 AA size batteries, incl. power supply unit, 1GB SD card and USB cable, dimensions: WDH: 6.7 x 2.9 x 10.7cm.

€ 80.-
£ 65.-

order code 228599

Zoom H-1

Mobile digital audio recorder

24bit/96kHz linear PCM, real X-Y mic arrangement, built-in monitor speaker, auto recording level, lo-cut filter, timestamp, track mark function, A/D and D/A conversion, 128 times oversampling, recording media: micro SD memory card and micro SDHC memory card (up to 16GB), USB 2.0, incl. 2 GB micro SD card, windshield and USB cable.

€ 96.-
£ 79.-

order code 247073

Zoom H2 Bundle

Mobile mp3/WAV recorder

1-point stereo mic design, MS stereo technique, record 360° sound as 2ch or 4ch data, built-in USB interface with audio interface function, WAV 96/48/44.1kHz and MP3 up to 320kbps, VBR, headphone out, uses SD cards (up to 4GB), perfect for interviews, podcasts, meetings and live recordings. Includes USB cable, stand, mic-stand adapter, power supply and 512MB SD card. Bundle includes the t.bone HD660 headphones.

€ 173.-
£ 142.-

order code 137629

Boss Micro BR Set

4-track compact studio

Ultra portable, 32 V-tracks, loads and plays mp3 files, onboard multi-FX, dedicated guitar input, timestretch and centre cancel features, 293 rhythm patterns, built-in tuner and mic, USB port for data transfer, SD card slot, includes 128MB card. Bundle includes the t.bone HD660 stereo headphones and the t.bone ST40 stereo microphone.

€ 173.-
£ 142.-

order code 198217

Olympus LS-5

Portable digital recorder

24bit/96kHz, WAV, WMA, MP3 and PCM recording, built-in microphone, large backlit display, 2GB internal memory, SD/SDHC card extension slot, internal stereo speaker, USB 2.0 connection, optional remote control, dimensions WHD: 4.8 x 13.15 x 2.24cm, weight: 165g (incl. battery).

€ 179.-
£ 146.-

order code 250006

Olympus LS-11

Digital recorder

24bit/96kHz, 2 built-in mics, internal 8GB HDD, expandable to 32GB with SDHC Card, up to 23 hours record time, edit functions, PCM/WAV/ WMA/mp3 record & playback, built-in stereo speaker, backlit display, SD/SDHC slot, USB, headphone out, silver metal housing. Weight: 165g (including batteries), connection for external power supply, includes wireless remote and Steinberg Cubase 4 LE.

€ 279.-
£ 228.-

order code 234496

Eidiol R-09 HR 4GB

SD Card Bundle

24bit/96kHz mp3/WAV recorder
Up to 320kbps mp3 playback and recording, recording on SD or SDHC card (up to 8GB), integrated stereo condenser mic, OLED display, built-in preview speaker, incl. wireless remote control with split function, USB 2.0, stereo mic in, stereo line in, incl. power supply, 512MB SD card, USB cable, Cakewalk Pyro AudioCreator LE, wireless remote controller and small table mounting plate. Bundle incl. 4GB SD card.

€ 279.-
£ 228.-

o. code 207377

Marantz PMD 620

Portable SD/SDHC card recorder

Selectable stereo/mono, WAV/mp3 recording, 44.1/48 kHz, mp3 bit rates from 192kbps to 320kbps, USB 2.0 connectivity to PC for drag and drop file exchange, integrated stereo condenser microphone array, mic and line level external inputs, phantom power (5V, 1mA), includes 512MB SD card. Dimensions: 10.2 x 6.2 x 2.35cm (WxHxD). Weight: 110g

€ 263.-
£ 231.-

order code 138305

Sony PCM-M10

Portable 24bit/96kHz audio recorder

Built-in stereo microphone, internal speaker, cross-memory recording, internal 4GB flash memory + MicroSD/memory stick micro slot, limiter and low-cut filter, 5s. pre-record buffer, manual or automatic recording level control, USB-2.0 connection, includes power supply, Soundforge Audio Studio LE, cable remote, 2 AA batteries and cable, finish: grey.

€ 325.-
£ 266.-

o. code 238886

Zoom H4 N

Wizoo Bundle

24bit/96kHz digital recorder
Perfect for interviews, podcasts, meetings and live recordings. 2 built-in stereo microphones, requires 2x AA or 4x AAA phantom power, USB port, includes windscreen, USB cable, cover and Cubase LE4. Bundle includes 4GB SD card, Superlux HD681 stereo headphone and Wizoo Publishing, Mobile Recording! Thomann Special Edition by Kai Schwirzke.

€ 339.-
£ 277.-

o. code 232016

Teac CD-RW880

Digital recorder

Plays CD, CD-R, and CD-RW, records on CD-R and CD-RW, frequency response: 20Hz - 20kHz, S/N ratio: 90dB (rec digital), 82dB (rec analog), 90dB (playback), dynamic range: 84dB (recording), 86dB (playback), distortion (THD): less than 0.05 %, dimensions WHD: 43.5 x 10 x 29.5cm, weight: 4.5kg.

€ 359.-
£ 294.-

order code 241128

Zoom R16 Bundle

USB audio interface and DAW controller

16-track playback and 8-tracks recording, 24bit/48kHz PCM recording, internal stereo condenser mic, 8 mic ins, 2 outs, 8 balanced XLR / 1/4" TRS connections, internal effects, Mackie Control emulation via USB, works as USB storage, support for Win XP/Vista and Mac OS, incl. Steinberg Cubase LE4 and 1GB SD card. Bundle incl. the t.bone MLS66 stereo headphones and 4GB SD card.

€ 369.-
£ 302.-

order code 245233

Tascam 2488

NEO Bundle

24-track hard disk recorder
24bit/44.1 kHz, 8x mic/line inputs (4x XLR with phantom power), internal FX processor, 16x CD-RW drive, new effects for mastering, 250 virtual tracks, high speed USB 2.0 connects to PC or Mac® for data backup and SMF/WAV file exchange, 80GB hard drive. Bundle includes the t.bone HD-990D headphones and 5x Sony CDQ08N CD-Rs.

€ 738.-
£ 604.-

order code 223374

Alesis HD 24

Digital audio recorder

24 tracks, 24bit/44.1 or 48kHz recording, 24 analog inputs & outputs, 3x ADAT optical I/O (24 channels), MIDI I/O, MTC out, 10 Base-T ethernet connector for computer back-ups in AIF format, wordclock, 19", includes 40GB hard drive.

€ 1479.-
£ 1210.-

order code 147007

Allen & Heath ZED-10FX

Mixer

4 mic/line ins, 2 dual stereo ins, DuoPre™ preamp, 2 aux sends, USB send/return, internal 24bit FX processor, HP-filter, stereo return, 2-track return, main insert, internal power supply, weight: 3.3kg, incl. Cakewalk Sonar LE.

€ 275.-
£ 225.-

o. code 246916

Allen & Heath ZED-10

without FX processor.

order code 246915

€ 219.-
£ 179.-

Yamaha MG 166cx

16 channel mixer

8x mono mic/line ins (XLR/jack), 2x mic/line ins (XLR/stereo jack), 2x stereo line ins (jack), 3x aux sends, 8x inserts, 3-band EQ with parametric mids, internal compressors per mic channel, SPX FX processor with 16 programs, 18dB high pass filter, high-end mic preamps, 48V phantom power. Dimensions: 47.8 x 10.2 x 48.9cm. Weight: 5.5kg.

€ 359.-
£ 294.-

order code 115511

Alesis MultiMix 16

FireWire

16ch. mixer with FireWire interface
8x mic/line ins, 4x balanced stereo line ins, 3-band EQ per channel, 2x aux send/returns, 100x 28bit FX programs, headphone out, FireWire interface: 18 ins, 2 outs, 24bit/48kHz, ASIO/WDM drivers for Win XP SP2, Core Audio drivers for Mac OS X, includes Cubase LE.

€ 389.-
£ 318.-

order code 186079

Mackie 1642 VLZ3

Compact 16-channel mixer

8x mono mic/line channels, 2x mic/line stereo channels, 2x stereo channels, 4x subgroups, 4x aux (2x pre/post switchable), XDR2 mic preamps, 60mm faders, 3-band parametric EQ (mono channels), 4-band EQ (stereo channels), 48V phantom power. Dimensions: 42.5 x 13.1 x 42.1cm (WxHxD). Weight: 8.3kg.

€ 499.-
£ 408.-

order code 112362

Behringer Xenyx XL3200

32-channel mixer

28 mic ins, 4 stereo ins, 4-band EQ with semi-parametric mids, 4 subgroups, 2 separate main outs, 6x aux send, signal and Clip LED per channel, switchable 80Hz lowcut and 48V phantom power, 60mm fader, internal power supply, 2x BNC lamp connection, 1x talkback, 2x phones out, dimensions: 18 x 91 x 54cm.

€ 679.-
£ 555.-

order code 238220

Mackie Onyx 24-4

Live console

20x mono ins, 4-band EQ with full parametric mids and fixed lo/hi, 2x stereo ins, 4x subgroups, 3x outs, 48V phantom power, 30dB pad, phase reverse and low cut, inserts per channel, 6x2 matrix, 4 mute scenes, talkback, main insert, 1x BNC lamp connection, internal power supply.

€ 966.-
£ 790.-

o. code 193356

Mackie Onyx 32-4

38 mono ins

order code 194635

€ 1150.-
£ 941.-

Mackie Onyx 1640i

Compact 16-channel mixer

16 mic/line ins, inserts ans direct outs on each channel, 4-band EQ, 2 parametric EQs, 6 pre/post auxes (switchable), switchable phantom per channel, 4 sub groups, control room out, internal talkback mic, ProTools M-powered Compatibility Officially Licensed, integrated FireWire access point, incl. rackmount, dim. 61.7 x 44.2 x 19.1cm, weight 13.5kg.

€ 1444.-
£ 1181.-

order code 236561

Phonic Summit

Digital mixer

16 channels, 24bit/96kHz, phantom power, 17x 100mm motor fader, touch screen, 26 semi-parametric 4-band-EQ for all inputs, AES/EBU I/O, 8 multi-function outs, 2 effect processors, 26 dynamic processors, SD card, optional Expansion Card compatible with Win XP/Vista/7 and Mac OS X (incl. Snow Leopard), ext. power supply, weight: 10.5kg, incl. 19" rackmounts.

€ 1639.-
£ 1341.-

order code 246336

Presonus Studioline 16.4.2

16-channel digital mixer

Built-in 32x18 FireWire audio interface, 'Fat-Channel' processing with 4-band EQ, compressors, limiters and gates. 16x inputs, 6x auxiliary mixes, 4x subgroups, 16x Class A XMAX mic preamps, 44.1kHz & 48kHz sample rate, 2x master DSP FX, talkback. Dimensions: 43.7 x 17.5 x 56.8cm (WxHxD).

€ 2169.-
£ 1774.-

order code 225534

Mackie Digital X200

Refurbished

Digital open architecture mixing desk
72ch/96kHz (36ch/192kHz), 8 busses, 2 touch screens, 25 motorised faders, 4-band EQ, compressors and gates, VST plug-in compatible, 2 PCI slots, flexible I/O, 9 slots for optional I/O cards (not included in basic config), Mackie Control Universal mode for DAW control. B-Stock with full warranty!

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£ 2999.-

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Miditech Midistar Music 25

MIDI master keyboard

25 touch sensitive keys, joystick for pitchbend and modulation, octave up/down, MIDI output, USB connection, includes USB cable and Magix Sampletime SE, dimensions WHD: 38 x 8 x 24cm, weight: 2.3kg.



order code 230804

€46.-
£38.-

M-Audio Oxygen 25 (3rd Gen)

MIDI/USB keyboard

25 velocity sensitive keys, 8 controller knobs, assignable buttons including 6 transport buttons, integrated USB/MIDI interface, for Windows XP/Vista 32bit and Mac OS X.



order code 236609

€88.-
£72.-

Oxygen 49 (3rd Gen)

49 keys.

order code 236606

€88.-
£80.-

Thomann SP-5100

Stage Piano

88 hammer action keys, 20 sounds, 20 styles, 60 songs, dual mode, split mode, metronome, DSP, transpose function, headphone output, stereo aux input, MIDI in/out, USB port.



order code 154090

€315.-
£258.-

Thomann SPWS-5100

Wooden stand for SP-5100

order code 154141

€46.-
£38.-

Thomann SP-5500

Stage piano

88 hammer action keys, 559 sounds, 203 styles, 3 user styles, 100 songs, 64-note polyphony, accompaniment control (start/stop, sync start/stop, fill-in A/B, fade), dual mode, split mode, DSP, transpose function, lesson function, pitch bend, headphone out, stereo aux I/O, MIDI I/O, USB port. Finish: Silver Grey



order code 154087

€377.-
£308.-

Thomann SPWS-5500

Wooden stand for SP-5500

order code 204071

€46.-
£38.-

Korg SP-170

Stage piano

88 natural weighted hammer action keys, 2x9W built-in speakers, 10 sounds, effects: reverb and chorus, key transpose and pitch control, 2 line/headphone outs, MIDI out, dimensions: 131 x 32.5 x 13.3cm, weight: 12.1kg.



Black

order code 242228

€479.-
£392.-

White

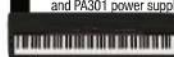
order code 242231

€479.-
£392.-

Yamaha PI 55

Stage Piano

88 graded hammer action keys, pure CFIII piano voice, 17 voices, polyphony 128 voices, dual and split mode, metronome, 2 headphone outs, 2x 12W, includes note stand, FC-4 pedal and PA301 power supply, weight: 18.6kg.



Black & ebony

order code 223258

Black & mahogany

order code 223244

€1148.-
£939.-

Clavia Nord Electro III

Stage keyboard

Based on authentic emulations of Hammond B3 and electric pianos, Nord sample library support, flash memory for 256MB samples and 126 programs, new effects and amp emulations, compressor and EQ.



61 waterfall keys

order code 220551

73 waterfall keys

order code 220582

€1545.-
£1264.-

€1690.-
£1382.-

Roland FP-7

Compact Stage Piano

Internal speakers, 88 PHA II keys, 128 voices, 333 sounds, 6 tone wheel organs and 9 drum sets, session partner and 3-track recorder, WAV/SMF playback, 2 headphone outs, USB (MIDI) and USB-host connection, MIDI I/O, 3 pedal jacks, DC in, DC 12V (AC adaptor).



Dimensions:

134.6 x 37.5 x 13.7cm (WxDxH).

Weight: 23.9kg

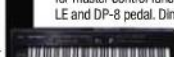
order code 109867

€1590.-
£1301.-

Roland RD-700 GX

Stage piano

88 weighted keys (128 note polyphony), audio playback of WAV, AIF, and mp3 files via USB memory. Easy on-stage control with audio key feature, piano designer function, 8 multi-FX processors, 3x MIDI outputs, multiple zones for master control functions, includes Sonar LE and DP-8 pedal. Dimensions: 144.4 x 37.5 x 14.8cm (WxDxH). Weight: 25kg.



order code 204378

€2175.-
£1779.-

Clavia Nord Stage 88 EX

Stage piano

88 weighted keys with aftertouch, 3 split zones, organ section with Hammond B3, Vox Continental and Farfisa organs, piano section with Grand Piano, Rhodes, Wurliitzer, Hohner Clavinet and many more, large effect FX, 256 MB memory for piano samples.



order code 219785

€2899.-
£2371.-

Doepfer Dark Energy DVD Bundle

Expander

Monophonic stand-alone analog synthesizer with USB and MIDI interface, USB, MIDI input, 4 CV outputs, 1 gate output, external power supply, dimensions WHD: 18.5 x 14.5 x 6.5cm, weight: 1.2kg. Bundle including german video tutorial DVD „Hands on Synth Sound“.



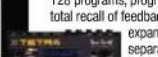
order code 245106

€375.-
£307.-

Dave Smith Instruments Tetra

4-voice desktop analog polysynth

4-part multi-timbral with separate outputs and 128 combo programs, four banks of 128 programs, programmable input gain for total recall of feedback settings, LED display, expandable up to 4 units, separate outputs for each of the four voices, USB support. Includes Prophet '08 factory programs.



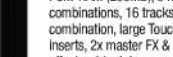
order code 233868

€649.-
£531.-

Korg M50-61

Synthesizer

61 velocity sensitive keys with natural touch, max 80 voices in single mode and 40 voices in double mode, EDS from Korg M3, large PCM-RAM (256MB), 640 programs and 512 combinations, 16 tracks and programs per combination, large TouchView display, 5x Inserts, 2x master FX & 1x total FX with 170 effects, virtual drummer with 1671 patterns, sequencer, SD Card slot, USB.



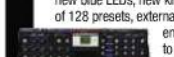
order code 217612

€966.-
£790.-

Moog Minimoo Voyager Electric Blue

Electric Blue Edition V3.3

Performance synthesizer, fractal blue solid ash cabinet, electric blue back lit panel, new blue LEDs, new killer patches, 7 banks of 128 presets, external mixer knob, MIDI enhancements allow you to send either 7 or 14bit resolution data from the mod wheel.



order code 188096

€2833.-
£2317.-

Yamaha Motif XS 8

88-key workstation

355MB Wave ROM, 128 voices, presets: 1024 normal voices + 64 drum kits, colour display, 4-part arpeggiator, 4 layers or splits in performance mode, sequencer, internal sampler, USB, Ethernet.



order code 111125

€3255.-
£2663.-

XS 61 keys

order code 111123

€2333.-
£1908.-

XS 76 keys

order code 111124

€2699.-
£2208.-

Novation Launchpad B-Stock

Ableton Live/MIDI controller

Bi-directional communication, 64-button grid with colour-coded status feedback, scene control switchable to control volume, sends, muting and more, up to 6 units may be operated simultaneously, USB bus-powered, large rubber grips, autotap-enabled, includes Ableton Live 8 Launchpad version.



B-Stock with full warranty (LEDs have slightly different brightness).

order code 253157

€116.-
£95.-

Native Instruments Traktor Kontrol X1

USB DJ controller bag bundle

Instant recognition by Traktor, software controlled backlit buttons, fits perfectly alongside a standard club mixer, super-intuitive loop and cue control section, 8 knobs and 8 buttons, push encoders, expandable (connect two X1s to control four decks), incl. Traktor LE, Kore2 Player (incl. selection library) and MIDI templates for controlling other DJ and performance software. Bundle incl. X1 Bag



o. code 243915

€199.-
£163.-

Akai APC 40

Ableton Live DAW controller

USB plug-and-play, 40 Triggers, 16 rotary control knobs with LED, 8 channel faders, 1 bus fader and 1 crossfader, 2 footswitch connections for tap tempo, tempo nudge, record enable, solo/cue function, for PC/Mac, includes Ableton Live Lite Akai APC40 Edition.



order code 223229

€398.-
£326.-

Native Instruments Maschine

Groove production studio

Pad controller, 16 dynamic pads with aftertouch, 2 backlit displays, 11 rotary knobs, 41 buttons, USB-powered, MIDI I/O, pattern-based sequencer with 64 patterns per group, step sequence programming and realtime recording, drum grid and piano roll editors, sampler, > 20 built-in effects, > 5GB sounds, PC/Mac.



order code 223060

€535.-
£438.-

Euphonix MC Control

DAW controller

Touch-sensitive knobs, motorised faders, touchscreen display and OLED, supports HUI and Mackie Control compatible DAW software for Mac OS X. Dimensions: 50 x 23.5 x 3cm. Weight: 2.5kg



order code 203394

€925.-
£757.-

Behringer U-Control UCA 202

USB audio interface

48kHz converter, 2x RCA I/O, headphone output with dedicated level control 3.5 mm, S/PDIF optical output, bus powered, plug and play for Windows and Mac.



order code 191768

€27.-
£22.-

ESI DuaFire

24bit/96kHz FireWire audio interface

2x ins with level controls (1/4" jack), mic preamps with phantom power (XLR), 2x hi-Z ins, 4x analogue outs, direct input monitoring with level control, headphone out, bus powered or via separate power supply. Supports DirectWire 3.0, MME, ASIO 2.0, GSIF 2.0, DirectSound and Core Audio. Includes power supply and Steinberg Cubase LE 4.



order code 206255

€85.-
£78.-

M-Audio Fast Track Pro

USB audio interface

4x4 24bit/44.1kHz, stereo in up to 24bit/96kHz, USB powered, 2x mic/instrument preamps with switchable phantom power, 2x inserts, 2x balanced line outs, 4x additional RCA outs, S/PDIF coaxial I/O, S/PDIF out (AC-3/DTS surround sound compatible), MIDI I/O, compatible with both Mac and PC.



order code 184360

€145.-
£119.-

ESI ESP1010e

24bit/96kHz PCIe express audio interface

PCIe card with external 19" interface, 8 analog ins (2 with mic preamp and 2 Hi-Z instrument), +48V phantom power, up to 8 analog ins and outs, coaxial S/PDIF I/O, 2 headphone outs, 2 MIDI I/Os, support for DirectWire 3.0, EMDM driver: MME, DirectSound, ASIO 2.0 support, Windows 7/Vista/XP/2000/2003 compatible, power supply optional, incl. Steinberg Cubase LE 4.



order code 230632

€155.-
£127.-

M-Audio Delta 1010LT

24bit/96kHz recording system

10x ins & outs, 8x AD/DA converters, 2x microphone preamps (dynamic microphones only), S/PDIF, MIDI, Word Clock, Drivers: Win95/98/NT/2000/ME/XP, ASIO2, MacOSX. Includes Ableton Live Lite.



order code 151347

€175.-
£143.-

tc electronic Desktop Konnekt 6

FireWire audio interface

24bit/192kHz, 1x mic input, 48V phantom power, 2x instrument or 2x line inputs (switchable), 2x balanced line outputs, headphone output, monitor controller with level meter, DIM function, integrated M40 Studio Reverb, direct monitor mix function, includes power supply.



order code 205137

€179.-
£146.-

Digidesign Mbox 2 Mini

USB audio interface

1x mic in with phantom power, 2x analog line/instrument in, 2x analog out, latency-free monitoring, headphone out, Pro Tools LE software, 37x DigIRack and 7x Bomb Factory plug-ins, Pro Tools Ignition Pack.



order code 108023

€245.-
£200.-

Tascam US-1641

USB 2.0 audio interface

24bit/96kHz, 8x mic/line ins with phantom power and front level meters, 2x balanced line/instrument ins (front), 4x balanced line ins (rear), 4x line outs, monitor out, S/PDIF I/O (switchable to AES/EBU), MIDI I/O. Compatible with Win XP/Vista 32 and Mac OS X (10.4 or higher), includes Steinberg Cubase LE 4.



order code 138750

€269.-
£220.-

Digidesign Mbox 2

USB MIDI/audio interface

2x analog inputs (XLR/TRS), integrated phantom power, 2x analog outputs (TRS), S/PDIF I/O, MIDI I/O, zero-latency monitoring, USB powered. Includes Pro-Tools LE software, dimensions WHD: 22.4 x 18.4 x 7.7cm.



order code 185335

€398.-
£326.-

Apogee Duet Bundle

FireWire audio interface

24bit/96kHz, 2 channels, FireWire 400 I/O, breakout cable with 2 XLR mic ins, 2 1/4" jack instrument ins, 2 1/4" jack monitor outs, multi-segment LED display input and output levels, multi-function controller knob, headphone out, Maestro software for advanced control and low latency mixing, compatible with any Core Audio compliant audio application, compatible with Mac OS X Core Audio. Bundle incl. original Apogee carry case and 2GB USB stick.



o. code 209773

€415.-
£339.-

Focusrite Saffire PRO 40

24bit/96k FireWire audio interface

20x I/O, 8x mic preamps, 8x analog I/O (2x mic/line/instr. combo XLR, 6 mic/line combo XLR), ADAT I/O, 2x S/P

www.thomann.de

Telephone Hotline: +49 9546 9223-55

Fax: +49 9546 9223-24

the t.bone SC140

True condenser microphone
18mm diaphragm, cardioid, 20Hz-20kHz, -3dB 75/150Hz low cut, -10/20dB pad, 130dB max. SPL. Includes shockmount, windscreen and aluminium case.

order code 195305
SC140 Stereo-Set
Matched pair with stereo bar: €83.-
order code 195307 **€38.-**
€76.-

Rode NTG-2

Directional condenser microphone
Broadcast quality, condenser transducer, low-noise circuitry, low handling noise, phantom powered (44 - 52V) or battery powered (1.5V), 20Hz-20kHz, 131dB SPL max., ideal for film/TV/video. Includes stand mount, windshield and zip pouch. Weight: 161g

order code 179393 **€185.-**
€151.-

Rode NT5-MP

Condenser microphone stereo bundle
2 matched small diaphragm condenser microphones, 0.5" gold sputtered capsule, cardioid, 20Hz-20kHz, excellent for drum overheads, acoustic guitar and stereo live recordings. Including plastic case, microphone clips and wind screens.

order code 154595 **€269.-**
€220.-

Oktava MK012-01 MSP2 Matched Pair

Matched stereo set
2x small diaphragm condenser microphones, cardioid, 20Hz-20kHz, delivered in a wooden box. Finish: Silver. Made in Russia!

order code 165104 **€279.-**
€228.-
MK012-01 MSP2
Single mic, cardioid **€149.-**
order code 165103 **€122.-**

Neumann KM 184 Stereo-Set

Small diaphragm condenser mic bundle
2x KM184 condenser microphones with sequential serial numbers, cardioid, 20Hz-20kHz. Includes 2x WNS100 windshield, 2x SG 21/17 stand adapters and wooden box.

Finish: Silver
o. code 153692 **€1077.-**
Finish: Black
o. code 158648 **€881.-**

the t.bone SC440 USB

USB condenser studio microphone
USB connection for direct access to Mac and PC (not compatible with Windows Vista!), cardioid polar pattern, 20Hz-18kHz, includes plastic case.

order code 197603 **€55.-**
€45.-

StudioProjects B1

Large diaphragm condenser microphone
1" Capsule, transformerless circuit, requires +48V phantom power, cardioid, 20Hz-20kHz, -34dB sensitivity (0dB= 1V/Pa), 2000, 132dB maximum, 12dB-A noise (IEC651). Includes foam wind screen, zippered bag and shockmount.

order code 180703 **€105.-**
€86.-

Rode NT1-A Complete Vocal Recording Solution

Large diaphragm microphone
20Hz-20kHz, 1000 impedance, 132dB dynamic range, 137dB max SPL. Includes SM6 deluxe shockmount, 6m cable and Peter Freeman 'Studio Secrets' tutorial DVD.

order code 235937 **€179.-**
€146.-

AKG C3000

Studio large diaphragm condenser mic
Cardioid, 20Hz-20kHz, 2000, switchable -10dB pad, includes shockmount. Diameter: 53mm. Length: 162mm

order code 141408 **€185.-**
€151.-

the t.bone Retro Tube II

Large diaphragm tube condenser mic
Retro bottle design, 35mm dual diaphragm capsule, valve preamp, 9 different selectable polar patterns, 10dB pad switch, hi-pass filter switch, 20Hz-20kHz, < 2000 impedance, 20dB equivalent noise level, 134dB max SPL @ 0.5% THD. Includes power supply, 7-pin XLR cable, wooden box for mic and aluminium case for mic and all accessories.

o. code 225039 **€235.-**
€192.-

Rode T-1000 Thomann Edition

Large diaphragm condenser microphone
Identical as Rode NT-1000, transformerless SMT circuitry, 1" HF2 capsule with gold-plated diaphragm, incorporating internal shock mounting, 134dB dynamic range, 140dB SPL capabilities, frequency response 20Hz - 20kHz. Cardioid polar pattern, Thomann Edition in durable satin black finish including shockmount SM6, cable and bag.

order code 247421 **€219.-**
€179.-

Blue Bluebird

Studio condenser microphone
Transformerless design, requires phantom power (35V min), 138dB max SPL, 20Hz-20kHz, cardioid, includes specially designed shockmount (The Birdcage) and metal mesh pop filter (Bird Nest).

order code 110642 **€264.-**
€216.-

the t.bone SCT2000 Set

Valve studio microphone
Truly warm sound, 20Hz-20kHz, omni/cardioid/fig-8 plus 6 intermediate stages, up to 130dB SPL. Includes case, shockmount and power supply. Bundle includes the t.bone MS180 pop shield.

order code 203196 **€279.-**
€228.-

Rode NT2-A MS-180 Bundle

Large diaphragm microphone
Switchable polar pattern (omni, fig-8, cardioid), 1" diaphragm, 20Hz-20kHz, 147dB max SPL, includes SM2 shockmount. Bundle includes the t.bone MS180 pop killer.

order code 223002 **€285.-**
€233.-

AKG C214

1" large diaphragm microphone
Cardioid, 20Hz-20kHz, switchable 20dB pad, requires 12-52V phantom power, XLR connector, includes case, windshield and shockmount. Dimensions: 16 x 5.5cm (length x diameter). Weight: 280g

order code 211318 **€333.-**
€272.-

SE Electronics SE 2200T

Large diaphragm condenser mic
Gold plated 1" diaphragm, 100Hz switchable high-pass filter, -10dB switchable pad, frequency response: 20Hz - 20kHz, sensitivity: -33dB +10dB (0dB=1V/Pa 1000kHz), impedance: <= 2000, equivalent noise level: 16dB (A weighted), max SPL: 130dB (0.5% THD@1000Hz), connector: 7-pin, power supply and shockmount included.

order code 244907 **€341.-**
€279.-

Shure SM 7 B

Studio microphone
Dynamic studio microphone with cardioid polar pattern, 50Hz-20kHz, bass rolloff switch, mid-boost switch, 1507, shielded against broadband interference, fixed stand adapter, XLR connector, includes windscreen.

order code 129929 **€365.-**
€315.-

Neumann TLM 102

Large diaphragm condenser microphone
Cardioid pattern, 20Hz-20kHz, 500 impedance, 12dB-A equivalent noise level, 144dB max SPL for THD 0.5%, includes SG2 stand mount swivel. Weight: 260g.

Finish: Nickel
o. code 237768 **€519.-**
Finish: Black
o. code 237769 **€425.-**

AKG C414 XLI

Large diaphragm condenser mic
9 polar response patterns (cardioid, wide cardioid, eight, hypercardioid, omni and 4 mix pattern), 20Hz - 20kHz, 6/12/18dB pad, 40/80/160Hz HP filter, 140dB SPL max., CK12 capsule, high boost above 4kHz, peak hold LED, lock modus to save preferences, transformerless FET XLR out, incl. CK12 mic head, H85 shockmount, popfilter PF 80, windshield W414X and alu case.

o. code 240602 **€885.-**
€724.-

Brauner Phantom Classic

Solid state microphone
Cardioid polar pattern, pressure gradient transducer, equivalent noise <11dB, signal to noise: 83dB, 20Hz-22kHz, 142dB max SPL @ 0.3% THD, requires 48V phantom power. Includes flexible suspension mount, aluminium case and Vovox cable.

order code 139461 **€945.-**
€773.-

ART Tube MP

Tube microphone preamp
Hand selected 12AX7A valve, limiter, 48V phantom power, phase reverse, XLR and jack I/O, perfect for hard disc recording or as a valve DI.

order code 191529 **€37.-**
€30.-

StudioProjects VTBI

Tube preamp
Incorporating true class A/B switching, the VTBI is a totally discrete circuit, the tube drive is a variable drive to a 12AX7, allowing the user to blend as little or as much of the tube drive they want. 48V phantom power, balanced outputs (XLR & 1/4"), TRS insert, phase reverse, high pass filter, 5-segment LED metering.

order code 183260 **€111.-**
€91.-

dbx 266 XL

Stereo compressor/limiter/gate
Patented OverEasy technology (attack & release times), XLR I/O, -10/+4dB switch, stereo link, dbx sound.

order code 131808 **€173.-**
€142.-
dbx 166 XL
2-channel compressor/limiter/gate, stereo or dual mono, OverEasy or hard knee mode, PeakStop limiting. **€289.-**
order code 131035 **€236.-**

FMR Audio RNC 1773

Really nice compressor
Stereo compressor with two modes: 'Normal' for effective compression and 'Super Nice' for transparent compression. Controls: threshold, ratio, attack, release and gain. Switches: bypass & Super Nice.

order code 179985 **€169.-**
€138.-
RNL 7239 Really nice levelling amplifier
10Hz-100kHz 0.5dB @ 0dBu, clip point: +22.5dBu @ 3% THD. **€205.-**
order code 190166 **€168.-**

dbx 231

2x 31-band graphic equalizer
1/3-octave constant Q frequency bands, switchable boost/cut ranges of +6 or -12dB, 12dB per octave 40Hz low-cut filter, front panel bypass switch, >12dB input gain range, 4-segment LED ladders for monitoring output levels, XLR and TRS ins and outs, internal toroidal transformer, 10Hz-50kHz, >108dB dynamic range.

order code 163446 **€219.-**
€179.-

Behringer DEQ2496 Ultra-Curve Pro

Digital mainframe
4 simultaneous EQ modules (31-band graphic EQ, 10-band parametric EQ, feedback destroyer, 3 dynamic EQs per channel), 61-band real-time analyzer with separate RTA mic in, 24bit/96kHz AD/DA converters and 32/40bit signal processors, 1130dB dynamics, balanced ins & outs with gold-plated XLR sockets, AES/EBU & optical S/PDIF.

order code 162785 **€269.-**
€220.-

SPL GoldMike 9844

2-channel valve preamp
Discrete Class A solid state, 48V phantom power, phase reverse, pad function, flair presence enhancement, very clear and warm sound. Dimensions: 19"/2U

order code 123370 **€425.-**
€348.-

Universal Audio 710 Twin-Fifty Bundle

1-channel mic/line/DI preamp
Dual path 310V class A valve & transimpedance solid state preamp, +70dB gain, 48V phantompower, -15dB pad, phase invert, 75Hz low cut filter. Bundle includes UAAD-2 Solo PCIe DSP card, VST and AU support, LiveTrack™ low-latency live monitoring/recording mode, Mix Essentials II (1176SE Limiting Amplifier Emulation, RealVerb Pro, CS-1 Channel Strip, Pultec EQP-1A EQ Emulation). **€679.-**
order code 244200 **€555.-**

Sabine FBX 2410

Feedback controller
Industry standard feedback destroyer, new patented SMARTFilter technology, 3 color LEDs, 24bit A/D and D/A conversion, filter switchable between fix and dynamical, 1/10 or 1/5 octave, balanced and unbalanced inputs and outputs, turbo setup mode for fast and soundless FBX setup, 19"/1U, 2 audio channels each with 12 FBX filters.

order code 241717 **€622.-**
€509.-

Behringer ADA8000

8-channel AD/DA converter
8x mic preamps with phantom power, 24bit AD/DA, 44.1 & 48kHz Wordclock or ADAT sync, ADAT I/O, ADAT in can be routed to line outs, mic and line in/outs are routed to ADAT out, excellent expansion for DD3216 or any interface/mixer with ADAT I/O.

order code 164573 **€195.-**
€160.-

tc Helicon VoiceTone Create

Vocal FX unit
99 music style based FX combinations, 5 'favourite' user presets, XLR mic level I/O in stereo or mono, clean studio quality mic preamp with phantom power, 2x XLR outs (for mono or stereo operation), tap tempo function.

order code 117131 **€149.-**
€122.-

tc Helicon Harmony-G

Compact vocal processor
Harmony arrangement algorithm listens to guitar and voice to follow your music, 6 reverb/delay combinations for vocal and guitar, 10 presets each with A/B location, selectable harmony voicing, XLR mic in with 48V phantom power, stereo line out (balanced XLR), guitar in and pass-thru for separate amp/tuner, includes external power supply.

order code 205731 **€149.-**
€122.-

Boss VE-20

Vocal Performer
Vocal effects dynamic compressor / de-esser, enhancer, delay, reverb, 2 harmonist and pitch correction, LCD display, looper mono, 38 sec., sounds: 30 preset + 50 user, requires optional power supply Boss PSA-230 (order code 102842, not included).

order code 235812 **€211.-**
€173.-

Roland VP-7 Vocalist

Vocal processor
64-voice polyphony, real time wheels for harmony, ambience, tuning, headphone out, line out jack, jack/XLR (phantom power), foot pedal jack (bypass on/off, MIDI in, power supply jack, incl. power supply and headset microphone, dimensions WDH: 24 x 14.4 x 6.4cm, weight: 0.8kg.

order code 242074 **€469.-**
€384.-

tc electronic Voice Live 2

Vocal multi FX pedal
Up to 8 voices or 4 doubled harmonies, reverb, tap delay, megaphone and distortion, compressor, de-esser and EQ, MIDI or mp3, LCD display, XLR, line in, aux in, headphone output, coax S/PDIF I/O, backup and audio streaming. Dimensions: 35 x 7.6 x 21.6cm. Weight: 2.3kg.

order code 225557 **€699.-**
€572.-

The Thomann services

- 30-day money back guarantee
- free shipping to the UK and Ireland on orders above £159

www.thomann.de

Telephone Hotline: +49 9546 9223-55

Fax: +49 9546 9223-24

The Thomann services

- 30-day money back guarantee
- free shipping to the UK and Ireland on orders above £159

AKG K-450

Hi-Fi headphone

for Apple iPod, MP3 and MD players, dynamic, closed, impedance: 32Ω, max. SPL 126dB, frequency response: 11Hz - 29.5kHz, 3.5mm stereo mini plug, 3D-axis folding mechanism, incl. 2x cords with length 0.5m and 1.1m, weight (without cable): 120g, incl. bag and adapter for 2,5/6,3mm stereo jack.

order code 221309

€ 63.-
£ 52.-

AKG K 240

Studio stereo headphones

Half open, 55Ω, 88dB/mW, 15Hz-20kHz, ear-enclosing, cable connection, distortion-free playback (new XXL cap), involving sound from new Varimotion system, ideal for Walkman and sound cards. Weight: 240g

order code 153257

AKG K 141 MKII

Dynamic, semi-open, 55Ω, 18Hz-24kHz, plug-in cable. Weight: 225g.

order code 206955

€ 89.-
£ 73.-

€ 95.-
£ 78.-

Sony MDR-7506

Professional headphones

Closed back, 63 Watts, 106dB, 1/4" and 1/8" jack connectors, compact, designed for professional DJ and studio use.

order code 135709

€ 115.-
£ 94.-

AKG K271 MKII

Closed dynamic studio headphones

Circumaural design, 55Ω, 200mW max input, 16Hz-28kHz, 104dB sensitivity, self-adjusting headband and auto-shut-off feature, 3m cable. Includes 5m coiled cable, 1 pair velvet pads and gold plated mini-jack to 1/4" screw-on adapter. Weight: 240g

order code 206951

5m extension cable

1/4" stereo jack.

order code 153216

€ 145.-
£ 119.-

€ 650.-
£ 530.-

AKG K 701

High-end reference headphones

Revolutionary flat wire voice coil technology, dynamic, open back, 62Ω impedance, 105dB efficiency, 10Hz-39.8kHz, 200mW max input power, hard gold plated 1/4" jack plug, 3m cable. Weight: 235g (not including cable).

order code 185476

€ 199.-
£ 163.-

M-Audio Studiophile

AV40 Studioophile

Active 2-way nearfield monitor

4" polypropylene-coated woofers, 3/4" ferrofluid-cooled silk dome tweeters, 20W per channel amplifier with class A/B architecture, 85Hz-20kHz, OptImage III waveguide, magnetic shielding, headphone output. Dimensions: 22.2 x 15.2 x 18.4cm.

order code 113674

€ 111.-
£ 91.-

Yamaha HS50M

Active 2-way studio monitor

70W bi-amped bass reflex system, 5" woofer, 3/4" tweeter, 55Hz-20kHz, XLR & TRS ins, adjustable input level, mid EQ, room control, high trim, switchable low cut, fully magnetically shielded. Unit price!

order code 186461

€ 135.-
£ 110.-

KRKR RP5 Rokit G2

Active studio monitor

45W, 5" + 1" speakers, 53Hz-20kHz, magnetically shielded. Dimensions: 27.6 x 18.5 x 25cm. Weight: 8kg. Unit price!

order code 213024

KRKR RP8 Rokit G2

8" + 1", 140W.

order code 213090

€ 149.-
£ 122.-

€ 266.-
£ 218.-

M-Audio Studiophile

BX5a Deluxe

Active nearfield monitors

70W, 5" woofer, 1" tweeter with waveguide, bi-amping, magnetically shielded, balanced XLR and balanced/unbalanced TRS inputs, volume control, dimensions HWD: 25 x 17.6 x 20cm. Pair price!

order code 207871

€ 195.-
£ 160.-

ESI nEar08 Classic

Active 8" studio bi-amp monitors

2-way bookshelf monitors, magnetically shielded, 70W LF & 70W HF amplifier power, 40Hz-24kHz, 1x balanced XLR input, 1x balanced/unbalanced jack input. Dimensions: 35.8 x 25.5 x 32.2cm (HxWxD). Weight: 10kg each. Pair price!

order code 222139

€ 215.-
£ 176.-

Mackie MR8

Active nearfield monitor

8" woofer (100W), 1" tweeter (50W), frequency response: 40Hz - 20kHz, max. SPL per pair: 116 dB SPL @ 1m, XLR, jack (6.3mm) unbalanced and RCA, magnetically shielded, dimensions HWD: 40.6 x 27.6 x 34.6cm, weight: 12.5kg. Unit price!

order code 207242

€ 215.-
£ 176.-

Genelec 8020BPM

Active 2-way studio monitor

Power switch, 66Hz-20kHz (±2.5dB), 105dB SPL peak @ 1m, 95dB SPL @ 1m, 105mm (4") high efficiency bass driver, 19mm (3/4") metal dome tweeter with Directivity Control Waveguide, 3kHz crossover, magnetically shielded, aluminium cabinet, includes wall bracket. Power per channel: 20W (bass), 20W (treble). Dimensions: 22.6 x 15.1 x 14.2mm. Weight: 3.7kg. Unit price!

order code 235038

€ 279.-
£ 228.-

Adam A7

Special Edition

Active nearfield studio monitor

Finish: black piano lacquer, 6.5" Rohacell / kevlar sandwich woofer, A.R.T. tweeter, frequency range 46Hz to 35kHz, 100W (sin), 150W (rms), XLR and RCA input, dimensions: 18 x 33 x 28cm, weight: 8kg. Unit price.

order code 241073

€ 377.-
£ 308.-

Adam A7

Special Edition

Active nearfield studio monitor

Finish: white piano lacquer, 6.5" Rohacell / kevlar sandwich woofer, A.R.T. tweeter, frequency range 46Hz to 35kHz, 100W (sin), 150W (rms), XLR and RCA input, dimensions: 18 x 33 x 28cm, weight: 8kg. Unit price.

order code 244797

€ 377.-
£ 308.-

Adam A7X

2-way active bassreflex nearfield monitor

7" carbon/rohacell/glass woofer with 100W, X-A.R.T. tweeter with 50W, shelving filter tweeter: >5kHz ~ ±6dB, shelving filter woofer: <300Hz ~ ±6dB, frequency range: 42Hz - 50kHz, crossover frequency: 2.5kHz, SPL max. / pair 1m: 114dB, gain: +14dB / -8dB, gain tweeter: ±4dB, THD 90dB/1m > 100Hz: <0.5%, inputs XLR and RCA, input impedance: 30kΩ, dimensions: 20.1 x 33.7 x 28cm, weight: 9.3kg. Unit price.

order code 245513

€ 429.-
£ 351.-

Dynaudio BM5A MKII

Active nearfield studio monitor

2-way bass reflex design with 7" woofer and 1" soft dome tweeter, 90W (2x 50W RMS), max SPL 1m (pair): 117dB, frequency response: 48Hz - 21kHz, HF/MF/LF analog room filters, dimensions HWD: 18.6 x 32 x 32cm, weight: 8.7kg. Unit price.

order code 246075

€ 469.-
£ 384.-

Genelec 8030APM

Active 2-way studio monitor

58Hz-20kHz free field frequency response, 108dB SPL peak @ 1m, 130mm (5") bass driver, 19mm (3/4") metal dome tweeter with DCW (Directivity Control Waveguide), 3kHz crossover frequency, Amplifier power: 40W bass + 40W treble, magnetically shielded, aluminium cabinet, balanced XLR input. Dimensions: 28.5 x 18.9 x 17.8cm. Weight: 5.6kg

order code 171718

€ 469.-
£ 384.-

Yamaha HS80M stand bundle

Active 2-way studio monitor package

120W bi-amped bass reflex speaker, 8" woofer, 1" tweeter, 42Hz-20kHz, XLR & jack input, mid EQ, room control, high trim, switchable low cut, magnetically shielded. Bundle includes 2x HS80M and 1 pair of Millennium BS-500 nearfield stands.

order code 227555

€ 495.-
£ 405.-

Mackie HR824 MK2

Active 2-way studio nearfield monitor

8.75" low-distortion LF woofer, 1" titanium dome ferrofluid cooled tweeter, twin FR series amps (150W LF & 100W HF), passive radiator provides tight, articulate bass extension down to 35Hz, balanced XLR/TRS and unbalanced RCA inputs. Unit price!

order code 138446

€ 529.-
£ 433.-

Adam A8X

2-way active bassreflex nearfield monitor

9" carbon/rohacell/glass woofer with 150W, X-A.R.T. tweeter with 50W, shelving filter tweeter: >5kHz ~ ±6dB, shelving filter woofer: <300Hz ~ ±6dB, frequency range: 38Hz - 50kHz, crossover frequency: 2.5kHz, SPL max. / pair 1m: 120dB, gain: +14dB / -infinite dB, gain tweeter: ±4dB, THD 90dB/1m > 100Hz: <0.5%, inputs XLR and RCA, input impedance: 30kΩ, dimensions: 25.5 x 40 x 32cm, weight: 12.8kg. Unit price.

order code 245573

€ 569.-
£ 465.-

Behringer DJX 750

5-channel DJ mixer

24bit digital effects, BPM counter with time and sync display, Ultralight faders, XPO stereo surround effects, 3-band kill EQ, 3-way kill switch, monitor function with master/cue balance control and split option, auto talkover.

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€ 166.-
£ 136.-

Behringer DDM 4000

32bit digital DJ mixer

Beat-synchronized sampler, 4 multi-FX sections, 2 patented BPM counters, digital crossfader and MIDI, 4x phono/line stereo channels. 2x mic inputs with gain, EQ, talk function and FX. 4x stereo channels with gain, programmable parametric 3-band EQ with kill function, fader curve control and flexible crossfader.

order code 206918

€ 299.-
£ 245.-

Pioneer DJM 400

Professional DJ mixer

2 channels, mic/aux switch (to select 2x mic inputs or 1x stereo line input), fader start, crossfader curve adjustment, talkover (-20dB), peak level meter.

order code 191081

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£ 354.-

Pioneer DJM-700

Professional 4-channel DJ club mixer

Crossfader assignment, fader start, 3-band EQ (-26dB to +6dB), talk over (-20dB), peak level meter, rotary pots for master output. Dimensions: 32 x 38.1 x 10.8cm (WxHxD). Weight: 7.5kg

order code 118996

€ 811.-
£ 663.-

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€ 833.-
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Allen & Heath

XONE DX

DJ controller and mixer

4 channels with effects, 2 dual layer deck simulators, 20-channel USB 2.0 soundcard, 24bit/96kHz audio system, 168 individual MIDI messages available, TCH incl. FX, looping and time-stretching, RAA/phono inputs for external decks, mix outputs on RCA and balanced XLR, built-in hardware MIDI interface, high quality faders, weight: 6kg.

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€ 1048.-
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Denon DN-S 1200

Single CD player

Touch sensitive jog disc, MIDI interface controller (PC/Mac), USB audio, hot starts & seamless looping, 3 platter effects, 4-way BPM counter, memo function, pitch range & deep pitch resolution, vibrant text display with 2-line character text support, loop A/B trim, power-on-play, slot-in CD player, D-Link, 4 built-in DSP effects, next track function with cross fader, dimensions: 21.5 x 8.7 x 23.2cm.

order code 205617

€ 425.-
£ 348.-

Pioneer CDJ-350

Single CD player

Plays MP3, AAC, WAV, AIFF, USB (flash recorder, disc drives), USB A/B connection, includes Rekordbox music management software, beat display function for better scratch and looping performance, auto beat loop function, dimensions: 21.8 x 29.6 x 10.8cm, weight: 2.7kg, system requirements: Windows VISTA/XP, Mac OS X 10.4 or higher.

order code 249908

€ 589.-
£ 482.-

Pioneer CDJ-850

Single DJ CD player

MP3, AAC, WAV, AIFF, 24bit/48kHz, HID and MIDI control by USB, new audio output system with Wolfson DAC processor, quantized beat loop, advanced auto beat loop, plays Audio CD, CD-R, CD-RW, USB, frequency response: 4Hz - 20kHz, dimensions: 30.5 x 36.4 x 10.5cm, weight: 3.3kg, incl. Rekordbox music database management software, Mac OS X (10.4.6 and higher), Win 7 & XP.

order code 251872

€ 895.-
£ 724.-

Pioneer CDJ-900

Professional single CD player

Compatible with MP3, AAC, WAV, AIFF and Tatum Pacemaker Data, 24bit/48kHz sound card as well as HID and MIDI control by USB, Wolfson DAC processor, quantized beat loop, slip mode, quick return scratch, advanced auto beat loop, plays audio from CD, CD-R, CD-RW or USB, frequency range: 4Hz - 20kHz, includes Rekordbox music database management software.

order code 238584

€ 1279.-
£ 1046.-

Pioneer CDJ-2000

Professional multifunction single CD player

Plays Audio CD, CD-R, CD-RW, USB, SD, DVD-R, DVD-RW, USB sources and SD cards, includes Rekordbox software, quantized beat loop, compatible with MP3, AAC, WAV, AIFF and Tatum Pacemaker data, 24bit/48kHz soundcard, HID and MIDI controllable from USB, frequency range: 4Hz - 20kHz, dim.: 32 x 40.6 x 10.7cm, weight 3.9kg.

order code 238585

€ 1775.-
£ 1452.-

Behringer B-Control

Deejay BDC2000

4-channel USB audio interface, 24bit digital converter, incl. Behringer 8-DJ software, 2 scratch pads, pitchbend and cue function, integrated audio mixer with mic preamp, 3-band kill EQ per channel, talkover function, 2 high-end phono preamps, cue section with PFL mix and split function.

order code 181179

€ 95.-
£ 78.-

Behringer B-Control

Deejay BCD-3000

4-channel USB audio interface, 24bit digital converter, dual player, mixer, FX, 2 phono preamps plus monitor section, 2 jog wheels, pitch bending and cue searching, 3-band kill EQ, loop buttons, pitch and level faders per channel plus cross-fader, 2 phono preamps, mic preamp, includes Native Instruments Traktor 3 LE DJ software.

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€ 166.-
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Hercules

DJ Console RMX

Integrated USB audio interface, 2 jog wheels, 6 faders, DJ buttons for DJing control, FX and loop buttons, mic in, headphone out, 4x line outs (1/4" mono balanced jack), 4x RCA outs, 2x stereo ins, includes VirtualDJ DJC edition software (PC/Mac).

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Rane SL3

Serato Scratch Live

DJ complete system, Compact hardware design, 3 Vrms 24bit, 44.1/48kHz converter, 104dB DAC dynamic range, aux in for live recording or live feed, aux out for SP-6 sample player, USB 2.0, phono preamp in studio quality, direct thru, due to Serato's proprietary control scheme, the result is a feel and sound indistinguishable from playing vinyl.

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£ 572.-

Numark Mixdeck

DJ workstation

With CD/MP3/USB decks, mixer, computer, MIDI interface, dock for iPod, mixer with EQ/rotary knobs, effects with beat sync (echo, filter, flanger, pan, phaser), fader start, looping and sampling, tempo: 6, 12, 25 and 100%, controllable over USB, 2 displays, Mac OS X or Windows XP/Vista, incl. power supply and USB cable.

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€ 859.-
£ 703.-

THIS IS THE

REED



Learn how to analyse a track, take it apart and transform it from one genre to another with our comprehensive step-by-step guide to the art of remixing

> We've all heard tracks that just beg to be taken further. A haunting vocal that cries out to be paired with a filthy wobble bass; a tune that would work so much better if it was playing over a more inventive chord structure; a metal track that could live a new life as an old-school rave anthem. This desire to appropriate the music of others and take it to new places isn't a new thing: even early classical composers would create new arrangements of existing compositions, sometimes merely re-orchestrating but at other times going as far as adapting the ideas in order to include a significant amount of original material.

Remixes have been around ever since the dawn of recorded music. Early producers and engineers stripped down multitrack recordings, either to transform them from one genre to another, or to rescue a well-written but not so well-produced track from the bin. These days the definition of a remix has loosened somewhat as technology's raced towards the powerhouses that are our modern DAWs. Technically, a remix could be as small a change as a new mono or surround sound-compatible version of an originally-stereo recording, or as wild as a scarcely recognisable new track with a few subtle elements derived from the original.

So why would anybody want someone else to remix their carefully considered productions? Well, there are a wealth of business-based reasons for starters. A record label might want to breathe new life into back-catalogue tunes in order to capitalise on their legacy, or to cross them over into other markets – typically dance music. DJs often favour remixes because they keep their playlists fresh and up to date in genre terms, but still deliver a level of familiarity that they can be confident crowds will respond to. It's also a great way for a more obscure artist to get propelled into the limelight – either by having their original material remixed by a recognised name, or by producing a remix of an already popular track by someone else. Taken to another level, many forms of music flourish through copious remixing, attracting interest from wider audiences and forcing a degree of stylistic crossbreeding.

In this feature, we're going to focus on that most extreme form of remixing: changing a track from one genre to another. By the time we're done, your music won't know what's hit it...



First things first

Before you get started, you'll save yourself a lot of hassle by taking the time to get organised. Before you even decide what direction your remix is going to take, gather your resources and carefully consider exactly what you've got at your disposal.

If you've been asked to do an official mix, you probably have it easy. You can request MIDI parts, audio stems and whatever else you feel is relevant. However, if the original track is very old or if you're doing an 'unofficial' remix (see the *Legal issues* box), chances are you won't have much in the way of individual parts to work with. You'll need to study the source material in question to figure out where key elements are from, or how certain sounds were created. You'll be surprised at how much information you can find online pertaining to the production of particular tracks, both speculated by enthusiasts and divulged by the original musicians. Try to find out specifically what instruments were used in the original production.

Hunt help down

If you're low on resources, you might find it useful to look for alternative versions of the track that already exist. Lots of singles include an acappella mix (vocals only), and labels occasionally release acappella albums, so it's by no means impossible to get hold of a vocal track by itself. Other versions might also leave elements exposed that weren't available to sample in the original mix.

The ability to read sheet music is a handy skill for a remix producer, because the scores of many songs



Before you decide what sort of remix you're doing, find out what's available for you to work with

are available to buy. They should help you figure out what's going on in any complicated sequences you might want to reproduce. Failing that, there are numerous resources online for downloading MIDI files, which you should be able to load directly into your DAW's sequencer and get going. Just be aware that a score or MIDI file might not necessarily be presented in the same key as the released recording, so be prepared to transpose your sequences up or down if they don't fit with the samples you're using.

The golden rule is to always make sure your resources are working together as you collect them. If anything isn't

"Using different components to achieve a similar vibe may turn out to be beneficial to your mix"

working, fix it now before you get to work on the creative stuff. It'll make things much easier in the long run.

Improvise to win

If there's a particular trait of the original that you'd like to retain, but you don't have that element to hand, ask yourself what it reminds you of. Improvise with what you do have available, then experiment

with replacing missing parts with similar substitutes. By the time you've got the substitute ingredients into your remix, the fact that they're not the authentic parts might not matter. If you can achieve the right flavour regardless then you're on the right track. Remember, your aim is not to simply produce a carbon copy of the original track - so using different components to achieve a similar vibe might turn out to be beneficial to your remix. A remix that doesn't feature anything new doesn't really deserve that label.

Legal issues

Remix deals most often come about when a party with an interest in the original track (usually the artist or label) wants another version to sell. In this case they'll usually look to commission someone to produce a remix, typically paying a one-off fee and keeping the resulting income from the track to themselves.

On other occasions, musicians have submitted unauthorised remixes to labels as demos, and had them either accepted or declined based on how useful the label deem each particular mix to be. However, producing a remix without first seeking permission is a risky business. The usual copyright infringement laws still apply to a remix, so don't assume that you're free to sample and reproduce elements from

someone else's piece for this purpose. You might get away with doing it privately for your own entertainment or education, but the minute you decide to air the track publicly, you could potentially get yourself into hot water.

Incidentally, acappellas are sometimes released to encourage people to produce remixes. The simple reason for this is that the copyright owners can later license and profit from them. If you're using an acappella version, try approaching the copyright owners: they might ask to hear examples of your past work and give you a chance at doing your remix officially. Better still, a good demo could score you a place on a remix roster, where you'll be offered work that's fully above board in the future.

Clocking the beat

Once you have as many parts as you can feasibly get your hands on and you're confident that they're all in tune with each other, figure out the tempo of your track. If you're remixing a modern recording, the original will likely be strictly timed to an integer BPM (beats per minute). You may find that much older recordings drift in and out of time (there were no click tracks back in the day), but it still helps to have an approximate idea of where the tempo lies. The simplest way to do this is to watch the clock for one minute and count the beats as you go along - that number is the approximate BPM.

Conceptualise your remix

Having gone to the trouble of pooling and studying your resources, it's time to make some firm decisions as to exactly what's feasible, so that you can start to conceptualise your remix. We're going to be using samples from an original live song demo (on the DVD), reworking it into a rave-ready drum 'n' bass remix. For this to work, we're going to need to get everything up to drum 'n' bass tempo, and we'll have to make tough decisions about what we can keep, what we can adapt to make compatible with our new genre and what we'll ultimately have to leave out altogether. It's important to identify which elements fall into which categories before starting production. If you're struggling to find any elements that will work with the new genre, you should consider choosing a different one, rather than forcing the track to go somewhere it doesn't want to.

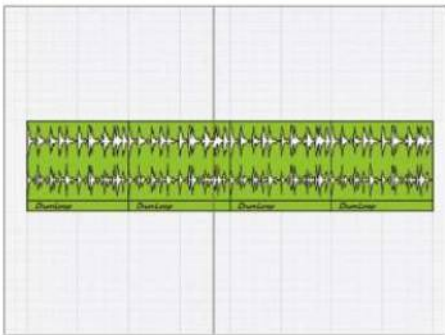
"There's little point in a remix that isn't fresh, so consider how you can adapt ideas from the original track"

It helps if you can find a reference track in the style you're producing that shares traits with your original track. Listen to how different elements are used and imagine how the elements you have in your pool will work in this new context. Think about what original parts

you're going to have to add yourself to make the track work in the new style. If you're making a significant tempo leap, try listening to a timestretched version of the original song to help you decide which elements work at the new speed.

Remember to also think about how you can bring a new twist to existing elements. Many would argue that there's little point in a remix that isn't fresh and up to date, so consider how you can adapt ideas from the original track to make them compatible with the latest trends and musical fashion. You could consider your remix an opportunity to demonstrate how creative you can be, revitalising the original tune. A lot of the time, simply cleaning up the original samples can work wonders. Ask yourself what you can do with them that couldn't have been done in the original style.

> Step by step Clean up your samples



1 > The first step in cleaning up a sound is to assess what's actually wrong with it. Our original drum loop seems to have some strange stuff going on in the stereo field. It also features quite a bit of crackle and lacks general brightness and clarity. Let's sort it out!



2 > First, up, the stereo issues. Ironically, we're using Cubase's StereoEnhancer plug-in to fix these. You could try reducing the **Width** and tweaking the **Color** knob to keep the main drum hits in solid mono, but we've just hit the **Mono** button under the **Width** control. That sounds much more suitable for a dance remix.



3 > To brighten the sound, we opt for a slightly unusual choice: Sugar Bytes WOW. By default, the filter type is already set to **Lowpass 12dB**. We've maximised the **Resonance** and adjusted the **Cutoff** to a point that gives a good crisp boost at the very top of the frequency spectrum.

POWER TIP

>Extraneous noise

It's common practice to use a noise gate to clean up a sound with a lot of excess ambience or hiss. Essentially it expands the dynamic range, making the quiet bits even quieter. So if you have a drum performance and you only really want to hear the main drum hits - which are inherently much louder than the noise floor - a noise gate has the power to attenuate all sound below a specific amplitude threshold. However, a similar yet even simpler technique is to use an envelope shaper. Just reduce the Release to taste and marvel at the new apparent transparency.



4 > Our guitar loop seems to feature a lot of crowd ambience in the background as well as a high-pitched ringing. Put it on an audio track in your DAW and insert an EQ plug-in. Set one EQ band up as a very narrow cut and sweep it through the frequency range until you home in on that ringing frequency, attenuating it as much as possible without compromising the guitar itself.



5 > Next we cut some of that bulge around 150-200Hz - we'll need lots of space here for the other elements of our DnB remix. We also boost at around **500Hz** to flatten out the spectrum somewhat. Interestingly enough, mixing to mono reduces the crowd ambience somewhat.

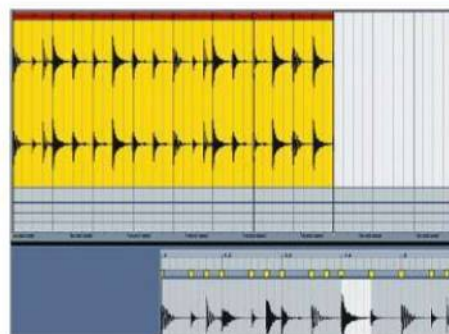
> Step by step Pitch drum loops to tempo



- 1** > In Ableton Live's Arrangement view, we set the tempo to **173bpm**. We reckon that's about right for a drum 'n' bass remix – too slow and it won't fit a DJ set; too fast and the sped-up samples might suffer. We then import the loop.



- 2** > Live has successfully ascertained the tempo of the loop. Set the **Warp** mode to **Re-Pitch** and use warp markers to further fine-tune the timing. It's possible to tighten loops up too far; just do as much as feels right to you.



- 3** > Now you're free to rearrange the loop using multiple copies. Duplicate the clip, then adjust the clip start and end points to encompass just the sections you want. You can use whole chunks at a time and you don't need to use every hit.

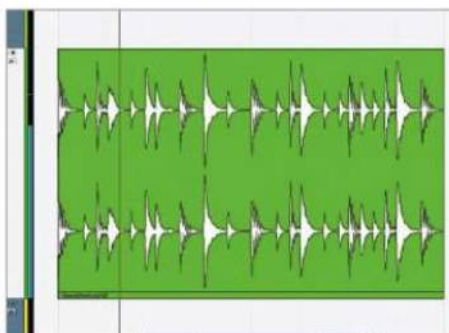
Get your samples up to speed

When it comes to getting your samples at the right tempo, there are three basic approaches. First, you can adjust the pitch, which is known as repitching or resampling. This works much like an old tape or vinyl deck – the familiar sounds of high-speed chipmunks and low-speed Darth Vader. This method isn't going to be the right choice for all types of material, but for a small change in tempo the pitch difference might not be noticeable on atonal parts such as live drums. Also, depending on the nature of your remix, the repitched character might turn out to be suitable.

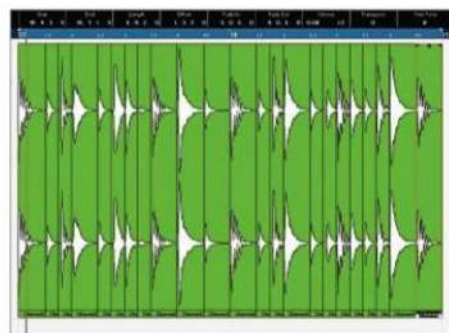
The second method is to use your DAW's timestretching function. This should give you plenty of range in terms of tempo adjustment, while maintaining the original pitch. The leading software packages are very good at this, but you'll nonetheless find that some material suffers from subtle artifacts. This tends to be particularly problematic with drum tracks, where the essential transients caused by the striking of the drums end up losing their bite and sounding unnatural.

Perhaps the most effective method for tightening up a rhythm track is to slice it into small samples. The pattern can then be rearranged into new loops, the pitch remains the same and there are no timestretching artifacts – you only lose a bit of the tail, and chances are this will be unnoticeable or will sound fine anyway. This is the method we're using here.

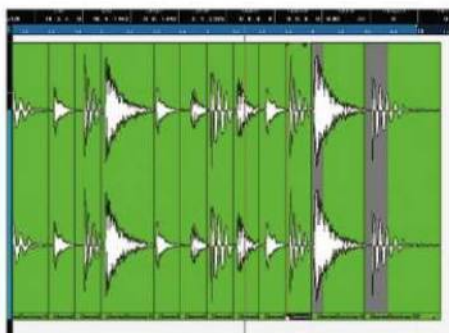
> Step by step Slice loops to tempo



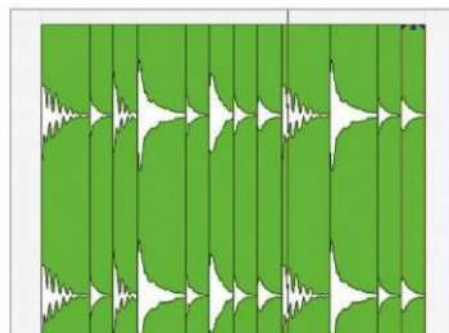
- 1** > To start, you'll need to zoom in. In Cubase, use either the default **G** and **H** zooming key commands, or simply select the audio part and hit **Alt+S** to zoom in on that specific area.



- 2** > When working with drum loops, you'll usually find that the hits fall late in time rather than early. With the tempo set to that of the original loop (in this case **120bpm**) and snap set to **1/16**, cut the clip close to each visible drum hit.

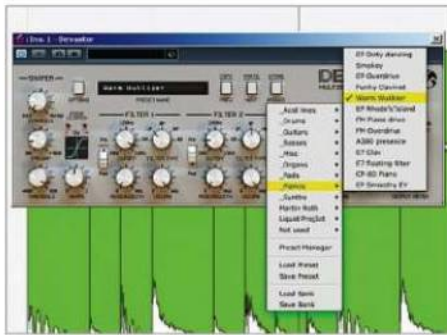


- 3** > With the tempo set to your destination speed (**173bpm** here), shorten each slice of your loop, getting rid of any overlaps. Yes, it's still out of time, but we're getting there...



- 4** > Now zoom in even further and slip the samples within each audio part so that the start of each drum hit touches the front boundary. In Cubase, hold **Ctrl+Alt** and click the audio part. Just make sure you zoom in far enough!

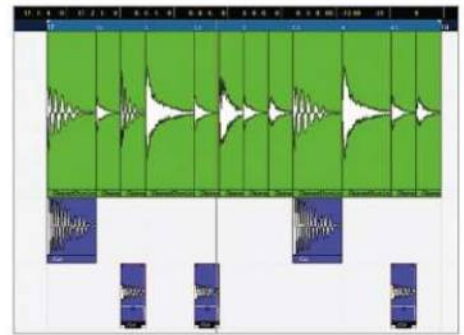
> Step by step Reinforce the drums



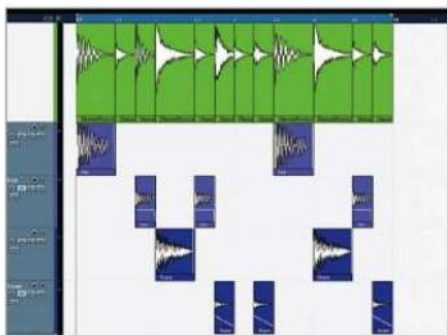
1 > We can quickly and easily tighten and warm up our drum loop with a touch of distortion, preferably of the multiband variety. We're using D16's Devastator plug-in on the **Warm Wutlizer** preset, in the **Pianos** category. It puts the focus on the mid-range, which is what we want to primarily keep from the original beat.



2 > Roll the bottom end off up to about 200Hz. This creates a lot of space for the big kick and snare that we intend to add next. We're using the high-pass filter built into PSP Audioware's McQ from the sQuad EQ pack, partly because it's so gentle and natural-sounding, and partly because of its lovely saturation stage.



3 > Take your time to pick out some good kick drum samples, then select a few to audition and keep the one that sounds best layered with the kicks already present in the original drum loop. Make a copy on a separate channel, turn it down and use it to add a little extra punch in between the main kick and snare hits.



4 > The process is pretty much the same for adding snares. The quieter ghost hits on the copied channels might need to be a little shorter, and again they must be significantly quieter in the mix. You can roll off a little top end to help blend them in if necessary. Make sure you put them where they reinforce the original rhythm elements and don't overlap any kicks.

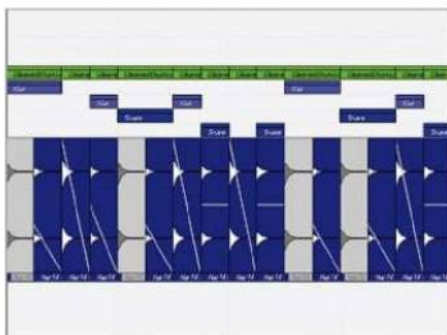


5 > Once you're satisfied with the rhythm of your new parts, carefully balance all the elements in the mixer. Now's the time to dig out some up-to-the-minute reference material to keep your remix compatible with other tracks in your destination genre. As essential as it is to keep your mix recognisable, don't overlook genre authenticity.

POWER TIP

>Flat frequencies

If you're mixing in loops and rhythm elements from a lot of different sources, it helps to keep an eye on the frequency spectrum. It's not always necessary to use a frequency analyser, but it can certainly make your job a whole lot quicker and easier. Think of it as like using a calculator to help you add up some rough numbers. Essentially, you'll want to keep the frequency spectrum fairly flat. You can create a smooth sound by using a little EQ to even out any specific frequency areas that protrude in the mix, especially in the top end.



6 > In drum 'n' bass it's typical to put rushing hi-hats on 16th-notes to increase pace and apparent energy levels. We add these using a sample, then mute any that clash with the main kick and snare hits. For extra groove, set a velocity or volume pattern that's sympathetic to the loop you already have. We've also used fade-outs on some of the hi-hats to add some variation to the rhythm track.



7 > Ride cymbals are another cornerstone of drum 'n' bass. We've added these on every 8th-note, mixed in very faintly. Even a subtle touch increases the overall loop's energy and brightens up the whole rhythm track. Experiment with turning down the rides that land on the kick and snare hits so that you use your headroom more economically while contributing towards a modern, pumping sound.

POWER TIP

>Compress as one

Once you have your drum sounds pretty much working together, you might want to send all of the individual rhythm elements to a mix bus, where you can compress them as one. This has the effect of gluing all of the sounds together so that they clearly work as one whole. For fast drums, experiment with very fast attack times and slower release times for a gluing effect. You might also want to experiment with different types of compressor. Using vintage-style compression can add tone to your drum mix, which again helps to gel the sounds together.

Respect the original track

While it's theoretically possible to rework the elements of an existing track so much that the remix seems to have nothing in common with the original, it's important for a remix to be recognisable for what it is. We're all for creativity and bringing new ideas to the mix, but at some point you have to stop and ask yourself whether what you're doing can still be considered a remix - particularly if the track has become original enough that it shouldn't in fact be complicated by the presence of fragments of someone else's work.

Many of your decisions in this area will depend on the purpose of the remix. If you're doing an official remix, or maybe entering one of the many remix contests online these days, you might want to have a serious think about whether you're going to offend the original artists or put off their fans by going too far. You might decide that this isn't an issue that concerns you, but it's certainly something you should

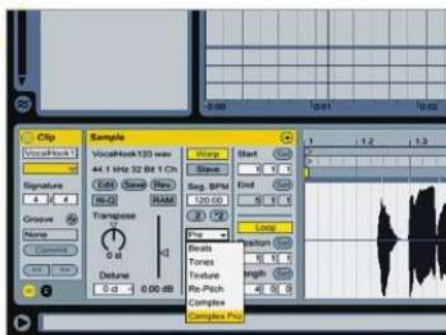
"If you tease audiences with parts of a verse but never reach the chorus, you'll likely leave them feeling frustrated and disappointed"

take into account if your aim is to get your name out there, win over a new audience and/or impress a record label. Is your mix still commercially viable if it lacks the benefits of playing on what people are already familiar with?

Think about the experience that you're creating with your track in general, too. If you tease audiences with parts of a verse but never reach the chorus, for example, you'll likely upset their expectations and leave them feeling frustrated and disappointed. If you have no intention of using the key elements from a track, maybe your efforts would be better suited to remixing something else. Ultimately you'll have to work carefully in order to strike the balance between being original and doing your own thing versus being respectful to the original track and its fans or your intended new audience.

> Step by step

Timestretch vocals and musical loops



- 1 > As with the drum loop earlier, first we set the project tempo to **173bpm**. Then we import the vocal audio file and, if necessary, click the first **Warp** tab and type in the original tempo (**120bpm** in this case). We select the **Complex Pro** warp mode from the dropdown menu.

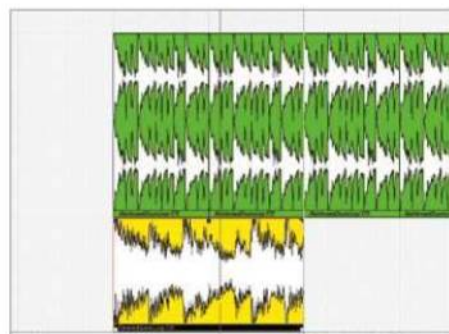


- 2 > When remixing a track into a dance genre - especially one as fast as drum 'n' bass - it's important to get the timing just right. Play the drum track while adjusting the vocal's **Warp** tabs to locate a spot where the timing fits tightly. Look for visual clues as to where notes change.

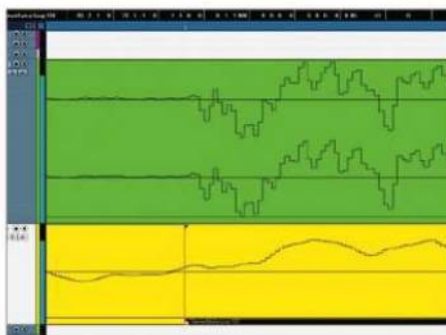
POWER TIP

>Consistently bad

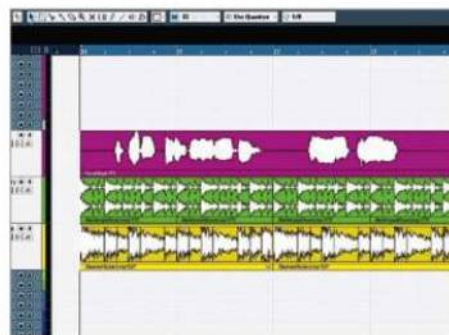
Sometimes, when producing a remix with limited resources, you'll be challenged by vocal takes that just don't sound consistent enough. If this is the case, look through everything you have again. You may find that it's better to copy and paste the audio of a repeated phrase, rather than leaving all of the individual performances in there. For dance music, this tends to improve the overall aesthetic and often means you have less work to do with compression later. Incidentally, the same is true of live instrument performances: you can radically improve their integration by reusing the strongest bits.



- 3 > For the guitar part, we're going to take a slicing approach, similar to what we did with the drum loop. Drag the end of the audio clip so that it fits two bars.



- 4 > Cut the audio part where each new chord comes in and use the slip technique to carefully line up the waveforms. If you zoom in far enough you can see where the start of the chord is, enabling you to make sure it's a smooth transition from the previous part (and so avoid any clicks and pops).



- 5 > Listen critically to the guitar in solo, then check how it sounds with the drums and any other elements that you intend to play together. If you get stuck at a particular point, try making fades at the starts and ends of adjacent audio parts to remove any clicking. Once you've done that, check it all together again.

> Step by step Create a morphing robo voice



1 > We decide to transform our vocal using Antares Auto-Tune. First, we change the **Input Type** from the default **Soprano** to **Alto/Tenor**. Technically our key is D Minor, but all of the notes in the vocal melody are common to both D Minor and D Major, and in this case Auto-Tune sounds more natural with the **Scale** set to **D Major**.



2 > Next, we push the **Retune Speed** down towards **0**. This really is a matter of taste. A little faster sounds modern, while extremely fast has that particular Auto-Tune style to it. Choose which you prefer, but we're unashamedly cranking it all the way to **0**.



3 > If you haven't already, flick on the **Formant** button and automate the **Throat Length** from the far left to the far right. You'll find there are sweet spots, but we think it sounds pretty cool in constant motion. Have fun experimenting, then fine-tune the automation afterwards.

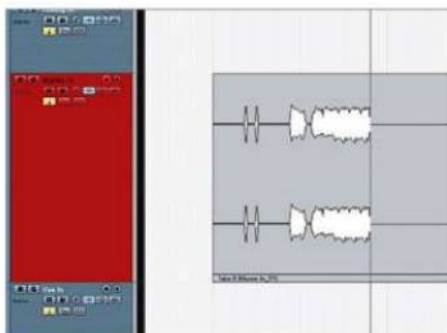
> Step by step Mangle the vocal



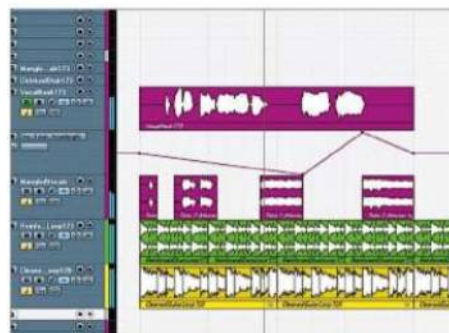
1 > Right, let's get properly wild with some vocal processing. This effect sounds best performed on a bounce of the vocal with the Auto-Tune on, but no **Throat Length** automation. Load up free SupaTrigga (bram.smartelectronix.com) plug-in and set the **Granularity** to **8**.



2 > In the next effect insert slot, load a filter with an envelope follower. We're using Sugar Bytes WOW on the **Catch The Snare** preset. Switch the **Filter** type to **Low-pass 24dB** for a more pronounced effect, and tweak the **Cutoff** and **Resonance** to taste.



3 > Create a new track. Set its output to **No Bus** (or your DAW's equivalent thereof - no output, essentially) and input to **Master Out**, so that your whole mix is sent to it. Mute all the elements of your remix apart from the vocal and record onto this track for as long as you like. Due to the random nature of the SupaTrigga plug-in, you'll get endless inspiring permutations of the vocal.



4 > The resulting audio should present itself in fairly clear chopped-up segments, and it should be easy to arrange the mangled slices around the main vocal for interesting results. Pick out bits that sound similar for a consistent flow.

Placing vocals over an 'alien' track

Sometimes your remix concept might require you to strip away the original song's backing track and lay the vocals over a different instrumental. Another possible scenario is that of adding vocals to a track that didn't previously feature any. Whatever your reasons, it's likely that you'll need to marry an acappella vocal to an alien instrumental track at some point. The timing and tuning of this marriage is crucial.

Some basic musical knowledge will help here. As far as timing's concerned, it's not just the tempo you need to watch. You should also listen out for incompatible rhythms. In ideal circumstances, an instrumental should be written underneath the vocal so that they support each other as much as possible. Understandably, this might only be possible to a certain extent when doing a remix. As an extreme example of something to avoid, a triplet-based beat will clash really badly with a rapid 16ths rap lyric. In this case you might be better off ditching one or the other, or cutting the rap up into bite-sized phrases.

With tuning, it's not just the root keys that you need to match. A major-scale vocal forced on top of an instrumental based on a minor scale of the same root is a recipe for disaster. However, it's possible for some melodies to sit on a transposed backing track, that effectively slips into a relative key. If you're comfortable with making heavy-handed changes to the vocal, it might be worth using retuning software to fix the odd clashing note.

Classic remixes

Bodyrox *Yeah Yeah*

(D Ramirez Radio Edit)

Bodyrox first released *Yeah Yeah*, which was a remix of their track *Rock Ya Body*. D Ramirez took the track and made a strikingly different remix that took the clubs by storm. Bodyrox then added Luciana's vocals and created a radio edit of D Ramirez's track, which reached #2 in the UK Top 40. That's right - it's a vocal edit of the remix of the remix.

Kid Cudi *Day 'n' Nite*

(Crookers Remix)

Kid Cudi's debut single already sounded quite dancey for a hip-hop record. Italian duo Crookers' fidget house remix took it to #1 in the UK Dance chart and #2 in the UK Top 40.

Stardust *Music Sounds Better With You*

This 1998 single revolves around a licensed sample of *Fate* by Chaka Khan from 1981, with fresh vocals performed by Stardust member Benjamin Diamond. It's arguably the ultimate disco house anthem.

Wildchild *Renegade Master* (Fatboy Slim Old Skool Mix)

The already popular 1995 version of this house track was remixed by Fatboy Slim into a hyperactive 80s-hip-hop-esque anthem. Both were highly successful. Classic status cemented - mission accomplished!

Busta Rhymes *Touch It (Remix)*

The original *Touch It* is based on a licensed sample of *Technologic* by Daft Punk. A series of remixes featuring guest rappers followed before the definitive remix was produced, comprising edited verses from seven different rappers.

The Prodigy *Voodoo People* (Pendulum Remix)

This Pendulum mix launched *Voodoo People* well into the UK Top 40, 11 years after the tune was first released. It showcased Pendulum's rock-infused drum 'n' bass style and helped popularise the act outside of the DnB scene.

Cornershop *Brimful of Asha* (The Norman Cook Remix)

Rock band Cornershop received the Fatboy Slim treatment in 1998. His mix injected a tough electronic sensibility that pushed *Brimful of Asha* up to #1 in the UK Top 40.

La Roux *In For The Kill*

(Skream's Let's Get Ravey Remix)

This tranquil yet powerful dubstep remix helped electro-pop duo La Roux hit the #1 spot in the UK charts and simultaneously spilled Skream's reputation over to the mainstream.

> Step by step

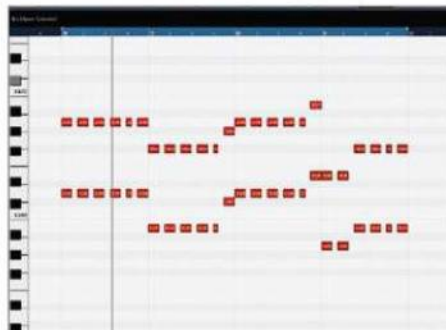
Make an old-school stab



- 1 > We'll use a sampler plug-in for this particular job - Native Instruments Kontakt 4, specifically. Drag and drop **GuitarLoop.wav** from the DVD into an empty space and it'll be auto-mapped across the keyboard. This is the guitar loop with the crowd noise and ringing in it - that's good, we want some dirt.



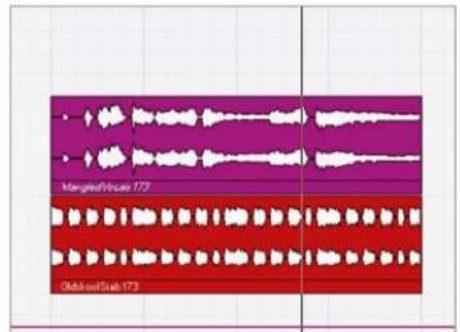
- 2 > Click the spanner icon to unveil the editor, set the root note to D and go down to the Modulation section. Here you can turn the **Release** down really low. We've gone as far as **19ms**, which gives us an intentionally cheap, old-school sound.



- 3 > Old-school stab riffs are about as simple as they come. Once you have an appropriately syncopated rhythm in place, try layering up the same pattern five or seven semitones above the original. This will significantly alter the flavour. Boost plenty in the mid-range to put the icing on the cake.

> Step by step

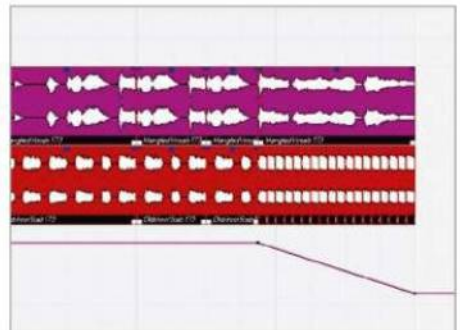
Make a bootleg-style build



- 1 > First pick the elements you'd like to include in your build and bounce them down as audio if they're not already. If you're concerned about making changes to the mix later, export any send effects, too, so that you still have the option to change the levels later.



- 2 > Slice each section into shorter and shorter repetitions - halving them after every two instances, for example. Sometimes it works best to repeat the latter half of the previous section, rather than always repeating from the start - judge it based on what the vocal is doing.



- 3 > If the musical parts don't flow as well as the vocal towards the end of the build, you can pull them out of the mix at that point. To do this gracefully, we've used the old roll and fade trick (see screenshot). Again, use fades to avoid clicks and pops if necessary.



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Complete the puzzle

Once you're confident that your remix concept is working and your reincarnated versions of all the elements are usable, you need to patch all the pieces together, gelling the planned sections and integrating your own original material.

As with many other aspects of a remix, you have a decision to make regarding the arrangement design and structure: will it lean towards the original track, or must it be radically reformed to keep it relevant to the style you're producing your mix in? There might have to be some degree of compromise here, as you either adapt the original track's ideas to your form, or bend the rules of your chosen genre so as to do justice to the musical elements you're working with. Even the snobbiest of dance purists would agree that a little extra creative licence is allowed for a remix. So long as you don't disregard the authenticity of your target genre,

loosening traditions and breaking down conventions to get a remix to work is considered perfectly acceptable in the dance music world.

For example, you might want to make heavy use of live instrument parts in a pop trance track. It's not completely unheard of, but it's fair to say most music in that style wouldn't do that. If it sounds out of place and really isn't fitting in, you can address this issue by working those sounds into your synths. This is one area where a score or MIDI file might come in handy, saving time and trouble.

Multiple instruments playing in unison tend to merge into one and produce some really unique textures. In the context of a remix, this could be the perfect excuse to mix in some flavours from the original song. Don't underestimate the power of including even

"Don't underestimate the power of including even the subtlest hints of the original material in your track"

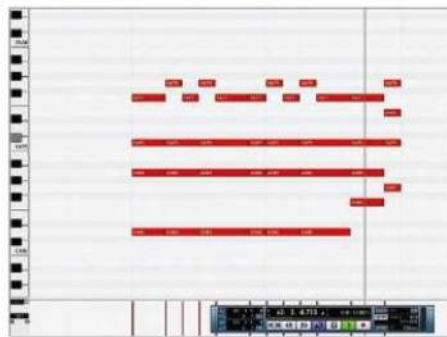
the subtlest hints of the original material in your track: these will help to indicate what the remix is and will probably excite fans of the track to boot. Getting creative with the inclusion of elements of the original song is the best way to bring a unique take on it to your remix.

> Step by step

Fatten things up with (free) synths



1 > Now it's time to get creative and add some original material. Using the **Init Program** patch in Synapse Audio's Junglist synth (on the DVD, in the **CM Studio** folder), we program a deep sub-bass pattern to complement the guitar chords, breaks and vocals. Make sure the **Fine-tune** setting on OSC 1 is set to the centre.



2 > Now we want to thicken up the guitars a touch. To do this we use LinPlug FreeAlpha's **Keys 2** preset (www.linplug.com) and copy the notes from the guitar chords by ear. It doesn't always have to match 100%, but it helps to get things as close as possible to encourage the sounds to blend.

POWER TIP

>Fake some width

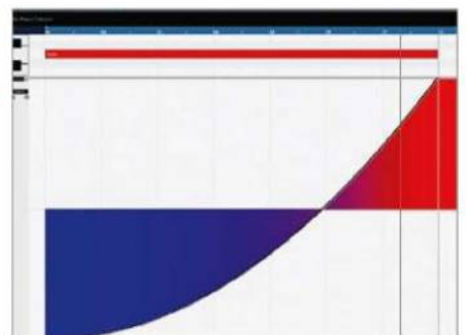
If you're dealing with sampled loops that don't have a lot of stereo width, simply layer in modern synth sounds that do. Provided the parts play in unison, to some extent they'll be perceived as the same sound. Further, if you're having trouble finding a synth patch with a lot of stereo width, you can always load up two synths and pan them hard left and right. It's a cheap trick, but it works. You might even load up the same preset twice and modify certain elements subtly - particularly anything to do with rate and tuning.



3 > After our big build-up, we feel the old-school stab would come in with more impact if it had a higher layer on top. The free SQ8L plug-in (www.buchty.net/ensoniq) has the perfect preset - **Airy Organ**. We have it playing the same riff, but without the bottom layer.



4 > Using FabFilter One CM's **Default Sound** patch (in the **cm Studio**), we write a vintage synth lead to go over the stab section. Somehow, certain vintage-style patches sound modern and relevant, and thanks to FabFilter's handiwork the result sounds naturally thick and rich.



5 > Finally, to enhance and further modernise the build-up section, we add a single long note rising in pitch (using an extended curve in the MIDI Pitchbend CC). To do this, we make a very simple patch using Zebra CM, which you'll also find on the **cm DVD**.



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Remix tips

TIMING IS EVERYTHING

If you're having troubles with a loosely timed sample, try cutting it up into sections first. Once you have the sample in manageable chunks, you can experiment with a range of different methods to tighten the timing up. For example, timestretching can sometimes be appropriate, but other times it just won't sound right. You might find certain phrases can be cut into sections that can be sequenced into time, or that brushing up just a few dodgy edits with timestretching does the trick.

CHOP AND CHOOSE

If some ideas from the original song aren't working, try leaving those bits out. You'll have to make a real effort to decide which parts you can truly afford to lose, but if you've chosen the right genre for your remix, you should be confident that the main elements of the original will work in your new style. Typically, a modern dance remix of a heavily vocal-lead track will discard most of the vocals, only keeping a key phrase or chorus.

IT'S NOT THE RIGHT TIME

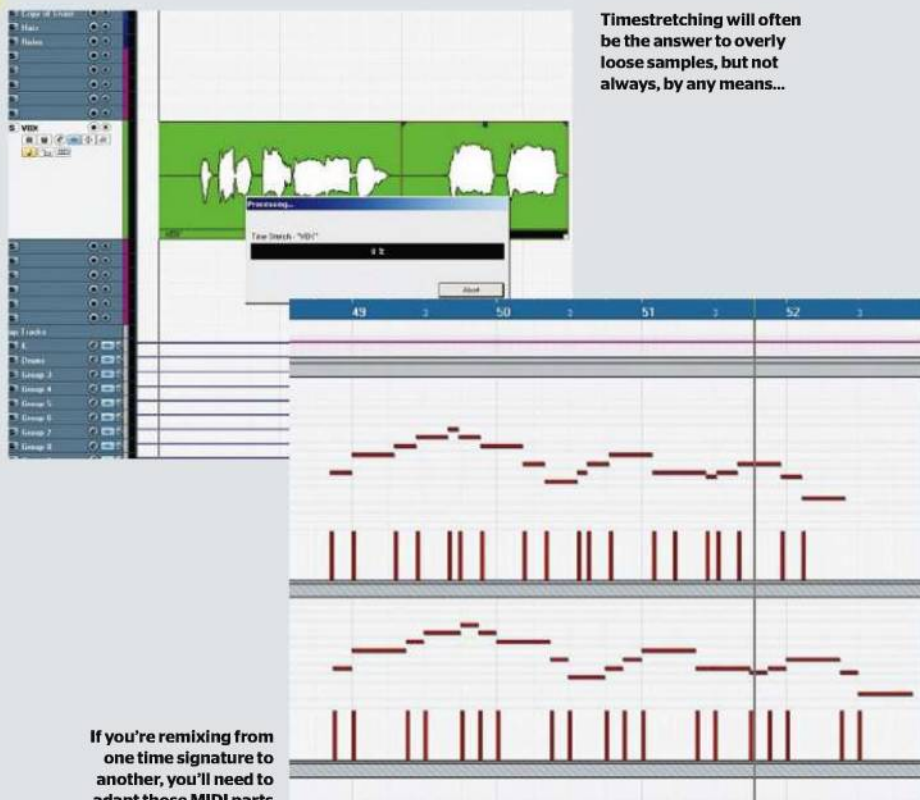
Sometimes you might want your resulting remix to work in a genre that dictates a whole different time signature. If, for example, you were to try to force a waltz-like 3/4 ballad into a trance track, you'd be in trouble. Rather than forcefully superimposing one time signature onto the other, try keeping the approximate melody and changing a few notes to adapt it to the new time.

BREAKDOWN COVER

Although you've got to remain faithful to the genre you're remixing into, you can use breakdowns as an excuse to make more liberal statements. These are also useful places to respect the original content. For example, an electro house track needs its drop, but there's nothing to stop you from breaking down to a completely different tempo in order to wedge in a sample of a metal or hip-hop record (or whatever you happen to be remixing).

SPEED KILLS

Statistically speaking, dance remixes tend to be a lot faster than the original tracks. If you're working with a particularly slow song,



remixing into a super-fast genre or both, try running the sample at half-speed, relative to the genre you're doing. For example, it might be easier to use a 110bpm hip-hop sample in a 200bpm breakcore remix by first slowing down the hip-hop sample to 100bpm.

OUT OF CONCERT

Is your sample in concert? If you've ever struggled to find the right tuning of a sample - ie, you're never able to find the same key with your sequencer - you might have a recording that's not in concert. Essentially, this means that the pitch is offset by less than a semitone and thus will always sound detuned against in-tune instruments. The solution is to fine-tune it using cents. Make sure you tune all samples so that they're in concert before you start your remix.

LOVE THE BIG PICTURE

Be careful not to lose the charms of the original mix. It's easy to get excited about a remix or become fascinated by a particular aspect of the original track - just don't get completely fixated with the most obvious elements. Often it's the very fine subtleties of the mix that make a song work in a certain way. Spend some time getting intimate with the original version and all of its parts, and pay close attention to how they work together to make a remix that's really special.

IDENTITY CRISIS

Try to put a part of yourself into the mix. Sometimes you know whose remix you're listening to from the moment it starts, because it's inherited some of the remixer's

personality. Merge your signature sound with that of the original track, bringing your ideas and vibes together into a unique musical cocktail. Just don't go too far!

BANG UP TO DATE

If you're using a lot of old-fashioned sounds, it's easy to end up with a mix that sounds dated. If this is a problem that plagues your remix, make it a high priority to spend time experimenting with modern production techniques - particularly when it comes to processing audio. Also, make use of the audio restoration tools at your disposal. These days it's totally possible to transform a scratchy old sample into something new and vibrant.

IMPROVISE AND INNOVATE

Can't find that critical sound? If you haven't been supplied with a part that you feel is necessary to retain some of the original vibe, you have nothing to lose by setting out to create something similar. It might seem to compromise the integrity of the remix, but you've got to be realistic about your circumstances and do the best you can. Who knows - you might end up with something that works better than the original sound would have.

PUSH THE LIMITS

Rejuvenate the original track's musical ideas by extending or hyping up the existing parts. Play with faster rhythms and new variations on the main theme. An unexpected element can really help your mix to stand out. Reinvent parts that didn't formerly sound exciting enough in your new genre.



Apply up-to-date production techniques to old sounds to make them sound relevant to your modern remix

Push every idea as far as you can take it and see where you end up. On a practical note, when working at a faster tempo, it might be necessary to extend a loop to prevent grating.

SUBSTANCE ABUSE

When you're stuck, look to the original track for inspiration. You should always consider abusing the original elements! Try completely changing the context of a part. Why not make a string motif your new bassline, or the original bassline your new synth riff? There are no limits to the potential of any idea if you let your imagination run wild. Something that might have seemed useless on first glance could turn out to be your saviour when you need a quick idea later on in the mix.

PUSH IT REAL GOOD

Play to the strengths and weaknesses of the original track. Ask yourself what you can fix that was lacking in the first version. What can you improve? Does it sport an extremely funky bass riff? Find ways to go even funkier. Do the drums lack power? Work out a way that you can create powerful drums that do the job. It's good to be ultra critical of the original version when deciding how to approach your remix.

CUT AND EXTEND

If you're forced to cut a sample short and it sounds abrupt, extend it artificially with the crafty use of a little reverb and/or delay. In some cases, a 100% wet version of the end of the sound can be crossfaded with the abrupt tail of the original sound to create a seamless extension. At other times, a gentle, tempo-synced delay will do the job.

HIDE AND SEEK

If you find there's a bad sound you can't get rid of in a sample that you need to use, try

masking it with new sounds. Drown out unwanted ambience with a huge wash of reverb on another part. Strategically place clicky, percussive parts to distract the ear from annoying crackling in a loop lifted from vinyl. While it might be difficult to eliminate a particular sound from the mix, it can take little effort to hide it behind something else.

THE SIMPLE LIFE

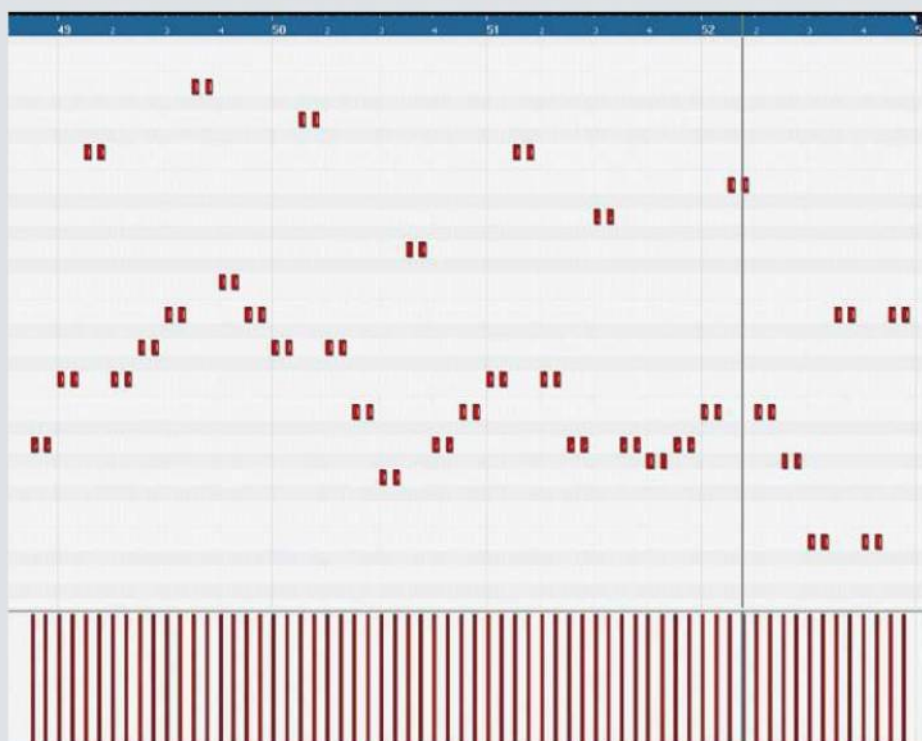
Keep it simple. Simplicity is pure, bold and memorable. Don't overcomplicate your remix with too much random stuff going on. It's OK to intricately work in a lot of elements, as long as you keep in mind how they all work together in tandem. That takes skill and a lot of patience, but it's definitely better than confusing the listener or distracting them with inappropriate things going on all over the mix.

WHAT'S YOUR GOAL?

Be creative. A remix doesn't have to mimic its original in every way. If you happen to have an idea that's not particularly relevant to the original but that you love, why not just go for it? Sometimes you have to ask yourself where your values lie, though - do you specifically want to produce a good rework of that particular track, or are you using the remix as an excuse to use those parts in your usual quest for the perfect production?

FREE AND EASY

Look out for free plug-ins and keep them all in a folder where they're easy to access. They need not be the most commonly used effects, nor of the highest sonic calibre, but when it comes to processing sounds beyond recognition, sometimes quantity saves the day where quality falls short. You never know - you might be surprised at how high-quality some of them really are. cm



Fast rhythms and thematic variations can be applied to parts from the original track to keep them fresh

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cmDVD

PC MAC

Intelligent Devices' Slip-N-Slide CM, 2017 samples, the latest reader demos, grime master S.K.I.T.Z Beatz on video and more, all on this month's disc!

DVD contents

Full software

Intelligent Devices - Slip-N-Slide CM (PC/Mac)
Full Bucket Music MonoFury (PC)
Jasuto Pro (PC/Mac)
Paul's Extreme Sound Stretch (PC)
Togu Audio Line TAL-NoiseMaker (PC/Mac)

Demo software

Propellerhead Reason 5 (PC/Mac)
Propellerhead Record 1.5 (PC/Mac)
MeldaProduction Total Bundle (PC/Mac)
Sound Radix Auto-Align (Mac)
Voxengo HarmoniEQ (PC/Mac)

Tutorial files

All Fingers and Thumbs
CM Focus
Enjoy The Silence
The cm Guide to Jasuto
Off the Dial
Q&A
Slip-N-Slide CM
Sound Essentials
The Easy Guide
This is the Remix
Totally Trackers
Warm It Up

Samples

2017 24-bit cm Remix Toolkit
samples, including beats and bass
loops, drum hits, one-shots, sound
effects and synth multisamples

Reader Music

B.L.B. - *Ghost In The Machine*
Lunatics Of Sound ft. Alexandra
Kane - *Insane (Radio Edit)*
Sventronic - *Wiegenlied*
Yelverton - *Your Beating Heart*

Full software

INTELLIGENT DEVICES SLIP-N-SLIDE CM (PC/MAC)

This groovy glitch effect will take your sounds to whole new places - check out the tutorial over the page for instructions on how to install and get started with it.

System requirements

PC VST host
Mac VST host
Web www.intdevices.com

Slip-N-Slide CM has a simple interface, making the creation of deliciously bizarre noises as easy as can be



FULL BUCKET MUSIC MONO/FURY (PC)

Get that Korg Mono/Poly sound with this software clone. It includes cross-modulation, hard sync and a tweak section for tinkering under the hood.

System requirements

PC VST host
Web www.fullbucket.de

JASUTO PRO (PC / MAC)

A modular synth with an unusual interface, Jasuto Pro is also available on Android and iOS devices for making music on the go. For more details, see *The cm Guide to Jasuto*, starting on p65.

System requirements

PC VST host
Mac OS X 10.5, AU/VST host
Web www.jasuto.com

PAUL'S EXTREME SOUND STRETCH (PC)

A 35-minute version of a Justin Bieber track might sound like a terrible idea until you've heard the majestic ambience that Paul's Extreme Sound Stretch can weave. Read more about it in *cm Focus* starting on p130.

System requirements

PC Windows XP
Web hypermammut.sourceforge.net/paulstretch/

TOGU AUDIO LINE TAL-NOISEMAKER (PC / MAC)

The latest synth from TAL is another winner. Check out the interview with developer Patrick Kunz in *Freeware News* on p18.

System requirements

PC VST host
Mac AU/VST host
Web kunz.corrupt.ch



Jasuto is pretty, innovative and makes mad noises - what more could you want from a modular synth?

Demo software

PROPELLERHEAD REASON 5 (PC/MAC)

It's been a long time coming but the latest version of Reason is here! This demo version times out after 20 minutes and is save-disabled.

System requirements

Mac Intel CPU, 1GB RAM, OS X 10.4

PC Pentium 4 CPU, 1GB RAM, Windows XP SP3

Web www.propellerheads.se

PROPELLERHEAD RECORD 1.5

(PC/MAC)

Record has been updated with a new effect and enhanced sequencing. The demo is save-enabled, but it won't allow you to open saved projects.

System requirements

Mac Intel CPU, 1GB RAM, OS X 10.4

PC Pentium 4 CPU, 1GB RAM, Windows XP SP3

Web www.propellerheads.se

MELDAPRODUCTION TOTAL BUNDLE (PC/MAC)

This complete collection of MeldaProduction demos features a wealth of effects and analysis tools. They emit noise periodically, and will take you to the MeldaProduction website on launch.

System requirements

Mac Intel CPU, OS X 10.5 or later, AU/VST host

PC SSE2-capable CPU, Windows XP or later,

VST host

Web www.meldaproduction.com

SOUND RADIX AUTO-ALIGN (MAC)

Automatically align your multi-mic recordings with this cunning little utility. This trial version cannot load or save parameters.

System requirements

Mac AU host

Web www.soundradix.com

VOXENGO HARMONIEQ (PC/MAC)

HarmonieQ brings out the sweetness in your sounds with its clever harmonic enhancement and dynamic EQ processing. The output of the demo version is muted every 45 seconds.

System requirements

Mac AU/VST host.

PC VST host.

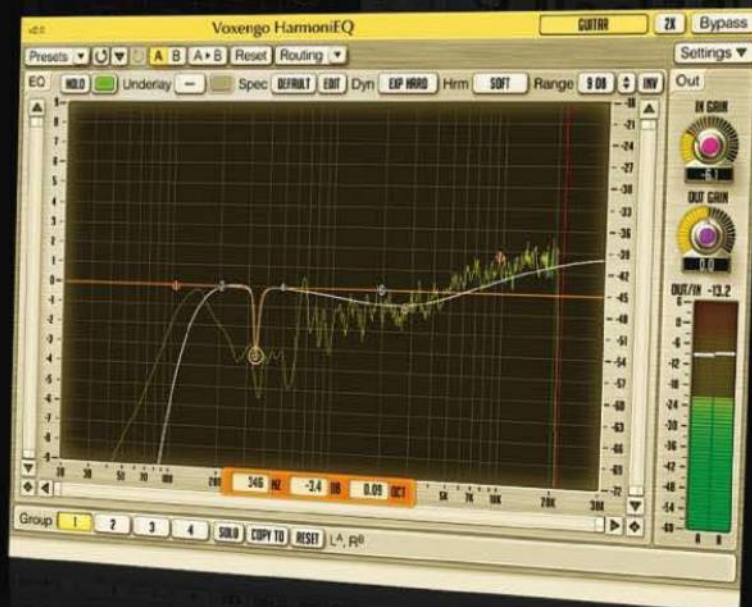
Web www.voxengo.com



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If you're new to computer music, our five *Beginners' Guides* will get you moving in the right direction. They're in the **CM Beginners** folder.



Find out whether or not Reason 5's for you with the demo on the DVD



HarmonieQ is reviewed on p108, and the demo version's on the disc

USING THE DVD INTERFACE

- 1 Put the DVD-ROM in your DVD drive, let it spin up, and wait for the interface to appear. If it doesn't autorun, browse to it in Explorer/Finder and double-click **Computer Music for OS X** or **PC**, as appropriate. Read the disclaimer and click **Accept** when you're done.
- 2 The main interface will open. Mouse over the links for each section to get a brief description of their contents, and click on your button of choice - in our case, **Software**.
- 3 An Explorer/Finder window will open, showing you the contents of that folder. Any executable files can be run directly from the DVD by double-clicking them. Demos are generally presented as installer applications, but check any Readme text files for additional installation information.

PROGRAMS & PLUG-INS

Most of the programs on the DVD-ROM are presented as installers - simply double-click the installer icon and the application does the rest. However, plug-ins are often presented as .dll (PC), .vst or .component (Mac) files. To 'plug' the plug-in into your VST/AU host, just copy the plug-in file into your VST or AU plug-ins folder, as appropriate.

SAMPLES

Every month we give you a wealth of royalty-free samples! You can use them in your music in any way you see fit, without having to pay a penny, even if you end up commercially releasing your work. The only thing you *can't* do is redistribute them as samples - eg, by making a sample CD with them. To install our samples, simply copy them to your hard drive.

>Exclusive full software! Intelligent Devices

Slip-N-Slide CM PC MAC



If out-there sound design is your bag, this month's exclusive free plug-in has got your back. Here's how to get started with it...

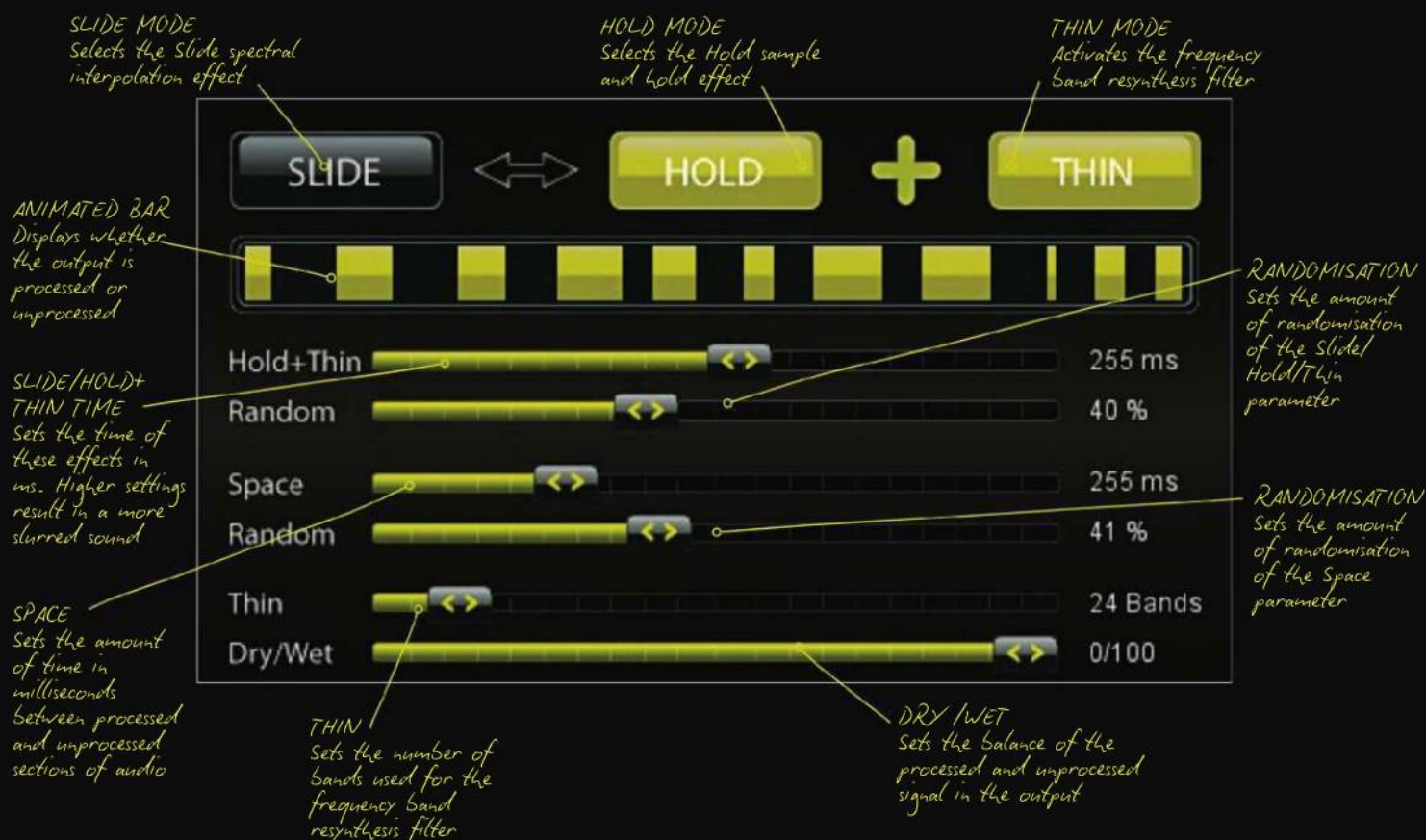
> Back in **cm145**, *Computer Music* teamed up with Intelligent Devices for MegaDelayMass CM, an awesome delay effect capable of creating very strange noises thanks to its huge number of taps and cunning randomisation feature. Now Intelligent Devices are back with another weird and wonderful plug-in in the form of Slip-N-Slide CM, a unique processor with which to thoroughly mangle your sounds.

Slip-N-Slide CM features three different sound-mashing tools. The main two are Slide mode and Hold mode. Slide mode is a spectral interpolator and Hold mode is a sample and hold-style effect. Only one of these modes can be used at once, although the third tool - the Thin effect - can be applied to either. Thin uses frequency band resynthesis to, appropriately enough, 'thin out' the resulting sound.

In addition to these core functions, Slip-N-Slide CM also features a handy Wet/Dry control for balancing the unprocessed signal with the processed signal, a Space function that alternates between the processed and unprocessed signal, and randomisation level controls for the Slide/Hold+Thin effect and the Space parameter. These functions make the plug-in ideal for jamming with, leading to the

creation of all sorts of unusual sounds by semi-accident.

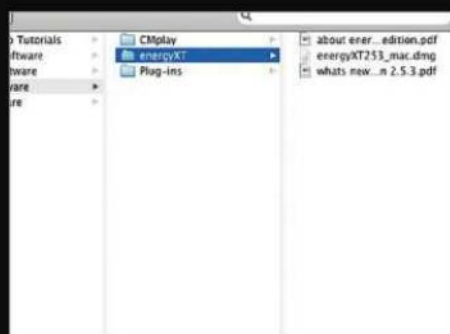
In fact, describing the noises that Slip-N-Slide CM creates is almost impossible, so we suggest that you dive straight in and give the plug-in a go for yourself. Please follow the installation instructions as it requires email authorisation, though if you've already authorised MegaDelayMass-CM, you won't need to set that side of things up for your computer again.



> Step by step Mangle sound with Slip-N-Slide CM



1 > Start by copying the contents of the **Software\PC Software\Full Software\Intelligent Devices\SNSCM** or **Software\Mac Software\Full Software\Intelligent Devices\Slip-N-Slide CM** folder to your hard drive. PC users should then copy **SlipNSlideCM.dll** to their shared plug-ins folder, while Mac owners should run the **Slip-N-Slide-CM.mpkg** installer to get started.



2 > Before using Slip-N-Slide CM, we need to install the PACE copy protection drivers and authorise the plug-in. Slip-N-Slide CM will help you do both these things automatically. First launch your DAW. We're using energyXT 2.5.3 CM Edition, which you can find in the **CM Studio** folder. If you're new to this, see the **Beginners Start Here** document in the **CM Studio\CM Studio Tutorials** folder.



3 > If you don't have the PACE drivers installed already, you'll be taken to the PACE website, where you can download them. Quit your DAW, install the drivers and launch your DAW again.



4 > This time you'll see a window asking if you want to Try or Buy Slip-N-Slide CM. Don't worry - you don't need to buy anything because you've already got a **cm** licence! Click the **Buy** button and fill in the details. On the next screen, click the **Save Licence Request** button - the **SlipNSlide-CM_1.x.ilr** file will be saved to your hard drive.



5 > Send this file as an attachment to **paceproaudio@intdevices.com** and a license file will be sent to you by email. Once you've received your licence, save it to your desktop and click the **Read Licence** button in the SNSCM installer. Navigate to the file and open it. SNSCM is now authorised and yours to keep.



6 > If you're using energyXT 2.5.3 CM Edition, select the **Default** project and copy **130 Drum Loop.wav** from the **Tutorial Files\SNSCM** folder into energyXT's Sequencer view, creating a new track. Set the project tempo to **130bpm** to fit the tempo of the loop. In the mixer strip to the left of the sequencer, click the **+** icon in the **Inserts** panel.



7 > Select **SlipNSlideCM** from the list of plug-ins that appears. The legend **SlipNSlideCM** will appear in the **Inserts** panel. Double-click it to bring up the plug-in's interface. Play the project back. You'll hear a strange array of bleeps and bloops. Click the **On/Off** button underneath where it says **SlipNSlideCM** on the **Inserts** panel.



8 > You'll now hear the straight drum loop without all the Slip-N-Slide weirdness. Turn the effect back on by clicking the power button again. Try cycling through the various presets using the left and right arrows. This will demonstrate some of the weird and wacky effects Slip-N-Slide CM is capable of.



9 > The best way to get into Slip-N-Slide CM is to try out the features one by one. Drag the dark grey bar on the timeline so that it encompasses the two bars the loop plays for. Set all parameters to minimum, as shown, and select **Slide** mode.

> Step by step Mangle sound with Slip-N-Slide CM (continued)



10 > On playback you'll just hear the loop straight, because the **Dry/Wet** level at the bottom on the interface is set to **100/0** - completely dry. Set it to **0/100** instead. Now you can hear just the processed signal and none of the dry. The audio will still sound the same, because currently the **Slide** value is set to 0ms.



11 > Gradually turn up the **Slide** control to hear how it affects the sound. The drum loop will start to disintegrate, becoming progressively more slurred. That's the spectral interpolation effect getting gradually stronger. This slider is also used to control the intensity of the Hold effect. Turn the **Slide** slider down to 0ms and select the **Hold** effect.



12 > Notice that the label by the slider has changed to read **Hold**. Again, slowly turn the slider all the way up to hear the effect that it has on the sound. This frequency-based sample and hold effect is a lot rougher and more jarring than the previous effect.



13 > The **Random** slider underneath the **Slide/Hold** slider randomises the ms value of the Slide or Hold effect. We can demonstrate this by choosing a low value for the **Hold** parameters, say **23ms**. Note that the beat, while slurred, is fairly consistent sounding. Now turn the **Random** slider all the way up.



14 > Listen to the beat again and note how it varies between sounding punchier and more slurred. This is the randomisation effect in action. Set to maximum, the randomiser will set the ms value between **0** and twice the set value. Return **Random** to **0%**.



15 > The **Space** slider sets the amount of time between the processed portions of audio. Turn the **Hold** slider up to its highest possible value and set the **Space** slider to **488ms**. The animated bar displays which parts of the audio are being processed (green) and which are left unprocessed (black).



16 > The amount of randomisation, between 0 and 100% of the **Space** value, is controlled with the **Random** slider below the **Space** slider. Finally, let's take a look at the **Thin** function. Click the **Thin** button at the top right-hand corner of the interface to activate it.



17 > You'll see that the **Thin** slider's label changes to say **Hold+Thin**. Now when the signal is processed, it's also thinned with a number of resynthesis bands, which are dictated by the **Thin** slider near the bottom of the interface. Set this to **15** bands to hear the effect in action.

POWER TIP

>Extra extra

As well as the default patches, Slip-N-Slide CM includes a bank of extra presets that you can turn to if you get stuck for inspiration. To load this extra patch bank, use your DAW's **Open bank** function. To do this in energyXT 2.5.3 CM Edition, click the button with three lines on it at the top left-hand corner of the plug-in interface, and select **Open Bank** from the drop-down menu. The bonus bank can be found in the **Intelligent Devices Slip-N-Slide CM/Patches** folder on the DVD.cm

>Royalty-free, pro-quality sounds!

2017 cm samples

PC

MAC



If our remixing cover feature has left you itching to get busy, this month's exclusive sample library should be your first port of call...

24-bit cm Remix Toolkit

To accompany our cover feature *This is the Remix* (see p24), we present a selection of sounds designed to help up your remix game. The 2017 sounds you'll find in the **Samples** folder on the **cm DVD** include drum loops, basslines, synth multisamples, percussion one-shots and much, much more, and are perfect for use in remix productions in house and hip-hop styles, amongst others.

Cyclick

6 drum kits
6 synth multisamples
240 bass loops
183 beat loops
129 one-shots
15 vinyl noise loops

The drum kits were created with a variety of old-school drum machines, including a vintage Pearl SY-1 Syncussion, and a combination of layered drum

machine and acoustic drum kit samples. The synth sounds were mostly taken from a Synthetone Jen SX1000 monosynth and a Kurzweil K2600 run through various stompbox effects, with electric bass tones provided courtesy of an Epiphone Ripper and a Musicman Stingray.

Groove Criminals

205 bass one-shots
100 beats
300 drum hits
84 FX
34 loops
6 synth multisamples
99 synth one-shots

For the bass and synth one-shots, a mixture of software and hardware synths were used, including a Juno-60, Novation K-station, Moog Little Phatty, Waldorf Pulse and Novation Super Bass Station. The drums were provided by a combination of recordings and hardware, including the Jomox X-Base 09.
www.groovecriminals.co.uk

The Groove Criminals used a variety of hardware synths to make their contribution to our Remix Toolkit



Sample and video playback

cm videos are presented in MOV format, which means that you need QuickTime, QuickTime Alternative or VLC installed on your system to play them. Macs feature QuickTime as standard, and PC owners who don't have QuickTime installed can use VLC instead. VLC is an open-source media player that can handle pretty much any format you can throw at it - you'll find it in the VLC Media Player folder on the **cm DVD**. VLC is also recommended to Windows users who find that 24-bit samples won't play back in their Windows Media Player. For the latest version, go to www.videolan.org.

Producer Masterclass video

Artist **S.K.I.T.Z Beatz**

We headed over to London's east end to get the low-down on grime production with one of the scene's veterans. Here S.K.I.T.Z demonstrates how he created the instrumental for A-List's massive *Midnight Lover* in Logic, gives up tips for beat production and discusses his favourite virtual instruments.

Web www.myspace.com/skitzbeatzproductions



HAVING PROBLEMS?

In the unlikely event that you have trouble with your disc, send an email to support@futurenet.co.uk and they'll help you out. Please do not phone us, as we don't give technical support over the telephone!

If you experience a problem with your software, you should first refer to the software manual. This is often delivered with the software itself or is sometimes placed on your hard drive when you run the installer. If you find that you don't understand some of the features of the software, remember to read the manual first. Should you be unfortunate enough to run into any technical difficulties with the software, it is often best to get in touch with the developer of that software - they are probably better-equipped to offer you the support you need than we are.

BROKEN DISCS: If your disc is corrupt, cracked or otherwise inoperable, we'll send you a spanking new replacement within 28 days. Send the DVD to: Disc Department, Reader Support, Future Publishing, CMU157/Autumn/10, Bath BA1 2BW. Don't forget to include your full name and postal address!

cm STUDIO

Our exclusive suite of applications, instruments and effects is on the DVD every month – it's quite literally all the software you need to make great music now!

APPLICATIONS

XT Software energyXT2.5 Core CM Edition (PC/Mac/Linux)

VST host and sequencer with modular routing

Outsim SynthMaker CM (PC)

Create your own VST synths and effects

INSTRUMENTS

PowerFX Hütkins CM (PC)

Sample-based electronica synth

Umnet Ozcan Genesis CM (PC)

Another amazing virtual analogue synth

Muon CMplay (PC/Mac)

Powerful ROMpler instrument

Dominator (PC)

Virtual analogue synth with a classic feature-set

u-he ZebraCM (PC/Mac)

Amazing virtual analogue synth

LinPlug AlphaCM (PC/Mac)

Subtractive synth with ring and amp modulation

Homegrown Sounds Astralis CM (PC)

Modulation-heavy 'soundscape' synth

Homegrown Sounds Astralis Orgone CM (PC)

Flexible sample-based synth

XT Software EnergyCM (PC/Mac)

Analogue-style sequencer

FabFilter One 2.01 (PC)

Beautiful-sounding single-oscillator synth

Kotkas Paax 3 CM (PC)

Feature-packed soft sampler

Odo Synths Unknown 64 CM (PC)

C64 SID chip-emulating VSTi

Krakli CMorg (PC)

Vintage organ instrument

AlgoMusic ElectraBass Rack CM (PC)

Easy-to-use bass synth that's packed with presets

Humanoid Sound Systems Scanned Synth CM (PC)

Create abstract noises and haunting instruments

Muon CM-101 (PC)

Analogue-style VST synth

Muon SR-202 (PC)

16-pad VST drum machine

Muon CM-303 (PC)

Emulation of the classic Roland TB-303 synth

Muon DS-404 (PC)

Powerful 16-part multitimbral VST sampler

LinPlug CM-505 (PC/Mac)

Analogue drum synthesis made easy

Big Tick RhinoCM (PC)

Amazing hybrid synth with cool FM capabilities

Synapse Audio Junglist (PC)

Effects-packed virtual analogue synth

EFFECTS

KResearch KR-Delay CM Edition (PC/Mac)

Dual delay lines with filters and sync ability

KResearch KR-Reverb CM Edition (PC/Mac)

Easy-to-use, algorithmic reverb effect

Blue Cat Audio FreqAnalyst CM (PC/Mac)

Sophisticated stereo spectral analyser

NuGen Audio Stereoizer CM (PC/Mac)

Useful mixing tool for control over your stereo spread

Sugar Bytes Artillery2 CM Edition (PC)

Multi-FX with internal sequencer



Image-Line CM Vocoder (PC)

Special cm version of FL Studio's FL Vocoder

Aixcoustic Creations Electri-Q CM (PC)

Sweet-sounding and flexible equalisation

Martin Eastwood Audio CompressiveCM (PC/Mac)

Compressor/limiter with sidechain input

Audio Damage Pulse Modulator (PC/Mac)

Wild, stompbox-esque modulation effect

Betabugz Audio Vascillator (PC)

Semi-modular feedback delay multi-effect

Image-Line CM WaveShaper (PC)

Flexible wave distortion effect

PSP Springverb (PC)

Authentic VST spring reverb effect

SimulAnalog Guitar Suite CM (PC)

Plug-ins modelled on classic guitar effects and amps

Ohm Force Ohmygod! (PC/Mac)

Crazy resonant/comb VST filter

Camel Audio CMFuzz (PC)

Quick and dirty distortion

Intelligent Devices MegaDelayMassCM (PC/Mac)

Sound design-orientated delay module

Sanford Phaser-CM (PC)

Phaser effect with advanced modulation abilities

Martin Eastwood Audio Duet (PC)

Easy-to-use double tracker



Image-Line's CM WaveShaper can wreak glorious havoc on your audio signals

Filter modulation in Dominator

Get Dominator's filter really moving with our guide to envelope and LFO cutoff modulation



PC MAC



1 > Computer Music's exclusive Dominator synth is a powerful beast indeed. In this tutorial, we're going to show you how you can get the most out of its filter cutoff modulation options. Bring the synth up in your DAW and load the **Init** patch.

2 > Program in a pattern of eighth notes. We're going to use Dominator's filter envelope to create an LFO-style effect, keeping the LFO itself free for other duties. In the **Filter A** panel, set the **Env Amt** level to **2**, the **Cutoff** to **4.5** and the **Resonance** to **33**.

3 > This gives us a constant plucked-style tone, but we want something a bit smoother, like a sine or triangle LFO. Set both the **Attack** and **Decay** in the **Filter Envelope** panel to **0.088**. These values will depend on the tempo of your project, but this setting works well at 120bpm.



4 > Let's create a vocal-style synth sound. Set **Filter A**'s filter mode to **BP12** and change the **Routing** to **A-B-S**. This routes the signal through **Filter A**, then **Filter B** and then the **Shaper**. Set **Filter B**'s mode to **BP12**, too.

5 > Now let's use the LFO to modulate **Filter B**'s cutoff frequency independently of **Filter A**'s. Set the LFO's **Filter B** knob to **0.825**, then **Filter B**'s **Cutoff** to **4.2** and **Resonance** to **33.00**.

6 > We can keep the LFO's **Rate** at **0.7**, as that gives us a nice counter-rhythm to the filter envelope. The resulting sound is a tad quiet and tame, so set the **Shaper** to **Transitor** mode and turn **Drive** up to full.



7 > We can make the sound more powerful by adding a few more voices. Before you proceed, turn the **Amt** (amount) knob in the **Amp** panel down to **35.00**. Change the **Voice** mode in the centre panel from **Poly** to **Unison**.

8 > For the final touch, automate the filter envelope's **Attack** and **Decay** times to get different LFO-style wave shapes, morphing from the standard triangle shape to more sawtooth or inverse sawtooth-style shapes.

POWER TIP

>Go vocal

It's possible to adapt this sound to get a simple yet powerful vocal-style lead noise. Deactivate all of the modulation by setting the filter's **Env Amt** and LFO-to-filter-Cutoff controls to **0**. Next, set the **Shaping** mode to **Sine** and the **Cutoff** on **Filter B** to **0.61**. Set both **Resonance** values to **0.66**. Now sweep **Filter A**'s **Cutoff** around between **2** and **4** to get a vowel-style lead sound. Try playing this in the lower registers to get a more raspy tone. **cm**

Reader music

Another four readers send in their tracks for appraisal by our team of expert producers and engineers



Send us your music

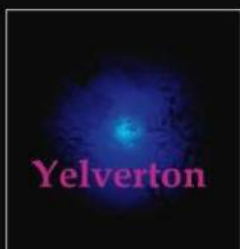
For the chance to be featured in *Reader Music*, simply send us your track via the SoundCloud DropBox on our website (see the walkthrough below for instructions), along with a description of your act, an image (sleeve art, photo or logo that you own the copyright to), and your equipment list. Be absolutely certain that no copyright samples have been used! The best tracks we receive each month will be reviewed here and featured on the **cm DVD**, so send yours our way today!

Rules:

1. Send no more than two tracks
2. Submit your track(s) via the SoundCloud DropBox on our website
3. The audio and MIDI files used must all be original and/or royalty- and copyright-free

YELVERTON Your Beating Heart

Artist Yelverton
Web www.myspace.com/yelvertondance



> Ah... the 80s synth-pop years. You're back there within a moment of the opening bars to *Your Beating Heart*. The naïve synth melody, the softly delivered vocal, the pop structure, the slow string pads - they're all there in their nostalgic beauty.

It's a strong song and the broad stereo-chorused vocal carries it well - but beyond the vocal, the overall sound is, for some reason, quite small and mushy. It might be the thick wedge of pad that clouds it, or it could be the indistinct loops panned left causing confusion. It could also be that the track sounds small because the vocal is so proud. The backing vocal panned right is way too loud. It'll make you jump with shock when it comes in for the chorus.

The rhythm programming is a bit prosaic: it could be more inventive around the four-square main beat in order to give the track a different momentum. The tambourine loop in the chorus is messy and doesn't help with the clarity in the top end, but the heavily tremolo-ed synth solo is pure period, as is the tight synth bass underpinning the track. Overall, this is a classic love song.

What the artist says:

"Your Beating Heart is an emotional and upbeat electro/pop dance track. It's a love song inspired by my beautiful wife Karen. The entire track was recorded on Sonar 8.5 Producer at 135bpm. Cakewalk's Rapture provided all of the sounds for the synths and leads."

Equipment used Quad-core PC with 3GB RAM, Lexicon Lambda soundcard, Korg Karma synth, Korg R3 synth, Rapture Soft synth, Sonar 8.5 Producer, Guitar Rig 3 LE, AKG C214 mic.

B.L.B. Ghost In The Machine

Artist Martyn Stonehouse
Web www.facebook.com/highfibrerecordings



> Dubstep is a genre that's so broad and ill-defined it can hardly be classified, but this track from B.L.B. can lay claim to being somewhere in the centre of things - if there is one. *Ghost In The Machine* has a half-time/double-time feel with fractured, stilted beats and dub elements.

The track is an instrumental, and it works through the use

of strong synth melodies over interesting sounds/noises/samples. The melodies are good, but if we had one criticism, it's that some of the sounds - the strong one in particular - are too clean and 'out of the box'. They need distressing in some way - perhaps through a slap delay or something - to glue them into the track.

The beat programming is intricate and effective: it flows even though it's so fractured, which is a hard result to achieve. A bunch of high-mid and top-end percussion sounds help to pace the track. Add to that the fast echoes on the electric piano and the deep sub-bassline, and the resulting feel is highly authentic.

What the artist says:

"I've been producing house and electro for a while and wanted to try something different. As a genre, dubstep has caught my attention, and inspired me to make *Ghost In The Machine*. I used a Roland JV-1000 to create some of the pad and synth sounds. The vocal sample is my eight-year-old sister - who loved it!"

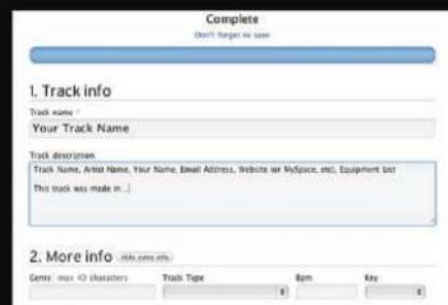
Equipment used Advent PC running Widows Vista, FL Studio 9.1, M-Audio Delta 1010, Rode NT1 condenser mic, Roland JV-1000 synth, customised Acoustic Solutions Profile 300 monitors, lots of free VST plug-ins and synths.



SoundCloud makes sending and receiving music easy. Anybody can sign up for a free account and start sharing tracks straight away, although you don't even have to do that to submit your track to *Reader Music*...



1 > Go to www.computermusic.co.uk and look on the right-hand side of the page for our SoundCloud DropBox widget. Click **Send me your track**, then **Choose a file** and select your track.



2 > Enter **all** of the following in the **Track description** box: track name, artist name, your name, email address, website (or MySpace), equipment list and a brief description of how your track was made.

SVENTRONIC Wiegenlied

Artist Christopher Ayres-Watson
Web www.myspace.com/sventronic



> You'll get quite a surprise listening to this for the first time. The German title gives you a clue, but even so, no one could expect a German rap, especially not a cool, dispassionate female one. It's odd, but it's also good.

The tune itself is downtempo ambient with a lovely languorous feel – wafting strings, echoed piano trills and reverbed vocal

moments. Vinyl crackling adds to the atmosphere, as do resonant, ring-modulated, low-pass filtered synths. Tuneful warm synth melodies weave a charm in and out of the slow string pads. The pads sit on the big legato bassline that's the solid spine of the track.

Structurally, it meanders about with all the time in the world. Tickling high-end percussion flutters in the air and dissonant noises come and go to contrast with the beauty. All the while, the singer adds her contribution in different ways: as well as her rap and sung 'ahhs', she also counts in German. Let's hope the rap section is more meaningful than that.

The result is a wholly relaxing and soporific piece that could calm the most ADHD-addled kid.

What the artist says:

"I wanted to create a real downtempo track. I started by building the beats coupled with a sub-bass-heavy bassline. I played all the other lines in, and included spoken 'counting' lyrics which give the track some direction toward closure – or, in this case, sleep."

Equipment used Fujitsu Siemens Amilo Pi 3540 notebook (with Realtek soundcard), Acoustica Mixcraft 4.5, Akai Professional LPK25 MIDI keyboard, Bojo Software Impulse VST synthesiser, Greeg Minimogue VA VST synthesiser.

Video file: YouTube, Vimeo, Google Video and other videos will appear in an on-line player

Artwork: You can upload jpg, png, gif, tiff images up to 2 megabytes.
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3 > Click **Upload new artwork** and choose an image. Confirm that you agree to SoundCloud's **Terms of Use** towards the bottom of the screen, hit **Send Track** and you're done!

What's wrong with my mix?

cm regular Tim Oliver takes time out from his mixing day job to explain what could make one particular reader's demo sound better

Producer/engineer Tim Oliver



Tim has been at it nonstop since we last heard from him – 'it' being recording and mixing albums for artists including Andrea Corr, Moya Brennan and Sinead O'Connor among many others. He's also been busy with his own label, Top Cat.

LUNATICS OF SOUND FT ALEXANDRA KANE Insane (Radio Edit)

Artist George Loukas
Web www.myspace.com/lunaticsofsound



> *Insane* is a shameless dancefloor classic house pop song. This being the radio edit, all the fat has been shaved right off and the track kicks straight in with the first verse, followed by bridge and chorus. (Shouldn't you be giving the radio DJ an intro to talk shite over?) There's only a two-bar drop after the chorus before the second round starts. Predictably – and rightly – the second

(double) chorus leads us into a middle eight of the dreamy, pad-dominated variety, but this is where it all goes wrong. The second of the double chorus is a drop: the beat goes and the vocal is carried by the synth stab, like the first verse. This leads to the middle eight, which is also a drop – and as a result the change loses its impact. It might be better to have the drop chorus first, then a full one leading into the middle eight. At 24 bars, the middle section is way too long, and it doesn't get up to much: it just floats about around the same motif. This feels like a lazy decision, and it betrays the rest of the song. (It's true to say that many successful radio tunes are such because of either a great intro or a great middle eight – it's not always just the chorus.) After a bridge and double chorus, the track ends with a meandering instrumental chorus that brings us nothing new.

The tune is dominated by Alexandra's characterful vocal, which isn't a million miles from Florence in its tone and delivery. It's hard not to think about what Florence would do in the same song – and I think she'd certainly be more dynamic and build the performance through the song. It feels to me like Alexandra is only giving 80%. It would help the song if she came alive from the middle eight out, like the pop diva she could easily be. The mixing doesn't help her cause, though: the vocals are placed a touch low in the mix and aren't ridden that well in the chorus. The backing track is strong with tough beats and synth hooks, and the bassline that comes in for the second verse could be put up to add severe weight.

What the artist says:

"Alexandra is an extremely talented songwriter and vocalist. Combine that with Lunatics Of Sound's extensive electronic background and you get something insane! Alexandra's beautiful vocals were the motivation behind this production."

Equipment used Logic 8/9, Ableton Live 8, iZotope Ozone 4, Steinberg WaveLab, rgc:audio Z3TA+, 3.2GHz quad-core Mac Pro, 4GB RAM, Apex 415, M-Audio soundcard, Akai APC40, Allen and Heath ZE ZED R-16, M-Audio MIDI keyboard, AKG studio headphones, Adam A7 monitors, M-Audio BX8a studio monitors. **cm**



cm Producer Masterclass

S.K.I.T.Z BEATZ

Boywonder of grime Aiden Hogarth has produced for some of the scene's biggest names. Take a look inside his studio as he breaks down A-List's *Midnight Lover*



Living on the dark side

> Despite his tender years, Aiden Hogarth - aka S.K.I.T.Z. Beatz - is a veteran of the grime scene. He's produced for the scene's biggest MCs, including Wiley, Tinchy Strider, Tempa T, Skepta and many more. Having made a name for himself deep in the underground, S.K.I.T.Z. recently began to infiltrate the mainstream, providing incidental music for the BBC's youth-oriented soap spin-off series, *EastEnders: E20*.

Aiden doesn't limit himself to just producing grime. "Last year, I did some experimental funky house stuff under the alias Enrique Benitez," he reveals. "I had a couple of tunes released under MI Raw/EMI, which was a good look. The first release was the first ever experimental house tune I made. It was a laugh, really. I fused my grime influence and synth side of things and mashed it in with house and funk vibes. Then I got a vocalist on it and it took off."

More recently Aiden has been making some dubstep-sounding tracks, but he's keen to point out that despite this coinciding with the rise in popularity of the genre, he's no bandwagon-jumper. "I've always been making dubstep-style tunes. If you check out tracks from my 2006 CD *In The Zone* - like the title track, which Frisco from Boy Better Know did the vocals for - then you'll see that they were very, very dirty. So I've been making what people now deem dubstep - hard bass music - for years.

"Recently I've been touching on what I think dubstep should be in 2011 for no other reason than pushing the dark side of my music. I've been rushing around doing all kinds of different things, but I feel most at home with the dark stuff: heavy basses, synths and nastiness, stuff that will make your face screw up!"

It's all child's play

What were Aiden's first experiences of music production? "I started on Reason 2, using the Redrum and NN-19 sampler. I was using all of the factory sounds to begin with, which was interesting! I was a fan of Big Strings back then, and Malström. I used to think, 'I'm making my own bass here', but it was a preset that I'd just twisted slightly..."

"In those days, the theory and the tech behind music was a lot simpler. I just used to make the tunes and export them: when I put out my first vinyl, it had no mixing and no EQ. It got some good reviews as well, which was quite shocking! I just pressed up 500 white labels to begin with; then, when it did well, I pressed up another 500. That was when vinyl was 'in' - you could make a vinyl release, and if it was good you could have an impact. I got a lot of press coverage off that first EP because I was 16, and it was a nice foundation maker. Later, in 2006, I did *In The Zone*, which featured so many of the people you see on television these days, like Tinchy Strider, Roll Deep and Bashy."

Once you go Mac...

Having moved on from Reason, Aiden now uses a fairly unusual combination of software, including Logic Studio on a Mac

Aiden's gear

HARDWARE
Intel dual-core PC
Apple Mac G5
Digidesign Mbox 2
3x UAD-1
Roland JX-3P
Korg Z1
Novation X-Synth
Akai MPC500
Akai MPC2000

SOFTWARE
Image-Line FL Studio
Emagic Logic 5
Waves plug-ins
Ultimate Sound Bank Plugsound Box
Native Instruments Massive
Lennar Digital Sylenth1
Rob Papen Albino 3
reFX Beast
Tone2 Gladiator

Aiden's studio is packed with hardware. We asked him to talk us through his old-school equipment:

"For the old sounds I've got the Roland JX-3P," he begins. "If you want to make a tune that sounds 80s, that's your gadget. It's quite a cheap keyboard but it embodies what 80s music is to me. For my main melodies and such, when I'm playing live, I use the Korg Z1. It's been around for a while and it's got a couple of nice sounds, but it's been rinsed - everyone has been



Though he mainly produces on his computers nowadays, Aiden's studio is still packed with all sorts of hardware

there. The Novation X-Station is a beautiful bit of kit: it's got some really nice presets that you can manipulate and make sound new, the LFO is amazing, everything is clean, it's an easy keyboard to work with, and I like the little XY pad as well.

"I got the MPC500 to go on holiday - I've made beats on the beach in Barbados with that! It's fairly rugged - I have dropped it a few times. The battery life is terrible, though: six to eight hours. Even so, it's a good bit of kit. The X-Station is battery-powered as well, so I can pack the Novation and the 500 and make the basis for a record."

and FL Studio and Logic on his rather long-in-the-tooth PC. "My PC is terrible, but the one I ran Reason on before was even worse! I use it to knock stuff up in FL Studio.

"I've been rushing around doing all kinds of things, but I feel most at home with the dark stuff"

I use the same VSTs that I use in Logic, just in FL to bang together an idea. The interface is more stimulating - everything feels a lot easier, even when you're laying down a piano melody. It feels a lot quicker, so you get that MIDI information and export it over to Logic, and then get into the meat of it.

"I moved onto the Mac about a year and a half ago. Now I've got the G5, everything feels better, looks better and sounds better. I do honestly feel that things sound better in Logic. I think that's why everyone comes over to Logic - the engine inside it must be more souped-up. For example, I'll load a kick into [FL Studio] on the PC and a kick into Logic in the Mac and it'll sound like two different things. It feels dusty on the PC."

Talking of kicks, where does Aiden get his drum sounds from? "I take a lot of drum

hits from records, but I also make them myself - layering preset kicks with my own kick, finding different frequencies. If there's a kick that pierces nicely at 300Hz, I'll cut all the bass off and let one element of it bang at 300, then I might have the sub of another kick piercing down lower in the 90s and 70s."

Powerful sounds

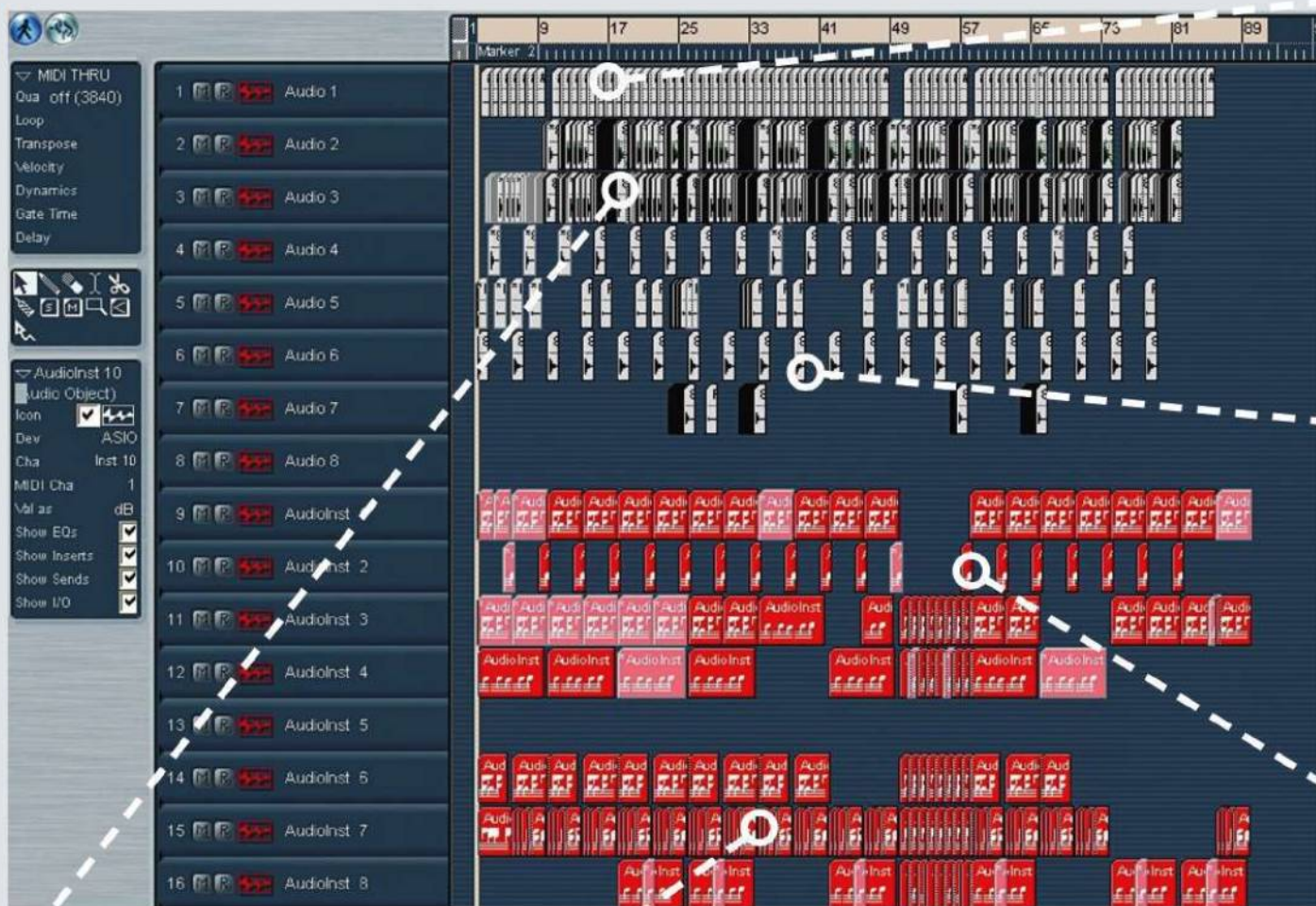
What about other sounds? "I find things here and there - hits and all of that from old orchestra pieces, which I'll clean up in the computer - but the majority of my sounds come from VSTs these days. Prosonus make some very nice string ones. I use Sylenth1 for bass noises; it's a very good VST. Beast is also a fairly unknown one that's not too bad. On the Mac, I use Gladiator for bass sounds. The engine on that is just so powerful!

"For effects, I use the UAD plug-ins. I got them because they were very well reviewed and I like the fact that they have their own independent RAM and CPU - it makes me feel more confident. They're very clean as well. On dubbing mixes for television we tend to use Waves because a lot of people at the BBC use PCs running Pro Tools."

Over the next you'll find Aiden's breakdown of the instrumentation behind *Midnight Lover*, which he produced for Wiley's group A-List. Be sure to watch the accompanying video on this month's **cm** DVD to see and hear how the track made, and receive plenty of exclusive production advice from the man himself. **cm**

Web www.myspace.com/skitzbeatzproductions

S.K.I.T.Z. Beatz breaks down A-List's *Midnight Lover*



Snare drum

"I didn't want the thin 808 snare to override the record, so I took down the bass frequencies and some of the mids, like the low-mids at 300Hz. It takes out that snap on it, allowing the clap to have that snap. These are all personal preferences. For this particular record I've put in a dip at 1500Hz as well, which takes that real mid out of there. The rest of it is just there - I'm allowing the high end to do what it does. Also, I've got a little Logic Tape Delay on it, with a 75% Groove and 12% Mix, and taken the cut up to 400Hz so it's not clashing with those elements of the 808 kick."



Piano

"The piano sound comes from Ultimate Sound Bank's PlugSound Keyboards plug-in. I think PlugSound is quite quintessential in grime, to be completely honest - I would say that a lot of the 2005 to 2007 stuff was very PlugSound-based. It's very well designed and laid out, which makes the software quite easy to use. The piano has a delay on it, which gives

it a bit of a clatter. Some people may deem it as cheating or whatever but that's what it is. I've then used Logic's Tape Delay with 50% on the Groove, and brought the Mix up to 16%. There's also a Waves L2 limiter on there that's been brought down to make everything clang a bit more. The sound has 3dB EQ peaks at 682Hz and 5000Hz, too."



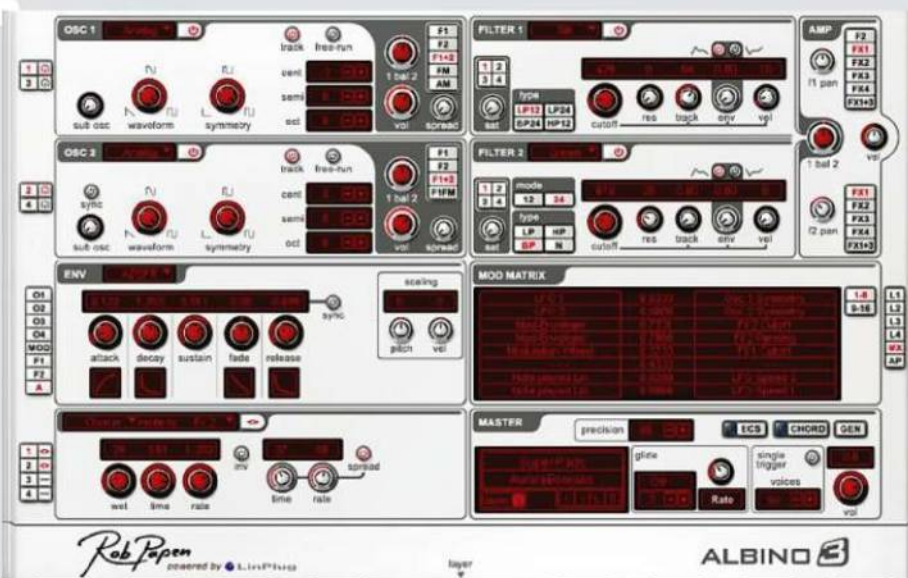
Handclap

"Funny story with this clap - it's something I got off a drum machine years ago. I put reverb on it back in the hardware days, then never bounced it out clean - so I have to live with it! I really like this clap, though, and it works for this type of record. I rolled off all of the bass frequencies down to 191Hz in case they get mixed in with the kick. With claps, there are bits of bass in there, and when you take it out it cleans everything up. At 3500Hz I've got a little 2.1dB peak. To work out where to boost it I sweep an EQ band around and hear where it needs turning up."



Kick drum

"I've put a really small 0.5dB boost at 61Hz on the 808 kick - I really wanted to get the belly of it. I always want records with an 808 kick to sound good in the trunk of a car. You want to have that real, almost distorted bang. Also, I've added a bit of compression on there, pushing up the level and slightly altering the feel of it. In my experience, compression can sometimes drown out a sound too much; but used well, it can really be effective."



Pad

"I've got a pad sound to fill everything out. This comes from Albino, and I used the AuroraBorealis patch with a low-cut EQ at 1300Hz. Albino is very good in terms of wide sounds for filling out the stereo panorama. I also used another patch based around the arpeggiator. Albino has got some nice arpeggiators and some

arpeggiator-based presets. Some people say using an arpeggiator isn't music, but when played in the right way it's like anything - you use the synth and it's what you do with it that's the main thing. Although arpeggiators are over-used by a lot of people, when employed effectively they can be very good tools."



S.K.I.T.Z Beatz composes tunes for *EastEnders'* yooof TV spin-off, *E20*.

Making music for TV

Aiden has made music for MTV and Viva, and composes half of the tunes for *EastEnders: E20*. Does he work differently when he's making music for television?

"Most people don't have a 24k sub rig for their TV, so instead of using a low-end driver, you have to layer it. You can use a sub, but you might EQ out a lot of the bass and bang a mid driver on top of that. You're shifting everything up - so as opposed to focusing on frequencies from, say, 50Hz to 11kHz, you're focusing on frequencies from 300Hz upwards, specifically targeting 8000Hz, which comes through well on TVs. Sometimes I've remixed a tune after plugging it into a TV and listening to it through that. It's important to do that because you need to get the right feel."

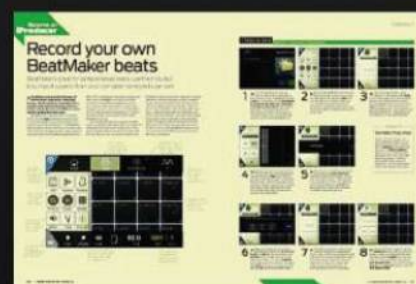
Presumably working for television affects the composition process as well...

"When it comes to making television music, you almost have to have a constant rise, because scenes never loop. That's why certain producers, like Burial, are very good for TV stuff - it just keeps on rising. Those sort of tunes are going to be played for years to come: I'm thinking Massive Attack, Mr Scruff, all that stuff that's good for television. TV is going to be a very important part of the music industry for the next ten years, because things are changing. Singles are a lot cheaper, so you've got to look at ways to make money in other areas. One example is videogame music. I'm hitting up the videogame music industry hard because I feel the youth demographic that love the music we make are the people playing the games." cm



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Enjoy the silence

If you're just using your gate plug-ins as corrective tools, you're missing out on a whole world of creative potential

> If you're looking for innovative ways to inject some excitement into your productions, getting hold of some new plug-ins might appear to be the obvious answer. However, splashing cash on the latest gear isn't always the best prescription for your creative ills.

Back in the days when studio gear was really expensive, musicians were often limited to the bare essentials. As computer and music technology have marched onward, the availability of creative tools has increased exponentially - but at what cost? While choice in itself is no bad thing, it can discourage you from exploring the creative possibilities of the 'don't-seem-so-exciting-now' tools already at your disposal.

One such utility that often gets overlooked is the humble gate. Originally designed as a tool for removing hiss and unwanted low-level noise, for many the gate never gets a run out for anything beyond simple mixing tasks. But with a little bit of creative thought and an understanding of exactly how it works, however, this most basic of processors can open many creative doors. Pun intended.

Over the next five pages we'll take a look under the bonnet of this underrated utility plug-in, stretch its capabilities to the max and look at some of the ways in which gating can be used to creative effect. The misuse of mundane tools is nothing new: there are whole musical genres that owe their very existence to it.

Every modern DAW worth its salt comes with a gate plug-in, and there are a plethora of free and commercial ones available out there too. They all work in the same way, so no matter what your setup, you should be able to get gating right away at no cost.



The inner workings of a gate

You should always learn the rules before you attempt to break them – especially when it comes to music production. With that in mind, before we move on to the creative applications of the gate, let's first take a closer look at it so that we understand what it is and what it does. As the name might suggest, a gate can be opened and closed. When open, it lets sound through; when closed, it doesn't.

Gates come in all shapes and sizes, but they all share these basic parameters: Threshold, Attack, Hold and Release. These controls enable a gate to perform its primary task and should already be familiar to you, as they're common to many other audio processing tools, too.

"Volume automation isn't anything special in itself, but the ability to connect it to other elements is"

With the fundamental role of the gate in mind – allowing or preventing the incoming sound being heard – let's take a look at these controls one by one and see how they affect the final output.

Take control

The most important control on any gate plug-in is the Threshold setting. If you're familiar with how a

compressor works then you already know what this does. It's pretty simple: the Threshold determines the volume level at which the gate will open. When the signal is above the threshold – that is to say, louder than it – you'll hear it; conversely when it's below the threshold, it's not allowed through.

The Attack parameter determines how long the gate takes to fully open and let the sound through once the threshold has been exceeded. This can be useful for preventing unpleasant pops or spikes.

The last two settings – Hold and Release – are both involved in the closing of the gate. Hold sets the amount of time that the gate remains open once the signal level drops below the threshold, and Release sets the amount of time that it takes for the gate to close once the Hold time has expired.

Now that you know what the controls do, you hopefully understand how a gate can be used to cut out hiss, pops and crackles in a recording: by setting the threshold at a level where only the desired parts of the signal – singing rather than breathing perhaps – can be heard, for example.

As well as understanding how a gate is used for its intended function, you should be starting to get how these basic controls can be used to creative effect. Much like an amplitude envelope on a synthesiser, the gate gives us control of how quickly, how loudly and for how long we hear a signal.

But let's go one further: the thing that really gives the gate artistic potential is its sidechain input...

Get onside

Sidechaining involves taking the signal from another track and using it to trigger the opening and closing of a gate. You might use a kick drum, for example, to determine when a vocal sample might sound, or hi-hats to rhythmically chop up the sound of a whooshing riser.

The input needn't just be another audio source, either. Cubase, Ableton Live and some other DAWs enable you to sidechain from MIDI tracks, which opens up all sorts of rhythmic programming possibilities, effectively giving you fully automated control over the triggering of the gate, as you can program your own MIDI clips specifically for the purpose. If your DAW has a MIDI randomising function, the possibilities get a lot more interesting again.

It's this level of control that makes the gate such a simple yet useful tool. Volume automation isn't anything special in itself, but the ability to connect it to other elements within your composition is. If you start to think about other mix elements that involve signal levels – sends and returns for example – then it should be clear that, with some clever routing and a bit of lateral thinking, the gate is a far more powerful tool than you might first have thought.



Drawmer's classic DS404 quad gate is one of the most acclaimed and popular hardware gates ever made. Unless you're after the (admittedly high) studio cool factor, though, you don't need to give up the money or space that such a thing, demands – your DAW should have a plug-in equivalent built in and there are plenty of free ones on the net

Gate vs expander

Whilst gates and expanders aren't the same thing, some plug-ins can cover both roles or a hybrid of the two, so it's good to understand what they both do and thus which is more suited to your production needs.

To make an analogy, a gate is to an expander what a limiter is to a compressor. Much like a limiter, a gate is absolute, in that it cuts out – or more precisely attenuates – the entire signal. An expander, on the other hand,

behaves in the exact opposite way to a compressor, expanding rather than reducing the dynamic range: once the signal falls below the threshold it's attenuated by a ratio set by the user. With certain settings, this can have the effect of lengthening the sound as the expander slows down the cutting off of the signal over time – hence its name.

This subtle but important difference means that expanders are less suited to the

choppy, cutting effect associated with gates. Instead they're more suited to the refined and gradual adjustments that might be required when working with elements sharing a common frequency range.

Because of their similarities, some gate plug-ins offer all of the above options – Sonalksis' SV-719, for example. If in doubt, experiment with both options until you figure out which best suits your needs.

Choose your input

Sidechaining is where the gating fun really begins. The best sources for triggering a gate are rhythmic sounds that have clear rises and falls in volume, making setting up the threshold simple. Drums make excellent food for the sidechain input of your gate plug-in, imposing their groove and rhythm on whatever element you're working on.

Once you've decided on your trigger, what settings should you go for? This is largely down to the style of music you're making and the effect you want to create. House music, for example, is rhythmically set up in elements of four, eight and 16. This means that you could take the input from the kick drum, hi-hats or a combination of the two to create a particular sense of swing. Breakbeat and genres using recorded drums might employ the Attack and Hold controls to add some variation to the

"The key here really is experimentation: try selecting a variety of different sources to trigger your gate"

effect, bringing a looser, more human factor to the interaction between the two sounds.

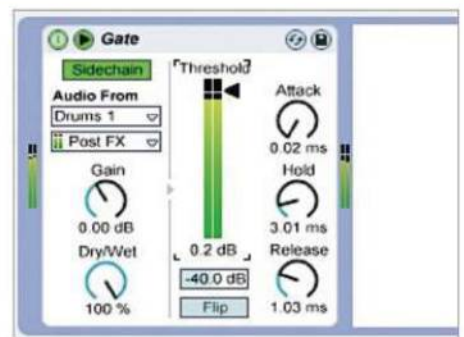
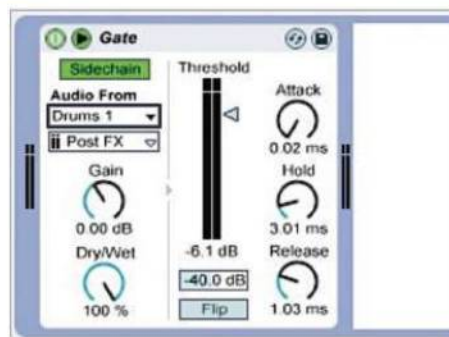
Using automation, most DAWs enable you to alter these parameters over time, giving your rhythmic stutter effect a sense of independence while simultaneously keeping it locked in to the

overall groove of the song. If you want to create a specific gate pattern – one increasing in speed independently of the global rhythm, for example – then your best option is to use a MIDI clip specifically designed for the purpose.

Sometimes importing MIDI clips from other projects can be just the thing for injecting new groove or swing into a track.

As with so many musical projects, the key here really is experimentation. Try a variety of different sources to trigger the sidechain on your gate and you'll be surprised at the range of effects you get. Vocals and pads can sound better when gated with percussion, and you may find that using something more irregular can give a new dimension to an otherwise fairly background sound. So go ahead – try something strange and see what happens. Pushing the boundaries of your sound is never a bad thing.

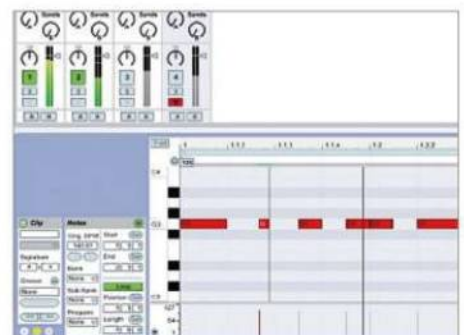
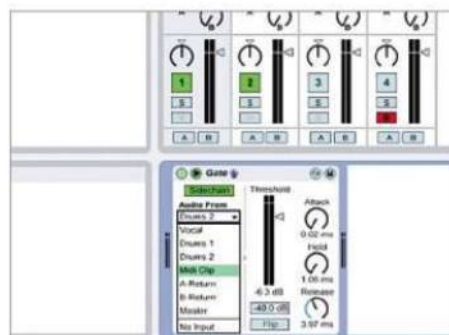
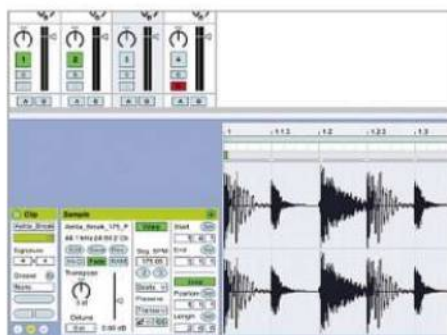
> Step by step Sidechain a drum loop or MIDI clip



1 > Open up the project you're working on, or start a new one. Import or record an audio clip that you want to add a gating effect to as well as an audio or MIDI clip – a drum loop is good – that you can use as a source for sidechaining.

2 > Locate the sidechain settings on your gate. With Ableton Live's Gate plug-in, click the downward arrow; in Logic's use the menu at the top right of the GUI. Simply select the channel that your source clip – in this case a drum loop – is playing back on.

3 > Set both tracks playing in a loop and adjust the **Threshold** down from the top until you start to hear the gating. Once you have a good chopped effect, tweak it with the **Attack**, **Hold** and **Release** parameters. Aim for a good rhythmic stutter that doesn't sound too clipped.



4 > Try halving the loop's length or duplicating the source/drum loop, then offsetting or moving the clip's start point. Silence the duplicate's output and select this as the new source in your gate's sidechain menu. This will result in a different rhythm that will still work with the original example.

5 > Next, add a MIDI track (or set up a muted MIDI instrument if your DAW doesn't enable direct MIDI-triggered gating) and select it as the sidechain source in your gate plug-in. Depending on your DAW, you may need to activate a MIDI gate setting, or change the input options if the MIDI channels don't appear in the same list.

6 > Set up a loop and start drawing in MIDI notes. You may need to adjust the gate's **Threshold** setting to match the output of the MIDI clip. If you're using an instrument output, choose a simple patch with fast attack and release. Start with some simple 16th-notes, then add and remove notes until you get an effect that you like. Experiment with irregular lengths and note positions.

Layered gating

A simple sidechained gate is great for creating a straightforward stuttering effect, but what if you want to do something even more creative? No problem. The secret to getting more out of your gate is to think of it as a way of 'extracting' punchy elements from a sound. Beyond that, we can use a gate just like any other signal output.

Routing a gated output through an effect while keeping a clean version of the original sound playing as well is an excellent way to layer a rhythmic effect over sections of a track without having to edit the original. It also enables multiple versions to be built up and layered interchangeably over time,

giving a sense of movement while maintaining the central essence of the piece.

Add more elements

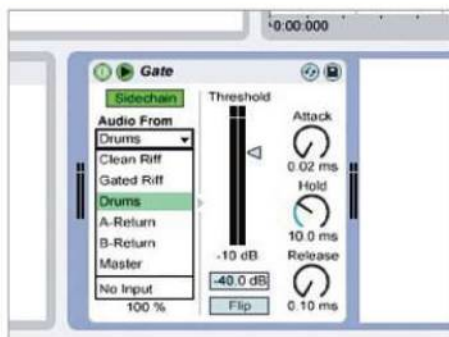
The beauty of using a gate is that it lets you take one part of a track and marry it to the rhythm or swing of another, creating a third element that can really glue the whole piece together when used correctly.

Consider the idea of using things like filter automation on top of these gated elements and it should immediately become clear how one gated effect can be used to provide a sense of development and continuity for an entire track.

Its very functionality - extracting loud elements - also makes it perfectly suited for emphasising those key peaks and sounds of a melody.

Many gates (including those found in Live and Logic) also feature the option to reverse their emphasis, meaning that only elements *below* the threshold are heard. You can use this function to make elements interact with or respond to each other - one only playing when the other one doesn't, for example. By adding an effect to one element and not the other, you can create complex dynamics that are easy to automate without being destructive to any audio.

> Step by step Add movement and depth with gated sends

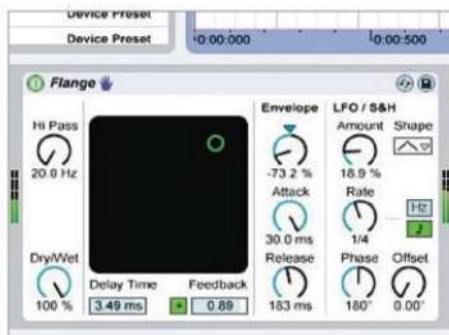


- 1 > Set up a new project, making sure it includes a lead riff, a duplicate of the riff and a drum loop or pattern. Our goal is to take an existing groove and use the gate to add subtle movement to it. The effect should be barely recognisable as gate-generated by the end.
- 2 > Add a gate to the second riff, open its **Sidechain** settings and select the channel the drum loop is on. As before, with the unprocessed riff muted, set a loop playing and adjust the gate settings until you get the desired choppy effect.
- 3 > Add a flanger effect to a send channel/bus. We could add the flanger directly to the gated riff, but this way gives us more flexibility further down the line. Send the gated riff to the flanger bus and choose **Sends Only** to ensure that only the flanged signal is present in the mix.

POWER TIP

>Get glitchy

Try using a random MIDI generator plug-in for a really glitchy feel. Set up a MIDI instrument and mute its output. Trigger this instrument with your random MIDI generator, adjust the settings to fit the rhythm of your track, then sidechain your gated channel with the MIDI generator itself or the output of the instrument. This generally works best with more subtle gate settings, rather than harsh rhythmic cutting - unless that's the sort of sound you're looking for, of course. As always, experimentation is the key.



- 4 > Solo the gated riff track and adjust the flanger settings until you get an effect that won't stand out too much in the mix. Set the **Wet** parameter to **100%** with the **Attack** fairly high and the **Release** about halfway up. The goal is to complement rather than dominate the original, clean riff.
- 5 > Play all the tracks back together. As the clean riff and the gated riff occupy the same frequency range, it might be worth bringing the gated one down a little in the mix. Alternatively, try pitching it up an octave for a harmonising effects.

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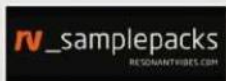
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Other ways to gate

In its simplest form, a gate is simply an automatic volume control. In modern music production software there are more ways to attenuate volume than there are stars in the sky, and other tools can also be used to achieve similar effects, each with their own characteristics.

LFO Modulation

Using an LFO to modulate synth and sampler parameters is nothing new, and neither is using it to control a signal's amplitude. If you're working with loops or raw audio, you might need to resample it before you can modulate it with an LFO. The benefit of using an LFOs is that it'll have a timing

setting (1/16, 1/8, etc), making it easy to set up on-beat rhythms. It can also be easily automated for variation over time. The downside is that it can be harder to generate offbeat-centred rhythmic patterns.

Compression

The mighty compressor has many uses, and theoretically a gated effect is one of them. Generally speaking, compressors work in the opposite direction - cutting above a threshold rather than below it. However, most will let you apply a sidechain input. Drive the Ratio up to infinity and use muted rhythmic instruments to feed it the pattern you want. Ultimately, though, this

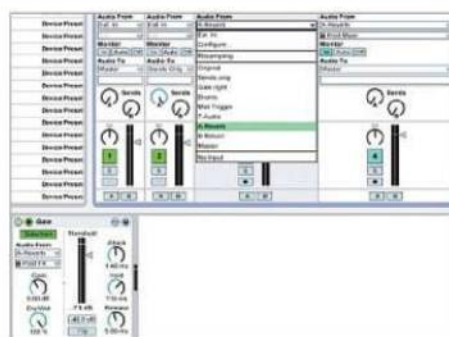
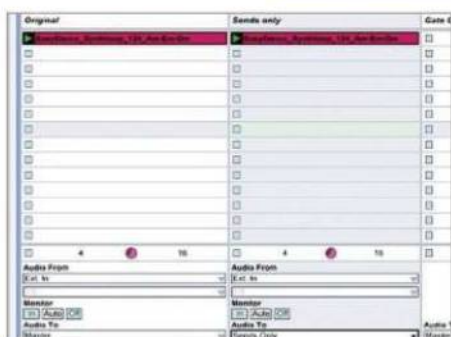
utility is more suited to smooth attenuation than the clean signal-cutting of a gate.

Automation

If all else fails, there's always good old automation. All modern DAWs enable you to automate the volume of any track or output, so you can draw in volume gates by hand, placing them exactly where and when you want. The downside is that you have to do it all manually, and even with cut-and-paste, this can be time-consuming. It can be confusing, too - if you forget about the automation and copy the track, the gates you've drawn could leave you scratching your head!

> Step by step

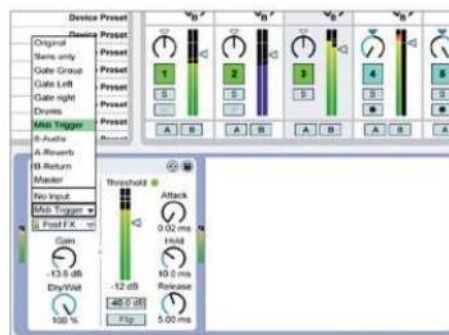
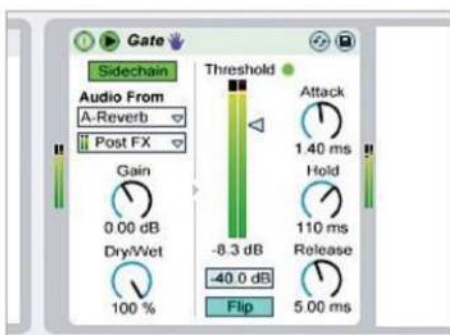
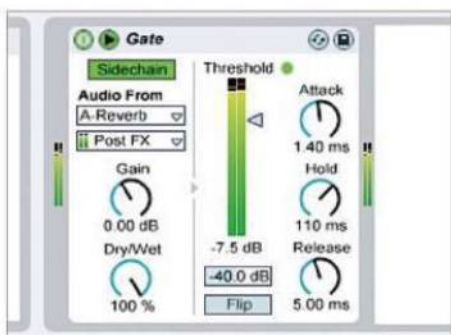
Gated reverb panning



1 > Add an audio clip or instrument to a channel routed directly to the Stereo Out/Master Bus (**Master**). Create a copy of this channel and route it 100% to an auxiliary/send channel (**Sends Only**). We want one clean version of the part, and one 100% wet reverbed one.

2 > On the auxiliary/send channel, add a reverb and a compressor. Depending on the signal being sent to the reverb, some compression might be needed to level out the highs and lows, increase the volume slightly and give more balance to the overall effect.

3 > Create two new channels and set both to receive their audio input from the reverb return. Next, add a gate to each of them. We're going to set these up to effectively split the reverb signal in two.



4 > Solo the reverb send and the first of the two gate channels. Set the gate's **Threshold** to just below the peak level of the signal. If the reverb is compressed correctly, there should only be a short amount of travel between the highest and lowest point.

5 > Set the second gated channel to **Flip/Reverse** mode and adjust the **Threshold** until it's just below the peak level. Check the activity light to see if you've got things right: it should be flickering on and off regularly. Now pan this gate hard right and the other hard left.

6 > The reverb should come out of the left channel when it's above the threshold and the right channel when it's below. You can group the two gated channels or route their outputs to the same channel and add a further gate with its own independent rhythmic trigger to add further movement.

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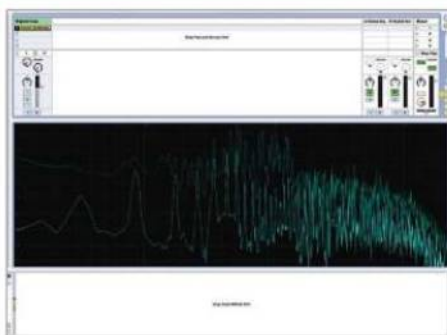


> make music now / enjoy the silence

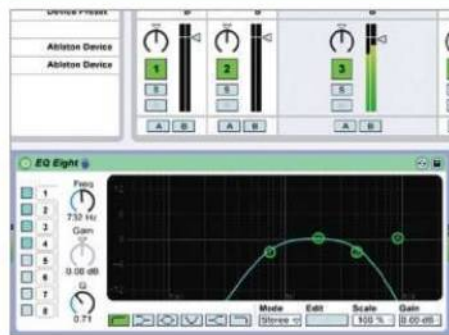
> Step by step Create frequency-layered effects from one sound



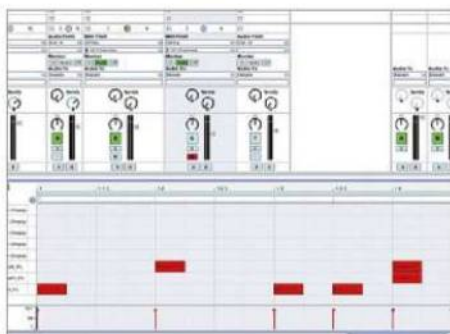
1 > Let's take a single sample and make it sound like a collection of layered instruments. To begin, open a project and start with a two- or four-bar loop. Lead synth sounds with a broad harmonic range work particularly well.



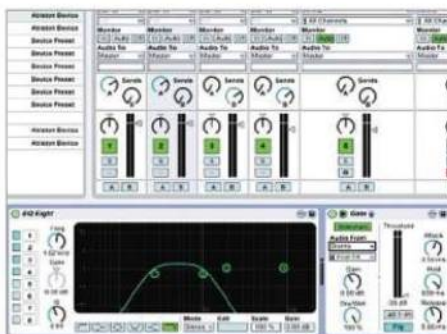
2 > Use a spectral analyser on the loop and note the frequency range in which the signal is strongest. Divide this range into four logical sections. These should be as equal in width as possible, but if there are some points that are particularly loud, you may want to isolate them with a narrower band.



3 > Make four copies of the loop and add a band-pass filter or multiband EQ to each one. Use this to filter each loop down to one of the frequency bands noted earlier. Some sounds work better with just three bands, but four will give more subtle and complex results.



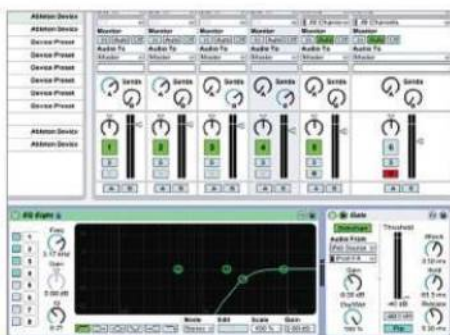
4 > Add a simple drum pattern using either a sampled loop or a MIDI clip, then add a second that complements the first to make a fuller beat. These will be our sidechaining sources, so at least two are required.



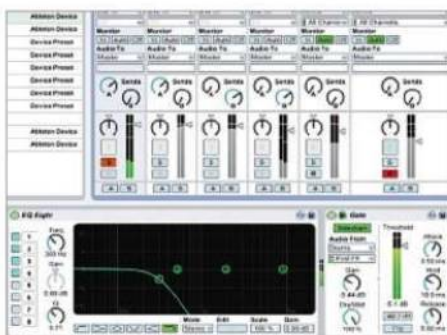
5 > A gate plug-in to each of the four split tracks. We have two sidechain sources but four gated tracks. Sidechain the bass with the first drum pattern and the low-mids with the other one, then sidechain the other two tracks to whichever of the two sources you like.



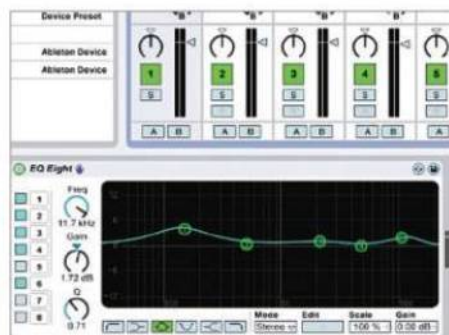
6 > Mute the original loop and play the four split parts along with the simple beat. This should already sound much more complex than the original - choppy and pulsing. It could even be too much so, due to all the gating taking place in time with the beat.



7 > On tracks 2 and 4 of your multiband split - the low-mid and high frequencies - set the gate to **Flip** or **Reverse** mode. The aim here is to have these parts sounding off the beat, giving the sound or harmony an unbroken feel.



8 > Solo each of the four frequency parts one by one and adjust the gates' **Threshold**, **Attack**, **Hold** and **Release** settings to lengthen the audible parts a bit. This will be particularly necessary on the inverse-gated parts. Adjust until there are no audible breaks when all four splits are played in unison.



9 > During the splitting phase, small frequency bands can get lost. Repair this with either a gentle boost in the mix, or by grouping the tracks again and EQing them as a whole. Once this is taken care of, the result should be one coherent sound with controllable dynamics. **cm**

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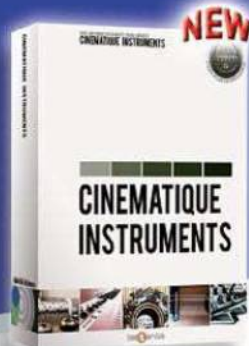
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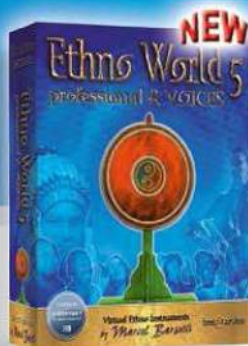
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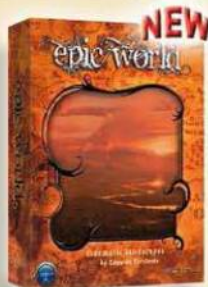
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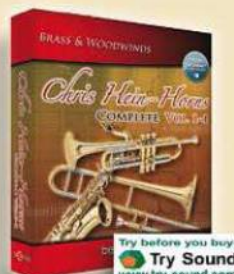
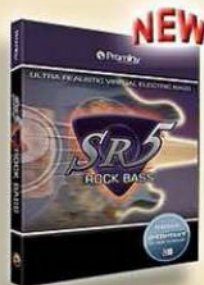
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The **cm** guide to



Available for PC, Mac, iOS and Android, this potent modular synth certainly has the multiplatform thing covered. It's also quite a complex beast, but we can help with that...

> We all know that you can run a full-blown modular synthesiser on your desktop computer, but that's not enough for developer Christopher Wolfe. No, he's gotta wrangle the thing into your shirt pocket as an app for iOS and Android. No problem, you say; a trim here, a tuck there - get rid of a few features and it shouldn't be too hard, right? Maybe, but that isn't the path chosen by Wolfe. Instead, he's rethought the whole concept of modular synthesis. If the old paradigms won't allow the concept to be reduced, then out they go!

Wolfe's synth, Jasuto, offers an entirely new approach. Sure, the patch cords are still there, as is the flexibility of the modular synths of old, but Jasuto delivers it all in an interface that urges the user to think and work differently. The result is a modular environment that's more about inspiration than perspiration. With a surface swept clean of knobs and sliders, the module itself becomes the tweakable parameter. Its place in space determines the values, and it can fly around the screen, all cascading chaos and tumbling timbres.

Such change can be hard to fathom... at first.

That's why we're here: to guide you through the modulating beast that is Jasuto. Over the next few pages, we'll take you from the very basics of sound creation and manipulation to the depths of Jasuto's inner workings. You'll learn how to tap into sequencers and effects; we'll try out the sampler and send our creations into a tonal tizzy as the various components go spinning through space, dragging our sounds into new vistas.

One of the other great things about Jasuto is the price. The synth costs as little as nothing (there's a free version in VST flavour for Windows and VST/Audio Units for Mac, which you'll find on the **cm** DVD) or as much as next to nothing (the Pro iOS and Android versions cost about as much as a pint in a posh pub).

You can use Jasuto as a plug-in on your desktop DAW, then, or go small and get it for your iPhone, iPod Touch, iPad or Android phone. Each app operates in a near-identical fashion, so you'll forgive us if we ask you to 'click' when you tap or 'tap' when you click.

So, if you're ready to launch yourself into the outer limits of sonic exploration, fire up Jasuto and let's jump right in...



> Step by step

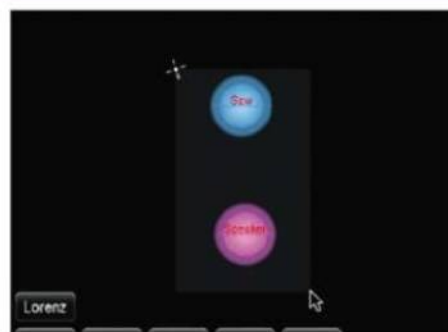
Make a synth



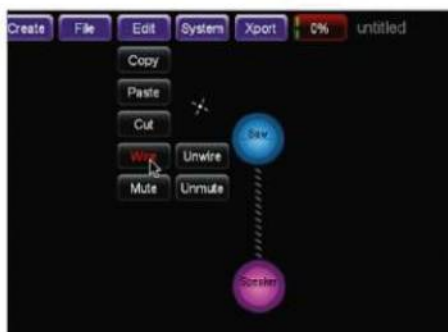
- 1** > Jasuto is virtually identical across all platforms. Here we're using the free VST plug-in version in energyXT, but you can follow along on the mobile version, too. Let's begin with a basic sequencer/synth combo. First, we'll need to be able to hear our work, so open the **Create** menu, click **IO** and select **Speaker**.



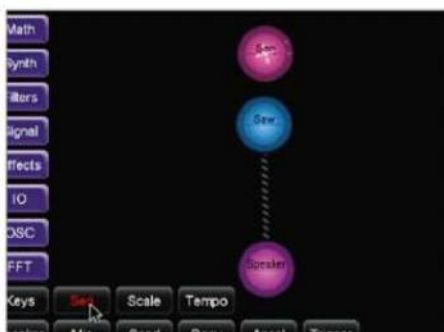
- 2** > The **Speaker** module will appear wherever your spinning cursor happens to be in the empty field. For now, click and drag it to the lower middle of the interface. Double-click in the centre of the workspace to relocate the cursor. Now, return to the **Create** menu and open the **Synth** category. Click the **Saw** button.



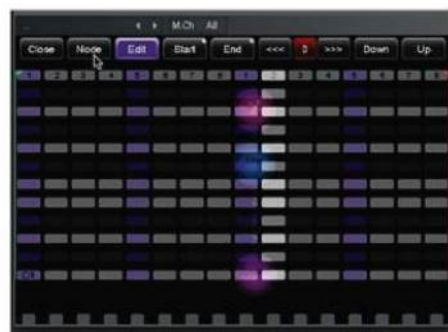
- 3** > You'll now see a **Saw** module (or 'node' in Jasuto-speak) in the middle of the interface. You can't hear anything because it isn't routed to the speaker. In Jasuto, the signal flows from the top to the bottom of the scene. We must select both nodes. Double-click just above and to the left of the **Saw**, holding and dragging the second click. Drag a box around your two nodes.



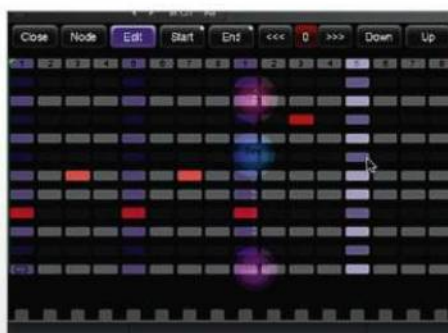
- 4** > The names of the nodes should now turn red to indicate that they're selected. You might want to lower your audio interface's volume before the next step, as it could get loud. Click the **Edit** menu and select **Wire**. You'll immediately hear the raw sawtooth wave.



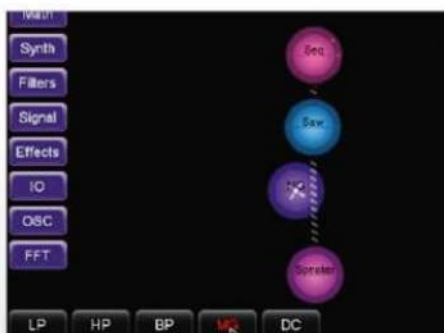
- 5** > As you can see, there is a segmented 'wire' between the two modules. If they're close together, you'll clearly see the signal's waveform displayed. To reduce the volume, simply drag the modules away from one another. Proximity is everything in Jasuto. Now, return to the **IO** category of the **Create** menu and select a **Seq** node.



- 6** > Arrange your scene so that the new module is directly above your **Saw** node. Double-click-drag to select the **Seq** node and the **Saw** node and wire them together. Hey, what happened to our signal? The patch is waiting for the new sequencer node to tell it to play something. Double-click the **Seq** node to open its editor.



- 7** > Now that's a familiar sight! It's a variation on the ubiquitous piano roll editor. Let's enter some notes. We've used the **Down** button to lower the octave displayed and entered a few notes by clicking on the little rectangles in the grid. As you can hear, the notes currently sustain for the full duration, with no gaps.



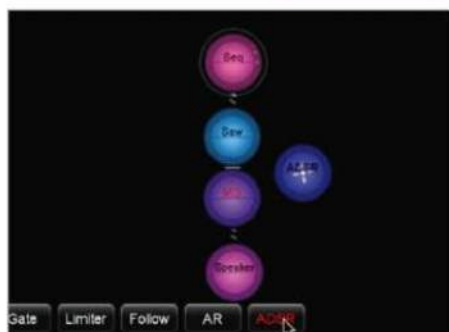
- 8** > Is that going to get on your nerves? Yeah, same here. Let's stop the audio using Jasuto's transport functions, which are found under the **Xport** menu. Hit the **Stop** button. Ah, that's better. Now, back to our sound. Return to the **Create** menu, open the **Filters** category and select the **Moog/MG** filter.



- 9** > Go back to the **Xport** menu and click **Play** to move things around again. Select the **Saw** and **Speaker** nodes, open the **Edit** menu and choose **Unwire**. Next, select the **Saw**, **MG** and **Speaker** nodes and click **Wire** in the **Edit** menu. Double-click the **MG** node. Click and drag up on the **Res** button to increase it to around **0.7600**, and lower the **Cutoff** to **0.4400**.

> Step by step

Modulation and signal routing



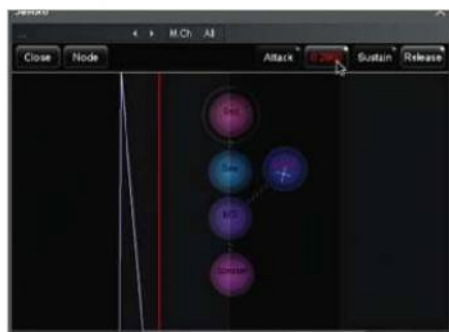
- 1 > Our sound could use some dynamic modulation. We can introduce that easily by adding a typical ADSR envelope. Place your cursor to the right of the **MG** module, then go to the **Create** menu, look in the **Signal** category and find **ADSR**.



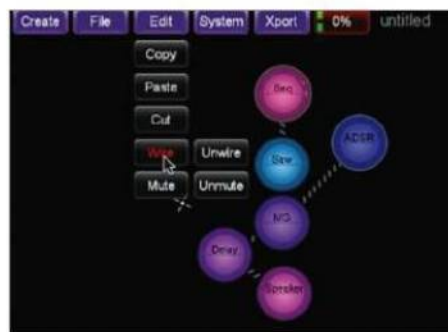
- 2 > Now, select both the **MG** node and the new **ADSR** node, go to the **Edit** menu and **Wire** them together. Nothing changes: the nodes are connected, but the ADSR isn't having any effect. Why? Double-click the wire between the MG and ADSR nodes. A-ha! The ADSR output is connected to the MG input. Click **Cutoff** to reroute the wire.



- 3 > There's still nothing happening! Remember what we said about signal flow? Click the **ADSR** node and drag it up above the **MG**, then double-click the MG node to access its input ports. See the **Gain** button under the **Cutoff**? Click and drag upwards on it to increase the amount of modulation applied by the ADSR envelope to our cutoff frequency.



- 4 > That's more like it! The envelope could do with a bit of tweaking, though. Double-click the **ADSR** node to open its editor. You can click and drag on the four buttons at the top right, or select one and drag on the graphic display to change the settings. Give your sound a short **Attack** and **Decay** and reduce the **Sustain** to 0.



- 5 > Click the **Close** button to return to the main scene. Let's spice up our patch with a little processing. Go to the **Create** menu and find the **Effects** category. Add a **Delay** node to the scene. Place it to the right of and in-between the **MG** and **Speaker** nodes. Select the Delay, MG and Speaker nodes and wire them together.



- 6 > This is all sounding cool, but kind of middle-of-the-road. Let's do something unusual. Go to the **Synth** category in the **Create** menu and select an **LFO** node. Wire it to the **Delay** and double-click the wire to open the port mapping. Reroute the LFO output to the Delay feedback.

> Step by step

Save your work



- 1 > We've got an awesome sequencer sound rolling along and we reckon it's a keeper - yet the **File** menu offers no obvious way to archive our hard work. Rest assured, it is there: it's just buried a couple of layers deep. Click the **File** menu and select **Browse**. You'll see a browser with subcategories. Click **Sequences**, then **Save As**.



- 2 > You'll be asked to provide a name for your patch. We've called our sound **CMSequencer**, but you can choose something a little flashier if you like. Enter the name and click **OK**.

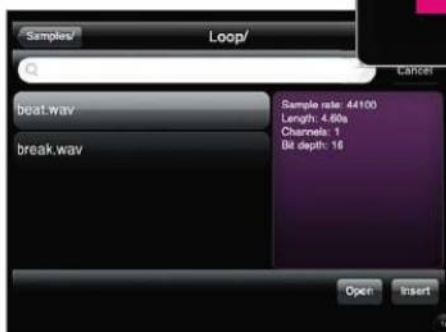


- 3 > To check that the patch has saved, let's load a factory patch, then try to reload our own work. To open a patch, select the one you want and click **Open**. Once you've had a listen to it, return to the browser and load your saved patch.



> Step by step

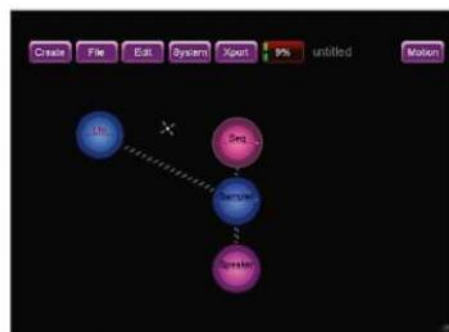
Samples and automation



1 > For this last section, we're going to look at some of the more out-there things that you can do with Jasuto. Let's start by firing up a new patch. Here we're using Jasuto Pro on the iPad, but you can follow along with whichever version you prefer. Drop in a **Speaker** node.

2 > Go to the **File** menu and select **Browse**. Tap the **Samples** tab at the top of the browser and navigate to the **Loop** category. Jasuto comes with a couple of loops, and you can import your own. Audition the loops by selecting them. We like **Beat.wav**. Select it and tap the **Insert** button at the lower right.

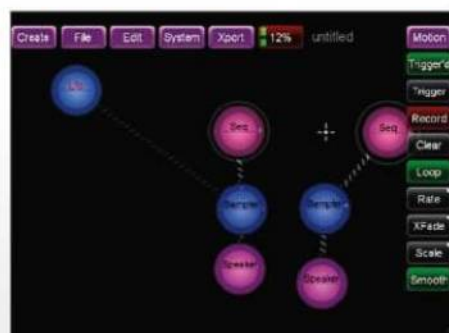
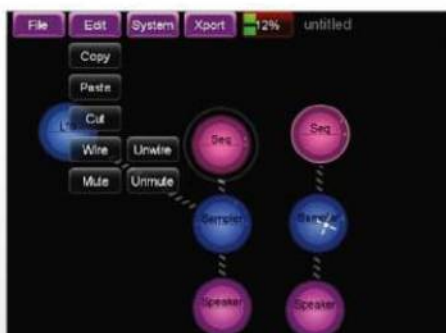
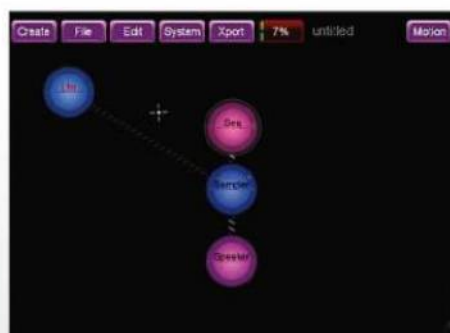
3 > Go back to your scene. As you can see, there's a new **Sampler** node in place. Select the **Sampler** node and the **Speaker** node and wire them together. You should now hear your beat. Double-tap the **Sampler** node to get inside. The sample waveform will be displayed along with some playback functions. Tap and drag the **End** button to change the loop end.



4 > That's pretty cool. Return the marker to the end of the loop. Note that you can scrub the sample playback with your finger if you activate the **Draw** function. Click the **Normal** button to reveal the dropdown menu of available playback modes. Tap **Ping** and listen to the result before returning to Normal mode.

5 > Close the **Sampler** node. Open the **Create** menu and select a **Seq** node from the **IO** category. Wire it to the **Sampler** node. Open the new wire's port mapping and reassign the Seq's **Pitch Out** to the Sampler's **PM** input. Double-tap the Seq node and drag across the entire **C4** row to fill it with notes. Change one or two of the notes to a higher pitch and listen to the effect.

6 > Close the **Seq** node and return to the main scene. Open the **Create** menu and grab an **LFO** node from the **Synth** category. **Wire** it to the **Sampler** node. Double-tap the connecting wire and assign it to the Sampler's **FM** input. That's a crazy sound! Touch the LFO and drag it around the scene to hear the effect on the sample. The further away it is, the less severe the effect will be.



7 > Now let's add a whole new signal that mirrors the one we've already made. Double-tap and drag a selection box around your **Seq**, **Sampler** and **Speaker** nodes. Open the **Edit** menu and choose **Copy**. Tap an empty area of your scene and then go to **Edit** > **Paste** to paste a copy in. You'll hear both of them together.

8 > Open the new **Sampler** and change the mode to **Grain**. Make sure the **Seq** module is sending its **Pitch** output to the new Sampler's **Width** input. Open the new Seq node and reprogram the sequence with a much more varied note range. Now, return to the scene and try dragging the new Seq and the LFO nodes around in wide, slow arcs. Beautiful... erm, sort of!

9 > We can even automate this motion: tap your second **Seq** module to select it. A **Motion** button will appear at the upper right. Tap it, then tap **Record** and drag your node around. Tap **Stop** when you're satisfied. It should play back all on its own. Try it with the LFO node, too. Take the time to explore the rest of Jasuto's many functions - it really is a portable powerhouse! **cm**

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Having trouble getting that elusive 'analogue warmth' into your 100% software-generated mixes? Fret no more - we're here to show you how it's done using free plug-ins



> The subject of 'analogue warmth' in modern music production can be a tricky one, even for experienced computer musicians. Until relatively recently, such warmth was something that could only be achieved via the use of, well, analogue hardware. Like just about everything else in music technology nowadays, though, this desirable sonic phenomenon can at last be replicated convincingly in software. Today's software emulations of analogue circuitry are astonishingly convincing, whether built into the signal path of a soft synth or taking the form of a stand-alone effect plug-in.

In this comprehensive guide to analogue warmth, we're going to show you not only how to bring that distinctive fat, warm quality to your mixes, but also how you can do it without spending so much as a penny. While there are plenty of incredibly impressive paid-for virtual analogue solutions out there, the world of freeware has much to offer, too.

In case you're wondering exactly what analogue warmth is and why you should care about it, we're going to start by explaining how it works, where it comes from and why it's worth pursuing. We'll go through the basics of how to apply warmth, and show you how to fine-tune it in order to get the exact sound you want - whether that's something low-key and subtle or huge and aggressive.

On top of that, we'll run through the differences between analogue warmth and 'regular' distortion, comparing the strengths and weaknesses of each. Plus, we'll reveal the best way to compress audio that's been 'warmed', as well as explaining the difference between the two main types of saturation: tube and tape.

This is your complete guide to analogue warmth, then - and single plug-in used here is absolutely free. Many of them come direct from our own cm Studio, on the cm DVD; others will need to be downloaded. So, you'd better go dig out your bathers - it's about to get hot in here...

What is analogue warmth?

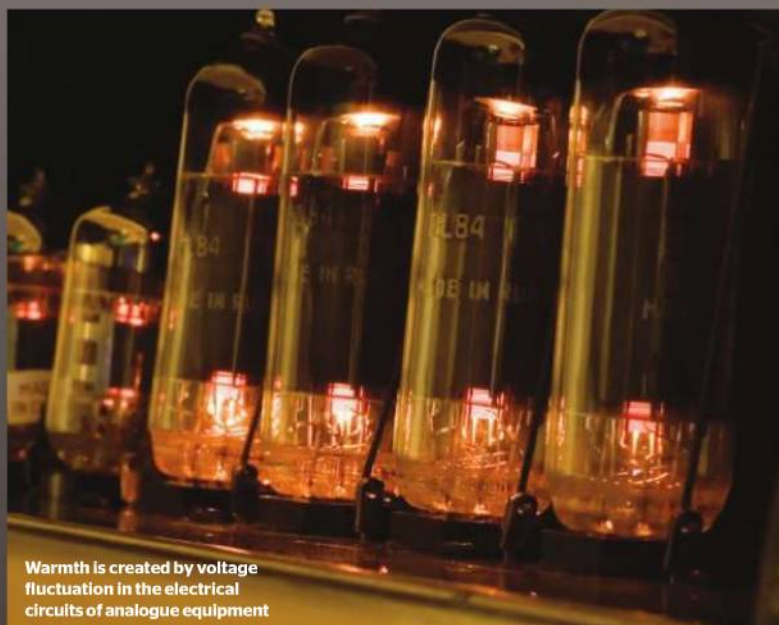
Analogue warmth is one of the most hotly debated topics in music production. While almost all engineers agree that it's a desirable element to have in a mix, opinions vary widely on whether it can only be achieved through the use of expensive hardware or whether it's perfectly possible to create warmth virtually, using plug-ins alone.

Fundamentally, analogue warmth is the characteristic distortion that analogue recording and processing equipment imparts on a sound as it passes along a signal chain. It can be applied intentionally (turning up the controls on a guitar amp, for example), or as a side-effect of another process (the subtle qualities imparted on a signal by the circuitry of a compressor, for example). Its character comes from physical imperfections in circuitry, the fluctuation of electrical voltages and other 'randomnities'. Far from having a negative effect, these flaws are part of what defines the sound of a piece of analogue equipment.

In practical terms, sound that has some analogue warmth to it is likely to be fattened, lush and 'warm'. It's why this sort of processing is referred to as saturation: the signal feels like it's been swamped or saturated in warmth. It works particularly well on instruments like guitars and drums – a touch of tape saturation can really fatten up a kick drum, for example.

Faking it

It won't surprise you to learn that analogue warmth isn't naturally present in purely digital recordings. The difference between analogue and digital audio is essentially that analogue equipment relies on degrees of varying electrical current to produce its sound, while digital relies on sampling at



Warmth is created by voltage fluctuation in the electrical circuits of analogue equipment

regular intervals to produce a series of numbers that can be read by a computer and turned into sound. A hardware synthesiser will generate a sound with some inherent warmth; a soft synth won't, unless it's been coded to emulate said warmth.

Not so long ago, computers just weren't powerful enough to be able to convincingly replicate this lush, warm quality, which is hugely demanding in terms of CPU cycles – but that's certainly no longer the case. Plug-ins are now very good indeed at faking analogue warmth, making it wholly possible to get your entirely digital setup sounding almost spookily 'analogue'.

The big question that remains, however, is this: Is analogue warmth actually *worth* trying to achieve?

Or, to put it another way: why is an analogue-processed signal qualitatively 'better' than a purely digital one?

As with so many issues in music production, there's no concrete answer to this question. Although analogue warmth is very pleasing to the ear, and is almost always worth experimenting with on any given track, it's not necessarily better or more effective than an untreated digital sound – it's just different. Its use depends entirely on the kind of music you're making: analogue warmth that is right at home on a soft, ambient track might sound very out of place on a buzzy fidget house number. Using your own intuition (and this guide), play around with your software and see what works best for each musical situation that you find yourself in.

> Step by step Warming plug-in basics



1 > Analogue-style saturation in plug-ins is often applied with a single control – usually labelled **Drive**. This sets the amount of warmth added to the signal. Here, we're using the **Drive** knob on Togu Audio Line's TAL Tube (kunz.corrupt.ch) to dial in some warmth on our drums. (Audio on the DVD: **BasicWarmth.wav**.)



2 > Another key feature of many saturation plug-ins is the **Dry/Wet** knob. This gives finer control over the amount of warmth imparted. You'll need to balance it with the **Drive** control; if you make the signal too wet, you may overdo the sound. Here, we've gone from mid-way to fully wet. (Audio: **DryToWet.wav**.)



3 > Even the most basic units, like the TAL Tube, will come with a bank of presets and a couple of supplementary controls to help you adjust the sound. In this case, there are two buttons labelled **Hard** and **Amp**, which enable us to push our warming even further and really fatten up our drum sound. (Audio: **HardPush.wav**.)

> Step by step Warm up your sound



1 > Let's look at using saturation effects to inject a variable degree of analogue warmth into your sound - whether you want it to be very subtle or ear-splittingly hot. We've added Voxengo's Tube Amp (www.voxengo.com) plug-in as an insert effect on a funky reggae guitar part.



2 > We're starting from scratch, so leaving the **Bias** control (which we'll get to in a minute) at **0**, we gradually turn up the **Drive** knob until just a hint of warmth can be heard. You can push it quite far before it becomes audible, and this is the most straightforward way to give your sound more presence. (Audio: [DriveGuitar.wav](#).)

POWER TIP

>Jargon buster

In your explorations of analogue warmth, you're likely to come across a lot of jargon. British valves, American tubes, reamping, transformers... it's a lot to take in. The thing is, although these things are always useful to understand, none of them are essential to know about in order to create warmth inside your DAW. Some will only be strictly relevant to hardware - and classic hardware at that - so if you don't own any such equipment, don't get too hung up on the lingo. The sound is the most important thing, and as long as you can get your head around what analogue warmth is and how to conjure it up, that's all that matters.



3 > Bias is a hangover from the days of tape, where a pure sine wave was added to the signal to ensure the distortion didn't get out of control. Here, you can use it to fine-tune the harmonics of your warmth. Think of it as an exciter that can either make things duller (at lower values) or brighter (at higher ones). Here, we've pushed it hard to make our guitar very bright. (Audio: [BiasGuitar.wav](#).)



4 > Our Voxengo effect only has one knob, so let's switch to something with a little more finesse. Retroband Lite (www.michaelkingston.fi) gives us multiband control over our frequencies. We've started by pushing the **LowBand's** **Gain** up a little to give it some bottom-end buzz. This really makes the saturation stand out. (Audio: [LowBandGuitar.wav](#).)



5 > The second parameter is **MidBand**. Although it's primarily designed to control the mids, this knob can actually affect the high frequencies of your sound as well; it's also a lot more subtle than the **LowBand** control. Here, we're gradually sweeping the **Frequency** knob around; you'll hear the sound begin to shift slightly. (Audio: [MidBandGuitar.wav](#).)



6 > A great way to control the saturation is to turn everything fully up, then mix it in with the dry signal. That way, you get the exact amount of the super-saturated sound you want. To this end, we use the **Dry/Wet** control on Smartelectronix's Cyanide (bram.smartelectronix.com) waveshaper to boost everything, then mix it in gradually. (Audio: [WetGuitar.wav](#).)



7 > Not all saturation plug-ins are the same. The controls on a tube emulation will be very different to those found on a tape emulation. The main drive and frequency controls, however, will have broadly the same effect from plug-in to plug-in. You can then use the other, more specialist controls to create effect-specific warmth, such as tape-saturation emulation.

POWER TIP

>Bring the noise

The **Bias** knob can be used to control harmonics, but it can also add an additional layer of noise to your sound. Labelled either white or pink noise, this can be mixed in gently to add another 'flaw' to the sound, further changing its character. Free plug-ins - like the ones we've used here - don't always include this feature, but you can generate white or pink noise by either using a built-in generator in your DAW (if it has one) or downloading a free noise generator, like MDA's Test Tone (mda.smartelectronix.com).



Experiment with tube and tape saturation plug-ins to see which fits your sound best

Tube vs tape

There are two main types of saturation: tube and tape. Both have their own distinctive characteristics.

Tube (also known as valve) models emulate the sound of classic hardware amplifiers and preamps. The name refers to the vacuum tube used in such devices to alter the levels of electrical signals, which has the side-effect of pleasantly colouring the sound. Tube saturation is generally perceived as the subtler of the two types, able to give specific sounds a gentle boost or wash an entire mix in warmth. Software saturation plug-ins are usually very straightforward to use, and there's no shortage of free ones available for download. We particularly like Voxengo's Tube Amp (www.voxengo.com), Studio Devil's BVC (www.studiodevil.com) and Togu Audio Line's ultra-simple TAL-Tube (kunz.corrupt.ch).

Tape saturation emulation plug-ins are a different kettle of fish. They generate the distortion that magnetic tape imparts on recorded signals and are often used as pure distortion units. These plug-ins can be more complex than simple tube saturators, giving you more control over your sound, and are very effective when you need to make an instrument like a lead guitar or drum kit hit hard in the mix. You'll find less free tape saturation units out there than tube ones, but there are still some great models to choose from. Try JS Magneto (www.membres.multimania.fr/jeje1999/index.htm), Jeroen Breebart's Ferox tape simulator (www.jeroenbreebaart.com) and the Ferric TDS (varietyofsound.wordpress.com).

We'd be remiss if we didn't point out that the cm Studio features a couple of great saturation plug-ins. cm Waveshaper and cm Fuzz are both capable of imparting tons of gorgeous analogue warmth, as well as helping out with your more blatant distortion needs.

> Step by step Create warmth through distortion



1 > It's important to understand how distortion differs from saturation. This isn't as straightforward as you might think: saturation/warming is really just a form of distortion. It's best to think of them as having two distinct purposes: saturation units are for gently warming and fattening a sound, while a distortion unit is best for injecting it with overt fuzz and 'grit'.

2 > We've inserted a distortion plug-in from the cm Studio: cm Fuzz. It's perfectly capable of delivering gentle warmth, but it really comes into its own when you use it to make things a bit fuzzier. Turn off everything except the **Distortion** controls and the **Master**, and gradually turn up the **Tube** knob. You'll hear a warm sound that's distinctly grittier than a saturation effect. (Audio: [DistortGuitar.wav](#).)



3 > Distortion plug-ins often have a wider range of controls than dedicated saturation processors. cm Fuzz, for example, includes a resonant filter. This can help you to control the specifics of your distortion effect and decide how 'full' you want it to be. It works very well on guitars. (Audio: [FilteredGuitar.wav](#).)

4 > Like many dedicated saturation effects, the controls on a distortion plug-in may include those for frequency adjustment. On MDA's Bandisto plug-in (mda.smartelectronix.com), multiband sliders give very precise control over the tonal positioning of your distortion. This is great for fattening up the low-end.



5 > Because overt distortion isn't as subtle as tube or tape saturation, watch that the output volume doesn't get too high. It's very easy to dial in too much, causing a huge burst of sound. If you want the fuzz to be audible, but not to swamp things, you might want to consider applying distortion as a send effect rather than an insert, giving you control over the wet/dry distortion mix.

POWER TIP

>Crush it

It's not analogue-style saturation by any means, but if your DAW comes with any aliasing or bit-crushing plug-ins, try using them in the same way. It may take a little work to get a sound out of them that isn't downright odd, but used in moderation they can provide a distinctly different effect. Bear in mind that such plug-ins are designed to radically alter sound, rather than saturate or distort it, so approach with caution.

> Step by step

Compress a warmed sound



Try adding several saturation effects at once to produce a sound as warm as the Sahara

Analogue warming tips

DOUBLE AND TRIPLE

The more saturation effects you pile onto a sound, the warmer and fuller it will become. Just be sure to watch your output levels when stacking plug-ins to make sure you're not overloading the output. Using subtle settings on each plug-in works best in this case - they should add up to a smooth whole.

MANUAL ONLY

Unless you're going for a very specific effect, try to avoid automating the parameters on your analogue unit. The in-track tweaking of the drive setting might sound OK in isolation, for example, but when it happens in a full mix, it might well sound like something is slightly off. This isn't a concrete rule by any means, but once you've picked your settings and dialled in the warmth and fatness you want for your sound, leave those controls alone.

CAUTION IN THE PRESETS

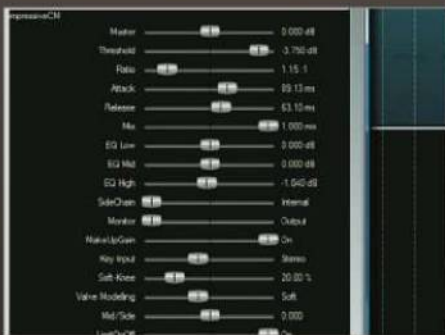
Even your most basic free saturation plug-in will most likely come with a few presets, and while they can be useful, we'd caution you against using them - at least at first. Analogue warmth is a subtle, subjective thing, and what works for the preset designer might not work for you. We suggest setting everything except the input and output gain controls to 0, and gradually bringing things up until you get a sound you like. It'll help you get a feel for the plug-in, too.

GO WILD

There's absolutely no reason to think that analogue-style saturation should only be applied to 'live' instruments like guitars, drums and vocals. It can make all the difference to soft synths as well, turning pedestrian lead lines into luscious, fuzzy monsters, and overly smooth basslines into tough, biting low-end riffs. Ultimately, if you've got a sound - any sound - that sounds a bit too cold, digital or otherwise lifeless, make the insertion of a saturation plug-in (or other type of plug-in with a saturation stage) one of the first things you try. cm

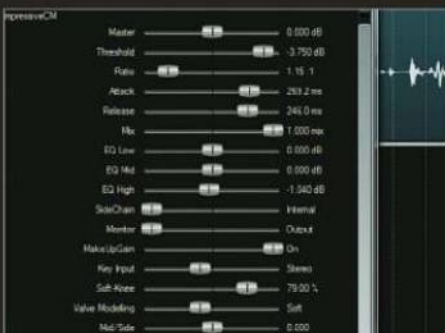
1 > Compression of warmed material requires some caution. For starters, warming itself - particularly through a tape emulator - imparts a certain amount of compression, as it tends to squash the peaks of a signal. If you're going to add extra compression, bear in mind that you're essentially doing it to material that's already been compressed.

2 > Of course, you might want more compression than the warming process is giving you - especially if the material in question is dynamically varied. Here, we've used **cm Fuzz** to warm up the bassline a little, and called **CompressiveCM** into action (running in Reaper's default plug-in interface) to play with the sound some more. (Audio: **NoCompression.wav**.)



3 > In almost all cases you'll want the compression to be extremely light. Try a high **Threshold** and a low **Ratio** - just enough to get the compression to smooth out the peaks, but not so much that it starts to really impact the sound. We're going for some smooth fattening here. (Audio: **Compression.wav**.)

4 > A soft knee is always better than a hard knee for this kind of compression, and fortunately **CompressiveCM** provides a highly controllable knee. This will smooth out the transition when the compressor kicks in. Setting the **Soft Knee** parameter to any value between **25** and **75** should see good results.



5 > It's worth paying some attention to the **Attack** and **Release** settings, too. As you're compressing a signal that's already undergone a form of compression, you're really only trying to catch the more serious peaks. You can quite comfortably sit with slow **Attack** and **Release** values. Here's our final, warmed and compressed bassline. (Audio: **FinalBass.wav**.) cm

POWER TIP

>Extra warmth

Many compressor plug-ins, including **CompressiveCM**, include analogue modelling functionality that enables you to select the type of saturation being applied. In the case of **CompressiveCM**, the choice is between soft and dirty valve. This is a warming stage in itself, and using it could add an extra layer; but bear in mind that it might not work so well on top of the saturation plug-in that you're already using. This feature isn't always essential, so if you don't feel it's making a positive difference, don't feel bad about turning it off.

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Set your digits
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to turn those
butterfingers into
hands of gold

> In the two decades since Roger Linn and Akai launched the legendary MPC line of hardware sampler/sequencers, that characteristic 4x4 grid of rubber pads has become a truly ubiquitous musical performance interface. Eminently more suitable for tapping out beats and triggering samples than the piano keyboard, 'the grid' has been instrumental in the development of many electronic music styles.

These days, not only are there numerous dedicated drum pad MIDI controllers on the market, but many MIDI keyboards also include a set of those raised grey squares above or next to the regular black and white ivories. While the arbitrary and ambiguous nature of a bank of pads designed to be struck with the fingers opens up a broad range of playing possibilities, their primary purpose is to facilitate natural-sounding drum performances, including all the glorious human imperfections that come with them. Coupled with one of today's ultra-realistic drum ROMplers, a pad controller is one of the most effective ways to replicate real drums entirely within your Mac or PC.

For non-drummers, the preferred method of creating beats using a pad controller is generally to record and overdub the MIDI notes for each drum sound one at a time. However, playing multiple parts simultaneously, just as a real drummer would on a real drum kit, imbues a performance with more of an organic feel, as well as making for a viable live performance in its own right. That, dear reader, is the art of finger drumming, and in this tutorial we're going to show you how to do it.

Becoming proficient in finger drumming isn't like learning a 'regular' musical instrument,

although the experienced percussionist has something of a head start. There's no established 'right' way to play a set of drum pads. Over the next few pages, we'll be exploring one possible way to beat those buttons, and we'd encourage you to adapt and develop it into a method that suits you. We should point out that a certain amount of practice will be required to get your finger drumming technique fluid and accurate.

Organised chaos

Before you start tapping out beats on your pad controller, you need to decide how to organise your drum sounds across the pads. This is down to personal preference and the type of 'kit' you're working with, but the idea is that everything should be easily accessible, possibly with similar sounds grouped together. The layout we're

bulk of the rhythm, so we're taking it as our starting point and adding other sounds around it. First we configure a 2x2 square of pads in the middle of the bottom two rows. The kick is at the bottom left and the snare is above it. On the right-hand side, the bottom pad is the closed hi-hat, while the top is the open hi-hat.

From here, the other drums are placed according to how they're going to be used. The two pads at the left-hand end of the bottom two rows are well positioned for extra snares, sidesticks, etc. The right-hand side is a good location for other hi-hat sounds – pedalled or semi-open, for example. In the third row up, we put all our tom toms, and the top row is populated with a few cymbals, as these aren't used that often. See the next page for a diagram.

Flipping the finger

Let's start by playing the simplest of beats with one hand: hi-hats on every eighth-note, a kick on beats 1 and 3 and a snare on beats 2 and 4. Use your ring finger for the hi-hat and alternate your index finger between the kick and snare pads (see **Figure 1** for the full pattern, written out in 16th-notes; an empty square means that no drum is struck on that beat). Be sure to hit the hi-hat pad at the same time as the kick and snare. Use your middle finger for the hi-hats if you find it more comfortable. Whichever finger you use, don't hit any of the other pads with it accidentally.

The middle finger can bring in other sounds, such as the open hi-hat. Try replacing the closed hi-hat at the end of the beat with an open hi-hat, closing it on the first beat of the next bar. Open hi-hats can be added anywhere for a bit of variation, but don't go crazy – generally they're used to accent a rhythm, not form the body of it.

"Becoming proficient
in finger drumming
isn't like learning a
regular instrument"

using throughout this tutorial is just one of many possibilities, but the techniques described here all still apply no matter layout you end up with. Don't feel you have to copy our arrangement if it doesn't feel comfortable to you.

The layout we're using is based around those three most essential of drum sounds: kick drum, snare drum and hi-hats. This trio is at the heart of any drum kit performance, making up the

> make music now / all fingers and thumbs

To add some more interest to our straight rhythm, try moving the kick drum hits around and adding extra ones (**Figure 2**). Here we've added kicks on the eighth notes before and after the first snare, and moved the kick that was on the third beat ahead an eighth note.

With just one hand, you can get a basic beat down, but it can be difficult to play eighth- and 16th-notes at the same time. To remedy this, we can bring in the other hand – playing 16th-notes with two hands simply involves playing eighth-notes in each, offset by a 16th-note.

With the index finger of your second hand, tap the snare or kick pad in between two of the eighth notes played by the first hand. These 'ghost' hits can go anywhere in the bar, but quiet snare hits work very well on both sides of the third beat. The velocity you play them at will greatly affect the feel of the beat. (**Figure 3**)

As an alternative to the hi-hats, let's try playing the ride bell on every eighth-note. The cymbal pads may seem a bit distant, but you should be able to get to them easily enough. Stretch out your middle finger to reach a cymbal pad and use your thumb for playing the kick and snare. Try playing the previous beat, but using the ride cymbal bell in place of the hi-hats. (**Figure 4**)

The toms are all right next to each other, so it's very easy to tap out tom fills. Start by trying a 16th-note fill in the last two beats of a bar – with the high toms on the left, play alternate strokes on each pad with your index or middle fingers and work your way across towards the right (**Figure 5**). Don't forget to add a crash on the first beat of the next bar. Toms aren't just for fills, mind – you can always add the odd incidental

tom into a beat using whatever fingers you have going spare at any point.

While some pad controllers offer built-in flam functions, it's not hard to play flams for real using two fingers. You might want to consider a few different techniques, depending on the purpose of the flam, drag or roll. For small buzz roll sounds, especially between eighth notes, tap the middle and index finger of your second hand on the pad at almost the same time, but far enough apart that you can hear two distinct hits. To flam one of your main snare hits, lightly tap the pad with your second hand before your first hand strikes the pad as it would for the regular hit. You could also try hitting the pad lightly with the middle finger of your first hand, then harder with the index finger, but you'd have to move your middle finger off the pad quickly so that the controller can send a note-off message before the index finger hits it again (**Figure 6**).



This is how we organised our drum pad controller, but if it doesn't work for you, experiment with different layouts

Explaining Figures 1-6

Fig 1 We start with a very simple beat alternating between the kick and snare with straight eighth-notes on the hi-hats.

Fig 2 To make our pattern more interesting, we've added a couple more kicks to the beat, effectively breaking the bar into two sections, the first a bit more complex and the second featuring a little syncopation.

Fig 3 Here we're adding some funk, with ghost notes between the straight eighth-notes. It can be difficult to switch between 16th- and eighth-notes with one hand, so the second hand plays the new hits while the first continues on with the regular rhythm.

Fig 4 Playing the ride cymbal in place of the hi-hat gives a different feel

to your groove – great for stepping up a gear during a chorus or climax. The second hand is unaffected by the change to the ride bell, so the backbeat remains the same.

Fig 5 Fills are great for signifying an upcoming change in the track, and this one is simple to play. Mixing snare drum hits in rapid succession into the fill will add some interest,

but pretty much anything will work, as long as you start the next bar on time.

Fig 6 In this image, our flam hits are divided into two because the pads are hit more than once in the space of a 16th-note. Use your second hand or the usually unused middle finger of your first hand to strike a smaller hit just before the full-velocity main hit.

Figure 1

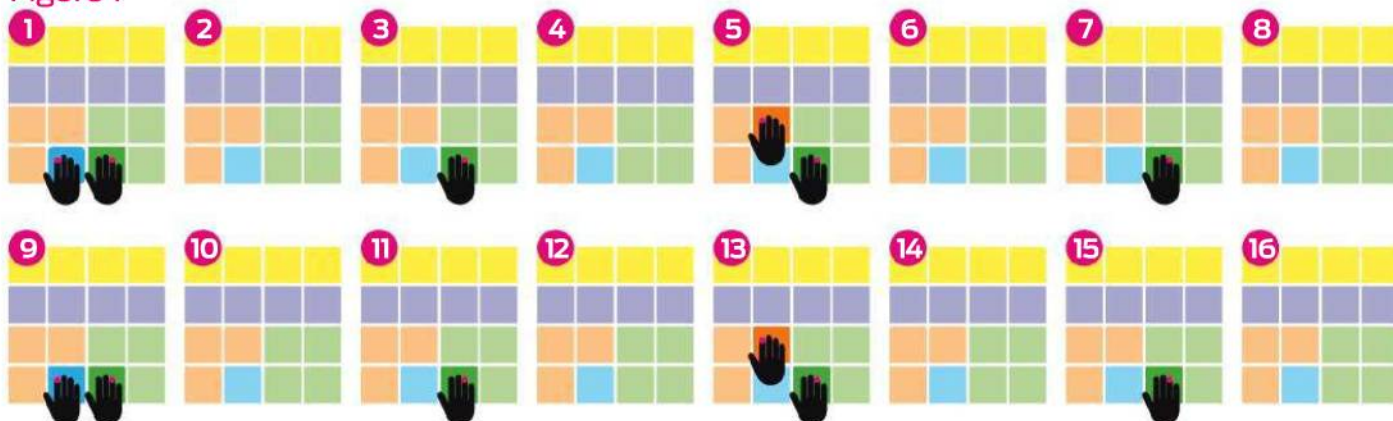


Figure 2

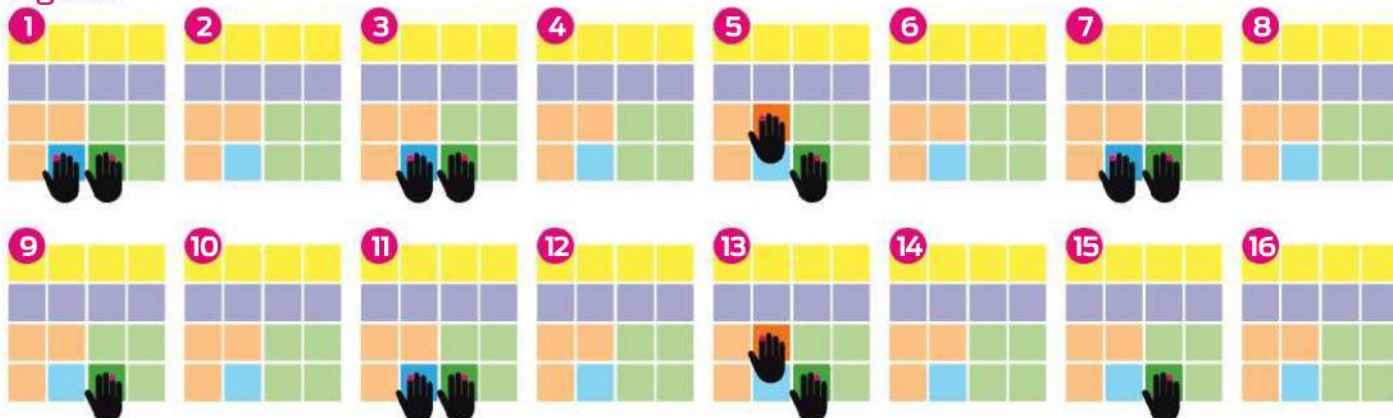


Figure 3

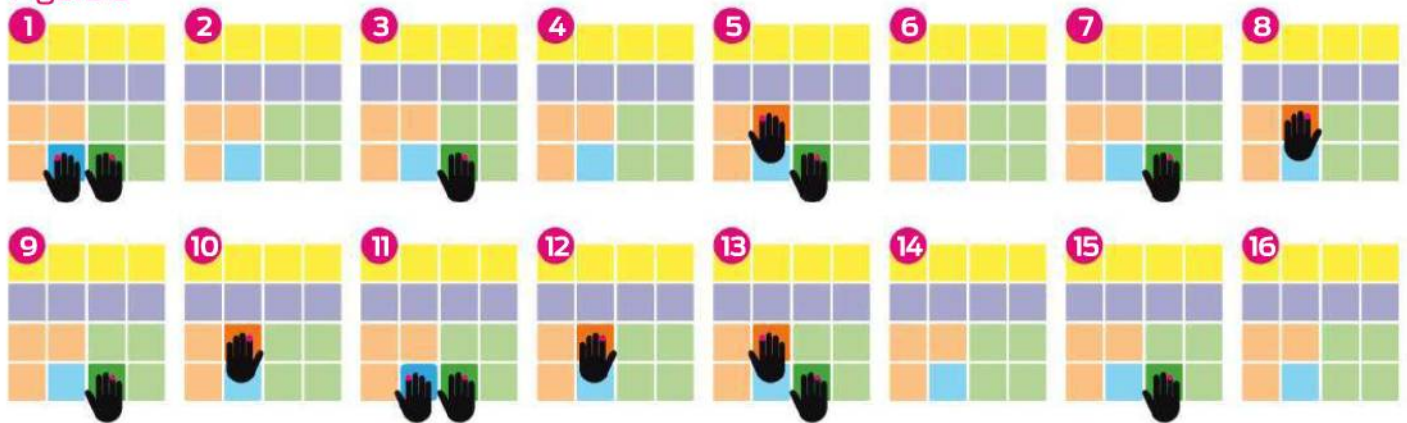


Figure 4

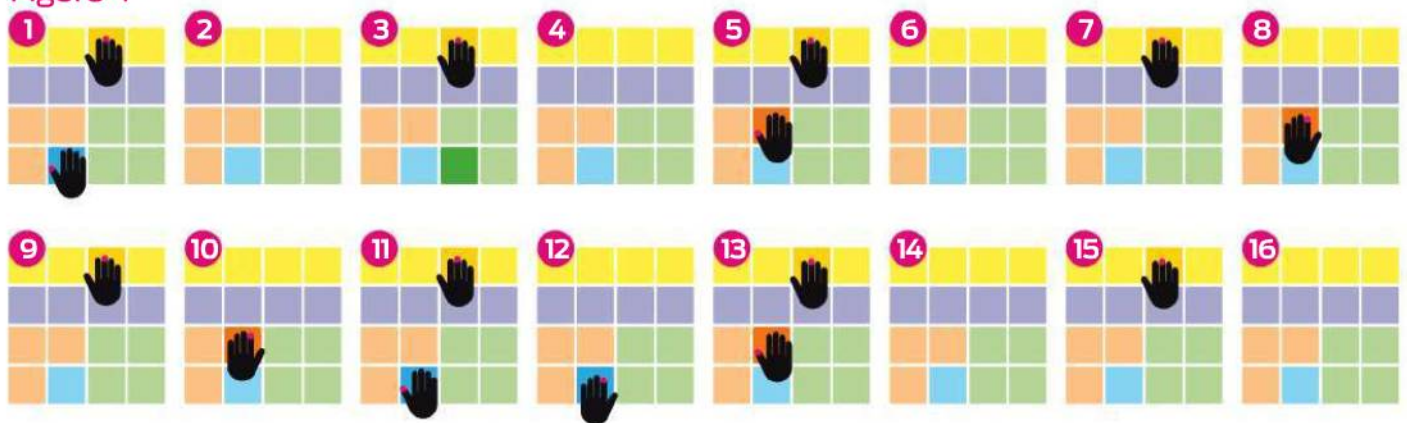


Figure 5

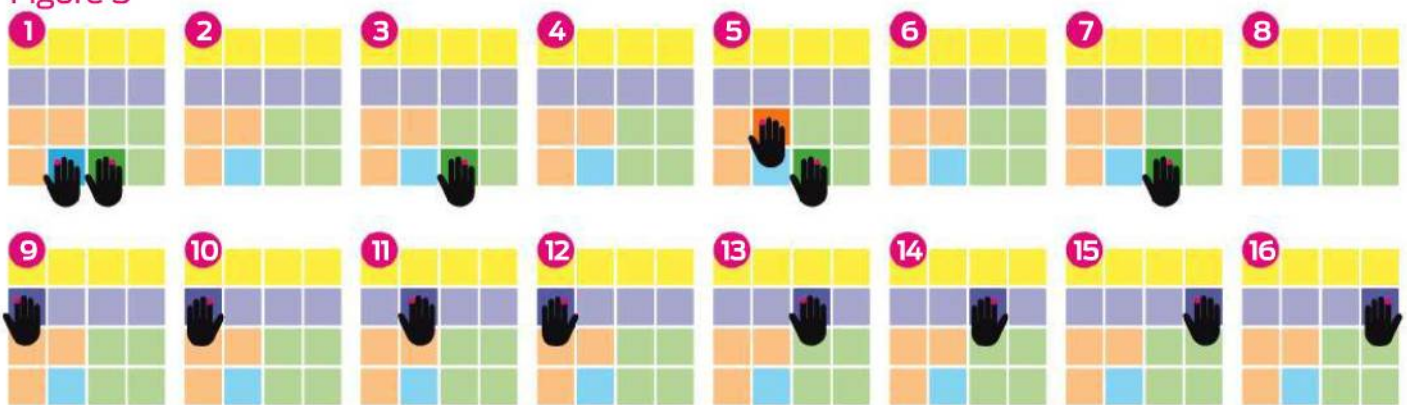
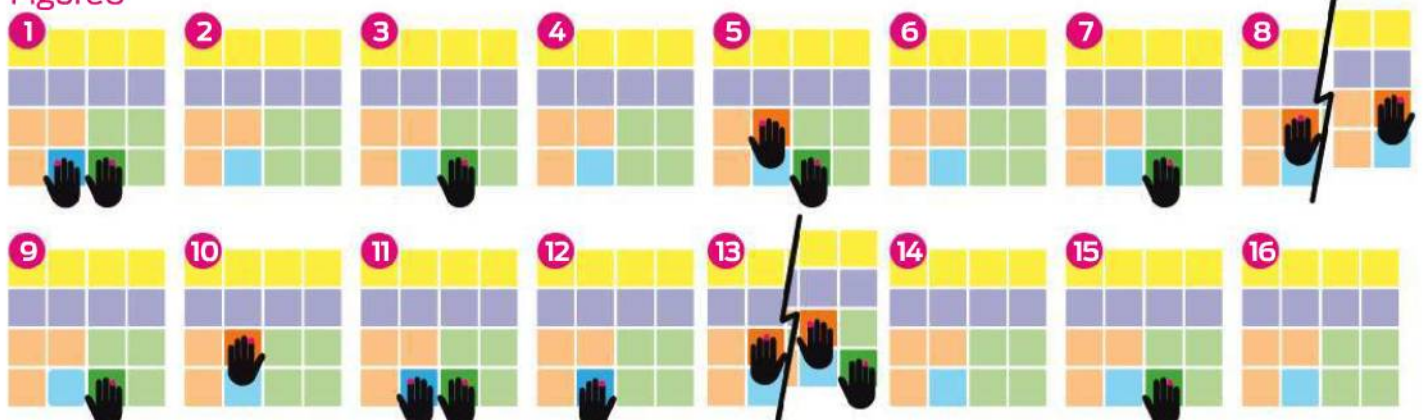


Figure6



In your own time

As with any instrument, the key to gaining proficiency at finger drumming is to practice a lot, then practice a bit more to be sure. Get to know your metronome sooner rather than later, playing along with it when you practice. Your amazing rhythms won't be quite as impressive if you can't stay in time, especially when jamming with other musicians. A good way to sneak some practice in is to tap out beats while watching TV or movies, playing along to the soundtracks or freestyling using your DAW's metronome during dull scenes. If your pad controller incorporates transport functions, set up the metronome or sequence a click track so that turning on the metronome is easy to do.

Considered imperfection

While the ability to capture subtle performance imperfections is one of the main advantages of playing drums rather than programming them, that doesn't mean you shouldn't edit the MIDI data a little after recording. One problem that crops up fairly frequently is that of recordings being slightly out of time. This is easy to rectify if you've only recorded one or two bars, but a little more involved if you've recorded the drums for your entire track in one go. If you don't feel like trying again, your DAW's MIDI stretching or retiming functions can be used to fix it. You could also try to correct such errors by hand or through quantising, but you risk losing some of the organic character of your groove.

After recording, you might notice that some notes are at strange velocities or are missing altogether. This will most likely be the hi-hats, as you'll have been tapping them out while doing other things with the same hand, which can easily result in underplayed or missed notes. Paint in missing notes and adjust the velocities until everything sounds right. The ability to fine-tune the inherent 'humanity' of your beats is a great advantage of all these techniques, so make good use of it by adjusting the groove with your DAW's snap function turned off.

With any errant timing and velocities sorted out, the only other thing holding back a high level of realism (assuming that's what you're after) is often the drum sounds themselves. A drum kit is a dynamic and expressive instrument,



Native Instruments' Maschine combines hardware and software in a finger drummer's dream setup

and its timbre changes depending on how and where each stroke lands. In your sampled drum kit, velocity shouldn't just mean volume. Ghost notes of a lower velocity sound much more realistic when they trigger softer-sounding samples than the ones triggered by your more full-on hits, so make sure your drums are fully multisampled. Multiple samples in the higher velocities are also important to avoid the synthetic sound of the exact same drum sample being triggered over and over again.

Get your gloves on

So far we've discussed percussion controllers with the full complement of 16 pads, but all of these techniques can of course be applied to the

smaller controllers that have started to appear on the market. The drumming we've looked at generally only uses four or five pads at one time, so you should still be covered for more petite units. The mapping of other drum sounds to the pads either side of the main four will require a bit of thought, but the main thing is to make sure you can play your rhythms without having to contort your hands.

Some pad controllers enable tempo-synced retriggering of sounds when the pad is held down. This can make playing hi-hats much easier but, like most auto-play features, will always detract from that often-desirable human feel. If you're playing drum machine-style sounds, this kind of feature might well be worth using, but if you're aiming for human realism, playing the hi-hats discretely will probably be the best-sounding option.

Just as you would with any MIDI recording, make sure you have the lowest latency possible when you're drumming with your fingers. While it's impossible to shave off every last millisecond of lag, with a properly configured audio driver you should be able to bring it down to the point where there's no perceivable delay between striking the pad and hearing the sound. Anything below 10 milliseconds should be fine.

If you really get into the noble art of finger drumming, your fingers are going to see a lot of high-impact action, so do consider the health and comfort of those digits. Any kind of injury or infection, especially around the nail, will make blasting out beats particularly painful, so try to take care of them as best you can. Depending on your circulatory system and local climate, cold hands might also be a source of discomfort when sitting down in front of the pads, so, for the sake of your beats, warm 'em up before you get started if it's a bit chilly out. **cm**



Akai started the finger drumming ball rolling, and they still make some of the best MIDI pad controllers on the market

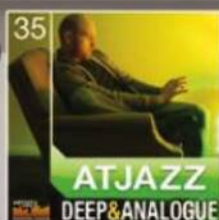
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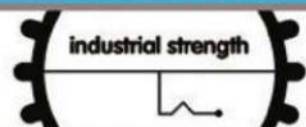
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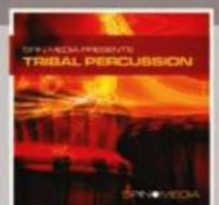
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More fun in the sun

Get your tracks off the ground in Part 2 of our guide to the multi-platform SunVox tracker



> After last issue's look at some SunVox basics, we're ready to step things up a gear with the multi-platform modular tracker. Let's look at pattern sequencing and ways of automating synth machine parameters.

Before we start, it's important to know what is represented in a single line of a track in SunVox. The first two digits (initially represented by two dots) are for the notes themselves, where **D4** is a D at the fourth octave and **d4** (lower case) represents a D sharp. The next two digits - which run from 00 to 80 in hex and are shown as a blank

space if no data is present - are for the note velocity. The two digits following this (also blank if no data is present) represent the synth number that the notes will trigger. Each synth in the Synths area has a number above it, so you can see at a glance which instrument this number relates to. It's editable, so if you're unhappy that a melody is being played by Synth 01, you can easily change it to Synth 08 by changing the number.

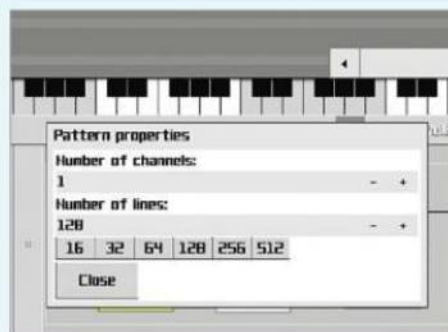
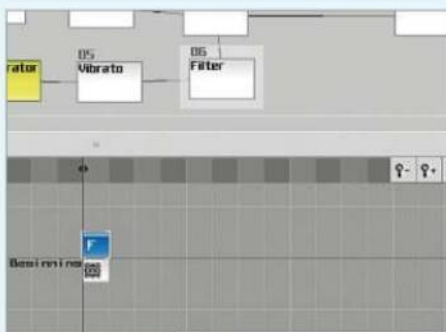
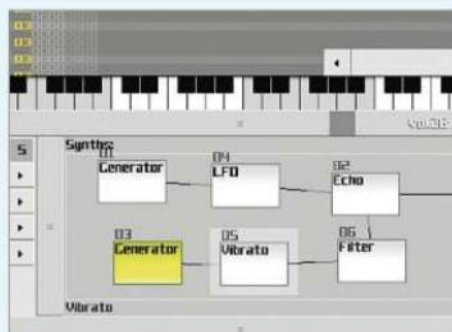
Moving on, the first two of four light grey digits refer to the synth parameter controllers, while the second two are for standard tracker

commands. Finally, the dark grey digits at the end are the absolute values associated either with the synth parameter or the tracker command.

There are many ways of inputting these absolute values. Each hex value can be entered individually, or you can enter two values any number of spaces apart and interpolate between them to fill in the blanks. Better still is the option to choose **Hide/show levels** from the **Pattern** menu and, while in Edit mode, simply draw the values in with the mouse (or by touch on a mobile device).

>Step by step

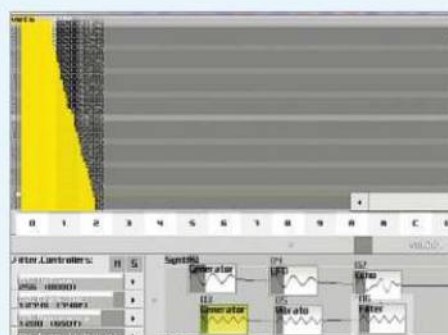
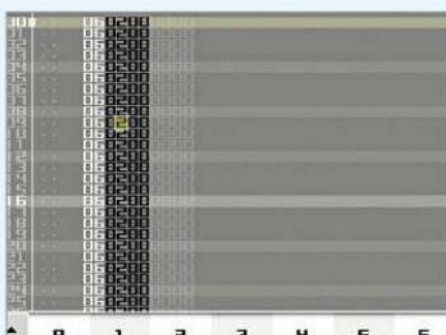
Move beyond the basics in SunVox



1 > Break the connection between the Vibrato and Echo effects by holding the **Shift** key and dragging a line between the two machines (or by using the **Link** button). Now click on the **Synth** menu, choose **New Synth** and bring in a Filter. Finally, connect the Vibrato to the Filter and the Filter to the Echo. (File on the DVD: **CM_trackers_tutorial_29f**.)

2 > Click the **Timeline** menu and make a **New pattern** for the Filter. By default, SunVox places the new pattern directly on top of our existing one. Drag it above or below the existing pattern, then click its symbol at the bottom right corner of the Pattern window to change the colour and look of it. We've drawn an **F** for Filter. (File: **CM_trackers_tutorial_30a**.)

3 > Click the new **F** pattern in the Timeline window to make its pattern data appear in the Pattern window. Click the **Pattern** menu, choose **Pattern properties** and change the **Number of lines** to **128**. Note that the F pattern is now four times longer than the original shown in the Timeline window. (File: **CM_trackers_tutorial_30b**.)



4 > We need to repeat our original pattern so that it runs for as long as the new one. Click the original pattern and select **Clone pattern(s)** from the **Timeline** menu to create a clone. Drag a box around both of them and clone again to give a total of four. The copies are lighter in colour and, when clicked, reveal an arced line to the original. (File: **CM_trackers_tutorial_30c**.)

5 > Click the **F** pattern and press the **Spacebar** (or tap the **Record** dot at the top of the screen) to enter Edit mode. Enter a column of **06s** (the Filter number) in the synth number area (as explained above) and a column of **02s** on the next two digits. This is the parameter controller number, in this case Filter Cutoff frequency. (File: **CM_trackers_tutorial_30d**.)

6 > Next, enter the Filter Cutoff automation using one of the methods discussed above. Make sure the final data value is similar to the starting one, so that when the pattern loops, it does so smoothly. Manually alter the Filter's **Resonance** setting to suit. On playback, you should see the **Filter Cutoff** bar move. Files: **CM_trackers_tutorial_30e** and **30f**.cm

Colourful melodies

No note is off-limits when you're writing a tune – as long as you know how to use appoggiaturas and auxiliaries...

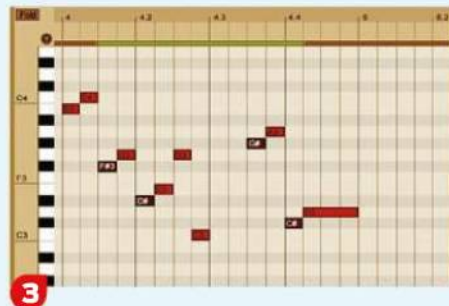


> Last issue we looked at the idea of including the occasional out-of-key note above a diatonic sequence. These notes are traditionally thought of as “colouring” the scale, and are called chromatic. Now we're going to open the floodgates of colour and make the rather bold statement that, handled sensitively, any of the 12 semitones can be used over any scale!

All of the scales that we've been discussing recently contain seven notes. That means that for any scale, five of the 12 semitones aren't used. Fig 1 shows all 12 semitones, with those not used in the scale of C major highlighted. The seven notes that make up the basic scale (eight counting the octave) are the diatonic notes; the five in-between notes are the chromatic ones.



1: Sheep and goats: seven diatonic notes and five (highlighted) chromatic ones. 2: Some chromatic passing notes – again, highlighted. But which is the diatonic passing note? 3: Highlighted chromatic appoggiaturas



En passant

The simplest and safest way to use these chromatic notes is to touch on them as a kind of stepping stone between two adjacent diatonic notes. Fig 2 shows the general idea, again using C major as a base. The longer you dwell on the chromatic note, the more tension is created. This is resolved when the melody reaches its target diatonic note. Remember what we said about diatonic “avoid” notes last time? With that in mind, make sure the note you've chosen to end on doesn't clash with the chord beneath it.

Closely related to passing notes are auxiliary notes, which come in two flavours: the diatonic

auxiliary note (where a melody moves away from a safe chord note to an ‘unsafe’ scale note and back to the original note again – think about the first three notes of *London Bridge is Falling Down*) and the chromatic auxiliary (where the tune briefly uses a note not in the scale – think *When I'm 64*). Chromatic auxiliary notes are commonly the semitone below the main note. It's like a passing note that changes its mind and goes back to where it came from. There are more examples in the MIDI file on the cm DVD.

For historical reasons, musicians frequently use Italian words to describe what's going on.

You probably already know forte (loud), piano (quiet), accelerando (accelerating) and a host of others, but we need to learn one more: appoggiatura. This literally means a ‘leaning’ note, which in other words is a dissonant (harsh-sounding) note resolving up or down a step to a more consonant (pleasant-sounding) note. Like auxiliaries, appoggiaturas come in both diatonic and chromatic forms.

Diatonic appoggiaturas start with a non-chord scale note that moves immediately to a chord note (think *Yesterday*, which starts on the second note of the scale over chord I), while chromatic appoggiaturas start with an out-of-key (not out-of-tune!) note that resolves to a diatonic note. Chromatic appoggiaturas tend to rise to a diatonic note rather than fall; you can see a couple of examples in Fig 3, which is extended in the MIDI file.

Let's go outside

More experimental approaches, especially those that are jazz-influenced, make use of the concept of “outside” notes or phrases. These are passages that conflict with the prevailing sense of key, creating a huge amount of tension, but that eventually resolve into the diatonic scale (though not necessarily through means as simple and direct as passing notes). A brief example for you to look over is given in the MIDI file on the cm DVD.

To manage such complexity, you have to be very confident with the basics first. To understand and handle what's outside, you must first be very clear about what's inside! Next time we'll introduce you to (or remind you of) the concept of modal scales. cm

Staff notation special

When it comes to displaying chromaticism, staff notation definitely scores over the piano roll! This is especially so when we use a key signature (the idea of which we introduced a couple of issues ago and will deal with fully very shortly). The first musical illustration below shows Fig 1 in staff notation, with all of the chromatic notes clearly visible as sharps.

The second line is a jazzy phrase using the scale of D, which has a key signature of F# and C# (so that all Fs and Cs are played sharp). Again, the out-of-scale notes are clearly visible because they are marked

with pitch-altering signs. Any pitch-altering sign – sharp flat or natural – that's not in the key signature is called an ‘accidental’, and its effects last for just the bar/measure in which it is used. Notes in the following bars return to those of the key signature.

The ‘natural’ sign here lowers the C# to C. The natural sign's job is to remove any sharp or flat imposed on that note by either the key signature or an earlier accidental – it returns that note to its ‘natural’ pitch. The G sharp can be thought of as a chromatic appoggiatura to the A, but with a delayed resolution caused by the detour to B.



Use non-scale (chromatic) notes to add tension, then resolve it by finishing the phrase on a safe diatonic note

Avant-ifying a techno track



Take techno to the edge of musical sense with rachMiel's guide to pushing your tracks beyond the limitations of conventional genre

rachMiel



rachMiel has spent the better part of a decade studying composition in America and Germany. A recovering atonalist,

his musical influences range from Frank Zappa, Karlheinz Stockhausen and North Indian classical drumming to 60s pop, horror movie soundtracks, avant electronica and, above all, silence.

> Welcome to the second in a six-part series on the joys of creating 'avant' variants of popular electronic-music genres. By avant I mean new, innovative, unconventional, experimental, boundary-thwarting - you get the idea. I kicked things off last issue by avant-ifying downtempo music, and now I'm going to have my way with techno.

The first step in avant-ifying a genre is divining the essence of that genre - getting the deep feel of it in your blood. Full-on exposure - living and breathing the genre's music - is crucial. But it might not be enough. People are often ignorant of the structural underpinnings of their native language. As a creator of avant-genre music, you need to know its underpinnings so that you can effectively avant-ify them.

For this reason I've chosen to use the HAL approach to genre-essence divination: history, attributes, listening. Historical research provides a sense of the genre's ancestry, its stylistic roots. Compiling a list of a genre's characteristic attributes homes in on its musical personality.

And deep listening gets the feel of the genre in your head and body.

Divining techno

The sidebar on this page provides a brief historical sketch of techno music. Here are the salient points. Techno's forebears include 70s electro bands, Euro synth-pop disco and soul/funk. Techno itself arose in Detroit in the early 80s, when the Belleville Three (Saunderson, Atkins, May) used a handful of inexpensive electronic instruments to make technology/soul

hybrid dance music. Techno eventually went international and evolved into a slew of variants: acid, minimal, trance, hardcore, etc.

On to the stylistic attributes of techno. It tends to have: a 4/4 meter; big kicks on every beat; a strong backbeat feel; repetitive, driving dance rhythms; tempo of 125-140bpm; simple basslines; simple melodies; simple harmonies and form; spooky pads and FX; and understated retro sci-fi humour. Techno's key themes? Man and machine; art and technology; futuristic dance music; a celebration of electronic sounds; technofetishism. Bonteburg summed techno up quite tidily in a recent KVR forum posting: "The weirdness of musique concrète, squeezed into a tight 4/4 corset."

If you're a fan of electronic music, chances are you've already heard gobs of techno: classic Detroit and beyond. To fill in the gaps, check out: the Belleville Three (Atkins, Saunderson, May), A Guy Called Gerald, Aphex Twin, DJ Hell, Ken Ishii, LFO, Orbital, Plastikman, Speedy J and Vladislav Delay, to name but a few.

Feeling your way

There is no right or wrong way to make avant-genre music. Avant-ification is in the ear/imagination of the creator. To compose last issue's avant-downtempo example piece, I compiled a list of downtempo's essential attributes, then systematically pushed them beyond their conventional limits. To compose today's avant-techno piece, I worked more by feel. I soaked myself in the sound of techno - mostly the classic pre-90s stuff - then did my (heinous) best to skew the hell out of it! Have a go at both approaches - you may find that one works better for you. As for me - take a listen to both pieces and judge for yourself!

"The first step in avant-ifying a genre is divining the essence of that genre - getting the deep feel of it in your blood"

A thumbnail evolution of techno

Genres, like species, have hazy starting points. The forebears of techno include 70s electro bands like Kraftwerk and Tangerine Dream, Euro synth-pop disco and African-American soul/funk. The term 'techno' was coined in the early 80s by Juan Atkins, who - together with Detroit high-school buddies Derrick May and Kevin Saunderson - took cheap electronic sequencers and synths and used/abused them to make a music that was one part pure

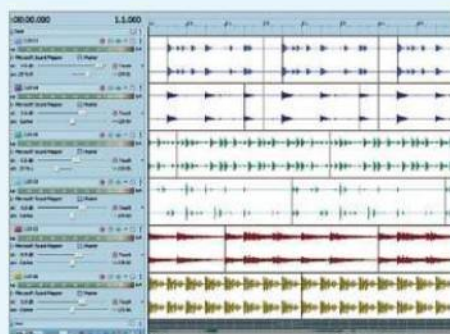
Detroit-automation-line-inspired technology and one part pure black soul.

As befits its name, music technology was key in defining the sound and feel of techno. Classic techno gear included: Roland TR-808/909 drum machines, TB-303 bassline synth/sequencer and SH-101 synth; Korg MS-10/20, Moog Prodigy and Yamaha DX7 synths; and the Akai S900 sampler. Nearly three decades later, most of these instruments

remain highly sought after - a testament to the staying power of the classic techno sound.

By the late 80s, techno was an international phenomenon. Producers grabbed the Detroit sound and ran with it, creating spin-off genres including acid techno, minimal techno, tech house, tech trance, jungle techno, hardcore techno, and dub techno. For many, it's fondly remembered as the soundtrack that launched a thousand all-night raves.

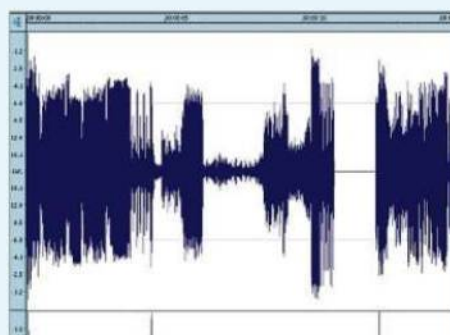
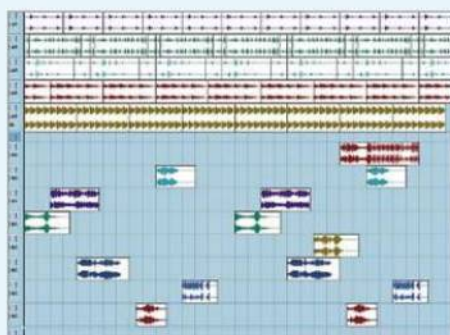
>Step by step Avant-ify techno



1 > My first step in writing this example of avant techno is to create the heart of any techno piece: its beat. I program Reaktor's Massive groovebox to generate a perky 16-bar Detroit-ish groove: heavy kicks on every beat, accented backbeat snares, hi-hat-ish shakers on 16ths, and a catchy foreground synth riff. Here it is (unmastered): **Beat1.wav**.

2 > Next I create three variants of the original beat, ending up with four 16-bar sections. Each is progressively faster: 125, 129, 134, 140bpm. All sections use the same six beat layers, but section 1 is in 4/4, section 2 pits 3/4 (top two layers above) against 4/4 (remaining layers), and sections 3 to 4 pit 3/4 against 4/4 against 5/4. Here are sections 2 to 4: **Beats_2-4.wav**.

3 > I like the beats, but I feel that they would benefit from some foreground material. Voice seems cool - an homage to the vocal soul snippets in Detroit techno. For this I turn to a set of grotesque vocal clips that I created a while back using Florian Erdle's fabulous Reaktor ensemble, listen through them several times, and choose my 11 favourites: **Vocal_clips.wav**.



4 > Next I need to figure out how to arrange my 11 vocal clips over the four beat sections. In keeping with the spirit of Detroit techno, I arrange the clips in repetitive patterns, sync their starting times to downbeats, and increase their density to parallel the beat's increasing tempo/complexity. Here are the four beat sections with vocals: **Beats+vocals.wav**.

5 > I decide to insert short breaks between beat+voice sections to push each successive section one step closer to musical trauma. For this to work, the breaks have to be extreme, even shocking. Fortunately I have a sizable backlog of audio monstrosities for just such an occasion. Here are the four I end up using for breaks: **Breaks.wav**.

6 > On to the final touches. I add an air-raid siren-ish intro to get listeners in a suitably avant mood. I mix down all the sections and stitch them together: intro, beat+vox 1, break 1, beat+vox 2, break 2, beat+vox 3, break 3, beat+vox 4, break 4. Then I use Wave Arts plug-ins to master: equalise, volume-maximise and peak-limit. Here it is: **d'Étroit.wav**.

Experimentalists' corner: Verisimilitude

Good storytellers are masters of verisimilitude: making things feel real. If you're telling a story about a Norwegian fisherman out on the job, it's not enough to present technically accurate information about boats and nets and fjords. You need to make your listeners feel like they're right there: flies on the rail of the trawler, watching Ragnar and his crew fish the churning North Sea.

Verisimilitude plays an important role in genre composition also. Let's say you distilled the genre of folk music down to three essential elements - pitch (melody, harmony), rhythm (beat, duration, form), and voice (song, lyrics) - and then proceeded to avant-ify each element. If you had no concern for verisimilitude, you could end up with something so sonically unrelated to 'folk music' that it would be like a private

joke that only you and perhaps a few select others would understand. This would defeat the purpose of genre avant-ification by turning it into more of an abstract academic exercise than a means of 'commenting on' a specific genre.

The moral of the story: No matter how far out you go in your avant-ification, leave enough of the trappings/feel of the original genre to keep it somewhat recognisable.cm

Synth emulation

In a fit of misty-eyed nostalgia, our resident sound designer demonstrates how to recreate the Polymoog's unique sound



> I write this instalment of *Sound Essentials* the day before I reach the ripe old age of 44. This year also marks another milestone for me: 30 years since my love of synthesisers was first ignited by a brilliant, enigmatic and innovative performer. It was in the summer of 1980 that I tuned in to Gary Numan's performance on a repeat airing of *Saturday Night Live*. Everything about it captivated me: the coldly alienated pose, the phalanx of Minimoogs, the lyrics laced with science fiction and, of course, the sound. The chugging

guitars of punk rock were replaced by Minimoogs and supported by the uncanny siren wail of the Polymoog. There were no flashy guitar solos – heck, there were no guitars at all! This wasn't rock 'n' roll as I had ever known it – and I was hooked.

This issue I'm going to replicate one of the instruments that inspired me to buy my first synthesiser: Moog's legendary near miss, the Polymoog. My first synth was actually incapable of producing anything like a Polymoog sound, but I was so green back then, I had no idea!

So what is the secret to the Polymoog's sound? Well, as with most synthesisers, it's the filter that sets it apart. Unlike the typical low-pass filter of the day, the Polymoog was home to a slider-laden triple band-pass filter. There were three discrete sections to it, each with its own Frequency, Gain and Resonance controls. Add to that the organ-like divide-down technology used in its keyboard and you have a distinctive signal path that's thankfully not too difficult to reproduce with modern plug-ins. Let's have a go at doing just that!

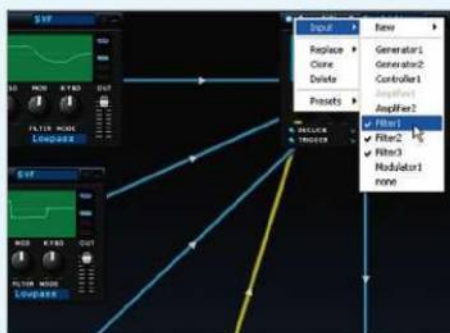
>Step by step Build a Polymoog emulation



1 > We're going to need a modular synthesiser for this exercise – and if you're a long-time reader of *Sound Essentials*, I probably don't need to tell you which one we're going to use. Yup, that's right – it's KarmaFX Synth (karmafx.net), into which I've loaded a patch called **CMBasicPolySynth**.

2 > This is a simple polyphonic analogue instrument that mixes a couple of oscillators and sends them through a filter. The sole ADSR envelope driving the amplitude is the only one we need. We will, however, be needing two more State Variable Filter modules, so right-click in an empty space and call 'em up.

3 > You might need to move modules around to make some room, and also to see where the patch cables go. We need the signal to go through all three filters, but they need to run in parallel, not series. Click the title bars of the two new filters and choose **Amplifier2** as the Input module for each.



4 > You won't hear any effect from the new modules yet: we have to get them to the output. Normally we'd use a mixer or two to balance the levels, but our filters each have their own output volume faders, so that's not necessary. Instead, right-click Amplifier1's title bar and choose each filter as an input. Easy enough!

5 > Our filters are running parallel to one another, but they aren't doing what we need them to do. I chose the SVF filters because I want to make use of their band-pass modes. Change all three filter modes to **Bandpass**. You'll hear the effect immediately: the sound becomes very narrow, losing much of its highs and lows.

6 > Each of the Polymoog's filters addressed a different frequency range: one was for lows, another was for mids and a third was for highs. Let's set each module's **Cutoff** to a different frequency. Filter1 will be in the higher range, so set it to about **46** or so. Filter2 will represent the mids, so put that one at about **26**. Finally set Filter3's **Cutoff** to about **10**.

PRO TIPS

IT ISN'T WORTH IT

Polymoogs rarely turn up in the used market, but when they do, think hard before stumping up the big bucks. They're notoriously flaky, with an astonishing failure rate. The Polymoog has the distinction of being the synth I owned for the shortest amount of time: less than one hour. Why? Because the damned thing would power down after 18 minutes!

RECOMMENDED LISTENING

GARY NUMAN, *THE PLEASURE PRINCIPLE*

The Polymoog is all over this thing, most famously in the ubiquitous hit single *Cars*, which has been remixed and resampled countless times.

JOHN FOXX, *METAMATIC*

This electronic tour de force features lots of Polymoog sounds in action. It's a veritable showcase of classic synths and what creative musicians can do with them.

BUSTING JARGON

DIVIDE-DOWN TECHNOLOGY

True polyphony requires a complete voice architecture for every available note, but this was prohibitively expensive in the 70s. To get around the problem, the Polymoog took its cue from organ technology. It created its polyphony by routing a master oscillator through a bunch of octave dividers. The results were then split through a common signal path of filters, envelopes and so on. It was a cheap shot at the time, but today we can better appreciate it for what it is.

BAND-PASS FILTER

Most of us are familiar with the concept of low-pass filtering, which is where frequencies higher than the established cutoff point are filtered out of the signal. Band-pass filtering does exactly what its name implies: it allows a desired range of frequencies to pass through it, while filtering out all of those frequencies outside of it (so both above and below the cutoff). By piling three band-passes together, the Polymoog provides a flexible yet unusual filter.

Scot Solida



Scot bought his first synth over a quarter of a century ago.

A synthesist, sound designer and audio engineer of international repute, he's provided factory presets for many of the music software industry's most

acclaimed synths, samplers and drum machines, not to mention the **cm** Studio. On rare occasions, he manages to find time to make records for Beta-lactam Ring Records under the name Christus and the Cosmonauts.



7 > One of the hallmarks of the Polymoog sound was its vocal quality. This is quite apparent in the string sounds that became Gary Numan's signature. As the advanced among you have guessed, we can achieve something of a vocal effect by adjusting the resonances of each filter. Set Filter1's **Reso** knob to **44**. Those of Filter2 and Filter3 should be up around **75**.



8 > Let's turn our attention to the oscillators. As you can see, I've selected a sawtooth for Generator1 and a square wave for Generator2. I've set the pulse width (**PW**) for the latter to around **-21**. You can go even narrower if you wish. Let's modulate that pulse width to add some life to the sound. Right-click in an empty area to add an LFO module.



9 > Next, right-click on Generator2's **PW** knob and select **Modulator2** as the input module. Returning to Modulator2 (our LFO), turn the **Rate** knob up quite high - we've gone for somewhere around **84**. However, we're only going to give the **Amount** knob the slightest of nudges, pushing it up to a barely audible value of between **5** and **13**.



10 > We're not finished with our modulation quite yet. Let's add two more LFOs. This time, we'll assign **Modulator3** to modulate the **Freq** knob of Generator1, and **Modulator4** to the **Freq** knob of Generator2. It's time to tweak the settings: put the **Rate** of Modulator3 to **2** and the **Amount** to **4**. Next, set the **Rate** of Modulator4 to **6** and the **Amount** to **3**.



11 > We should now have a nice, thick patch. We can thicken it even further by slightly detuning the oscillators from one another. Set the **Freq** knob of one oscillator to **-4** cents and the other to **+4** cents (the cent values are in parentheses - don't confuse them with the numerical values). Play some notes - that's a seriously syrupy sound!



12 > Finally, let's add the last, crucial layer of swirl: a chorus effect. Right-click in an empty area and add the Chorus module. I've connected mine in parallel with the Controller module and routed it to the Output. Tweak Chorus' controls to taste and there you have it: a pretty convincing Polymoog-style circuit. If you need me, I'll be praying to the aliens!**cm**

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Hands-on with OHM FORCE OHM STUDIO

Do many hands really make light work?
We take an exclusive first look at Ohm Force's
revolutionary new collaborative DAW to find out...

> We've been enjoying the fruits of Ohm Force's labours for almost as long as we've been using plug-ins. Crazy signal processing gems like Quad Frohmagex still delight, the GMedia collaborations Minimonsta and Oddity have graced more of our tracks than we could possibly count, Ohmygod! remains a staple part of the cm Studio, and sound-mangling demons like Predatohm constantly find new and ever more impressive ways to crunch our signals.

Now Ohm Force are about to take things up a significant number of notches as they prepare to produce what we believe is the world's first fully featured, self-contained online collaborative DAW. Many have dabbled, none have truly succeeded, but secretly all sequencer developers know that real and effective online collaboration is, if not quite the modern holy grail of music making, certainly some sort of revolution waiting to happen. Oh, and did we mention that it will enable Mac and PC users to collaborate on the same project in real-time, too?

Top-secret software

In early August, at the invitation of Ohm Force, we headed off to Paris for an exclusive preview of Ohm Studio. You might be wondering why we had to go to all the way to France to see an online collaborative program. The reason is that Ohm Studio is still in development, so it's not allowed 'out of the building', as it were. This has been top-secret stuff throughout its development, and we're officially the first people outside Ohm Force to see the latest early alpha version. We spent a whole day trying it out, on both a solo project and a collaboration, and it's no understatement to say that we're absurdly excited. Let's take a tour...

Under the hood

Ohm Studio has been built by Ohm Force from the ground up, so it eschews some dearly held sequencer paradigms – but not for the sake of it.

The first thing you see when you run the locally stored app is an account log-in screen – Ohm Studio is completely web-dependent. Now, before you recoil in horror at the very thought, the fact is that the vast majority of computer musicians these days have their broadband connections running constantly, and the entire Ohm Studio paradigm is based on this. It would be difficult to make a collaborative DAW without taking it online, after all!

Once you're logged in, you get access to your Community homepage, which includes account settings, projects, friends, collaborator lists and a search function for finding other people's projects to work on. It's essentially a central hub, from which you can manage your projects and interactions.

Starting a new session is easy: you simply give it a name and, if you like, a description and tags for genre and mood. You also set privacy settings, specifying who can see the project and invite specific people to join in.

With the new session open, you're greeted by a refreshingly simple interface. The top half of the screen comprises a large, open space that houses devices. Unlike most DAWs, in which devices and channels are intrinsically linked and appear as such, the core idea in Ohm Studio is that they're 'soft routed' to each other. This means you can freely reroute plug-ins – instruments and effects – at any point, as you like.

Breaking the mould

In the bottom half of the screen we find the sequencer and part editor section. On one level, this is reminiscent of Propellerhead Reason – in that both piano roll editors and clip sequencing are in the same area – but in Ohm Studio you can have more than one piano roll editor open at the same time, which is useful for many reasons. A sequencer track can also send notes to multiple synths, and – like Cockos Reaper and Magix Samplitude – you can even house MIDI parts and audio regions on the same track.

One of the things that struck us hardest during our time with Ohm Studio was how good it is to see a sequencer that's torn up the rule book and only salvaged those pages of most use. Another example of this type of thinking is the piano roll editor, which can be flipped

sideways, so that the keys run along the top – exactly where anybody who plays the piano would expect them to be – potentially the entering of note information more intuitive. And automation data is overlaid onto the MIDI note display, so you can see both at the same time, rather than wasting screen real-estate on a separate automation lane.

Of course, some of Ohm Studio's new takes on old ideas are driven by its underlying online collaborative ethos. For example, running through the centre of the screen are the overview bars for the sequencer and devices windows, but unlike in other DAWs, each one has more than one square showing the currently

zoomed/displayed region. To find out why, let's take a look at Ohm Studio in action...

Working with friends

After inviting a friend to join a session, the first thing you notice is that you each have local and independent control of all transport functions. This is a critical feature, and one that's been the Achilles' heel of other online systems. Ohm Studio isn't designed for online jamming, so it doesn't need to worry about whether or not you're perfectly synced to the millisecond – meaning that playback is always smooth and under the total local control of each participant in a session.



Ohm Studio is full of supremely practical touches, like the soft-routed instruments and effects, and the flipped-sideways piano roll editor. Genius!

Stream if you wanna go faster

File transfer speeds are obviously a very significant consideration in the whole Ohm Studio system, and with long 24-bit recordings, you could easily be looking at uploads and downloads of 100MB or more. To keep your sessions flowing, the transfer of files needs to be really, really fast.

Ohm Force recognise this and have come up with a rather clever solution: all large files are uploaded in three qualities (using Ogg Vorbis algorithms). The first two are fairly low quality, so that they can upload from

your machine and download onto everyone else's very quickly; then, while you continue working, the larger, losslessly compressed file is synced in the background.

Having seen the system in action, we can confirm that what sounds good in theory turns out to be even better in reality. We threw an 80MB vocal into our test project: within less than a second, the region was visible on our collaborator's machine; and before the Ohm Force developer had finished explaining what was going to happen, the

other computer was playing back the lowest quality version. By the time we'd finished marvelling at the speed of it all and asked a couple of questions, the full 80MB file was happily playing back on both machines. This was a real-world online test, with all data going from Paris to a US-hosted server and back to Paris again.

It's very impressive stuff, and we foresee no problems with transfer speeds hampering productivity – provided you have a decent broadband connection, of course.

> Step by step

Create a channel and MIDI part



1 > To get started, we drag a VST instrument from the Devices list into the Device area to load it, and double-click it to open the GUI. Then add a track and assign it to the instrument from the list of recording sources. To add compression, say, simply drag your compressor plug-in onto the synth in the Devices section.



2 > In the sequencer, we engage **Snap**, use the modifier key to switch to Draw mode and draw in our first part. We add automation by opening the **Inspector** bar to the right, selecting **Automation** » **Add** and choosing a parameter. The automation then appears over the MIDI notes and can be edited manually.



3 > Finally, we add more plug-ins to the channel by simply dragging them into the Device rack. The synth will always be first, but you can reorder the effects at any time, simply by dragging them up or down the list. This really is one of the best insert effect-routing implementations we've ever seen.

So, the idea is simply that two or more people work on the same project at the same time, with everything you do on your screen replicated almost immediately on everyone else's. This is made possible by way of some very fast servers, driven by Amazon's AWS technology. And it really works. Draw in some MIDI notes and they appear pretty much instantly on all collaborating machines. Drop in a small audio file, move a region, load a plug-in – it all syncs at impressive speed. And when designing the user interface, Ohm Force have kept the online collaboration side of things very much in mind. When you delete a region, for example, it doesn't simply disappear, but rather flips up and pops out of sight, with an animation that your collaborators won't be able to miss.

So, what's the deal with those additional boxes in the overview window? Each one represents a currently active user and simply shows you what it is they're up to. So, you might be editing the plug-ins on a vocal line while somebody else is tweaking the sound of the kick drum and yet another person is playing with the

We are the world

Anybody who's ever tried to collaborate on a project or work on one project across multiple machines knows that the two main stumbling blocks are missing files and unavailable plug-ins. The first of these potential snags simply can't happen with Ohm Studio, but the second one is a biggie, and can only be all the more acute when you're working with a partner in real-time. As you'd expect, Ohm Force have spent a long time thinking about how to get around it and exploring a range of different options.

The most obvious, and one that they plan to include, is local rendering of plug-in output to audio files ('freezing'), which are then transferred to all collaborators. If the sound file-sharing system already in place is anything to go by then this should work very well indeed.

Another option, however, is to strike deals with various plug-in developers, whereby you can either rent effects and instruments on a per-day/week or per-project basis. This is a great idea, but Ohm Force are trying to go one further: they hope to get developers to facilitate the use of playback-only versions of plug-ins. These would enable you to hear what your collaborator has come up with, but wouldn't let you edit it yourself.

Of course, the uptake of this idea is dependent on lots of third-party developers realising the benefits to them and their customers – but in an industry that's already produced numerous enduring and almost universally adopted standards (MIDI, VST, ReWire, ASIO, etc), it doesn't take a huge leap of the imagination to see this as at least a possibility. Fingers crossed!



The Devices list includes a handy search function, so you can jump straight to any plug-in

notes of a section of bassline – through these windows, all three of you will be constantly aware of who's doing what. And remember, all of this is going on at the same time, in real time.

While distant online collaboration is the big story here, some rather interesting possibilities are opened up for people working in the same location, too. How often have you wished you and your local collaborator could work on the same project at the same time in your studio, rather than taking turns with the mouse and keyboard? With Ohm Studio, you'll be able to do just that, potentially saving huge amounts of time and adding a whole new level of 'parallel' collaboration to your previously 'linear' sessions.

Fast file sharing

Ohm Studio is still very much in the Alpha stage of development, so we haven't yet seen the mixer or the online chat facility, which will appear as a pop-up tab from within the main GUI. The plan with the latter is that you'll be able to highlight sections of the track in order

> Step by step Trigger multiple synths from one track



1 > Ohm Studio lets you independently trigger two or more synths from one track – so you could, for example, have one note on a track play a different synth to all the rest. We start by adding a Minimonsa synth, creating a track and MIDI part and drawing in some notes. We loop the track over this section and find a patch we like.



2 > Next we add an Oddity synth to the project. Back in the sequencer, we remove the section we want to replace with our Oddity part, click the Oddity synth and draw in a new MIDI part. We then add the missing notes to this part. On playing back the loop, the riff is now split between the two synths.



3 > With the two synths playing what amounts to one riff, we probably want them to share the same effects processing. To make this happen, we simply add the first of our effects plug-ins to the Device panel, then route both synths to its input. No need for grouping, submixing or splitting/merging!

to draw other people's attention to them. It's a similar idea to SoundCloud's excellent track notes feature.

A great thing about everything being stored online is that you don't need to worry about losing files or your machine crashing. You'll always be able to recover your project, and Ohm Force are implementing a snapshot system that should enable you to revisit any previous version you like.

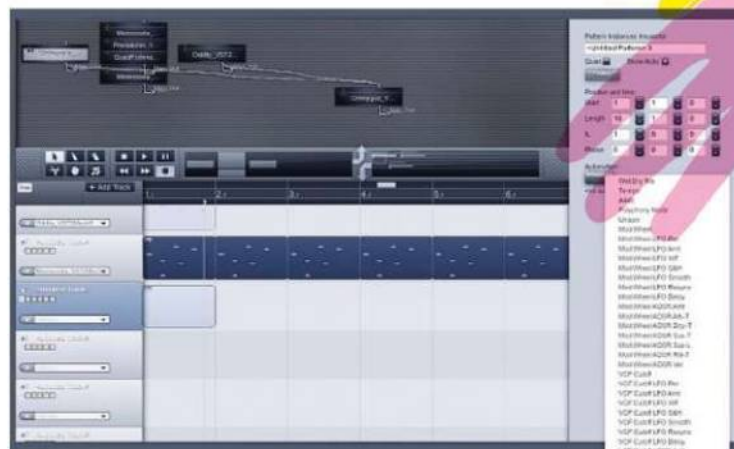
Even at this early stage in development, Ohm Studio is shaping up brilliantly. Disregarding the inevitable alpha version bugs and stability issues, the core designs and workflows are already very versatile, highly intuitive and incredibly smooth

"Ohm Studio has the potential to be a game-changer for the industry as a whole"

visually, all of which effectively takes your mind off the occasional hassle of waiting a few seconds for a file to appear on your partner's screen. It just feels like waiting for a computer to update a waveform display – nothing more.

It's really no exaggeration to say that Ohm Studio has the potential to be a game-changer for the music software industry as a whole. There's still a long way to go, but so far those Ohm boys certainly seem to have the right idea, and with the promise of very regular feature updates, it has the potential to grow and grow once the seeds have been sown.

We'll be impatiently counting the days until we can get our hands on the beta version, which is expected some time around October. We'd encourage everyone to sign up to the beta test program now at www.ohmstudio.com, as the more people get involved with Ohm Studio, the better it will be. Anybody and everybody who ever makes music with other people simply must check it out. **cm**



The Inspector bar to the right offers access to region details and functions like automation

An ever-expanding universe

Most DAWs receive a major update every year or two, but Ohm Force have something rather different in mind. Genuinely new DAWs don't come along very often, and the first version always has to strike a balance between features and stability. With Ohm Studio, Ohm Force have elected to concentrate on core features, making them as well-thought out and rock solid as possible. A glance around their offices reveals huge whiteboards covered in long wishlists of Ohm Studio features and ideas – some old, some new, some unique, some standard and all adding up to more than enough to fuel development for a few years.

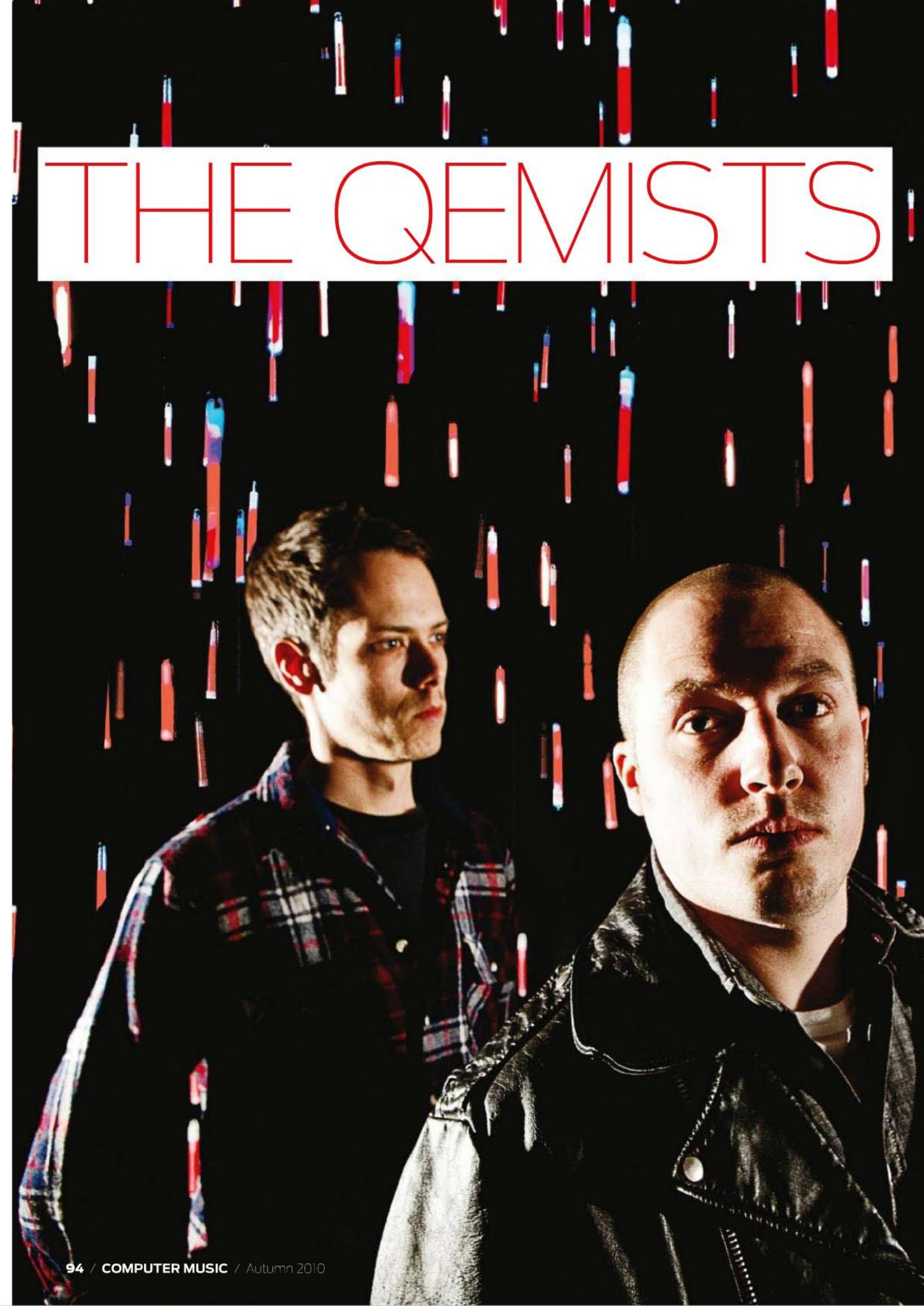
However, Ohm Force don't plan on making Ohm Studio users adhere to an annual or biannual timetable of version updates. Instead, they're planning a regular and frequent (every couple of months is the aim) roll-out of smaller feature updates. They can do this because you subscribe to Ohm Studio rather than buying it, paying a monthly or annual fee for your account, which includes all updates to the app.

This could all be quite revolutionary. Time will tell how successful Ohm Force's radical approach to software development and distribution turns out to be, but we applaud them for breaking the mould and trying it.

The constant release of new features means that we might not get the same sense of anticipation that we do for major Reason, Cubase or Sonar updates, but instead we'll get each new feature long before we would via a conventional upgrade path. And with a focus on smaller updates, the idea is that Ohm Force will be able to devote more time to making sure each new feature works as well as possible. One side-effect is that users won't have to spend days training themselves in a plethora of new techniques, rather than getting on with music making. We'll be able to enjoy each new feature one at a time, reading the notes about it in a coffee break.

It's an intriguing concept, and as other developers inevitably start incorporating online collaboration into their DAWs, it's vaguely conceivable that the future of music software could be subscription-based.

THE QEMISTS



This high-energy, rock-influenced drum 'n' bass outfit talk old software, new attitudes and why it's a good thing for DnB producers to embrace other genres

> Where to start with The Qemists? Rising stars of the drum 'n' bass world is probably the most suitable moniker. But spearheading frantic breakbeat-fuelled dancefloor madness wasn't always the direction the Brighton-Based production outfit were destined to take...

Over a decade ago, Dan Arnold (bass), Liam Black (guitar) and Leon Harris (drums) were carving themselves a name on the UK and European live circuit as a rock band. Yet a shared interest in drum 'n' bass saw them putting together tracks in their spare time. That shared interest became more and more important, with their track *Stompbox* scoring massively in the world of videogame music and even making it onto the soundtrack of 2008 sci-fi flick *Jumper*.

Now signed to Ninja Tune, their debut release – a remix of *Everything Is Under Control* by label owners Coldcut – was picked up by Zane Lowe, Pendulum and devotees of relentless, jump-up drum 'n' bass everywhere, and The Qemists are jumping from strength to strength, their fusion of rock and DnB winning them support the world over.

August 2010 saw them release their second long-player, *Spirit In The System*, a turbocharged assault aimed squarely at the dancefloor. There are no downbeat fillers or introspective meanderings here – just light the fuse and step well back. When we caught up with them, the Qemists were meticulously planning their forthcoming headline tour and already making plans for their next album...

cm Great second album, guys – and now preparations are underway to take it out on tour...

Liam "Yeah. It's been a real test for us, equipment-wise! Every single day we have a conversation and end up binning a bit of equipment to make the live setup more compact."

Leon "Doing it live, we take on some roles that some people might use a computer for, in that we actually play the music ourselves – at least in terms of the drums and the guitar. It's good to have that live element. But then that's how we compose as well! After that, our studio gets scaled down and we pretty much do everything in software."

cm So what does the studio setup consist of at the moment? What do you need to get The Qemists sound?

Leon "Speakers, primarily. Very important! They're placed very strategically! We spend half a day adjusting them to get the flattest response possible from the listening position before starting work. Then we move the other pair in between them and adjust them again to get the response right. To do that we take our best mic, put it in the listening position and then analyse the signal. That's always really worth doing. Once you know how to use an analyser properly, it can help with all sorts of problems – even with preparing the live show. We're taking the individual parts of the live show, running them through an analyser and trying to get the same response that we would get when we're mixing a track, but for a sound system. We're making sure that each part is not too harsh, not too dull – the sub is going to carry right to the back of the room. And the only way that we know how to do that is to look at the levels on a spectrum analyser."

Dan "We're PC-based in the studio, although we use a MacBook Pro for the live show. We've got two Rain Recording PCs, purely because we've grown up with PCs. Every time we upgrade, we have a month-long debate about whether to switch to Mac or not. And we don't. So at the minute we're on PC, and it's basically a workhorse to run Cubase and Ableton."

Leon "But we couldn't live without the [TC Electronic] PowerCore and the [Focusrite] LiquidMix over there. We find that they're the highest-quality effects that you can get."

Liam "We've also got the ISA430 Producer Pack, which is just amazing. That's our front-end. Everything goes through that. A Neumann plugged in to that is just amazing. But as much as we are a software-based studio, when it comes to recording and tracking stuff, there's just no replacement for a really high-end piece of hardware. The guitar we use, for example, is a very high quality and expensive instrument, and you can't replace it – that's what you need to have."

It's all about the Qemistry: Dan Arnold (left), Liam Black (centre) and Leon Harris (right)

Live drums for the live show...

Leon "We use a live analogue drum kit miked up with triggers on every drum. BFD connected to a V-Drum kit is something we used a lot on the album - I play things and we go from there, layered with live drum recording. That's how we did it in the studio, but it's not a good idea to take a laptop running something as huge as BFD 2 on stage! To give it that dance sound we're using the triggers on the kit connected to an MPC. The MPC has high-quality converters, six outputs and is very reliable.

"I want to be able to play the snare, so we've got velocity-layered snare drums. At the lowest velocity they don't trigger, so the ghost notes are coming off the snare live. That's then mixed with the sound, so we can get this big analogue drum kit 'live rock band' sound.

"We can run MIDI timecode out of the laptop to tell the MPC when to effect, when to filter, when to filter down and what drums to do it on. We can create the drum rises like we do on the album live in front of your very eyes! When mixed out front it comes out sounding like a record. That's one of the things that I'm most pleased about with this live show."

Leon "Having said that, recording with Avid's Eleven Rack gives us better results than recording with a Mesa Boogie amp. It's the first piece of equipment we've tried that can boast that accolade."

cm You've tried other options, presumably.

Leon "We've tried everything! There's Amplitube and Guitar Rig, which we use extensively. But one time we recorded with Enter Shikari, we had the Boogie miked up with a Neumann, a Royer and a [Shure] SM57. We had the Eleven Rack running through as well, and we had a clean signal that we could then apply Guitar Rig or Amplitube to. And we kept mixing and balancing, mixing and balancing... Bit by bit,

"Dubstep has pushed things forward. DnB is diversifying, and people are in different camps about it"

everything got turned down and turned down until there was just the Eleven Rack left."

Liam "It's the first piece of gear that I've used where it feels like you're really plugged into an amp. Unless you're actually playing it you can't really understand it, but it just feels like there's this connection. With everything else I've used, it's felt like you're not quite in sync. The little nuances, the little things, they just don't get expressed - but the Eleven Rack does it all."

Leon "In fact, we like it so much that we're going to give one away. We're running a competition to remix our track *Take it Back*, which features Enter Shikari, and the prize is an Eleven Rack. Not our Eleven Rack, though! Avid have offered



The Qemists' gear

Dynaudio M1.5 monitors

Dynaudio BM6A monitors

Genelec 1030A monitors

Mackie Big Knob!

MOTU Traveller soundcard

2x Rain Recording PCs

2x TC Electronic Powercore FW

2x Focusrite Liquid Mix

Focusrite ISA430 Producer Pack

Neumann TLM49

Steinberg Cubase 5

Ableton Live 8

Access Virus PowerCore

NI Massive

to donate one. They gave us one to try and we said, 'You're never getting this back'. And we liked it so much that we asked them if they could give one away as a competition prize. And they said yes." (See opposite for details.)

cm So you're using Cubase as a hub.

Dan "We started off using Logic, and we were all using that on our PCs until the fateful day that Apple announced they wouldn't be supporting PC any more. At that point we had just bought a new PC, so we decided to try Cubase, and we haven't really looked back."

Liam "The one thing that nearly made us switch to Logic on a Mac was bouncing tracks out for stemming and stuff. In Cubase we have to do it track by track, which is mental."

Dan "Yeah, we still have that problem and I've been meaning to write to Steinberg about it. When you export audio, you can do your stereo output, or you can select channels or groups. However, for our routing, it doesn't quite work right. If I want to, say, output the entire contents of a certain folder, it can't do that."

Leon "I don't think you could pressure-test a piece of software for the studio more than we do. I don't know how many vocalists we've got on the new album but it's a lot. Sometimes we collaborate with a group of musicians or a whole band, as well as just vocalists, so we'll get someone down for a day, write the track there, and then edit it, play it back to them how we think it's gonna be, chop it up... I don't think you could find a situation that is more flexible or potentially rushed than that. And Cubase works, so we wouldn't really want to change that. In terms of writing quickly, we prefer to use Ableton Live, but for the recording studio session stuff we go with Cubase."

cm As you say, there are a lot of vocalists on the album. Tell us what kind of vocal processing you use.

Leon "We've done a lot of ReWiring into Melodyne. We love Melodyne! It allows us to tune vocals as well as do things that are more

unusual. Say we wrote a track in one key because of the guitar and then we realised that the sub didn't hit right - we can change the key of the whole track. And yes, you can do that using Ableton, but when it comes to vocals, that's where Melodyne comes in."

Liam "It's worth mentioning that the next single, *Renegade* - which has Grime MC Maxsta on it - the whole hook, the chorus of this record, is made from Melodyne. It's something that Leon was messing around with and kinda turned into this sung chorus that didn't exist before..."

Leon "When we slowed it down, it had this really cool delivery and everyone really liked it. I don't know what Maxsta thinks about that chorus, I haven't spoken to him about the Melodyne section yet. I know he's a fan of Lil Wayne, but we also discussed our mutual hatred of the autotune thing and how everyone's doing it."

cm What other software are you using?

Dan "A lot of it is TC's PowerCore. We use the Access Virus on that quite a lot. That's our most widely used synth. And NI's Massive as well. They're our top two..."

Leon "The thing about those two is that they have their own sound. They don't sound like software. The Virus, I think, was one of the first synths to have this sub-oscillator that's always there providing an octave down, so every preset is quite fat. And Massive is so flexible and has so many options that you can create that 'analogue' fatness in any sound."

Dan "With both synths, you can get workable sounds really quickly. They're not the kind of synths that you have to spend hours and hours tweaking. And like you say, the Virus just sounds so good, especially with the analogue boost that acts like a warmth control."

Liam "The other thing that's essential to our sound is Spectrasonics Trilogy. It's another old piece of software but there isn't anything else that does what that does. We use that a lot."

Dan "We wanted to record bass, and Trilogy works really well for that. Once you get used to programming it, it's quite flexible in terms of

the velocities and slides, and the articulation of the playing."

Liam "Because it's quite old, many producers don't know about it. But it's still up there for us!"

Dan "It is really old - I'm not even sure if you can automate it. But it just does what it says on the tin. It's got loads of sounds, a filter, a very basic pitch mod and an LFO and... it just works!"

cm What's the state of DnB these days?

Dan "I feel like it's crossing into other things. A lot of DnB producers are starting to make other sounds as well - dubstep and house - and play that in their sets too. That's something that we've been doing a lot more - cross-genre stuff."

Leon "I really like the stuff that dubstep borrows from DnB, so for me dubstep has pushed things forward in a way. I love what Chase and Status did with their last album. That's the really interesting crossover side of the genre. Drum 'n' bass is diversifying and people are going into different camps about it. I'm not sure there's any need to be so genre-specific about everything..."

Liam "The pioneering producers of the scene - Chase and Status, Pendulum, Noisia, Sub Focus - have all gone to a different level, professionally. Pendulum are the obvious ones, but Chase and Status producing tracks for Rihanna, Jay-Z... they've taken the production skills that you learn in such a complex style of music and spread their wings into producing stuff for other people. It's nice to see the top end of the DnB spectrum being able to compete on a highly professional level. There's always going to be people within the scene who say, 'You've sold out, you shouldn't have done that', but from our perspective, that's not really what it's about."

Dan "For 20 years DnB has stuck its head in and out of the underground, the overground, commerciality. I don't know how it does it - it just lurks about the whole time ready to bite you!"

Leon "It's not DnB's fault that people like it, then hate it again. DnB is just doing its thing, man!"

Fancy winning an Eleven Rack?

The Qemists are pleased to announce a competition that enables budding music producers to have a go at remixing their upcoming single *Take It Back*.

Take It Back combines the group's trademark hybrid of drum 'n' bass, rock, dubstep and techno with the vocals and guitar riffs of their recent tour-mates Enter Shikari. The result is a riot-starting thrash-jungle anthem ripe for creative remixing.

The competition will be running in conjunction with music production portal Indabamusic (www.indabamusic.com) and audio hardware/software manufacturers Avid. The winner will get their hands on an Eleven Rack - a revolutionary new guitar recording and effects processing system worth over £800. Runners-up will also be in with a chance of winning a host of Qemists back catalogue and other goodies.

For details on how to enter the competition visit www.theqemists.com or www.indabamusic.com. The single *Take It Back* will be released in November, while the Qemist's album *Spirit In The System* is out now on Ninja Tune Records. **cm**

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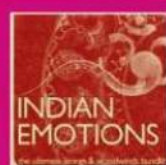
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There are 18 AD effects to keep you busy. These include **Kombinat**, a fearsome tri-band distortion; **Ricochet**, a killer multitap delay; the far-out filter/delay of the devious **Dr. Device**; and bonkers beat-slicer/looper **Replicant**. All of them racked up an exceptional 10/10 review score. Elsewhere, there are the lush **Vapor/Fluid/Liquid** modulation effects, **Rough Rider Pro** compressor, **Discord3** pitchshifter, gorgeous **Eos** reverb, and, well, a load more.

Rounding things off are AD's two instruments: the mighty **Tattoo** drum machine (8/10, **cm150**) and **Axon**, which you can read about on p106.

HOW TO ENTER

To enter, send a text to **87474** containing: the keyword **DAMAGE**, followed by a space, then **A, B or C**, then another space, then **your email address**. Alternatively, you can go online and use the form at www.futurecompetitions.com/cm157 to enter the competition. Entries must be received between **September 22 2010** and **October 22 2010**, and only UK residents aged 18+ may enter.

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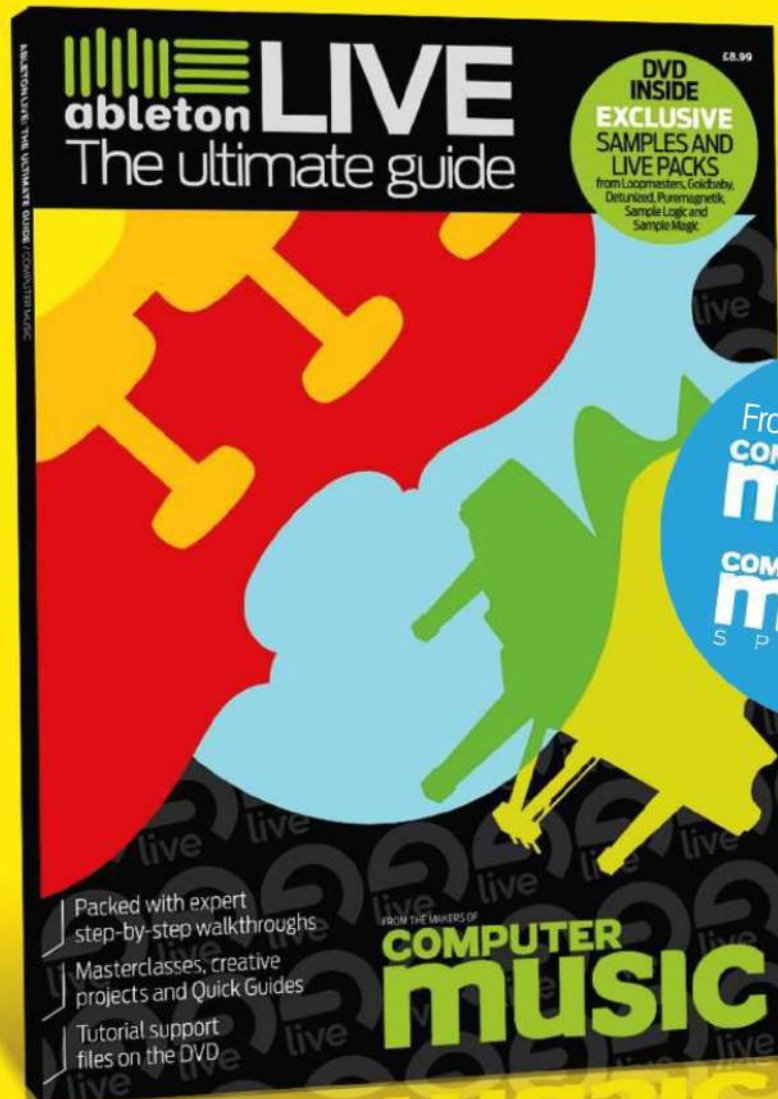
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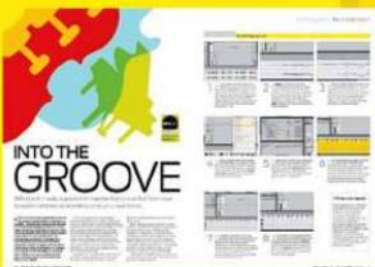
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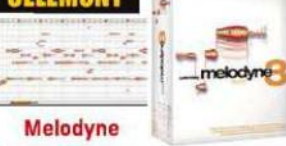
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104 FLUX TRAX

The IRCAM Tools range is here at last, and the first on our test bench is TRAX, an audio transformation powerhouse



106 AUDIO DAMAGE AXON

A clever sequencer driving a bunch of mini FM synths



114 VIR2 ELECTRICITY

Rock out in the box with an octet of sampled electric guitars

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In the opinion of our editor, the best product reviewed in the magazine this month



Flux **PC** **MAC** TRAX £399



Flux and IRCAM have joined forces to create a raft of innovative plug-ins. First on our bench is a three-strong bundle for audio transformation

System requirements

PC Windows XP/Vista/7 (32-/64-bit), VST/RTAS host, iLok/Flux dongle

Mac OS X 10.4 (32-bit), VST/AU/RTAS host, iLok/Flux dongle

> IRCAM Tools is a new range of plug-ins covering positional room acoustics simulation (Spat), more straight-up reverberation (Verb) and real-time audio manipulation (TRAX). Here we're focusing on TRAX, which is shorthand for transformation and cross-synthesis and comprises three plug-ins: Transformer, Cross Synthesis and Source Filter. Each uses IRCAM's Super VP phase vocoder technology.

Pitch perfect

Of the three plug-ins, Transformer is not only the most complex and feature-rich but also the most recognisable in its aims. You'll find Source and Target controls: the parameters of the former are dialled in according to the characteristics of the input signal, while the latter are used to set the pitch, formant and timbre characteristics of the resulting output. There are three processing modes: voice, instrument and music. These affect not only how the results sound, but also the options available. The music setting only offers pitch and formant adjustment, whereas 'voice' mode includes six gender/age presets for source and target, and eight register presets (eg,

soprano, tenor and bass) for shifting pitch.

Advanced features include the Voice Forger, which enables you to correct the tuning of (ie, autotune) your original signal to fit a scale.

Common to all three modes are two octaves (up or down) of pitch and formant shifting, LFO modulation of pitch and formant (not tempo syncable, unfortunately), spectral envelope, the output mixer, oversampling (x1 and x2), high- and low-pass filters and a dry/wet control. Check out the manual on the **cm** DVD for more detail on the TRAX plug-ins' controls.

The mixer is particularly enlightening, letting you balance the pitched (Sinus), non-pitched (Noise) and transient (Trans) components of the signal. Also rather smart is the spectral envelope, which you can use to redistribute frequency content. Finally, Transformer lets you store two complete patches, A and B, and morph between them using the crossfader.

Cracking the vocode

The other two plug-ins – Cross Synthesis and Source Filter – have more straightforward controls. Both take in two independent mono

"The mixer is enlightening, letting you balance pitched, non-pitched and transient components"

signals, producing a single output (ie, duplicated in the left and right channels). Cross Synthesis is the simpler of the two, using the amplitude and frequency spectra of both source signals to determine the output signal. The primary controls are Amplitude and Frequency sliders, enabling you to control the influence of each source. Controls can be linked in inverse fashion.

The Source Filter is similar to a vocoder, with the left input being the source or 'excitation' signal, and the right input dictating the filter. Additionally, there are 'temporal envelopes' that determine the influence each source's dynamics has on the output.

Sounding tip-top

Getting the best results from Transformer requires you to specify a range for the fundamental frequency of your source audio. You can set this manually, using one of the presets, or with the Learn option, with which you run a few seconds of audio through the plug-in and it sussies out the frequency range automatically. With the frequency set, we have to say that the results on our vocal test recording were excellent. Whether simply shifting pitch in real time (with no change in timing) or switching timbre using the target presets or advanced controls, we could bring age or youth to a female vocal very successfully (although we must admit that changing it to a male voice did sound a little suspect).

The expression of the vocal can be adjusted, ranging from flat (ie, monotonous with minimal pitch deviation, like a robot) to full, where vocal pitch fluctuations are exaggerated. For sung vocals, flattening can be used to effect, although increasing the expression tends not to be as much use because it can push vocals out of tune. On spoken (or rapped) material, though, it's much more useful - you can also use automation to pick out certain syllables or words. We'd imagine that post-production houses will find this useful on occasion.

Transformer's other options, such as modulation and the spectral envelope, are a tad redundant for typical vocal tasks, being more suited to sound design and way-out effects.



Breed new sounds with Cross Synthesis. We had the best results when crossing rhythmic and sustained material



Source Filter is a dab hand at vocoder-style effects

Look a little closer

Both the Cross Synthesis and Source Filter plug-ins are available in stereo only, whereby you have two inputs (left and right) and one combined stereo output. As Flux suggest, the best solution to this problem is to stick the plug-in on a bus and send your signals into it, panned left and right. Once you're set up, both plug-ins are pretty straightforward.

We found that Source Filter could achieve excellent vocoder effects, and special mention has to be made of the 'true envelope' option. This setting seemed to make the whole process much easier to dial in than it is on a traditional vocoder plug-in.

The temporal envelope setting also assists with getting exactly the right balance of attack.

Cross Synthesis is a slightly different affair. With no preconceptions of this sort of processor, we experimented with lots of combinations, with variable results. We ultimately found that the most exciting noises were produced when we combined a transient-heavy sound (a drum loop, for example) with a more legato sound. However, we found that whatever we did, the results tended to be quite 'phasey'. Our best results involved using our DAW's automation to morph between two different settings.

We found these options most useful with drum loops by hitting pitch and formant extremes or using the spectral envelope to manhandle frequency content. The mixer is also great for balancing things in favour of transients. From a creative perspective, we found processing pitched instruments less inspiring (although it's still excellent for pitchshifting).

There are a number of additional settings that can influence the processing engine, including oversampling. They can also all have a reasonable impact on CPU usage, as Flux acknowledge. However, combine them with the A/B morphing and the resource hit can be pretty problematic. This issue led us to steer clear of the oversampling options, and we also learnt to avoid trying to morph between patches with fundamental differences in their settings (eg, different processing window sizes).

Overall, TRAX is an interesting package, and is as good as any we've heard for real-time pitch- and timbreshifting. Additionally, Source Filter delivers excellent vocoder type effects. However, to get the most out of TRAX, you'll definitely need a powerful computer. **cm**

Web www.fluxhome.com
Contact DACS, 0191 438 2500

Alternatively

Antares Avox Evo
N/A >> N/A >> £390

Real-time harmony generation, pitchshifting and throat modelling

zplane.development vielklang
cm114 >> 8/10 >> £179

A slightly different take on real-time pitchshifting and harmonisation

Verdict

For Clear interface
Powerful manipulation options
Source Filter great for vocoder effects
Excellent for shifting pitch and timbre

Against Can be CPU hungry
A/B morphing requires precise settings

TRAX is a fine package covering many bases, with some unusual tricks that will appeal particularly to post-production pros and sound design wizards

8/10

TRANSPORT
When using host sync, these won't see much use, but the Rate parameter is always in effect

NEURON SEQUENCER
The beating heart of Axon, and the most novel element of the plug-in

WIRE/PLAY
Enables the routing mode. Neurons can both send to and receive from multiple neurons

NEURON
Click to adjust the threshold and tinker with the routing



VOICE CONTROL
Corresponds to the currently selected neuron, displaying the pitch and current threshold value

AMP EG/PITCH EG
Percussion-centric envelopes offering only time and curvature settings for attack and release

FM/TIMBRE
The key timbre-shaping controls for each neuron

MIXER
Pan, level, delay send, mute and solo per neuron

DELAY
The stereo delay bus shares its space with the mixer, and is accessed via this button

Audio Damage

Axon \$59

PC MAC



'The Damage' aren't shy about challenging conventional plug-in design, but this time they're really taxing our little grey cells

System requirements

PC Windows XP/Vista/7 (32-/64-bit), VST host

Mac Intel CPU, OS X 10.5.1, AU/VST host

> Audio Damage's extensive range of effects are among the most distinctive and affordable around. Up until now they've released just one instrument, the fairly conventional (but great) Tattoo drum machine. Instrument number two, Axon, is now with us, and it's one of their most original plug-ins yet.

Axon is a synthesiser and sequencer designed for producing primarily percussive parts. That's where the normality ends. Central to its concept is the Neuron Sequencer, a collection of so-called neurons, each of which can be connected to all the others and is able to send and receive pulses. These pulses are the key to the sequencer's operation.

With the exception of neuron 0 (found in the centre), each neuron has a selectable Threshold value between 0 and 6. When the neuron receives the number of pulses defined by the threshold, it's triggered. Each neuron drives its own FM synthesis-based sound generator, and when it receives the specified number of pulses, it triggers the synth sound and fires out a pulse.

The resulting rhythmic pattern is therefore defined by the interaction of the neurons.

Neuron 0 can take its pulse rate from the host sequencer or use an internal tempo setting, and it fires at a rate of either 1/8, 1/16 or 1/32.

Testing the threshold

What happens next entirely depends on the threshold of each neuron, and their connections. Of course, results are what count, and Axon doesn't disappoint - it's a loop-producing treasure trove. Its unique style of sequencing produces genuinely original parts, and the nature of it means that as different neurons interact, the riffs and patterns can evolve over the course of many bars.

And what about those synths? Well, they're all identical, offering up simple FM synthesis with a carrier and modulator (see the *Bells and Whistles* box), and a selectable note for each. The envelopes are for amplitude and frequency, and each offers simple parameters designed for generating popping, percussive tones.

Below the envelopes are two X/Y pads. The first controls the modulation and ratio of the frequencies of the two oscillators, while the second - Timbre - lets you adjust the waveform.

"Axon's unique style of sequencing produces genuinely original parts"

And it doesn't stop there: all of the synths can send their signals to both an FM buss and a Ring bus. In turn, the level of these central busses can be applied to any of the synths independently.

As you can imagine, the results can be rather intense, and it's not uncommon to find some neurons pumping out far more audio action than others. To this end, Axon includes a mixer (with stereo delay on an FX bus), where you can set the pan, delay send and level for each neuron's synth. There are even mute and solo neurons to help edit the sounds for each and choose your parts. Our best tip is to switch off the delays while analysing Axon's presets - it makes it much easier to figure out which Neurons are doing what!

While you can use Axon as a real-time instrument, we found that the resulting loops are the sort of thing that's perfect for rendering to audio. That way, you can sift through them later and pick out the best bits.

Experiment to win

Being essentially an innovative sequencer driving a bunch of fairly simple synths, you might be wondering what it would be like to use Axon to trigger other instruments. Happily, Axon can run in MIDI mode, sending out MIDI triggers that can be routed to other instruments - it's fascinating to use with synths or drum banks. Unfortunately, this isn't available with the Audio Units version, which Audio Damage put down to limitations with the AU format. You can also trigger the Axon synthesis section via MIDI, but that's a bonus, not a headline feature.

It's hard to knock something so simple and ingenious, but we do have two tiny grumbles. Currently, the only way to set which neuron's synth is displayed in the Editor section is to click on the cell itself, but it would be great if you could see it when you're working in the mixer section and setting the levels too. Thankfully, Audio Damage have already scheduled this for a forthcoming update. And while there is an argument for only showing one synth at a time, this can make it difficult to quickly tweak various synths to create riffs. An optional GUI showing all synths at once would be a nice addition.

So is Axon for you? As our audio demos demonstrate, it is primarily a percussive FM

riff and percussion tool. But that's no bad thing. Anybody involved in electronic music, especially dance and ambient, will find much inspiration here. If you like playing with esoteric, fun and inspirational sonic toys, Axon is definitely for you. But if you struggle with unconventional approaches, you may want to steer clear of it. This plug-in isn't complicated, but it warrants a little concentration and experimentation to get the best out of. As for us, we're off to tax our neurons to the limit. **cm**

Web www.audiodamage.com
Contact info@audiodamage.com



FM synthesis can seem complex, but Axon's carefully chosen controls make it very simple and approachable

Bells and whistles

It's not necessary to completely understand FM synthesis to make use of Axon, but to make the most of it, you should at least have a basic grasp of the concept. With this under your belt you'll have a much more thorough practical understanding of the plug-in.

In FM synthesis one oscillator, called the modulator, modulates another, called the carrier. Adjusting the modulator will change the sound of the carrier. The sheer range of sounds this can produce is rather astounding. The key is learning the effects the modulator can have, and how to manipulate it to achieve them.

While analogue FM synthesis is

possible, it's very much a rarity due to various technical issues. FM only really came of age with digital boxes (Yamaha's DX7 synth being the classic example), so the resulting sounds are associated as being 'digital'. It's not uncommon for more powerful FM synths to have multiple oscillators/modulators and numerous ways in which to interconnect them, leading to further sonic flexibility.

So how does it sound? Electronic bells, clangs, bongs, thudding basses - all of these are FM's forte. While Axon's FM implementation is simple, there's still a world of squelchy poings, bleeps and bangs to explore.

Alternatively

Audio Damage Automaton
cm133 >> 8/10 >> \$49

If you like tying your brain in knots, try this head-scratching effects unit

Amidio Inc JR Hexatone Pro
cm143 >> 7/10 >> £5.99

This iPhone app offers a novel rule-based sequencer on a hex grid

Verdict

For Original sequencing concept
Great range of demonstrative presets
Potential for great results
Can be used to trigger instruments
Controls suit real-time modulation
Great control over sound levels

Against Neurons can be fiddly

It might not be everybody's cup of tea, but it's hard to imagine another plug-in with so few parameters that allows so much experimentation

9/10



Click the relevant button and the controls for the delay appear in place of the mixer

Voxengo PC MAC **HarmoniEQ 2.0** \$100



Voxengo have released yet another EQ, but this one isn't quite your standard digital parametric effort...

> The announcement of a new EQ plug-in causes about as much office excitement as someone commenting that the bin-liner needs changing. Admittedly on a slow day people do fight over who's going to do it, but usually no one goes out of their way to investigate such things.

Most DAW jockeys will have compared the bundled plug-ins that came with their software to third-party products, and know that different EQs give different results. Where does Voxengo's recently updated HarmoniEQ sit among its peers?

Version 1 of HarmoniEQ was far simpler; essentially a great-sounding EQ with the twist of harmonic and dynamic enhancement. Version 2 not only improves on all that, but has extra welly in the form of additional filter types (LP, HP, notch), an internal routing matrix capable of MS encoding/decoding, and multiple simultaneous EQ capability (see the *Routin' tootin'* box). This makes HarmoniEQ v2 a high-end one-stop EQ solution for any kind of audio work, including serious multichannel applications.

The GUI is a customisable and scalable window dominated by the EQ window, where the EQ curve, seven filter nodes and real-time spectrum analysis live. A wealth of workflow-enhancing features have been added, such as undo history, channel grouping/naming, contextual hints, preset manager and so on.

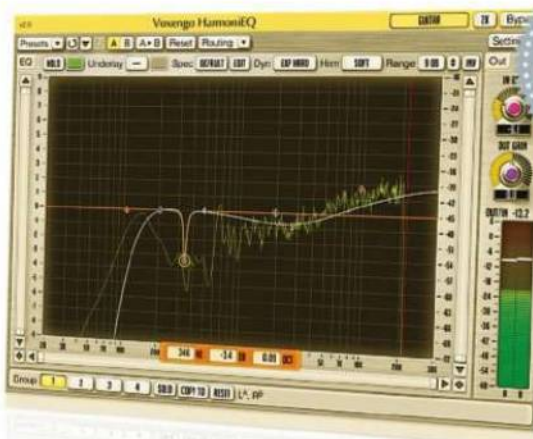
What's your type?

Each of the seven filter nodes can be any of the available types: peak, low/high shelf, notch, band-pass and 12dB and 24dB varieties of high- and low-pass. Nodes can be yanked around freely, with the **Alt** key enabling adjustment of Q. Extremely narrow bands are available (down to 0.01 octave) for super-accurate remedial work, and nodes can be selected and moved as a group. Holding **Cmd+Ctrl** while click-dragging on the graph temporarily enables a narrow band-pass filter, which you can sweep through the spectrum to identify problem frequencies.

Routin' tootin'

HarmoniEQ enables you to route multiple audio inputs to certain groups that share an EQ curve. For example, you could take a 7.1 surround mix and EQ the four rear surrounds with one curve, the main LR with another, and have individual EQs for the C and LFE, all in one instance of the plug-in.

One of the preset routings is MS, standing for Mid and Side. This is a method of dealing with your audio as centre and stereo signals, enabling you to EQ them differently. This is



The optional dynamics and harmonics sections are what make HarmoniEQ stand out from the crowd. The dynamics processing offers soft, hard and 'extra' modes, and can either expand or compress the transients affected by the EQ. The compression reigns in transients that are boosted by the EQ, so you can EQ without dramatically increasing peak levels. Expansion works the other way around, by expanding (ie, enhancing) transients in a specific frequency range for added excitement.

The harmonics processing is applied to each band individually, so the more bands are active, the more saturation you hear. The effect adds subtle second- and third-harmonic overtones, which has a satisfying thickening effect.

HarmoniEQ is a superb-sounding EQ that can make sounds come alive in a unique way. The only possible caveat is that it introduces 11ms of latency. This is only really a concern if you want to use it live, or if your DAW doesn't have latency compensation (eg, Pro Tools LE). Overall, it's another typically excellent effort from Voxengo.

Web www.voxengo.com
Contact Via website

great for mastering, where you might treat the top end of the centre signal to correct a vocal EQ, while taking some flappy bottom end away from the extreme left and right parts of the mix, thus tightening up the bass.

The inputs, outputs and groups can be saved, and the curves from different groups can also be displayed, copied and pasted. Voxengo products aside, we're not aware of any other plug-ins that offer such flexible yet straightforward multichannel operation.

System requirements

PC 2GHz CPU, 1GB RAM, Windows XP/Vista/7 (32-/64-bit), VST host

Mac 2GHz PPC/Intel CPU, 1GB RAM, OS X 10.4.11. AU/VST host

Alternatively

Brainworx bx_dynEQ
N/A >> N/A >> €349

Dynamic EQ with M/S operation, de-essing per channel, stereo manipulation and more

112dB Redline Equalizer
cm145 >> 10/10 >> \$169

Full-featured EQ with dynamic mode, harmonic distortion, variable phase, and lots more

Verdict

For Highly configurable

Dynamic and harmonic enhancement
Multichannel and mid/side processing
Narrow-band sweep auditioning
Dynamic range metering function
Up to 8x oversampling
Affordable

Against Adds a little latency

It's hard to go wrong with Voxengo plug-ins, and HarmoniEQ only strengthens that perception

9/10

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Waves JJP Artist Signature Collection £646

PC MAC



Jack Joseph Puig puts his name to another Waves plug-in bundle, but will this lot really give you his signature sound?

System requirements

PC P4/Athlon 64 2.8GHz, Windows XP/Vista/7 (32-bit), 1GB RAM (XP)/2GB RAM (Vista/7)

Mac G5 Dual 2GHz/Intel 1.83GHz, OS X 10.4.11, 1GB RAM

> Jack Joseph Puig's first collaboration with Waves resulted in The Jack Joseph Puig Analog Legends bundle, which featured software recreations of some of his own personal vintage outboard gear. This latest effort sits alongside Waves' Tony Maserati and Eddie Kramer Signature Collection packages and includes six application-specific plug-ins that claim to give you JJP's signature sound. They're based on his outboard signal chains and are simply called JJP Bass, Drums, Strings & Keys, Cymbals & Percussion, Vocals and Guitars.

Easy does it

The methodology here is pretty simple: grab the appropriate plug-in for your material, and you'll instantly get tailored processing (dynamics, EQ and effects) à la JJP. Stuffing all of that processing into one single-panel plug-in means that parameter control has been reduced. As standard across all six plug-ins, you get a main processing section on the left with low and high

EQ and one-knob compression. Some have an extra knob – a de-esser on the Vocals plug-in, for example. Processing levels are influenced by the input Sensitivity control, with an amber LED that lights up to indicate a suitable level.

Moving on, and the central fader bank dials in processes that are specific to each plug-in, such as transient enhancement, tailored EQ, further compression, exciter, delay, doubling and reverb (see the *Wait for the signal* box for details of signal flow). Rounding things off are a number of selectable instrument 'types'. These influence not only knob and fader positions, but in some cases the nature or even type of options included. For example, the Drums plug-in has options for kick in/out, snare top/bottom and toms, and your selection determines the reverb style – it's different for snare and toms, and unavailable for the kick drum.

Complementing the type selector buttons are a set of presets, accessed from the Waves toolbar. All plug-ins come in mono-to-stereo

“When using the plug-ins, it’s clear that there’s lots going on that you simply cannot change”

and stereo formats, and Bass and Drums are also in mono. Of the mono-to-stereo plug-ins, all but the vocal and bass tools have a pan control.

Six-pack

The processing techniques encapsulated in these plug-ins must suit JJP’s own working methods, which he’s honed over two decades of mixing. So, let’s summarise his aims. Drums is specifically for kick, snare and tom processing. With options including Attack, Wood and Length, the goal is snap and weight in equal measure. Cymbals & Percussion offers Punch, adding tight compression; Attitude for mid-range grit; and Amb (ambience) for high-end sparkle. Bass has synth and bass guitar options to deliver edgy mid-range (Edge and Attack) and rounded bottom (Sub). Guitars is better suited to rockin’ electric tones than acoustic guitars. That said, the combination of Drive (Edge), EQ (Warm and Presence) and Width (Doubler and Verb) makes it a very flexible plug-in. Strings & Keys aims to deliver the width, space and radiance that’s desirable on synths, strings and piano. Finally, Vocals includes the tools needed to help the vocal sit, and includes De-esser, Delay (Space) and enhanced Reverb (Magic) with two male and one female types.

Puig power

When using the plug-ins, it’s clear that there’s lots going on under the hood that you simply cannot change, and that lots of decisions have been made for you. However, the parallel nature of the signal flow means that you can mute all elements and listen to the processing one fader at a time, which is particularly illuminating given the stylised labelling. Some option names are descriptive enough that you’ll quickly grasp what they do (Wood for snare drums, say) but some less so. Solo listening establishes that Vocals’ Space setting is a short stereo slapback delay combined with a tempo-synced echo, and Magic is a preset-dependent enhanced reverb.

However, understanding the inner workings isn’t the best way to approach these plug-ins. We had most success when firing one up, selecting the appropriate instrument type and simply going to work. This worked particularly well with the Drums plug-in as the presets are so clear-cut, and adding attack, decay and presence



The Vocals processor is relatively restrained in its appearance, though it’s just as vibrant in the mix



The four red central faders are essentially auxiliary returns for under-the-hood effects chains

Wait for the signal

When mixing, a typical processing chain might involve EQ, compression and further dynamics such as gating or de-essing. The chances are you would then add effects such as auxiliary reverb and delay, and possibly split the channel to use further fancy tricks like parallel compression.

To provide a one-stop solution in a single plug-in, Waves have used both serial and parallel signal processing. Given the ‘black box’ nature of the plug-ins included in the Signature Collections, it’s arguable that there’s no great advantage in knowing how the processing is carried out. However, the manuals clearly indicate how it

works, and it’s standard across the lot. If nothing else, it at least partly satisfies our gnawing curiosity.

First up, the input signal is processed in series: compression, EQ and occasionally a little something extra. This signal is then fed via the main level fader to the master output fader. A pre-main fader split is then sent to the centre section processors, like an auxiliary send, and you blend these in using the faders. Rounding things off, you also get mutes for these as well as the main level fader. The concept is basically that of a mixer for sonic attributes. Now you know!

are very typical processes. However, we struggled to get the right piano sound using the piano setting in Strings & Keys, as we couldn’t adjust the EQ accurately enough.

In some areas, we found the processing to be far more flexible than might be expected, such as with the Bass and Guitars plug-ins. Elsewhere, we found the processes offered by the central faders subtler and harder to distinguish – eg, the four options in Cymbals & Percussion. We were very impressed by the responsive metering, though an overall gain reduction option would have been a great addition.

Overall, the cleverly combined processing works best when taking already good sounds to the next level. However, if you want to make detailed changes, you may be frustrated and end up using typical mixing plug-ins instead. You may find the eye-popping, candy-coloured livery a bit too much for an early morning or late night session, too. Grumbles aside, this bundle is reasonably priced (well, for a six-plug-in Waves package) and offers quick, refreshingly simple tools that cleverly disguise complex underlying processing. **cm**

Web www.waves.com
Contact Sonic Distribution, 0845 500 2 500

Alternatively

Waves Tony Maserati Collection
cm140 >> 8/10 >> £646

Same concept, different producer. This one has more of an urban slant

Toontrack EZmix
cm153 >> 7/10 >> £45

If you want it even easier, try this ‘black box’ approach to mixing

Verdict

For	Instant gratification
	Surprisingly flexible at times
	Excellent Drums plug-in
	Responsive metering
Against	No gain reduction metering
	Strings & Keys is hit and miss
	Lack of in-depth control will annoy some

The Signature Collection concept is one you’ll love or hate, but there’s no denying the quality of the plug-ins themselves

8/10

Sound Radix Auto-Align \$149 MAC



A new company offers up a new solution to the age-old problem of multi-microphone phase coherence

> If you've ever recorded a drum kit or multi-miked other live instruments, you've probably spent time moving the mics around to prevent frequency cancellation. Later, you may also have nudged tracks back and forth in time in your DAW to get the punchiest, tightest sound. Auto-Align from Sound Radix addresses this second scenario, providing you with a 'point and shoot' solution that claims to automatically suss out and apply the optimum delay time.

Auto-Align uses a straightforward concept: insert the plug-in on the channel you want to pull into line and use the sidechain input to feed it a reference track to match it to. It analyses both signals and applies a best-fit delay (positive or negative) to the target channel. It's strictly a time delay process - there's no phase rotation à la Little Labs IBP, and no stretching of audio.

The metering is colour-coded to indicate frequency content, and input and sidechain meters also indicate frequency content by width (wider is lower). The applied delay is indicated in the top right, with the delay length indicated in samples, milliseconds, centimetres and inches. Detection is activated using the 'detect' button, and you have two options - 'delay' or 'delay and polarity'. The latter will also correct for signals that are out of phase - ie, opposing polarities.

Line 'em up

Both input and sidechain meters have a noise floor control. This affects the analysis (the resulting audio isn't tampered with) and is designed for filtering out bleed, which is useful for drums. The main phase meter is a goniometer, but coloured according to frequency. Once AA has done its thing, it should tend towards a vertical line. Finally, in 'delays' mode, the meter shows a waveform indicating good match points. It defaults to the strongest match, but you can skip to other points for different tones.

In use, this is all very simple and Auto-Align copes well with typical situations, such as the



good old problem of aligning the top and bottom snare mics. Room mics raise a couple of issues (see boxout), and with multi-miked kits, you'll have to choose which track you want to be the 'master' to which the others sync. With complex mic setups, carelessly applying delays to tracks could cause more problems than it solves, so Auto-Align needs to be used sensibly. The maximum delay is ± 881 samples (around 20ms at 44.1kHz), which covers the majority of situations, but doesn't allow for extreme ones.

Beyond drum kits, we found Auto-Align worked best when there was a decent distance between mics - ie, close and room mics. When the mics were already close, improvements were harder to come by or just resulted in subtle tonal changes, as a mic adjustment would.

It's true, of course, that you can align audio tracks by hand and achieve essentially the same results, but doing so does require time and skill. Auto-Align, while not being essential, is a great time- and sanity-saver that will appeal to anyone working with multi-miked material. **cm**

Web www.soundradix.com

Contact support@soundradix.com

System requirements

Mac Intel/PPC CPU, OS X 10.5

Alternatively

Voxengo PHA-979
N/A >> N/A >> \$80

Offers manual time delay and phase rotation, with useful metering.

Little Labs IBP Phase Tool
N/A >> N/A >> \$99

Manual track delay and phase adjuster for the UAD platform.

Verdict

For A quick and easy solution

Many 'best fit' options enable tweaking

Low CPU hit

Helpful metering

Against No multichannel operation

Limited to ± 881 samples delay time

A simple and elegant solution that takes the hassle out of time-aligning different mic channels

9/10

Get a room

Shifting room mic tracks in relation to those of the close mics is a time-honoured production trick. Auto-Align makes this process simpler because it finds a number of good fit points, so you can plump for one that's still offset from the close mics, but more in phase with them.

There are a couple of practicalities worth mentioning. First up, if you're planning to accurately match the close mics to a stereo room track, you need to be sure you're

feeding both sides of the stereo room to your sidechain. In Logic, you'll have to mono (sum) your room signal temporarily while Auto-Align analyses the signal. Next up, Auto-Align only compares two tracks at a time, so you need to decide what order to do them in. Aligning everything to the overheads seemed to work best for us, but bussing our kick and snare together as a sidechain for aligning our overheads and room also worked well.

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Vir2

Electri6ity £259



We crank it up to 11 with this multisampled library of eight classic axes, including built-in amp simulation

> The workstation guitar patches of yesteryear typically used a handful of feeble-sounding samples or, even worse, cheesy FM synthesis. The results were thoroughly unconvincing, but the tables have since turned. Vir2's new Electri6ity sample library being a case in point.

It's in Kontakt format and comes with the Kontakt Player, so you needn't be a Kontakt owner to use it. Over 24,000 samples make up each of the eight guitars. At the twangier end of the scale, you've got a Fender Strat and Tele, with their natural enemy the Gibson Les Paul at the other. There are two LPs, in fact: one standard and one with P90 pickups. Jazz cats will lap up the dulcet tones of the Gibson ES-335 and L4, while indie jangle and fizzy pop can be had with the Rickenbacker and Danelectro axes. All are played with a pick - there's legato playing, of course, but no fingered plucking.

There are four main views - Performance being the default - with sliders for basic parameters like pickup (front, rear or both), strum speed, vibrato type/strength/speed, etc.

Oh, the humanity!

Electri6ity's behind-the-scenes scripting does a lot to interpret and 'humanise' parts - it's a bit like having a virtual guitarist to go along with your virtual guitar. For example, play a chord and it detects this, rapidly triggering the notes in sequence, just as a guitarist would strike a chord. Chords are converted into guitar voicings and picking direction is handled automatically.

All of the 'artificial intelligence' features can be disabled or further configured in the Settings panel, which offers a ridiculous degree of control over the characteristics of strumming, picking, vibrato and so on. There are also extra features, such as sympathetic resonance (unplayed strings softly ring when playing chords). Any Settings parameter can be assigned to any MIDI CC.

All guitars have been recorded dry and direct, for running through an amp sim plug-in. There



are also 'Amped' patches, with an extra panel for effects (delay, reverb, modulation), a Tube Screamer-alike and a straightforward amp sim.

So, the sound. You've heard an electric guitar, right? Well, it sounds a *lot* like that, and is good for pretty much any style: rock rhythm, smooth jazz comping, screaming metal leads, twanging clean tones - you name it, Electri6ity can handle it. We weren't expecting much from the built-in amp sim, but were pleasantly surprised - it's thoroughly usable. It's also a lot of fun to try out different guitars mid-session, layer them, etc.

Omissions are that the Strat doesn't have all five pickup positions sampled, and there's no full-on detuned metal axe either. All guitars do go down to a meaty C, but an EMG-loaded seven-stringer would've been nice. Creating convincing parts is fairly painless, with the

humanising features helping a great deal. It's worth tweaking their settings - the release noise types and so on - to suit the piece. If anything, Electri6ity can sound a bit *too* proficient at times: for instance, fast runs in the Solo/Legato mode are very clean, and we found it sometimes sounded more authentic to program them in Poly mode and overlap some of the notes a bit. Still, what you've got is essentially a super-tight session player on tap.

This is the most comprehensive virtual electric guitar package we've seen, doing for guitars what Superior Drummer and BFD did for drums. **cm**

Web www.vir2.com

Contact Time+Space, 01837 55200

System requirements

PC 1.4GHz CPU, 4GB RAM, Windows XP/Vista/7, 27GB free drive space

Mac Intel 1.66GHz CPU, 4GB RAM, OS X 10.5.x, 27GB free drive space

Alternatively

Prominy SC Electric Guitar
N/A >> N/A >> €249

Ultra-realistic sampled Strat. Prominy do a Les Paul one too

Impact Soundworks Shreddage
cm151 >> 9/10 >> \$49

Sampled guitar focused specifically on metal rhythm playing

Verdict

For Can sound very convincing
Eight distinct guitars
Good built-in amp sim
Extensive articulations with morphing
Articulation/velocity morphing
Fine-grained control over AI behaviour

Against No deep-tuned metal guitar
Doesn't offer all Strat pickup positions

A superb solution for anyone seeking a broad palette of convincing sampled axes

9/10

Technical difficulties

Articulation switching is mainly handled through the extensive keyswitching system, which is easier to use than it might appear. The three main keyswitches to get down are those for Poly, Solo (picked) and Legato modes. Others offer trills, tremolo picking, pinch harmonics, muted playing, hammer ons, pull offs and slides. There are also FX like whammy bar dives and pick slides. Toward the top of the keyboard are keys for right-hand motions such as strum up/

down and picking of individual strings. You can thus hold a chord with one hand while strumming/picking with the other.

Vir2's AMT (Articulation Morphing Technology) enables you to seamlessly blend between articulations using velocity or a MIDI CC. The same Vir2 morphing technology is also used for velocity layers. It's not simple crossfading, nor does it use Kontakt's AET morphing - Vir2 have cooked it up themselves, and it sounds very natural.

EVOLVE.

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cm mini reviews

A rapid-fire round-up of sample libraries, ROMplers and more

Garritan

Jazz & Big Band 3 £99

Web www.timespace.com
Contact Time+Space, 01837 55200
Format PC/Mac, VST/AU/standalone

Version 3 of Garritan's jazz ensemble package (which we'll refer to as JABB3 for brevity) sees them shifting to their own Aria engine. Aria's 16-part multitimbral playback interface is tailored for composition and arranging. Global features include integrated reverb (12 types), 11 tuning scales, adjustable polyphony (up to 128 voices) and normal/draft quality setting. Plus there's the 16-channel mixer with pan, level and reverb send. At instrument level, options include three-band EQ, stereo stage (position and depth) adjustment and auto legato, and most instruments respond to modwheel for level, and sustain pedal for either manual legato (wind and brass) or traditional sustain (keyboards). You'll also find level settings for up to 11 additional instrument-specific parameters. These include portamento time, breathiness, and flutter/growl (brass and winds), level for fundamentals (drums, toms and bass) and finger

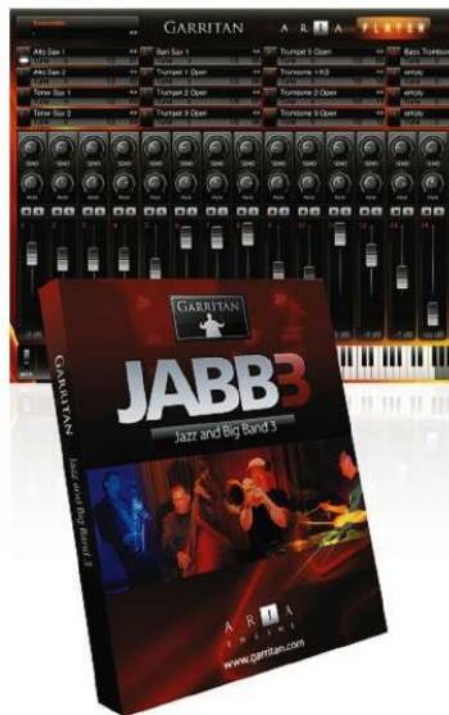
noise (bass). All can be accessed using MIDI CCs, as can further, instrument-specific articulations such as shakes, fall-offs, doits and kisses.

The 50 or so original instruments have been joined by seven organs, two slap basses, harmonica and banjo, with extended ranges to existing instruments taking the disc footprint to around 2.75GB. Rounding things off are 34 ensemble presets.

JABB3 delivers a lot from its compact sample set. With individual rather than ensemble instruments, the idea is that you use JABB3 as a preparation tool for arrangements. And with up to five different versions of each, you can easily add colour as well as part variation.

When you factor in the many articulations, JABB3 is more than simply an arrangement tool. In isolation, some of the sounds fare better than others, and in terms of realism, it doesn't compete with premium libraries. However, in ensemble combinations, it can sound good, and it's great to have such a range of instruments in one easy, affordable package.

9/10



iceGear

Xenon Groove Synthesizer £3.49

Web iphone.icegear.net/xenon
Contact company@icegear.net
Format iPhone, iPod Touch (not 1G), iOS 3.13

Xenon is a software studio with just enough features for you to be able to create complex electronic arrangements on your iDevice. There are three different synthesisers, a drum machine, a five-track song sequencer, mixer and a single effect: a delay processor.

iceGear's Argon synthesiser has received a lot of praise for its sound quality, and their expertise has been carried over into Xenon's trio of synthesisers. This is most apparent in the ASX-1, a virtual analogue monosynth with a pair of oscillators, multimode filter and built-in pattern sequencer. You get independent ADSRs and LFOs for amp, filter cutoff and oscillator pitch (the latter LFO can be modulated by its own ADSR).

Xenon's second synthesiser, PSX-4, is a PCM offering. It's architecturally similar to the ASX-1, but here the lone oscillator is able to draw upon any of the 112 sampled instruments. There's plenty of bread 'n' butter to be found in that collection, but we do wish we could bring in our own samples.

The HSX-4 polyphonic hybrid synth is our pick of the bunch, featuring a pair of oscillators that can tap into VA, FM, formant and PCM synthesis. The independent LFOs and ADSRs found in the ASX-1 synth rear their heads once again, as does the pattern sequencer.

Rhythmic duties are handled by the six-track PRX-6 drum machine. Any of 185 samples can be loaded into the six pads and sequenced via the pattern sequencer. You have control over pan, level, pitch, attack, decay and velocity level.

Each instrument's patterns can be arranged in the Song Sequencer and mixed using the five-channel mixer. You can adjust track level, panning and FX sends. It's simple but effective stuff. Songs and patterns can also be exported as WAV files or copied to the clipboard.



Xenon provides an awful lot of power for a very fair price, and most importantly, it also sounds fantastic. It takes some poking around to figure out where every function is stashed away, but once you're familiar with it, it offers an efficient compositional environment. We would really like to see more import and export options (MIDI files? Sample import? Resampling?), but at £3.49, we're not going to complain too loudly.

8/10

Magix Digital DJ £40

Web www.magix.com
Contact via website
Format Mac/PC

Magix have wisely hooked up with Deckadance creators Image-Line to offer what is essentially a cut-down version of that app. Digital DJ is divided into three sections - the waveform and transport section, the effects section and the browser. The program will beat-match your tracks automatically, and although it's not perfect, it has push and pull buttons to help you fix any timing issues.

The Peakscope window shows channel A and B's waveforms for you to match the beats visually, which works best on typical four-to-the-floor tracks. Each channel also has a three-band EQ and an X/Y pad for manipulating effects. The latter is a little odd in that you need to right-click to reset it back to the 'zero' position - we'd have preferred at least the option to have it reset when you release the mouse button. iTunes support in the browser is a great addition and makes digging through tracks a much more familiar affair.

There's a plethora of DJ software at this price point, but despite our minor quibbles, Digital DJ is one of the best around, being quite feature-packed and based on a proper DJ app. MIDI controller support seals the deal.

9/10



Toontrack Music City USA SDX

£119

Web www.timespace.com
Contact Time+Space, 01837 55200
Format Superior Drummer SDX

This latest SDX expansion was recorded at Sound Kitchen in Nashville. You get five kick types, five snares, two sets of toms, 14" Sabian AA hi-hats, seven crash/splash cymbals, two rides and a china. The rattle of the snare wires of the primary snare - a 5"-deep Ludwig Black Beauty - is just right for propelling those country train beats, while the poppin' Rogers Powertone wooden 5x14" has a more militaristic sound.

As well as sticks, there are options for brushes, wire brushes and hands, and while not every drum/cymbal supports all of these implements, there's enough choice that you won't feel stifled. Mic-wise, beyond the usual close-miked suspects, there's a close stereo ambience, which can really expand the sound; less obtrusive stereo ceiling mics; and a mono mid-distance room mic, which thickens the midrange (and gives a vintage breakbeat vibe when soloed).

Overall, this is another excellent effort from Toontrack that's suitable for country, rock, funk and more besides.

9/10



ASK Video Cubase 5 Tutorial DVD Level 2 £36

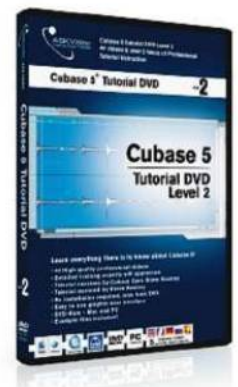
Web www.timespace.com
Contact Time+Space, 01837 55200
Format PC/Mac

Here we have three hours of video-based instruction on Steinberg's Cubase 5, building on the basics covered in Level 1. The package is divided into 44 lessons, each lasting several minutes, and there are Cubase project files to accompany each.

The DVD has its own proprietary player software, and the QuickTime video files can't be accessed directly. This isn't a big deal in itself, but the player requires you to register online, and we even had to download an update before it'd work. While this wasn't a Herculean task, users who buy the DVD to watch on the go might be inconvenienced. We also had issues with example projects not loading patches correctly and reporting missing files, though this didn't detract from their usability.

Niggles aside, this is a solid package with thorough, straightforward examination of the software, covering facets such as automation, mixing and VariAudio. If you're looking to enhance your Cubase 5 knowledge, this is a worthy purchase.

8/10



Soundware round-up

Producer Loops DOWNLOAD **Supalife Dubstep: Smooth Edition** £25+

Web www.producerloops.com
Contact via website
Format ACID, WAV, Apple Loops, MIDI, Reason
ReFill, REX



Supalife's latest effort takes the slightly odd approach of putting a 'smooth' twist on dubstep. While this might be hard for your mind's ear to conjure up, in short it ranges from classic wobbles and beats to a more commercial vocal-based approach, and even dips into R&B territory. The pack is made up of five construction kits, each broken down into their (dry and wet) stems for you to manipulate. The quality is fantastic with lots of depth and clarity in the beats, basslines and pads, and although everything is set to 140bpm, there's lots to work with.

8/10

Fireloops DOWNLOAD **Electro Hop** \$10

Web www.fireloops.com
Contact via website
Format Apple Loops, REX, WAV



Claiming to bring you the electro-infused hip-hop-ish stylings of Black Eyed Peas, Timbaland and Lady Gaga, this pack offers 11 construction kits ranging in tempo from 75 to 145bpm. Unfortunately, the tracks are rather cheesy and, somewhat bizarrely, the sounds often remind us of old-school 90s tracker/demoscene music due to their dated nature and the generally basic mixing. One of the kits even has a lead synth line that's way out of tune with the track - which doesn't exactly inspire confidence in its producers. Despite the bargainous price, we'd advise you to splash your hip-hop-loving cash elsewhere.

5/10

Vengeance-Sound DOWNLOAD **Vengeance Studio Vocals Vol 1** £65

Web www.vengeance-sound.com
Contact via website
Format WAV



Vocal manipulation software such as Auto-Tune and Melodyne makes it possible to repurpose almost any vocal hook to fit your track. Vengeance have pounced on this concept and produced 20 acappella kits featuring six singers, all female, in a commercial dance style. You typically get song sections like verse, chorus, etc, with harmony parts, dry and effected versions and so on. There are some simple synth backings with accompanying MIDI files too.

Unless you work with vocals constantly, you probably won't see the value in £65 worth of 'em, but if you do and you can't find something suitable here, you should probably look into buying a microphone.

8/10



Loopmasters DOWNLOAD **Alien Robot Vox** £20

Web www.loopmasters.com
Contact via website
Format WAV, Acid, REX, Apple Loops, Stylus RMX

This pack focuses on vocoder loops à la Daft Punk, Mylo and Air, ranging from 90 to 126bpm. We were initially concerned that the results would be a little thin and '70s sci-fi', but au contraire: Alien Robot Vox is filled with fizzy, deep and full vocoded effects, sounds and phrases. What makes it so good is that these aren't just standard clichéd phrases that have been quickly run through a vocoder plug-in. Instead, every sound is crafted and effected to bring out the best of it. The results are at once both authentically retro and thoroughly modern - immediately usable yet filled with heaps of analogue grit and noise.

Split up into categories such as Rhythmic Melodies and Autotalk Androids, Alien Robot Vox covers all vocal effect bases, from subtle electronic soundscapes to vocal hooks that could fuel a breakdown or even a full track. Electro house tunes will probably be the biggest beneficiary of this pack, but there's enough here to cover everything from Kraftwerk minimal to Boys Noize techno.

9/10

Sound Order **Production Tools 3** \$87

Web www.bestservicede.com
Contact mail@bestservice.de
Format Kontakt, WAV, MIDI



This is a comprehensive, well-designed pack for electro, tech and progressive house producers. The 30 construction kits contain not just loops and stems of a complete musical idea but also one-shots of the drum parts and multisampled Kontakt patches of all the instruments, along with MIDI files to recreate their parts. The quantity is matched by the quality: PT3 sounds crisp, deep, bright and professional. While it is a bit electro house-by-numbers, it's all quite authentic, and the fact that you get everything from stems down to patches and one-shots makes it all the more flexible, and suitable for producers of all levels.

8/10

Puremagnetik DOWNLOAD Artifact \$12

Web www.puremagnetik.com
Contact info@puremagnetik.com
Format Ableton Live 8, Kontakt 3.5, Logic 8

This pack uses digital artifacts and anomalies as sound sources, including aliasing, clock glitches, SysEx errors and mis-quantised samples. Arranged across six kits (up to 38 sounds in each) and accompanied by a number of MIDI clips (Apple Loops for Logic and Kontakt), this pack sits very much in glitch territory.

Sounds are edgy, sharp and short, and in Live format are easy to modify due to sound-by-sound macro implementation. Kontakt users get a custom interface, while Logic users are offered ready-made channel strips. Overall, this is a great add-on, providing plenty of digital edge and glitch at a crazy-low price.

8/10



Zenhiser DOWNLOAD Total Tribal Drum Beats Volume 1 £9

Web www.zenhiser.com
Contact via website
Format WAV

Here you'll find 124 two-bar drum/percussion loops, all at 125bpm. There are 40 patterns in total, with each loop coming in three variations. Stylistically, the set is very focused, sitting at the groovy/funky end of the house spectrum - with a tribal feel, of course. The sound set could be broader - we heard the same ones cropping up throughout. However, the excellent programming and solid production saves the day, and a full kick-based loop and two no-kick options make the samples useful for main loop and supporting roles. It's a very specific pack, but at this price, that's fine.

8/10



Prime Loops DOWNLOAD Ambient Fractals £17

Web www.primeloops.com
Contact info@primeloops.com
Format WAV, AIFF, Acid, Garageband, Ableton Live, FL Studio, Reason ReFill, Roland Fantom X

Created by Prime Loops' Dmitry Vasilyev, Ambient Fractals delivers a range of ambient effects and loops. The bulk is taken up by 276 effects spread across 15 categorised folders, from atmospheres and "blasters" to sirens and stabs. Sounds range from one-second hits to longer atmospheres of 20 or more seconds. Additionally, you get 20 tempo-labelled, 1-to-4-bar loops.

The 400MB of content provides quite a bit of variety and is sonically good, if not amazing. Ready-mapped sampler patches for the one-shots would be useful, and more than 20 FX loops would have been welcome.

7/10



Ueberschall Jazz Colors €99

Web www.bestservic.de
Contact support@bestservice.de
Format Elastik Instrument Soundbank

Ueberschall Jazz Colors features 20 construction kits of live recorded jazz. Tempos and styles vary, and include cool jazz, bebop, latin and fusion. Each kit has patches for intro, outro and up to four main sections. Within these you'll find a full cue mix and loops for each instrument (bass, drums, keys and lead instruments). What's more, the drums are broken down into all elements (overkill maybe). The sound quality is great and happily all instruments were recorded as dry as possible. The kit loop format enables convincing track construction, forming a springboard for additional instrumentation.

9/10



Detunized DOWNLOAD Binaries Volume 00 €7

Web www.detunized.com
Contact via website
Format Ableton Live 7 or later

Binaries Volume 00 features 480MB of sounds sourced from the four-operator FM chip found on 1990s Sound Blaster soundcards. Sampled using a genuine card and via the inherently noisy output to provide the whole experience, the 35 instrument racks include electric pianos, synth sounds, FM bass, clavinet, some FX and lots of bell-like sounds.

Realistic it ain't, but some of this is very usable, and we particularly liked the Classic Mono, the various Classic Synths, the edgy Wire Clavinet and the heavily effected Chip Music patches. Although editing options are a bit limited (macros access the useful stuff), purists will love the direct nature of these classic sounds.

9/10



Dubdrops DOWNLOAD Dubstep and Grime Vocals £20

Web www.loopmasters.com
Contact via website
Format WAV, REX2, HALion, Kontakt, EXS, SFZ, Stylus RMX, NN-XT

The title says it all: 735 phrases and vocal lines laden with UK street-level slang, delivered by two vocalists. Arranged in alphabetical order, the hits and hooks are focused on spoken and often monosyllabic phrases. Some are rhythmical, with a tough MC vibe and attitude, but the majority are just phrases or sentences with no particular pace or rhythm, making them best suited for fills and spot FX. Some of the content is a little mundane, and at times the pack feels more like a soundboard for a stereotypical BBC4 'underground' London sitcom, but dig in and you'll probably find something to suit your needs, blud.cm

6/10



cm/recommends

The best new gear from the last three issues...



Iced Audio \$69 AudioFinder 5 MAC

Rating 10/10
Reviewed **cm**154
Contact software@icedaudio.com
Web www.icedaudio.com

What is it? An audio file organiser, AudioFinder is, as far as we're aware, the only program of its kind. You can browse files by directory, preview them (or play them via a MIDI keyboard), detect pitch/tempo, make edits and apply effects, use batch processing/renaming, and much, much more. New for v5 is a powerful metadata tagging system that features similarly adept searching functions.

Verdict "It's not the sexiest bit of music software, but when it comes to getting a grip on your samples, nothing beats AudioFinder."



Steinberg Nuendo 5 £1531 PC MAC

Rating 9/10
Reviewed **cm**155
Contact via website
Web www.steinberg.net

What is it? Cubase's big brother is a DAW of epic price and proportions, being aimed primarily at post-production professionals. New features include an enhanced automation system, intuitive surround panner, better MediaBay, and a funky pitch effect. Some of Nuendo 5's improvements are already shared by Cubase 5.5, and - fingers crossed - hopefully we should see more of them making an appearance in Cubase 6.

Verdict "A solid and attractive update that's light on pointless 'whizz bang' additions."



Propellerhead Reason 5 £300 PC MAC

Rating 10/10
Reviewed **cm**156
Contact Sound Technology, 01462 480000
Web www.propellerheads.se

What is it? A self-contained virtual studio, Reason revolves around a rack that can be stuffed with synths, drum machines, effects and more. Additions for v5 include Kong, an awesome semimodular drum machine; Blocks, a superb sequencing system; Dr. Octo Rex, which supersedes Dr. Rex and lets you load up to eight REX files at once; hardware-style direct sampling; and a generally slicker GUI.

Verdict "It's always been a superb app, but with v5, Reason finally feels 'complete', offering a highly satisfying musical environment."

What we've been using this month



Ronan Macdonald
Editor

In the course of putting together *Ableton Live: The Ultimate Guide* (see p99), I've fallen head over heels in love with the Teutonic über-DAW all over again. Come here, you little beauty...



Lee du-Caine
Deputy Editor

Aether was already a great reverb, but v1.5 takes it to the next level, with a slicker GUI and myriad new options. Developers 2CAudio are evidently in it for the long hall. Ahem.



Tim Cant
Multimedia Editor

TAL-Noisemaker inspired me to spend the entire month crushing my bits and, er, modulating my ring. The results could best be described as disturbingly satisfying.



Caity Foster
Production Editor

I've been toying with Jasuto for iPhone. Its bright colour scheme and cute dot modules are what caught my attention - and its ability to manipulate sound via spatial movement has held it since.



PRIME LOOPS

WE'RE IN THE MIX

Prime Loops provide award-winning sound libraries, fresh in-tune with the evolving music scene. We are an extremely passionate team of engineers, sound designers & DJs, hailing from London, UK

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Issue 156 October 2010

- 1249 Time+Space samples and 2001 drum 'n' bass samples on the DVD
- The **cm** Guide to Reason 5
- Extreme envelopes
- Jamming in Ableton Live
- Producer Masterclass: DJ Fresh
- Cakewalk V-Studio 20, Steinberg HALion Sonic, Slate Digital FG-X and more reviewed



Issue 155 September 2010

- FXpansion Guru CM and 2021 jazz samples on the DVD
- Troubleshoot your music computer
- iPad MIDI control
- Build electronic beats from scratch
- Producer Masterclass: Nick Thayer, Black Noise
- Steinberg Nuendo 5, Toontrack Beatstation, Audio Damage Discord3 and more reviewed



Issue 154 August 2010

- Synapse Audio Junglist and 2001 Carnival Rave samples on the DVD
- Make a track for free
- Touch of genius (make music on your iPad)
- Hard times (integrating outboard gear)
- Producer Masterclass: Blame
- XILS-lab PolyKB, Line 6 Pod Farm 2, UAD Precision Enhancer Hz and more reviewed



Issue 153 July 2010

- Big Tick Audio Rhino CM and 2167 ambient samples on the DVD
- Ambient masterclass
- Rhythm and stealth (videogame music)
- See the music (a visual look at sound design)
- Producer Masterclass: Jayce Lewis
- Xfer Records Nerve, FXpansion BFD Eco, UAD FATSO, Magix Vandal and more reviewed



Issue 152 June 2010

- Time+Space UVI Soundstation and 2045 dark dub samples on the DVD
- The beginners' guide to mixing
- Tricks with time
- ...And the kitchen sink (foley sound)
- Producer Masterclass: Bonobo
- Vengeance-Sound VPS: Metrum, SoundToys V4, DMG Audio Equality and more reviewed



Issue 151 May 2010

- Martin Eastwood Audio Duet and 2,007 urban rock/electronic samples on the DVD
- The beginners' guide to MIDI and sequencing
- Emulating effects
- Sounds of sci-fi II
- Producer Masterclass: dan le sac
- IK AmpliTube 3, Avid Eleven Rack, Image-Line Harmless, D16 Syntorus and more reviewed

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>Your questions answered

Q&A

Searching for that next bit of kit? Trying to get your current setup to play nice? Or do you have a hankering to find out how your favourite artist gets their signature sound? Send your questions to cmhelp@futurenet.co.uk



Interface issues

Question I've been using an old PC to make electronic music for a while now, and have decided to upgrade to a dedicated machine in order to get better performance, reliability and sound quality. I already have all the software that I need, and I definitely want to stick with Windows - though not Vista, ideally - but I'll need a decent audio interface because I'm going to buy a pair of Yamaha HS80Ms and I want to be able to get the best out of them. What would you recommend I buy? I have a budget of a grand but would like to keep as much of that as possible!

Andrew Marshall



Native Instruments' Audio Kontrol 1 is a solid all-round audio interface that would be ideal for a first-timer

COMPUTER music QUESTION OF THE MONTH

The Sample Boutique
Loopmasters
WWW.LOOPMASTERS.COM

The writer of our *Question of the Month* will receive their choice of two Artist Series sample libraries courtesy of Loopmasters.
www.loopmasters.com



Answer You'll be glad to hear that any PC you buy these days will come with Windows 7 rather than Vista, so that's one thing you don't need to worry about. On your budget, we'd suggest the following...

Audio interface-wise, there are plenty to consider, but we can recommend the Native Instruments Audio Kontrol 1 (RRP £242), which you can find online for £219. This is a great all-round interface with balanced outputs plus XLR mic and 1/4" line inputs, should you decide you want to get into recording. Many audio interfaces work over FireWire, but not every PC has a FireWire port; the Audio Kontrol 1 is a USB interface, which means that you'll definitely be able to use it with any new PC. There are also 64-bit versions of the driver available. While some 32-bit drivers will work fine with 64-bit versions of Windows, having a dedicated 64-bit driver means that the interface is futureproof and will be usable for a long time to come.

For something a little more affordable, however, consider the Focusrite Saffire 6 USB, which is another USB device offering quality on a par with the more expensive FireWire Saffire units.

As for the PC, you'll get great performance from Scan's 3XS range of machines. After buying the audio interface, you'd have enough money left in your budget to get a Scan 3XS H55E DAW (£732.93), which has a 2.93GHz Intel Core i3 530 processor, 2GB RAM, Windows 7 Home Premium 32-bit and silent cooling inside the case. It's based around a Gigabyte GA-H55M-UD2H LGA 1156 Intel H55 HDMI Micro ATX Intel motherboard (pew!), which features six USB ports and one FireWire port. If you decide that the processor isn't nippy enough in the future, you can upgrade it to an Intel i5 or i7 model, which will give you scorching speeds - more than enough to run extremely complex projects.

Reels on wheels

Question When I think a music mix is almost ready to be released to the world, I put it on my iPod, head out to the car and go off for





Testing your mixes on a car stereo (amongst other environments) can reveal all sorts of important production details that might well be missed in the sonically and psychologically comfortable confines of your studio

a drive. For reasons I have yet to understand, hearing the music on the car stereo works wonders for identifying areas that need more expression, for determining that a percussion line is too loud and so on. I know of others who test their mixes in their vehicles as well, but none of us know why this works. Why exactly does the 'car test' work so well?

James Stafford

Answer Testing a piece of music outside the environment in which it was created is a good idea for several reasons. For starters, when you hear music, you're not just hearing the track itself – you're also hearing the reflections inherent in your listening environment. This will make some frequencies more pronounced than others, and can have a significant impact on how the track sounds overall. Listening to it in another space gives you a chance to reappraise your mix, even though this new space will have its own quirks. For that reason, listening to a track in a variety of different rooms/spaces gives you a better idea of how it sounds overall. Cars in particular can make for an interesting listening environment, because while they won't have a very flat sound, the small, enclosed space means that they're not subject to the same kind of reverberations that you'll hear in a room in your house.

The fact that you're listening to it through the car stereo has a bearing too, of course – naturally you want your mixes to transfer well to

perhaps more lo-fi (or at least less 'perfect') systems and still sound good. For that very reason, many producers will spend time listening to their mixes through low-end systems. For example, in 136's *Producer Masterclass*, Riley and Durrant explained how their old-school 3D Subwoofer ghettoblaster proves handy for checking tracks in the studio.

As well as the audible effects of listening to your music through a different speaker setup and room environment, there's also an important psychological element that further validates the car test. Free from the distractions of your studio, you should be able to distance yourself from your work more easily and listen to it with fresh ears, as though it were 'just another piece of music'.

As well as listening to your tracks in the car, we suggest trying as many different systems as you can – laptop speakers, MP3 players, friends' studios, etc. The more of these tests you do, the easier you'll be able to identify problems with your mixes and the better idea you'll have of how well your tracks translate between systems.

Loopy tunes

Question I use Ableton Live's ability to chop a loop into samples and resequence them with MIDI. However, I often want to be able to change one of the samples' parameters – for example, tuning or decay.

> Step by step

Edit individual loop slices in Ableton Live



1 > If you've not used Live's ability to automatically slice an audio loop into individual samples to be triggered by MIDI before, don't be too intimidated – it's really quite simple. Start by dragging any loop (for example, **JazzLoop** on the **cm DVD**) onto an audio track in Live. Right-click the clip and select **Slice To New MIDI Track**.



2 > A window will appear asking you how you want to slice the sample. Leave the **Create one slice per setting** at the default **Transient**, and click the **OK** button. Live will do its thing, automatically slicing the Loop, and a new MIDI track with an Instrument Rack on it will appear. Click the **Show/Hide Devices** button and double-click a slice to see its Simpler instrument.



3 > You can now tweak the individual parameters of each slice. If you want to change a parameter with a green spot on it – ie, one that's controlled by the rack's macro controls – right-click it and select **Unmap from...**

"Free from the distractions of your studio, you can distance yourself from your work more easily and listen with fresh ears"

> Step by step

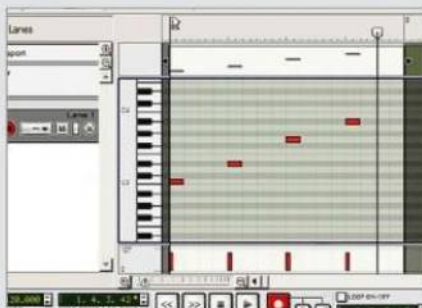
Layer instruments with Reason's Combinator



- 1 > The most convenient way to layer instrument patches in Reason is to use the Combinator. Start a new Reason project and **Create a Combinator**. Press the **Tab** key to flip the view round to the rack. The Combinator only has a stereo output, so we're going to need to use a mixer within it.



- 2 > Right-click the Combinator and select **Create>Mixer 14:2**. This will automatically be connected to the **From Devices** connections. Now we need to create some instruments to play. Right-click the mixer and select **Create>Thor Polyphonic Synthesiser**. Do this twice. Press the **Tab** key to flip round to the front and change the patch on the second Thor to **Fat Boy**.



- 3 > You'll see in the sequencer that there's a single MIDI track for the Combinator, rather than one for each Thor. If you create a sequence on the MIDI track it'll now trigger both Thor synths, and you'll hear the polysynth patch and the bass patch play in unison.



If you plug your mic into the line input of your audio interface, rather than the preamp-equipped mic input, you'll end up with very quiet recordings

Is it possible to do this without changing the same parameters on the other samples - and if so, how?

Rick Hall

Answer When Live chops audio clips into Simpler slices, the Simpler instruments are placed in an instrument rack. By opening this rack, you can access the individual instruments and change a parameter on one of them without affecting the others. To see how this is done, see the *Edit individual loop slices in Live* walkthrough on p125.

Glide glitches

Question I'm working on a dubstep project in Reason 4 that sounds different on the first play than it does the second and thereafter. When the wobble bass kicks in, it sounds different the first time that it's loaded up and played than it does at any point after, and I can't work out why. It's really annoying me as I prefer the way it sounds the first time, and I would like it to be repeated that way throughout. I've included the Reason file, which is built around three layers of the bass.

Colin Tate

Answer What's causing the problem is that one of the leads you're using has a glide effect on it. The first time the project plays, the sound glides down from a default pitch. After that, the sound only plays on a single note, so no further gliding occurs. There are several ways to get around this problem. You could assign an envelope to automatically bend the pitch with each note, program a pitch bend manually in the

sequencer, or add a silent note at the pitch you want the notes to glide from before each note plays. Finally, you should consider resampling the bass sound, for total consistency.

Double trouble

Question When making bass and lead noises in Reason, I often double parts with two instruments. This works well, but it is a hassle when it comes to changing the MIDI that triggers them. Is there any way that I can use a MIDI track to play two or more instruments at once?

Sam Carver

Answer There is indeed a method by which you can do this, thanks to Reason's extremely useful Combinator device. It's possible to put multiple instruments inside a Combinator, so that they can all be triggered by that Combinator's MIDI input. See the walkthrough *Layer instruments with Reason's Combinator*, left, for detailed instructions.

Jack it up

Question I have a four-year-old SM58 mic that I'm struggling to get a healthy level out of when recording guitar. My setup is this: I'm using a Behringer V-tone GMX212 amp and a Boss GT10 effects processor, with the mic plugged into an Edirol UA-101 audio interface with a jack lead. I've also used the same mic to record vocals and handclaps, and the gain has had to be pushed up loads to get an audible level. Using different leads hasn't improved things. Are there any tips

"Understanding synth fundamentals is absolutely essential if you intend to progress and make huge sounds"

that you can give to help me achieve a better level? The SM58 has spent most of its life on a mic stand, so is it possible that dirt could have affected the inner connections?

Liam Flanagan

Answer The SM58 is an extremely durable mic, so unless you've been very rough with it, it's unlikely that it's been damaged. The culprit in this case appears to be the way in which you're connecting the mic to the audio interface. By plugging it into the jack input, which is intended for line-level devices (or guitars, if you've got the Hi-Z switched engaged), you're bypassing the XLR input's mic preamps. These preamps are what boost the mic input to a usable level. You'll be happy to hear that the solution to your problem is both inexpensive and simple: get an XLR-to-XLR cable and use that to connect your microphone instead. If you want to record your guitar directly without going through a microphone, you can use the line input – but for the

microphone should always be plugged into the XLR socket.

First steps with synths

Question I have been DJing for about ten years, and recently I decided to take the next step and start producing. After about a year, I've started to know the ins and outs of Ableton Live 8. I have been producing better-quality tracks, mostly remixes, and am starting to feel like it will be possible for me to take it to the next level. However, I have come up against a stumbling block in the form of synth programming. I know what LFOs, envelopes and filters do, but actually putting them all together to make a sound is a different story.

Do you know of any books that take professional tracks and sounds and show you exactly how to make them? Everything I have read tells you roughly how to make certain standard synth sounds and are just no help

for making more complicated stuff. I want to make, for example, the synth sound that plays alongside the guitar sound in the Benny Benassi remix of Red Hot Chili Peppers' My Otherside, or Yin by Wolfgang Gartner.

Colin Murray

Answer Getting to grips with synth programming can be a tricky business, and it might seem like the advice given to beginners can't get you close to the sounds that you hear in big dance tracks. However, understanding the fundamentals is absolutely vital if you intend to progress and make the kind of huge sounds you're after: if you can't make simple versions of these tones, you're going to struggle when it comes to programming noises to rival those created by the producers you name.

As well as understanding the basics of synthesis, it's also important to understand what can and can't be done with each of the various types of soft synth available. Each synth has its own particular sound and capabilities –

Question How do I make a synth lead like the one on DJ Kurt's *Rock Ya Hardcore 2008*? Nik Walker



1 > The DJ Kurt noise is easy to make with any virtual analogue synth that features unison detune. We're going to use LennarDigital's Sylenth1. Load the synth up in your DAW and select the **Init** patch to initialise it. The key to this sound is having a lot of saw voices, so turn Oscillator 1's **Voices** up to **8**.



2 > Turn Oscillator 1's **Detune** knob up to around **3.76**. The sound has a slight 'pop' at the start – this is because the oscillator is currently set to retrigger from the start of its cycle whenever a new note is played. You can stop this by deactivating the **Retrig** button.



3 > We already have the basis of the sound that we're after, but it's a little thin at the moment. Let's make it sound a bit fuller by adding another oscillator. Once that's done, set Oscillator 2's **Voices** to **8**, **Detune** to **3.00**, **Octave** to **-1** and **Shape** to **Sawtooth**.



4 > That's the *Rock Ya Hardcore 2008* sound in a nutshell – but there's more. In the track, a filter and a stuttering effect are used on the sound. Let's have a go at recreating that. Start by setting Filter A to the low-pass type.



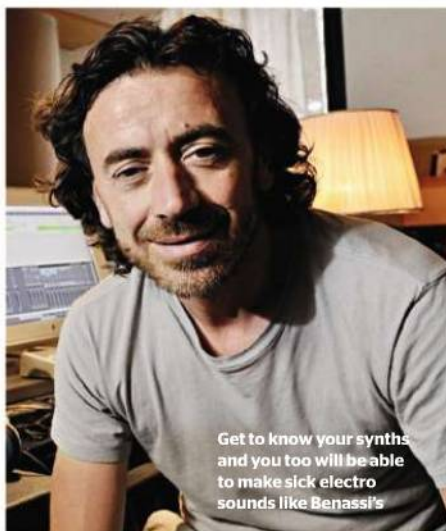
5 > Set the Filter's **Cutoff** frequency to **7.35Hz**, **Resonance** to **3.00** and **Keytrack** to **5.00**. We want the velocity of the MIDI note to affect the filter cutoff. In the Misc 1 panel, enter **Velocity** as the **Source**, then set the first destination to **Cutoff A** and turn the modulation amount up to **5.00**.



6 > Now program in a stuttered note, as shown. Change the velocity values with each beat to create a stepped filter-opening effect. Turn off your DAW's snap to accurately adjust the length of the notes – if they cut off too abruptly, turn Sylenth's amplitude envelope **Release** up a touch.

so while Massive is great for big, dirty electro sounds, it's less useful for complex FM-style tones because it has fairly limited phase/frequency modulation capabilities compared to something like FM8. Sylenth1 is a superb synth for making trancey 'supersaw' leads, but it's far less convenient for gritty pulse width modulation sounds, because it doesn't have proper PWM capability. We recommend taking your time learning the ins and outs of your synths and discovering what each is capable of. You could start by getting your head round some of the synths in the **cm** Studio. For dance music in particular, you should try Genesis CM, Zebra CM, Dominator and Alpha CM. It's possible to get some awesome sounds out of these synths if you know what you're doing with them, and you already have access to them as they on the **cm** DVD every month.

It's also worth pointing out that the sounds you hear in commercial tracks don't often come



straight out of a single synth. You often won't get the desired effect from just one synth, so it's useful to understand the importance of layering, resampling and processing, and how you can use them to get a bigger, better sound.

If you're interested in finding out how the pros make their sounds, don't miss our monthly *Producer Masterclass* series, including video on the DVD, in which top producers show off their synth patches and production tricks in detail.

As for the electro sounds used by the likes of Benny Benassi and Wolfgang Gartner, you should find our *Make an electro lead in Massive* walkthrough opposite helpful. One final bit of advice: don't get *too* hung up on trying to exactly recreate a particular sound you heard on a particular track. The producer will probably be using totally different equipment to you, and may well have travelled a long and winding path to contrive a unique tone that even they might struggle to reproduce from scratch!

Question

How do I make the beat used in Aggro Santos' *Saint or Sinner*?

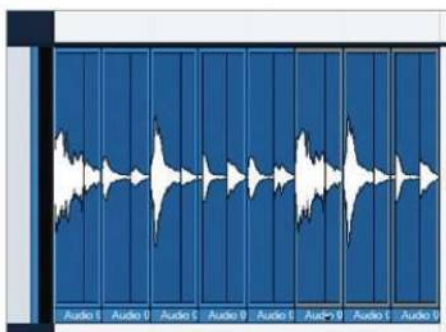
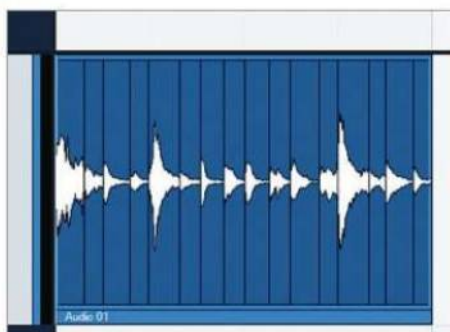
Jamie Wood



1 > You won't have much luck trying to make the *Saint or Sinner* beat with single hits, but given the right loop it's actually very easy. Visit www.junglebreaks.co.uk and download the **think-all5.wav** break. Drop the sample onto an audio track in your DAW.

2 > You'll recognise the third groove as the one used in the Aggro Santos track. The start of this beat occurs **4.459** seconds into the audio file. Slice the audio here, and again at **6.571**. Delete the audio either side of these points.

3 > Move this section to the first bar of the project. It clocks in at approximately 113bpm, whereas *Saint or Sinner* is at a more uptempo 130bpm. Set your DAW's tempo to 113bpm. You can speed the beat up without pitchshifting or resampling by turning off your DAW's snap function and manually slicing out each hit, as we have here.



4 > Set the project tempo to **130BPM** and - bosh! - the *Saints and Sinners* beat is running smoothly at a tempo suitable for house and UK funky. For convenience's sake, glue (or bounce or consolidate, depending on what options/terminology your DAW offers) the parts into a new clip so that it can be edited as a single entity.

5 > At some points in the Aggro Santos track, the beat is rearranged to play in a two step-style pattern. To do this, slice the first kick, snare and shuffle and paste them onto the last three eighth-notes as shown here. All done!

POWER TIP

>Think again

The break used in the Aggro Santos track comes from Lyn Collins' *Think (about it)*, which has been sampled in countless dance and hip-hop tracks from Rob Base and EZ Rock's *It Takes Two* to Dizzee Rascal's *Pussyhole (Old Skool)*. If you want the *Think* break feel but don't want it to sound so identifiable, consider layering it up with another break. To do this you'll need to slice the new break up using the technique outlined in the walkthrough and rearrange the parts so that the kick, snare and hi-hats work with the *Think* beat. Another way to get a different sound is to layer the beat with single-hit drum sounds.

> Step by step

Make an electro lead in Massive



1 > Native Instruments' Massive is ideal for making electro noises thanks to its highly flexible, beefy-sounding oscillators, fat filters and plethora of other sound-shaping tools. Select **File»New Sound** in Massive's interface to create a new patch. We're going to use a single saw oscillator to make this sound, and conveniently, that's how the first oscillator is set up by default.



2 > We can make the sound fatter by adding more voices. Select the **Voicing** tab in Massive's centre panel and turn the number of **Unison Voices** up to **4**. This won't really have the desired effect until we detune the voices, so set the upper range of the **Pitch/Cutoff** spread to **0.13**.



3 > Activate the **Unison Spread's Pitch Cutoff** by clicking the **Off** button to flip it to **On**, and turn the slider up to full. This is a good thick, raw sound to work with, but to get that electro feel, we're going to need some filtering. Set Filter1 to **LowPass 2** mode.



4 > Turn Filter 1's **Resonance** and **Cutoff** knobs all the way down. Drag the modulation handle from 1Env to the first slot under the **Cutoff**, then drag upwards as far as you can. This sets the 1Env envelope to modulate the filter cutoff. The 1Env envelope is a little loose and flabby though, so let's tighten it up.



5 > Click the **1Env** tab to bring up the envelope display, then copy the settings for the **Decay** and **Level** knobs shown here. This gives us a short percussive pluck sound that's less rave, more electro. Click the **Voicing** tab and select **Monophon** mode, then click the **Osc** tab and set the **Time** knob to between 9 and 10 o'clock.



6 > If you play the sound with an octave-skipping riff like this, you'll hear the squeaky portamento effect. To make the sound less Benny Bennassi and more David Guetta, turn Oscillator 1's **wt-position** knob all the way down, changing the sawtooth wave to a square.



7 > That's quite enough of that - turn the **wt-position** knob all the way up again. In Benny Bennassi's remix, the filter opens up to create a rave lead effect later in the track. You can achieve this by simply automating the filter cutoff, or via MIDI. Right-click Macro Control's **2** knob and select **MIDI Learn**.



8 > Move the knob or fader on the MIDI controller that you'd like to assign to the filter cutoff. This assigns it to macro control 2 - you'll know this because the control will move in sync with the knob or fader on your hardware controller. Drag the modulation handle to the second slot under the Filter1 **Cutoff** knob.



9 > Drag up on this slot as far as you can so that the full range is highlighted in yellow. You can get a more interesting sound by assigning this control to a second parameter at the same time - here we've assigned it to the phase modulation to get a nasty FM-style tone. Our final patch is on the **cm DVD.cm**



PADS

They may carry cheesy, old-fashioned connotations, but gorgeous analogue pad sounds can make a track beautiful. We explain how to make yours count



> In music production, the word 'pad' generally refers to sustained background sounds. They're usually synthetic in origin, although sampled strings and choirs are also common. Synth pad sounds existed before the first commercially available polyphonic synths; multitruacked chords were the electronic musician's first choice for creating rich synthetic walls of sound. Later, Fairlight samplers and workstations made by Roland and Korg took the humble pad into new dimensions of sonic sophistication, comprising lush layers of sound effects, acoustic instruments and the human voice.

Pads have a less than glamorous reputation. Indeed, their very name suggests a basic sound that other more interesting noises are layered on top of. In fact, the creation of great pads sounds has become something of a lost art. Their appeal isn't as immediate as the visceral thrills of lead lines and bass noises, and making an interesting pad requires a subtle touch and a fair amount of effort if you're after something more sophisticated than a simple analogue synth wash. It's often easiest just to reach for an off-the-shelf preset. That's a real shame, though, because the power of modern computer music technology makes it possible to create truly amazing pad sounds.

In this guide we're going to show you how you can make your own awesome pads from scratch, turn everyday samples into evolving soundscapes, and use

"The power of modern technology makes it possible to create truly amazing pad sounds"

effects to get the most out of your pad sounds. We'll also recommend some of the best virtual instruments available for making pads. Remember, though, that while having a particularly capable super-synth such as Omnisphere can certainly benefit your sounds, it's by no means mandatory. With patience and creativity you can make rich, memorable pads using all manner of different software that will blow those overused synth presets out of the water.

> Step by step Build a basic virtual analogue pad



1 > If you're after a synthetic-sounding pad, it's quite possible to get great results just using the synths in the **cm** Studio on our cover DVD. Here we're going to make a basic but atmospheric pad using ZebraCM. Load it up in your DAW. Start by turning the **Attack**, **Sustain** and **Release** on the first envelope up to **59**, **100** and **55** respectively.



2 > This gives us a nice slow amplitude envelope with a sustained volume level. We also need to make the filter envelope move more smoothly. Set the second envelope's **Attack**, **Decay** and **Release** times to **78.50**, **54.50** and **55.00**. This gives the sound a smooth filter sweep. We can make it subtler by decreasing the effect the filter envelope has on the **Cutoff**.



3 > In the Filter panel, turn the **Env2** knob down to **36** and set the **Cutoff** to **6.00**. We want a nice smooth sound, so set the filter type to **LP Allround**. Let's turn the **Resonance** up a bit, but not too much: obvious resonance sweeps are ear-catching, but that's not what we're going for. A **Resonance** level of **6.00** is a good compromise.



4 > More voices make for a thicker sound. Set both oscillators' **Voice** mode to **Quad**, then set the **Detune** level of Oscillator 1 to **-8** and the **Detune** level of Oscillator 2 to **+6**. We can make bigger chord sounds by tuning one of the oscillators up a fifth, so set the **Tune** level of Oscillator 1 to **7.00**.



5 > The sound is getting there, but it's a bit dry at the moment. We can moisten matters somewhat by activating ZebraCM's built-in effects. Double-click the **ModFX1**, **Delay1** and **Rev1** boxes at the bottom left-hand corner of the interface to activate them.



6 > There you have it – a lush, analogue-style pad sound from a single synth. You can add other layers to make it more interesting, but for a simple bread-and-butter pad, this will do the job by itself quite nicely. Try sweeping the **Cutoff** up and down quickly to create a cool delayed sweep effect on top of the main body of the sound.

Four pad-riddled classics

Tangerine Dream
Love On a Real Train
Krautrockers **Tangerine Dream** created a piece of music so beautiful and timeless for the soundtrack of *Risky Business* that it not only helped to distract audiences from the dire nature of the film, but also inspired the composition of a classic ambient album: **Global Communication's pad-tastic 76:14**.
www.bit.ly/Ns3EA



Moby
Go

This atmospheric slice of hardcore techno is based around a haunting chord sequence. A little known fact: it's not a Moby original, having been sampled from Angelo Badalamenti's *Laura Palmer's Theme* from David Lynch's cult TV series *Twin Peaks*.
www.bit.ly/lywLm



LtJ Bukem
Horizons

The beat is from Kurtis Blow's *Do the Do*, and the keys are from Lemon Sol's *Sunflash*, but the shimmering pads are all Bukem's own. Together with big 808 bass noises, it's a slice of DnB heaven. A heavy Korg user, many of Bukem's tracks are goldmines for the pad preset spotter.
www.bit.ly/30215d



Burial
Etched Headplate

The modern-day king of euphoric yet dystopian ambience, the mysterious Burial's tracks are swathed in haunting pads, strings and ingenious vocal processing. *Etched Headplate*, in particular, is a stunning piece of work that showcases Burial's skill at creating evocative atmospherics.
www.bit.ly/RBFy8



> Step by step Achieve a gated trance pad effect



1 > Recreating that old-school 90s stuttered pad effect – as heard in tracks such as the seminal *Age of Love* by Age of Love – is easy with today's software. There are quite a few ways to do it, but we're going to use the classic audio gate method. Start by loading up a pad sound and programming in a short sequence.

2 > Most DAWs now feature gate effects with sidechain inputs. We're using Cubase, and while the way you add and route gate effects may be different in your DAW, the fundamental concept will be the same. Consult your software's documentation if you get stuck. Add the Gate effect to the instrument channel.

3 > A gate works by only letting audio above a certain level through. When the gate is set to its sidechain input, you won't hear anything from the instrument channel until the sidechain receives some input. We're going to use a hi-hat sound to trigger the gate. In Cubase, add a new instrument track and load the HALionOne **Hip Hop Drums** preset.



4 > Copy the pattern we've used here. This gives us the classic stuttered 90s trance sound. On playback you'll only hear the hi-hat play. We want to hear the pad and not the hi-hat. To route the hi-hat to the Gate's sidechain input, bring up HALionOne's channel settings and add a send to the Gate. Activate it and set the level to **0dB**.

5 > Now when you play the project back, you'll hear the pad pulsing along with the hi-hat. The effect is working, but we don't want to hear the hi-hat at all in the mix. To do this, we need to disconnect its routing from the Master Out. In the channel settings, click where it says **Stereo Out** and change it to **No Bus**.

6 > That's the effect in a nutshell. You can tighten up the effect by turning down the gate's **Release** parameters. Add a big reverb effect after the gate and you're in pure trance territory! Automate the **Release** time to switch between the original sustained and stuttered versions of the sound, if required.

Four great instruments for making pads



Spectrasonics Omnisphere **£379**

Cofounded by Roland Chief Sound Designer Eric Persing, Spectrasonics have a great pedigree when it comes to creating pad-centric products. Their Atmosphere ROMpler was a useful for lush acoustic and analogue tones, but Omnisphere is in a different league thanks to its excellent library of sample-based source material and powerful synth engine.
www.spectrasonics.net



Native Instruments Absynth 5 **£179**

While Omnisphere is arguably the better tool for creating warm, lush tones, Absynth is a favourite of many producers when it comes to abstract ambiences and off-the-wall pads. An extremely capable synthesiser with stunning effects and copious modulation options, Absynth is ideal for those looking to get serious with their synthesis.
www.native-instruments.com



Lennar Digital Sylenth1 **£139**

At the other end of the spectrum to Absynth and Omnisphere, Sylenth1 is a straightforward virtual analogue synth. Its selection of waveforms and filters is pretty basic, but its saving grace is its drop-dead gorgeous analogue sound, top-notch unison detune and a great built-in effects section. For straight-up analogue pad synthesis, Sylenth1 is hard to beat.
www.lennardigital.com



reFX Nexus **£299**

reFX Vanguard's step-sequenced gate endeared it to trance-heads, but its sample-based follow-up, Nexus, has become popular with producers in all kinds of genres thanks to its absurdly high-quality sounds, including a selection of superlative pad presets. With a huge library of expansions available, Nexus is ideal for those after quality pads in a hurry.
refx.com

> Step by step Create rhythmic vocoded pads



1 > Let's combine a pad with a drum loop to give it some rhythmic movement. We're using Ableton Live, but most DAWs feature vocoder plug-ins. Load **VocodePad.wav** and **VocodeDrums.wav** (on the DVD) onto separate audio tracks. Change the pad track's **Output** to **Send** **Only** because we only want to hear its processed output.



2 > A vocoder uses two inputs: a carrier and a modulator. Without getting into too much detail, the carrier is the raw sound and the modulator provides the 'expression'. The vocoder plug-in should go on the modulator channel, so put it on the **VocodeDrum** track. By default the **Carrier** is set to the internal noise generator (**Noise**), which creates an abstract percussive effect.



3 > Change the **Carrier** mode to **External** and, in the **Audio From** box, select the audio track with the pad sound on it. On playback you'll hear a much more rhythmic version of the pad. Turn up the **Release** time to get a smoother, less staccato sound. You'll also need to turn down the level of the track.



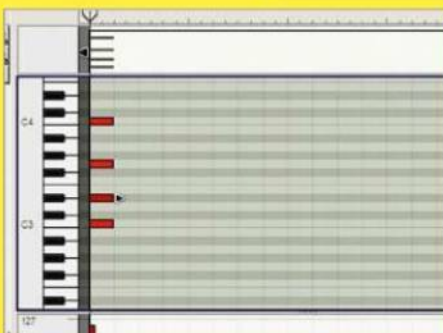
4 > Delay and reverb effects work well on this sound, and you can get interesting evolving textures by automating the vocoder's **Formant** and **Depths** levels and **Attack** and **Release** times. Turning up the **Unvoiced** control adds noise to the bands that aren't being used by the carrier, giving the sound a full, percussive feel.

Padding it out

While basic synthetic pad sounds are all well and good, the pad came of age with the advent of workstation keyboards that combined sample playback with synthesis. This allowed for the creation of pads that not only used much richer voices than you could get from analogue oscillators, but also enabled the addition of other noises, more complex filtering, and chorus, phaser, delay and reverb effects. Many of the classic pad sounds from legendary workstations such as the Korg M1 and Roland JV-1080 were combinations of sustained sounds with interesting rhythmic elements. The very first combi preset on the M1 is the infamous 'Universe', which combines the straightforward clarity of the 'Choir' patch with the intriguing tinkling rhythms of the 'Lore' patch. This can be heard during the intro to The Orb's *Supernova At The End Of The Universe* and throughout LTJ Bukem's *Delitefol*.

Another way of creating involving pads is to use rhythmic filtering. The 'Spaced Voxx' pad from the Roland JV synths used filters with LFO-modulated cutoff to create a sweeping soundscape that was immensely popular on the 90s DnB scene: the likes of JMJ & Richie, Total Science (under their Funky Technicians moniker) and KMC were all fans. You can recreate the JV vibe with modern soft synths by using two LFOs, one slow and one fast, to modulate your patch's filter cutoff, creating something a lot more interesting than your conventional filter envelope sweep.

> Step by step Make a pad with reverb



1 > It's possible to turn almost any sound into a pad with reverb, and this technique works particularly well on rich instruments such as pianos. In this quick example we'll show you how you can turn a short sound into a long, atmospheric pad in Reason. Start by adding a SubTractor synth and selecting the **CCRM E Piano** patch. Program a short chord, as shown.



2 > Right-click the SubTractor and select **Create»RV7000 Advanced Reverb**. We want a long reverb sound. Select the **EFX Kick Boom** preset. The **HF Damp** knob controls the high-frequency attenuation. We want our high frequencies to go on for as long as possible, so turn this all the way down.



3 > To keep the reverb tail sounding loud for as long as possible, add a Comp-01 Compressor/Limiter between the RV7000 and the mixer. Turn the **Ratio** all the way up and when you play the short chord back, you'll get a huge, sustained pad. Try different combinations of instrument and reverb settings to get different feels.

Get your stretch on

One great piece of software for making ambiences and pads is Paul Nasca's Extreme Sound Stretch. This intriguing tool enables ridiculously extreme timestretching, turning any audio material into a beautiful abstract soundworld, often unrecognisable as the source material. Recently, Extreme Sound Stretch became something of a meme when musician Shamantis used it to produce a 35-minute version of teeny bopper Justin Bieber's 3:16 bubblegum pop hit *U Smile*. The stretched version of the track was compared to the work of Icelandic post-rockers Sigur Rós and quickly went viral, amassing nearly two million plays on audio-hosting site SoundCloud at the time of writing. We caught up with Shamantis, also known as Nick Pittsinger, to find out about how the track came about.

Why did you decide to stretch *U Smile*?

"I saw a topic on Reddit a while back about how Extreme Sound Stretch could cleanly stretch any waveform by ridiculous amounts to make a 'texture'. I was curious and I wanted to experiment, and using *U Smile* seemed like something fun to do! The result was unreal and I knew I had to share it with other people. Extreme Sound Stretch is amazing. I made sure to thank Paul Nasca himself for it. I'll definitely be using it in future productions if I'm ever lacking a smooth, ambient texture."

Has there been any legal trouble from Justin's record label?

"Not at all! In fact, there's a whole article on the legal issues behind it, but Universal Music Group said they had no intention of taking it down or suing. Justin himself loved it, too."

When you're not using Extreme Sound Stretch, what do you make your pad sounds out of?

"A few things. A lot of it involves stacking stock pads with modified pads. I'm a huge fan of the Reason stock pads. If you tweak them a bit, they can sound quite nice! Nexus has some decent



Paul Nasca, whose Extreme Sound Stretch software lets you make ambient tracks and pads out of any audio

ones too. I'm hoping to upgrade to Spectrasonics Omnisphere soon, but it's pretty expensive!"

Do you have any tips for using pads?

"Less is more! It's better to have one very crisp pad that doesn't take up a lot of space than a huge one that eats up the other instruments in the song. You can always add other pads and sounds on top of the small one to make it even bigger. Don't overdo it though!"

We also got in touch with Extreme Sound Stretch coder Paul Nasca to see what he made of it all. So, Paul, were you surprised by the popularity of the *U Smile* stretch?

"Yes, I am quite surprised about the whole *U Smile* thing. It was just the right stretch music at the right place and at the right time. It has increased the downloads of Paulstretch a lot."

What do you think of the *U Smile* stretch itself? Have you heard any other good stretches recently?

"I listened to all of the *U Smile* stretch and I like it. Stretches made by other people that I've

enjoyed include *Ice Palace* by m0d (soundcloud.com/m0d/ice-palace-1998-ambient-stretched) and *Microscopic* by Gas (www.microscopics.co.uk/blog/2010/gas-microscopic-600-superstretch). There are others, but unfortunately I've lost the links and there are too many Paulstretches out there to find them again! I've got some very good results by stretching Vangelis tracks, including *Movement 1* from *El Greco* and *Monica and the horse* from *Conquest of Paradise*. I highly recommend you try that one, and for extra effect, lower the pitch by 2-3 semitones."

What tips do you have for users looking to make pads sounds with your software?

"You can make smooth music without stretching by using a very large window size (like 5-10 seconds) and setting the **Stretch** value to **1x**. After you click **Play** and wait few seconds, the music will be transformed into an evolving pad that keeps only the 'essence' of the music."

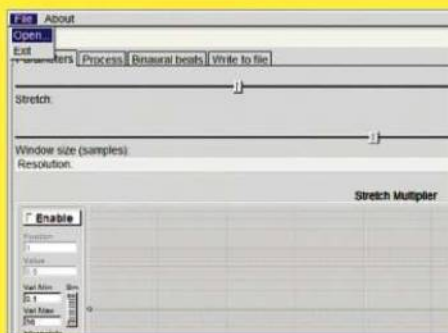
"If you want to get pads, here's something useful: A few years ago I made another algorithm that's specially designed to produce pad sounds. It is called PADsynth, and I implemented it into my software synthesiser ZynAddSubFX, so you can use it from there."

You can find step-by-step instructions for Paul's smoothing tip below. The original Windows version of Extreme Sound Stretch can be downloaded from hypermammut.sourceforge.net/paulstretch, and there's a Mac version available from music.cornwarning.com/2010/04/06/paulstretch-new-build-for-the-new-decade.

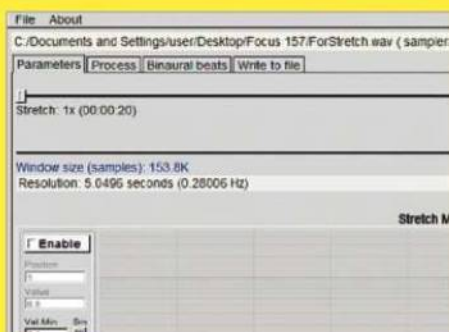
If you fancy giving PADsynth a go, Paul's software synthesiser ZynAddSubFX can be downloaded at zynaddsubfx.sourceforge.net, while the PADsynth implementation can be downloaded from zynaddsubfx.sourceforge.net/doc/PADsynth/PADsynth.htm. Who knows - you could be the next one to score a viral pad hit!

> Step by step

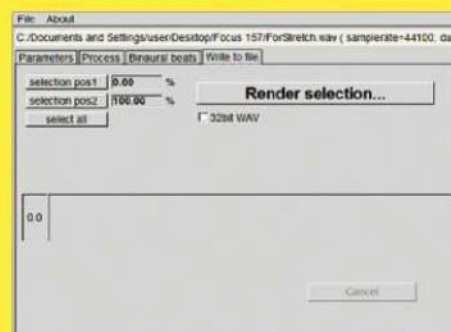
Use Extreme Sound Stretch to smooth and stretch a sound



1 > Copy the Paul's Extreme Sound Stretch folder from the **PC/Software/Full Software** folder on the **cm** DVD to your hard drive. You can run it straight from the **Paulstretch.exe** file without any installation. The software's interface will appear. Click **File»Open** to load an audio file. Load the **ForStretch.wav** file located in the **Tutorial Files\CM Focus** folder.



2 > By default the software stretches the track to 8.04 times its original length. Press the **Play** button to hear how this sounds. To get Paul's smoothed-out sound, set the **Stretch** slider to **1x** and the window to **5** seconds. This turns it into a slurred pad sound!



3 > To save the results of your stretching experiments, select the **Write to File** tab at the top of the interface and click the big **Render selection** button. A box will appear asking you for a filename. Enter something suitable, like **Amazing Pad**, and click the **Render** button to save the stretched audio to disc. **cm**

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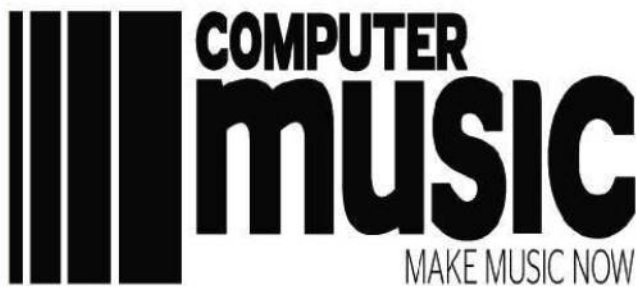
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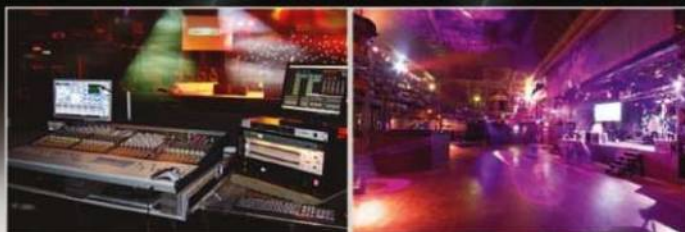


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