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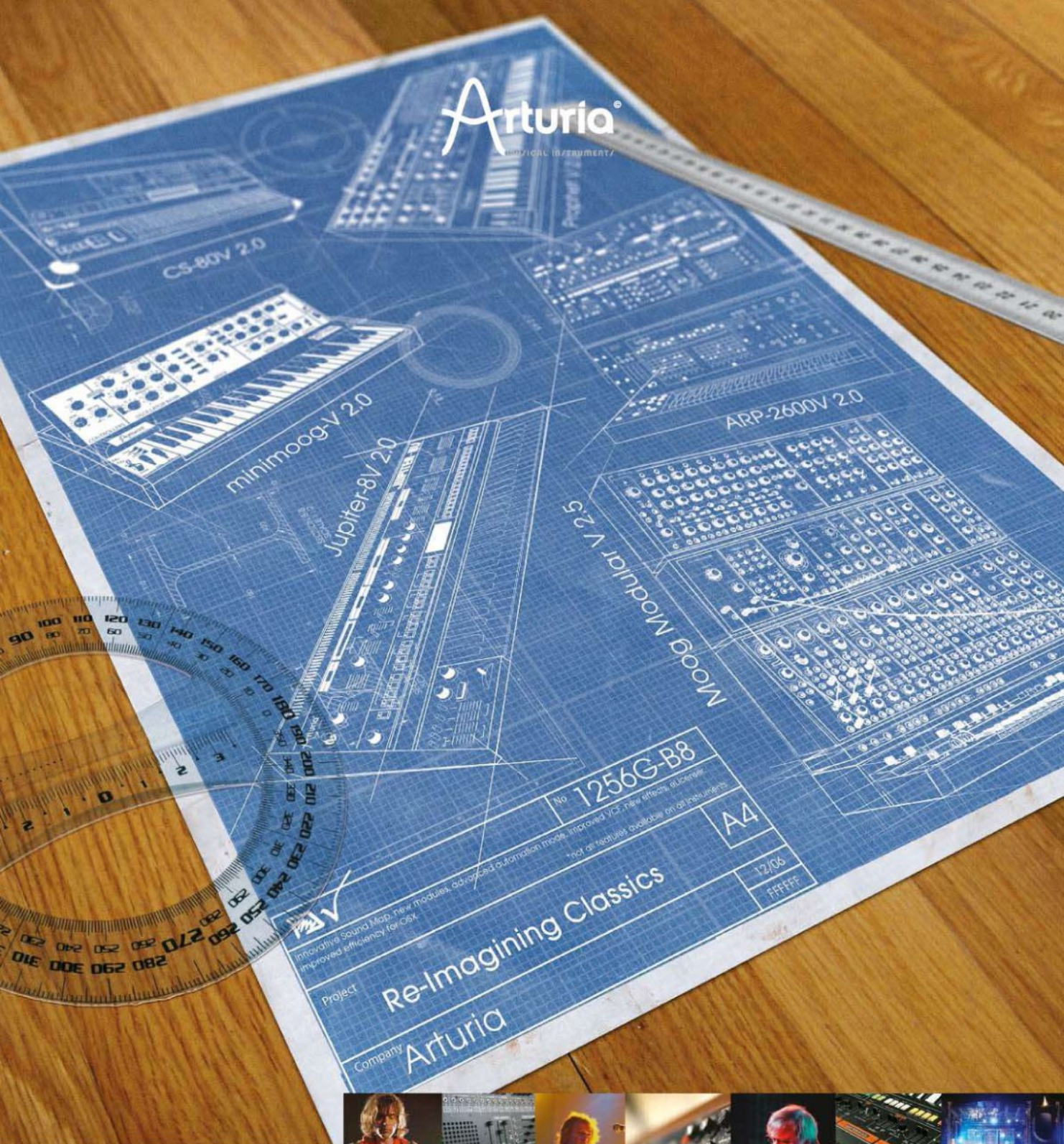
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welcome

Apple's iPad, then. Crikey. I write this only a few hours after the much-hyped January 27th announcement, and quite aside from the exciting possibilities it presents for magazine publishers, the potential for this device as a musical tool is already blowing my mind.

Essentially a giant iPod touch, it's the size and horsepower of the thing that's going to make all the difference to music software developers, for whom it's not been easy squeezing their apps into the tight physical and technical bounds of the iPhone/touch. While Apple's handhelds have made 'proper' pocket-sized music production a reality, the iPad neatly fits between them and a laptop in terms of form factor and speed, making it not only an even more powerful mobile solution, but also giving it a place in the home studio. The likes of Propellerhead (Reason!), Ableton (Live!) and Native Instruments (Traktor! Hell, *Reaktor!*) are more likely to get behind this one, since it packs the power and screen resolution to cater for meaningful ports of their applications. And as for MIDI control, no doubt the likes of JazzMutant and Novation are already on the case, and I simply can't wait to see what they come up with.

Looks like we have a whole new platform coming, people. Exciting times!

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.

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ISSUE 149 MARCH 2010

cm/contents

THE BEGINNERS' GUIDE TO AUDIO & SAMPLING

The second part of our series on the fundamental concepts and practices of creating music on your desktop computer or laptop begins on **p25**



54_ THE MAX FACTOR

Get to grips with the core principles of Max for Live and begin building your own devices

60_ MID/SIDE MASTERING

Everything you need to know about this specialist finalising technique

68_ FIDGET ON A BUDGET

How to make a fidget house track without spending a fortune

PAGE 60



PAGE 82

82_ THE **cm** INTERVIEW

We get the lowdown on the technology behind arthouse supergroup Githead

Tutorials

48_ PRODUCER MASTERCLASS

Bass-heavy house techniques from Foamo

76_ TOTALLY TRACKERS

Pattern variation in Psydle

77_ THE EASY GUIDE

Deconstructing second and seventh chords

78_ OFF THE DIAL

rachMiel focuses on musical paradoxes

80_ SOUND ESSENTIALS

Scot Solida shows you how to create reverse builds

114_ Q&A

Readers' production problems solved

120_ **cm** FOCUS

Smooth R&B in the tutorial spotlight



Master the production techniques behind R&B acts like Kells



Does ACE live up to its name? We test out u-he's modular megasynth on p92

Reviews

- 90** **MAGIX SAMPLITUDE 11**
This long-running DAW has new tricks up its sleeve
- 92** **U-HE ACE**
Urs Heckmann plays his best card with this monster modular synth
- 94** **UNIVERSAL AUDIO TRIDENT A-RANGE EQ**
An emulation of the classic console EQ for UAD users
- 96** **LEXICON PCM NATIVE REVERB PLUG-IN BUNDLE**
Get that much-desired Lexicon sound in a plug-in

- 98** **SOFTUBE PASSIVE ACTIVE PACK**
Three retro-sounding EQs
- 100** **CABLEGUYS FILTERSHAPER 2**
Does this multi-breakpoint filter shape up?
- 101** **112DB REDLINE PREAMP**
Warm up your tones with this virtual pre!
- 102** **PROGRESS AUDIO KINISIS**
A new synth that aims to move with the times
- 106** **MINI REVIEWS**
A rapid run-down of sample packs, ROMplers and more
- 110** **CM RECOMMENDS**
Our current must-buys



Essential cm

- 6** **INBOX**
- 8** **NEWS**
- 12** **THE BURNING QUESTION**
- 18** **FREWARE NEWS**
- 19** **SUBSCRIBE**
- 112** **USA SUBSCRIPTIONS**
- 113** **BACK ISSUES**
- 130** **NEXT ISSUE**

cm DVD CONTENTS

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P38 Nomad Factory's MFX-Rack sounds is yours only with CM

38 FULL SOFTWARE

Your **cm** DVD is packed with great software, including full versions of Nomad Factory MFX-Rack, a whole host of Cakewalk goodies and Ohm Force Symptom: Melohman PE

39 DEMO SOFTWARE

Check out the very latest software releases, with demo versions of Cableguys VST Package, Magix Samplitude 11, Progress Audio Kinisis and u-he ACE



P39 Try the innovative Kinisis plug-in synth for yourself with the demo

40 NOMAD FACTORY MFX-RACK

Discover how to use the six units contained in your amazing free multi-effects plug-in

43 SAMPLES AND VIDEO

2043 exclusive samples, plus UK house producer Foamo on video!



P43 See how Foamo goes about remixing in Producer Masterclass

44 cm STUDIO SESSION

We show you how to use the effects built into Zynwave's Podium 2 CM, which is all yours on the DVD



P44 Experience the full effect of Podium 2 CM in Studio Session

46 READER MUSIC

Rating the **cm** readership's latest efforts

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



It's the page you write, and it's always bright – email cminbox@futurenet.co.uk

Message of the month

I've been making computer music for a good six years now. I feel that I've reached the point where my tracks are sounding comparable to commercially released ones, I'm developing a signature sound and I'm comfortable working in a wide range of genres. Despite understanding the importance of production techniques and knowing how to use each element properly, I've recently been thinking about something that, to me, is more important than anything else when it comes to making music.

I think we're nearing music's logical conclusion. It's very likely that anything you make, regardless of your skill level, will appeal to someone. Good compression, EQ, mixing, arrangement and all that are important, of course, but so long as whatever music you make sounds like it was *meant* to sound that way, that's all that matters. For example:

That kick drum sample you used sounds a bit too 'clicky'. Well, instead of looking for a new sample, why not try boosting the high frequencies and make it sound *really* clicky? Or that vocal take that sounds too hollow and lo-fi. Why not wreck it even more by adding some obnoxious bit-reduction? The lead track sounds a bit distorted. Distort it even more! Chord passage too cheesy? Add a phaser effect!

I know that this kind of approach would horrify some people. The point I'm trying to make is that before trying to fix things, why not try worsening them? Never underestimate the beauty of happy accidents. In the end, if the sounds you produce have purpose and intent behind them, your music will have a lot more character and, at the very least, convince the listener that you know what you're doing.

Alex Coe, Sydney, Australia

In music production, rules really are made to be broken, and, as you say, any idea presented with confidence and self-belief has to be considered 'valid'. If it sounds right, it is right, and, often, if it sounds wrong, it's also right. Right? **RM**

The writer of our Message of the month will receive Synthogy Ivory Upright Pianos for Mac and PC, worth £190, courtesy of Synthogy and Time+Space!

www.timespace.com



Top of the pops

For many years, I was a dedicated hater of chart pop music and would dismiss it without even a listen. I had never liked the cheesy melodies, identical arrangements or the process by which new talent got picked. I went out of my way to avoid listening to anything within the Top 40. It did nothing for me (or so I thought). But I've found myself recently listening to the production on some of these songs. Some of the sounds on Britney Spears' *Toxic*, for example, or La Roux's tracks, have got me realising that I might have been missing something here. As a bedroom producer with no set style, I always look to new music for inspiration and feel like I've



The production behind many pop records, such as those by La Roux and Britney Spears, is truly top notch

cheated myself out of a rich source of it all this time. I suppose I should have realised that even these top-end producers started out in their bedroom at some point.

Stephen Crowson-Towers, Beckenham, London

Absolutely – pop has always been at the cutting edge of music production. It should count as essential listening for anyone looking to up their technical skills, however stylistically unpalatable they might find it. RM

Tracking back

I really like it when a technique I use (or have used) features in **cm**. Resampling (**cm147**) is a technique I use quite often. My

preferred software for making music is Reason, so resampling is the only way to get those tasty VST sounds into my music.

Not only that, but I started my computer music-making on the Amiga. At that time, trackers were the most popular type of music software. These could only play samples and were quite limited compared to today's software samplers. There were very few software synths – Aegis Sonix was the best I used. I'm not music educated, so I wasn't keen on the music score notation used by Sonix, but I was a great fan of its soft synth. So I started using resampling on the Amiga in order to import Sonix sounds for use in trackers.

Later I had some software that could 'render sound' on the



Resampling was essential when making music using trackers on the Amiga

PC (too CPU-heavy to be real-time back in those days!). And again, these sounds were resampled into my tracker.

My Amiga is still here... Maybe this great computer will see the sunlight again, thanks to **cm**.

Cesar Rodrigues, Langley, Slough

I think it should, if for no other reason than to remind you how good we have it these days! RM

Future echoes

I first got into squeezing music out of a computer about three years ago, largely because of this magazine. Having scaled the precipitous learning curve, I was and still am constantly astonished by what's possible. For less than the price of a good piano, I can have a great virtual one - and a concert hall to play it in, plus an orchestra, jazz band and tribal drum section to back me!

There must be so many like me, composers with more musical power than ever before but really only scratching the

"We have yet to invent the genre that will define us"

surface - or worse, vicariously aping somebody else's past sound. Because, I believe, we don't yet know who we are.

What will be the big, historical sound of our unprecedented times? That of a hundred thousand bedroom Beethovens with everything from SoundFonts to Spectrasonics at their fingertips? What will be as impressive, important and immortal as Gershwin or punk

rock, for example, but essentially pro-am computer-creative?

Musically, we have yet to invent the idiom and genre that will define us. It'll come. It just needs composition and creativity. We just have to get past the loops and kits and really exploit this stuff for new types of melody, layering, instrumentation and rhythm that is truly our own.

Noel Bruton, Cardigan

It's happening already, isn't it, partly because of loops and ROMplers? It's an evolutionary process, rather than a revolutionary one. I'd say, just as it's always been - don't wait for it to 'happen', jump aboard and enjoy the ride! RM

Radio times

Mastering for beginners in **cm146** was a godsend. The tips in there have really made a difference to my tracks. Also, the new **cm Special, Fix Your Mix** went hand in hand with the mastering guide!

This has all come at the perfect time, as I recently won a competition and one of my tracks is the theme tune for an American radio show! I was on a timeline to get the track in and I'm not completely happy with the final version. Now I can take my time and get the track in top notch condition with these guides. So a massive thank you to both magazines, as in a few short weeks, the international public (the show has listeners as far afield as Australia) will be hearing something that packs a lot more punch and just sounds better!

Luke Bredin, Benfleet

Our massive pleasure, and congratulations on your recent success! RM

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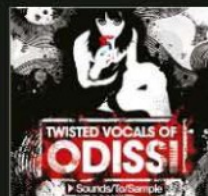
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NEW RELEASES > COMMENT > INDUSTRY HAPPENINGS

Guitar gear at NAMM

A round-up of the hottest incoming guitar-orientated software, spearheaded by AmpliTube 3



Guitarists were given lots to look forward to at this year's Winter NAMM in Anaheim, USA, including IK Multimedia's AmpliTube 3 (top right) and StealthBoard (bottom right), TC Electronic's Vintage Guitar Pedal Bundle (top middle) and Peavey's ReValver MKIII.V (bottom left)

> Plenty of big new software releases for guitarists were unveiled at this year's NAMM show in January.

IK Multimedia took the wraps off AmpliTube 3. Building on the success of v2 and its many offshoots, AT3 could shape up to be the best amp simulation yet. It boasts over 160 pieces of virtual gear, bringing the totals up to 31 amplifiers, 46 cabinets, 51 stompboxes, 17 rack effects and 15 mics. Other features of note include the Volumetric Response Modelling (VRM) technology seen in AmpliTube Fender, and a new (and sorely needed) drag-and-drop system for effects.

Also from IK Multimedia comes the StealthBoard, a USB/MIDI foot controller that can be used with any version of AmpliTube straight out of the box. It can control any other MIDI-savvy gear too, so we expect that it'll be of interest to more than just guitarists alone.

IK's AmpliTube 3 is out in February for PC and Mac, priced \$350, with StealthBoard (\$400) due out in Q2 of 2010.

www.ikmultimedia.com

TC Electronic revealed the Vintage Guitar Pedal Bundle for PowerCore users. There are five effects included: Stereo Chorus Flanger, Booster + Line Driver & Distortion, TC XII Programmable Phaser, Sustain + Parametric Equalizer, and Dual Parametric Equalizer.

TC's Vintage Guitar Pedal Bundle for PC and Mac will be out in spring, price TBC.

www.tcelectronic.com

From Peavey comes a feature-packed point release: ReValver MKIII.V. The update introduces nine brand new amps and effects, including simulations of Peavey's own hardware, plus selected Budda gear.

Peavey's ReValver MKIII.V for PC and Mac will be available in Q2 of 2010, price TBC.

www.peavey.com

In addition to their new Sonic Sweet (\$145) bundle (check the website for more info), BBE released the new Stomp Ware collection at NAMM. There are eight plug-ins in total, including compression, delay, tremolo and fuzz, all modelled on boutique BBE pedals. BBE Sound's Stomp Ware is out now for PC and Mac, priced \$215.

www.bbесound.com

And finally, Universal Audio announced a partnership with top guitar effects company Dunlop, who also own MXR. We'll keep you posted on the fruits of their collaboration.

www.uaudio.com

New for DJs

A round-up of the latest software and controllers

The Bridge hooks up Serato's DJ software with Ableton Live - clips can even be launched within the new Scratch Live 2



> There's been a fair bit of activity on the digital DJing front recently. Here are some of the new products coming our way.

Serato have launched Scratch Live 2, which brings many improvements over the first version. These include the ability to use two, three or four decks; built-in DJ-style effects; new customisable Display Modes to suit your DJing needs; the option to upload tracks to the net directly from within the software; and video mixing.

There's currently no release date or pricing info for Scratch Live 2, but we hope to review it when the time comes.

www.serato.com

One of the key implementations in Scratch Live 2 is The Bridge, a link between Ableton Live and Serato's DJ software. This enables Scratch Live/Itch users to open Live sets within their software. From there, they can control Live's transport, essentially placing a Live set on a turntable, and also trigger individual clips from within Scratch Live/Itch. The Bridge works in the opposite direction, too, enabling any Scratch Live/Itch mix to be saved as an Ableton Live set. The set can then be opened within Live, with each deck displayed as an individual track, and all controller information, such as



Now you can mix video, just as you do music, with Xylo's FutureDecks Pro 2

playback speed, scratching and crossfader movements, recorded on separate automation lanes for additional tweaking.

The Bridge is free for owners of both Live and Scratch Live/Itch and will be available "later this year", say the companies.

www.ableton.com



Hercules DJ Console Mk4 can be used either as a regular mixer or for controlling your DJ software

Hercules have released another DJ USB/MIDI controller. The DJ Console Mk4 features two CDJ-style jog-wheel, an array of volume, EQ and pitch controls, plus a crossfader. The unit also features two RCA inputs, one mic input, two RCA outputs, one stereo 1/8" jack output and a headphone out.

Hercules' DJ Console Mk4 is out in the spring of 2010 for PC and Mac, although the price is currently unconfirmed.

www.hercules.com

Last but not least is version 2 of Xylo's FutureDecks Pro DJ software. Chief among the new implementations is a video mixing facility - check out the full feature set online.

Xylo's FutureDecks Pro 2 is out now for PC and Mac, priced £59.

www.xylo.com

Mixdown



As iPad fever grips the world, our Deputy Editor hangs on tight to his netbook

> I write this mere hours after Apple revealed their iPad tablet device to the world - initial reactions are muted, with many being critical of the device. What's really irked me, though, is a comment made by Steve Jobs during his keynote speech, that "netbooks aren't better at anything"

"Netbooks are indeed better than laptops in one very obvious capacity: portability"

when compared to smartphones and laptops. The implication seems to be that the iPad will make netbooks redundant - and perhaps it will, but I still think the statement is inaccurate.

First off, Steve is demonstrably wrong, because netbooks are indeed better than laptops in one very obvious capacity: portability. That's the whole point of them. If we're going to ignore such fundamental physical attributes, we might as well point out that the Mac mini isn't "better at anything" when compared to a Mac Pro.

The iPad is certainly a sexier bit of kit than my Samsung NC10; however, I'm not convinced that Apple's device is going to be as ergonomic in all situations. With a netbook, it's easy to angle the screen towards you whilst maintaining a comfortable, natural posture, even if you're using it on your lap whilst travelling. With the iPad, unless you've had the foresight to bring along some sort of dock/stand contraption, you'd have to lay it flat to use both hands, presumably compromising the viewing angle and/or your posture.

The touchscreen QWERTY keyboard surely won't compare to a physical one - not a problem for casual emails, but it makes the prospect of getting busy with iWork instantly less appealing. And while the iPad is touted as being great for reading books, I'd much rather use my iPod touch: I can hold it in one hand and thus easily read it whilst reclining. The lack of a proper multitasking OS on the iPad is the biggest letdown, though - I know I'm not alone when I say that I was hoping for something approaching the full OS X experience.

Of course, I'm focusing only on the negative here. Indeed, there are two things that I reckon the iPad is ideally suited to: music software and magazines! A pretty good combo, don't you think?



Akai's APC20 controller for Ableton Live offers the essence of its big brother's functionality but comes at a lower price point

Akai slim down

New APC20 and MPD26 controllers launched at NAMM

> Akai had many new products on show at last month's NAMM show in Anaheim, USA, including the SynthStation iPhone-docking keyboard and app covered on p16. For us, though, the company's biggest news, was a brand new Ableton Performance Controller, the APC20.

Instantly recognisable as a smaller, streamlined sibling of the APC40, the new unit is packed with many of the same features for controlling Ableton Live and weighs in at just under half the price. The Clip Launch grid still contains 40 backlit buttons, which are colour-coded to show a clip's status: red for recording, orange for a loaded clip and green for playing. There are also the same number of faders (which can control volume, pan or send levels), as well

as track activation, solo/cue and record arm buttons for eight channels, plus a master fader and cue level rotary encoder. In addition, there's a new Note Mode, which enables the Clip Launch buttons to output MIDI notes for playing instruments - a feature that the APC40 currently lacks.

Also unveiled at the show was the MPD26 USB Pad Controller, a mid-range MPD unit featuring 16 velocity- and pressure-sensitive MPC pads, plus six assignable Q-Link faders and six rotary encoders. There's also a Note Repeat mode onboard for, say, playing in a 16th-note hi-hat pattern quickly.

Akai's APC20 (£179) and MPD26 (£150) are both available now for PC and Mac.

www.akaipro.com

cm Special

> If you've got your sights set on a career in music, we recommend you get your hands on our brand-new *cm Special: How to Make It in Music*.

Written by industry experts, it uncovers everything you need to know to get on the right track for success in 2010. How to get heard, build a fanbase, produce professionally and take care of business. Plus, we talk to pros in the most coveted jobs in the business to find out how you could get that break you've been looking for.

Computer Music Special 40 is available now. See p125 for stockist info.

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Damaged



A nightmarish vintage soft synth brings out the masochist in Chris Randall

> I have a rather embarrassing fact to admit: I am a long-time aficionado of the alphaSyntauri, an additive synth from 1982 that required the now ancient Apple II to work, and can probably be regarded as the first mass-produced computer-based synthesiser.

I have a complete working alphaSyntauri system, and it is a sight to behold. The software was written before the concept of 'usability' really took hold - the authors obviously never had using it in mind, as it's insanely complex and absolutely requires the supplied cheat-sheet. The keyboard itself would probably serve the CIA well to use in interrogating suspected terrorists. Calling it unplayable would be a gross injustice to unplayable synths everywhere. And setting all that aside, the synth lives inside an unshielded computer, and is essentially a radio receiver.

"The keyboard would serve the CIA well to use in interrogation. Calling it unplayable would be a gross injustice to unplayable synths everywhere"

Given all these failings, it's no surprise that this, the progenitor of the PowerCore and the UAD series, wasn't a huge hit. It is so annoying to use that I've spent quite a bit of time replicating its operation in a Reaktor patch. Just this morning, I booted up the old Apple II to do some comparison, and I ended up playing and programming the real alphaSyntauri for hours. I had spent so much time with the Reaktor patch that I'd forgotten why I got the alpha in the first place: I love this synth.

I don't care about its problems. I don't care that it takes three minutes to load the 64k program off a 5.25" floppy disk. I don't care that my wrists hurt for three days every time I turn it on. The sounds that come out of it make me happy, and in the end, that is all that matters, isn't 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
www.analogindustries.com
Twitter@Chris_Randall



Intermorphic Mixtikl 2

New version of the generative software for multiple platforms

> Not content to just develop applications for Mac and PC, the creators of the Noatikl MIDI-generator and Liptikl lyrical cut-up software have released their latest product on near enough every platform going, including three different web browsers. Yes, Intermorphic's brand new Mixtikl 2 runs on PC, Mac, iPhone/iPod Touch and Windows Mobile, as well as the Firefox, Internet Explorer and Safari browsers.

Based on the koan generative music engine, which counts Brian Eno among its proponents, Mixtikl 2 is a 12-track sequencer for generative patterns (including the company's Noatikl MIDI parts and Partikl sound file formats), as well as audio and MIDI loops, enabling users to mix and remix their creations in real time. To get up and running, there are over 100 "generative parts" or basic building blocks, plus some 30 drum loops and 50 effects presets. In addition, you can buy optional Paks, which are essentially construction kits containing extra loops and sounds.

The contents of each track (meaning either a sequence, loop or one-shot) can be timestretched and pitchshifted in real time, panned, soloed/muted and randomised. For further tone generation, there are Oscillator,

"Mixtikl is a full-blooded and content extendable stereo generative music and loop mixing system for creating CD quality music"

Intermorphic



Mix and arrange your generative tunes on this page, then flip over for effects and instruments

Particle and Dsynth modules (although these are only available in the desktop versions), plus the integrated Noatikl Generative Music Engine and Partikl MIDI DLS wavetable synth.

Effects-wise, there are Chorus, Reverb, Fast Reverb, Filter, Distortion, Overdrive, Delay, Equaliser, Compressor, Amplifier (volume/pan) units, which can be used as inserts or global sends. Finally there are LFO, Envelope and Amplifier FX control modules.

Intermorphic's Mixtikl 2 is out now for PC and Mac (including the browser plug-ins), priced \$30. And as we mentioned, the app is also available on iPhone/iPod Touch for \$2.99 and Windows Mobile for \$9.99.

www.intermorphic.com

Trackers & Demoscene



Good news for iPhone-toting demo fans, plus an update to MilkyTracker

> iPhone users have had the pleasure of the built-in YouTube app from day one, but loading it up is certainly not a risk-free activity. You're only ever one accidental tap away from some humourless halfwit telling you why they think ginger snaps are the best dunkers. Enter the newly released Demoscene TV app, then, providing you with 100% high-quality, no-nonsense, balls-to-the-wall streaming of digital art and music. Now all you lucky iPhone and iPod Touch users need never be more than a few presses away from

"High-quality, no-nonsense, balls-to-the-wall streaming of digital art and music"

your favourite demo ever again, all without laying so much as an eye on a soggy biscuit. Head to www.demoscene.tv for more info.

It's been a while since we've heard a peep from FastTracker 2's most faithful and natural successor, so it was with much joy that we downloaded the brand new version of MilkyTracker. It contains numerous additions and improvements - go to milkytracker.org to get all the goodies. Also, don't forget that registered Renoise users can now get their filthy mitts on the scrumptiously feature-packed Renoise 2.5 beta.

DEMO OF THE MONTH

The Cube by Farbrausch

Claiming first place at the recent The Ultimate Meeting party in Germany, demoscene rockstars Farbrausch once again beguile us with their latest piece, *The Cube* - a production that blurs the line between digital and organic so much, it's hard to tell what you're looking at. It's like Tron meets David Bellamy but more beautiful than either. Find links to this and more on your **cm** DVD.



The Cube turns pixels into organic matter

D16 dig up Syntorus

> D16 Group, makers of remarkably affordable yet high-quality plug-ins such as Toraverb (10/10, **cm146**) and Decimort (9/10, **cm133**), have now added Syntorus to their Silver Line collection.

Billed as a double-path analogue chorus, Syntorus aims to replicate the kind of choruses used in the ARP Solina, Elka Synthes and Roland Juno synths. To achieve this analogue sound, the unit employs an emulation of bucket-brigade-style delay, which can be switched on or off as required. What's more, Syntorus utilises two delay lines for fuller-sounding chorusing, each of

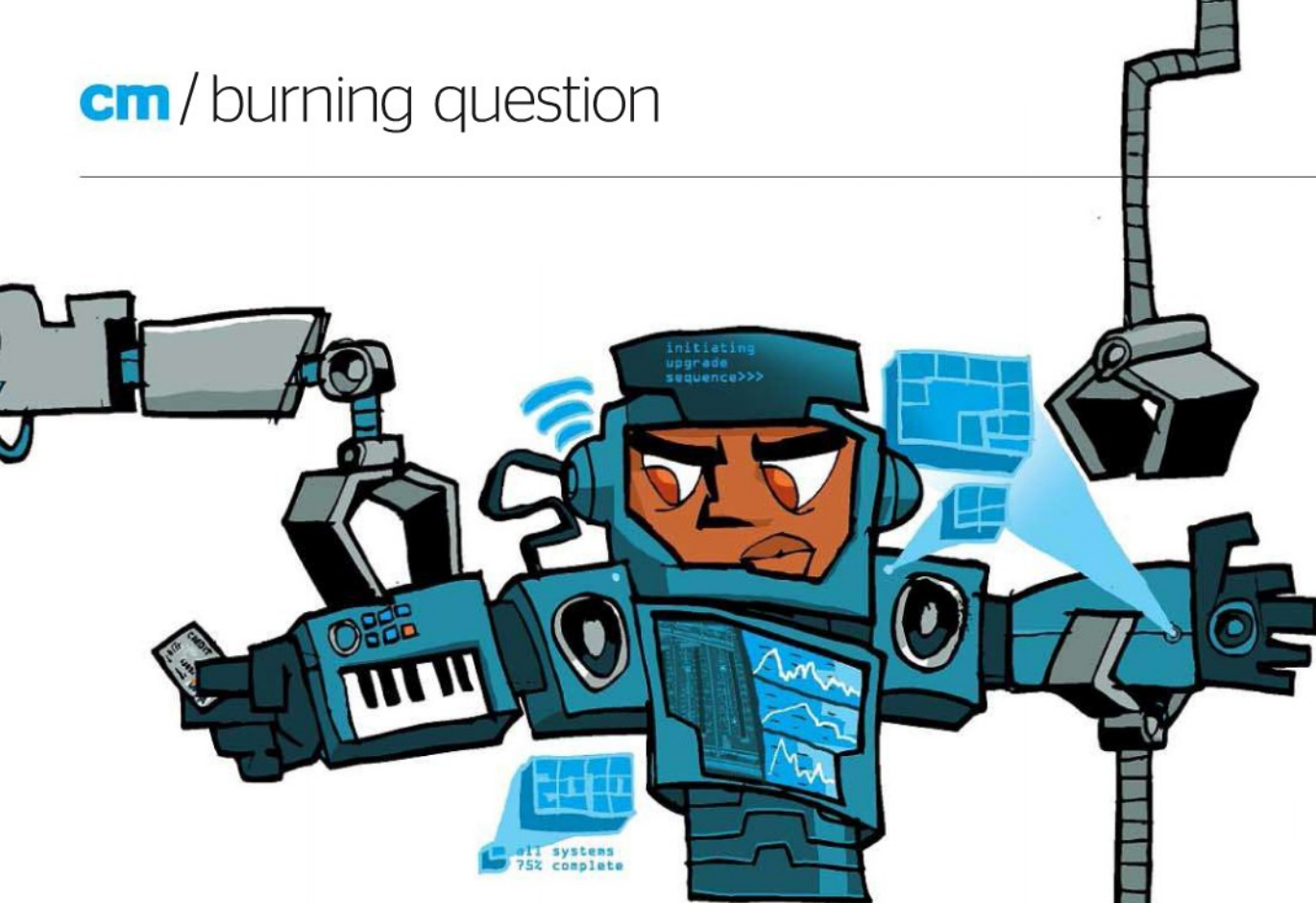


The latest plug-in to grace D16 Group's Silver Line collection is Syntorus, a parameter-packed chorus unit

which can operate separately or in unison. Both delay lines feature tremolo, too, each with a host-syncable LFO.

D16 Group's Syntorus is available now for PC and Mac, priced €35.

www.d16.pl



What should my next upgrade be?

> It's often pointed out that upgrading your music-making setup won't necessarily enable you to make better music, and this is perfectly true. However, that isn't the same as saying that adding (or improving) a couple of bits and pieces won't be beneficial, or that it won't eventually have a knock-on effect.

From time to time, we all get the urge to improve our studios, but what's vital is that you spend your money wisely, in the right areas. Obviously, what these areas should be will depend on what you currently own and what you're hoping to achieve in the future, but to help you make up your mind, we're going to evaluate not only some of the most commonly considered upgrades, but also some important ones that are frequently overlooked.

"What you want and what you need are unlikely to be one and the same"

Before making any purchase, you should bear in mind that what you want and what you need are unlikely to be one and the same. A flashy new soft synth or funky MIDI controller might be very appealing, but before you get carried away, it's worth taking a step back and looking at what you already have.

Think about the signal path running through your entire system – if you do a lot of recording but all the audio is currently coming in through the minijack input on your computer, it makes sense to buy a decent audio interface. Remember that not all interfaces are the same: if you spend a bit more, you're likely to get better converters and, if they're included, higher quality preamps, leading to an overall increase in the quality of your music.

Garbage in, garbage out

As well as considering the sound that's going into your computer, it's vital that you pay some attention to the quality of what's coming out. It's remarkable how many people are happy to spend big on recording gear and a state-of-the-art DAW, but are then content to monitor through a pair of hi-fi speakers. To get an accurate representation of how your music sounds, a pair of decent studio monitors is a must. With these, you'll be able to create better-sounding mixes that are more likely to sound good on a range of systems.

And while you're sorting out this area of your setup, consider investing in a pair of proper speaker stands – perching your speakers on a stack of old **cm** magazines isn't conducive to maximising their performance. And if, for whatever reason, you have to make your music on the quiet, ditch the white buds that came with your iPod and get some proper

headphones that can be worn comfortably for long periods at a time. Spend upwards of £100 on a quality set of AKGs or Sennheisers and you'll wonder how you ever made do without them. Oh, and speaking of comfort, isn't it about time you bought yourself a decent chair?

While improving the gear that you record with will have long-term benefits, what's equally important is the environment that you use it in. We're not suggesting that you move house, but acoustically treating your studio room makes a lot of sense. Bass traps in the corners will deaden the resonating low frequencies that can make getting a solid-sounding bottom-end a nightmare, while treating the walls and ceiling will reduce high-frequency reflections, giving a clearer monitoring experience. Let's be honest, acoustic tiling isn't a sexy purchase, but ask yourself this: is it going to improve the quality of your mixes more than another plug-in? The answer is almost certainly yes.

Peripheral vision

While on the subject of non-sexy purchases, let's consider computer components and peripherals. A noisy computer is obviously a bad thing when you're trying to create a great mixdown, as it could obscure the finer details of what's going on. And if you're recording, the noise can be obtrusive. The chances are that you can alleviate the situation with some 'quiet fans', and there are other components that can help to silence your machine, too (power supplies, cases, heatsinks, etc). While you've got the bonnet up, consider investing in some more RAM to improve performance, though remember that, unless you're running a 64-bit OS and compatible software, going above 4GB won't be hugely advantageous.

Something you should definitely consider, though, is a second hard drive. Having separate disks for your OS/applications and samples/

Ins & outs

audio respectively should get your system running smoother, particularly if you work on projects that contain a lot of tracks.

Then, of course, there's your display. Large-screen monitors are shockingly cheap, and you'll really feel the workflow benefits of having extra screen real estate. Or why not add a second monitor to your existing setup and experience the joys of dual-screen working?

Totally impractical

So far, we've had our practical head on, and before we take it off, we'd recommend that you spend whatever it costs to get your gear comprehensively insured. But if you've already got all the stuff we've discussed thus far, what's next? There's a good chance that you'll entertain the possibility of purchasing a new synth or two - nothing wrong with that, but before you spend any money, consider carefully.

We've covered the main synthesis types before (for a quick refresher course, go to bit.ly/7PbPww) but it's worth saying that if your plug-in folder is already overflowing with analogue-style subtractive synths and sample-based instruments, it might be an idea to consider something that offers additive, FM, physical modelling or wavetable-based sound generation (or even all of the above). Trying something different is likely to take you down creative avenues that you wouldn't otherwise have explored.

Remember that, while the latest super-synths may score heavily when it comes to sound, some of them push the technology to the limits, possibly resulting in a hefty CPU hit. The likes of u-he's ACE, FXpansion's DCAM: Synth Squad and Spectrasonics' Omnisphere all sound astounding, but if your computer isn't up to the task of handling them, are they really such wise investments? As with all software, be sure to try demo versions first, and even better, use them in a full song situation rather than just noodling up and down the keyboard.

Should you have all the soft synth bases covered, it might be a new effect or two that catches your eye. On the one hand, you could go for something outlandish that could take your music in new directions (see much of Audio Damage and Sugar Bytes' output), but thinking more practically again for a second, you might also consider upgrading the plug-ins that you mix with. EQs, compressors and the like are probably in your arsenal already, but if you want to improve on what you've got, check out the goods of companies such as PSP Audioware, FabFilter, Waves, 112dB and Softube.

Another option would be to invest in a DSP system such as SSL's Duende, Focusrite's Liquid Mix, Universal Audio's UAD-2 or TC Electronic's PowerCore. The time was when products such as these appealed to producers whose computers weren't powerful enough to run all the processors they required, but these days, we'd say that their real value lies in the fact that they offer some superb plug-ins that are unavailable in native format.

That, then, should give you an overview of where you can funnel your funds. And if you're running low on cash, remember that you can often give your music a shot in the arm simply by re-examining the gear you already own and learning more about it. **cm**



ABLETON BUG MASSACRE

Berliners Ableton have announced that they're temporarily freezing the development of new features for Live and instead will be focused on busting bugs. We applaud the company's stance - new goodies are nice, but without stability, they mean little.

GOING NATIVE

Veteran effects manufacturers Lexicon have finally got with the program and released a software reverb - see p96 for our review. It's great to see such a legendary company getting fully behind the computer music revolution - welcome aboard, chaps!

CAN YOU KICK IT?

Castrol's insane new robot has been designed with one goal only: to best Cristiano Ronaldo's 130km/h ball-booting skills. The massive metallic beast smashes the carbon-based soccer star's pathetic record by punting the ball at over 200km/h. bit.ly/8dXrKG

EVIL EMPIRE

Google recently had to update their browser toolbar plug-in after Harvard professor and noted Google critic Ben Edelman posted on his blog with video evidence that the plug-in transmitted data back to Google HQ even after it was disabled. bit.ly/az8COK

LEXI-CON

More Lexicon news, but this time from their consumer division. Currently raging around the internet is the revelation that Lexi's \$3500 BD-30 Blu-ray player is in fact a \$500 Oppo BDP-83 job with new casing. All we can say is that it must look *really* good.

WOT, NO MULTITASKING?

Apple's freshly announced iPad looks the business for music apps, but we're gutted that it doesn't offer multitasking. We do hope it's on their future features list...



Busting jargon



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

Synthesis means creating a sound using electronic equipment (eg, a computer), as opposed to using a recording/sample of a real sound. The most common way to do this is to use a 'soft synth' plug-in - synth being short for synthesiser. All manner of electronic sounds can be produced, and adept synthesists can even imitate 'real' instruments.

The parts of the synth that create sound signals are termed oscillators, while filters are used to shape those sounds by boosting, attenuating or removing certain frequencies in the signal. The most common type of synthesis is subtractive, whereby the oscillators create a very full-on sound (often more so than is desirable), and the filters are then used to remove parts of that sound until the desired tone is achieved, similar to how a sculptor would chip away at a block of stone to reveal the intended sculpture.

Additive synthesis instead combines hundreds (or even thousands) of oscillators playing sine waves (the most fundamental sound possible).

This is more like drawing, where simple strokes make up a complex image.

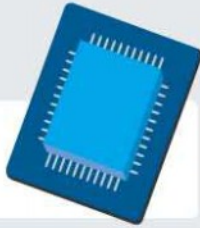
Wavetable synthesis could be compared to building an image using a selection of rubber stamps: the basic waveforms are predetermined, but they can each be quite complex, and can be interchanged and cycled through as the sound evolves. Granular synthesis, meanwhile, is more akin to cut-up collage, using an audio sample as its basis, but slicing it up into tiny snippets, then rearranging and manipulating them to create something totally new.

We'll explore the basics of synthesis in greater detail next month.



The **cm** Studio's Dominator uses classic subtractive synthesis, as used on countless analogue hardware synths

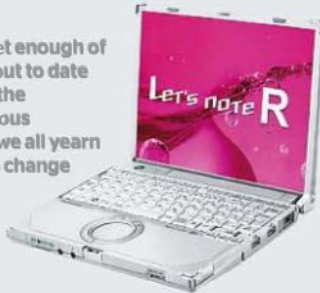
System check



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

LUCKY i7

Here at **cm**, we can't get enough of dinky little netbooks, but to date they've not really had the kind of full-on, monstrous processor power that we all yearn for. This all looks set to change with the launch of Panasonic's crazy-looking Let's Note R9, though. Currently only available in Japan, this more-or-less netbook-sized PC boasts a 10.4" screen and, more excitingly, a fairly nippy 1.06Ghz Core i7-620UM processor. While this is still nowhere near the power of proper notebooks and, of course, desktop PCs, the gap in performance between these miniature marvels and their big brothers is closing. Panasonic have yet to announce the launch of similar machines in the West, but it can only be a matter of time before we're all knocking out full-on productions on our i7-powered netbooks everywhere we go.



It might not be much of a looker, but it's what's on the inside that counts

www.panasonic.com

WINDOWS 7 CAMPS IT UP

Windows-friendly Mac users will be delighted to hear that Apple have updated their Boot Camp utility to enable them to install Microsoft's latest and greatest operating system on their machines (although it was in fact eminently possible with the previous build). Boot Camp 3.1 adds native support for both 32- and 64-bit versions of the Home Premium, Professional and Ultimate editions. Users who want to upgrade from Vista will first need to install the Boot Camp Utility for Windows 7, which safely unmounts the read-only Macintosh volume in Vista. Other improvements in the latest version of Boot Camp include trackpad bugfixes and support for Apple's wireless keyboard and Magic Mouse.

www.apple.com

CLAD TIDINGS

Imagine being able to carry your PC around on a memory stick. Lockheed Martin - yes, the aerospace and defence company - promise to let you do just that. In collaboration with security firm IronKey, they've developed IronClad, a USB stick featuring technology that "shrinks a laptop's hard drive - including the entire operating system, software applications, and files - onto a secure flash drive".

According to its creators, when plugged into almost any computer, the device gives users instant access to their own personal desktop and files, running the operating system directly off the flash drive. This means that "the user's files never touch the hard drive of the borrowed computer", and that, sinisterly, "the device leaves no trace that it was ever there". Sounds perfect for James Bond types who want to bust out a few tunes in between busting bad guys' asses and recovering sensitive state information.

www.lockheedmartin.com

Wave Arts

Bill Gardner

The founder of the Arlington-based company behind Tube Saturator talks to *Computer Music*



Eye on the Industry

cm Tell us a little about yourself.

BG "I started programming computers in grade school in the early 70s, writing COBOL programs, and ended up studying computer science at MIT. Later I worked at Kurzweil Music Systems on the original K250. In 1990, I went back to the MIT Media Lab to study DSP and acoustics, graduated with a PhD and went on to found Wave Arts to develop audio DSP algorithms - my own little sandbox."

cm Does Wave Arts license technology to other companies?

BG "Yes, I bootstrapped Wave Arts by doing hourly consulting and eventually developed a portfolio of technology that could be licensed. This in turn led to the development of plug-ins for sale to end users. The two sides of the business are largely complementary, but not entirely."

We've done some big projects for licensing that did not overlap with our plug-ins. For example, we did a MIDI ringtone generator for cellphones and a surround sound auto-calibration system for A/V receivers. I'd say that the plug-ins are more fun to work on, though."

cm Your latest plug-in, Tube Saturator is quite different from the high-tech 'digital' plug-ins you've done before. Why is this?

"I'd say that the plug-ins are more fun to work on"

BG "Yes, unlike our earlier plug-ins, which are very CPU efficient, Tube Saturator is a CPU hog. I spent considerable time simulating tube circuits using various efficient DSP approaches, combining equalisers with wave shapers, but the results simply did not match a real analogue circuit. It can

be modelled accurately because the physics of electronics are well understood, though, so I took the approach of physical modelling using circuit simulation techniques, which actually matches the behaviour of a real analogue circuit."

cm Tell us a little about the technology behind Tube Saturator.

BG "Tube Saturator is based on a home brewed circuit simulator. You literally enter the circuit schematic and run it. In addition to this, you need mathematical models for the non-linear components, like tubes, which are based on measurements. Once the various component models are created, it is possible to type in the schematic of any analogue gear (tube amp, compressor, etc) and run it with near perfect accuracy. The problem is that solving the circuit equations is very computationally expensive and the expense grows as the cube of the number of circuit nodes. So big circuits like a full amp model are not possible to run in real time yet. My impression of competitive approaches is that they are modelling groups of components using DSP equalisers and waveshapers, which is just not accurate."

cm What's next for Wave Arts?

BG "We have some other DSP plug-ins in the works. On the analogue side, we're looking at other simple analogue circuits to make into neat plug-ins. We will also continue to release updated versions of our Power Suite and Master Restoration Suite plug-ins and plan a major upgrade at some point, but nothing is imminent."

URS Strip things back

➤ Unique Recording Software have revealed their latest in a long line of analogue-style console processors. The Classic Console Strip Pro 2 brings together high- and low-pass filtering, a sidechainable compressor/limiter and a sweepable parametric four-band EQ.

There are actually two plug-ins included in the software – a full-on Pro unit that we'll cover here, and another "super DSP efficient" version with a reduced control set. The available parameters on the Pro unit appear fairly standard upon first look, but look under the hood and you're instantly provided with a variety of ways to customise the way your signals are processed. To wit, there are 30 input stage algorithms to choose from, 60 pre- or



URS' greatest plug-in to date? Time, and our forthcoming review, will tell...

post-EQ compressor presets, five EQ algorithms for each of the bands and five different auto-release settings for the compressor.

URS's Classic Console Strip Pro 2 is out now for PC and Mac, priced \$600 (Pro Tools TDM version, \$1200).

www.ursplugins.com

"Our ultimate multi-console in the box solution! Create hundreds of custom console configurations"

Unique Recording Software

News in brief

SOUNDCLOUD IN YOUR DAW

SoundCloud are working with various big developers to put widgets directly inside their DAWs designed to make online collaborations easier than ever. First to get direct-to-web audio uploading integration will be PreSonus Studio One and Audiofile Engineering Wave Editor, with Ableton Live to follow suit in the near future – good news for everyone disappointed by the recently announced putting on hold of Ableton's own Share facility.



INTRODUCING THE WINNER OF LAPTOP BATTLE UK

A recent change from electronica towards a hyper-programmed dubstep sound has gained Coventry-based producer Ashley Brown (AKA Arctic Sunrise) many fans, including none other than Radio 1's Mary Anne Hobbs. And the new style, which Ashley creates with a Novation Launchpad/Ableton Live setup, has won him another accolade – he took 1st prize in the recent cm-sponsored Laptop Battle UK in Bristol. Congratulations, Ashley!



www.myspace.com/arcticsunrise

TWO MORE RECRUITS FOR PSP

PSP Audioware have "super-sized" their sQuad EQ collection, adding two more units. First up is McQ, which the company say is based on the MCI console EQs in both sound and functionality. The other addition is ClassicQex, an extended version of the ClassicQ unit, which now features a Low Mid section. The new plug-ins can be freely downloaded from PSP by registered users.

www.pspaudioware.com



COMPETITION WINNERS

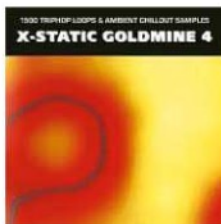
A couple of cm compo winners here. First up, Reggie Cameron of Liverpool won a Cakewalk V-Studio 100 and copy of Sonar 8.5 in cm146's giveaway, while the winner of cm147's bonzer bonanza blowout was Nathan Zascirinskis, who walks away with Native Instruments Komplete 6, the Kore 2 controller and four sound libraries. Now turn to p87 for this issue's competition!

Soundware news

➤ First up from Loopmasters this month is **Essential Minimal Techno** (£20), a collection of seven construction kits, including drums, bass, synths and FX, from minimal techno maestro Danmad. The latest addition to the Loopmasters Artist Series is **Ray Keith Original Drum & Bass Vol 1** (£25), featuring around 150 loops and 160 one-shot samples by the legendary DnB DJ and producer. eLab have unleashed a breakbeat, downtempo, trip-hop library, **X-Static Goldmine Vol 4** (£40), consisting of over 900 loops and 2500 single-hit samples.

www.loopmasters.com

From Zero-G comes the download-only **Sounds of the 70s Construction Kits** (£20 each), an eight-volume collection of original



instrument and percussion performances inspired by the funk, soul and disco era.

www.timespace.com

Sample library newbies Samplestar have released their first product, **Elektrik5** (£29), a collection of beats, melodies, basslines, vocal loops and FX at 127bpm, for progressive, electro and indie-dance producers. From Beatluxe, there's **House Technik** (£18), comprising 300 loops for minimal and tech house tracks. Sony have released **Acid Latin** (£43) by percussion guru Karl Perazzo, containing 640 brass, piano, bass and percussion loops.

www.soundstosample.com

There are two new ReFills in Propellerhead's PropShop this month. The first, Bitword's **Oxide Kits Vol 2** (£69), is a collection of just under 3000 drum hits and FX aimed primarily at sound designers and film score composers. The second, Uniphonic's **Auditory Vortex - Thor Volume 1** (£39), contains 430 lead, bass, pad and other more unconventional patches for the synth, plus a bonus collection of 170 Combinator patches.

www.propellerheads.se

Finally, Toontrack have released **Joe Barresi's Evil Drums**, an SDX expansion for Superior Drummer 2 containing six kits by the alternative rock engineer/producer.

www.toontrack.com



Following on from Bleep!Box, White Noise Audio Software have released Bleep!Synth



Make tunes by humming and singing into your phone with Voice Band



Game overture

The latest goings-on in the world of videogame music production

> Here, we often like to discuss the more traditional intersections between music and interactivity, but from time to time, we delve into the mysterious world of games that feature music as a gameplay element.

Games such as Frequency, Amplitude, Rez and Vib Ribbon have sought to involve the player in a profound musical experience, mapping the very fabric of their levels to the complex curvature of their soundtracks.

We are therefore excited to see a new potential player in the 'music game' genre being made by an ambitious indie development studio. Boston-based Dejobaan Games, best known for their ludicrously-titled BASE-jumping simulator *AaaaaAaaaaAaaaaAaaaaAaaaaA!!! - A Reckless Disregard for Gravity* (yes, it's real and, yes, it's commercially successful!), are currently working on an intriguing new project codenamed *Musorqua*.

"We delve into the mysterious world of games that feature music as a gameplay element"

App watch

New music-making apps for iPhone and iPod touch

> White Noise Audio's Bleep!Synth is a synthesiser app that follows in the wake of the company's Bleep!Box. Bleep!Synth creates its tones internally via two oscillators and a noise generator. Other features include envelopes, filtering, an arpeggiator and a modulation section that operates via key triggers, LFOs or the iPhone's accelerometer. You can play Bleep!Synth directly via the keys, or trigger notes from the step sequencer. What's more, only notes for particular scales are displayed, so you won't accidentally hit the 'wrong' one, although there is a chromatic mode available, too.

Bleep!Synth is in iTunes App Store now, priced £4.99.

www.bleepsynthapp.com

WaveMachine Labs, creators of Drumagog, have released Voice Band, an app that converts your singing into various instrument sounds (choose from two guitars, a bass, drums, saxophone, organ and two synths). There's also a standard mic setting for recording your voice over the top of said tones. Automatic pitch correction is there to help the whole process along, and there are distortion, reverb and delay effects built in. Be sure to check out the video of creator Rim Buntinas demonstrating how



Get three synths in one (and drums) with SynthStation, all based on Akai's MiniAk instrument

his baby works.

Voice Band is out now, priced £1.79.

www.wavemachinelabs.com

Akai have entered the iPhone market with SynthStation, containing three different, three-oscillator synths based on the company's MiniAk, for leads, chords and basslines respectively, plus some programmable drums. There's also an arpeggiator with preset patterns, built-in effects and an XY window for controlling certain parameters. You can play the app via the onscreen keys or Akai's brand new, iPhone-docking SynthStation25 keyboard.

SynthStation (\$9.99) is out now, with the SynthStation25 keyboard and app at £80.

www.akaipro.com

At present, the game involves falling through a fractal landscape, triggering different musical layers by colliding with various objects. We're sure that Dejobaan's trademark humour and ingenuity will shine through to craft this experience into something truly unique in the field of music games, emulating the spirit of pioneering designers like Masaya Matsuura, who helped

to put music games on the map.

Music is one area that we'd like to see more indie games tackle when it comes to deriving innovative forms of gameplay: the inherent structural nuances of even the simplest musical composition should provide ample material for weird and wonderful level design! dejobaan.com

As you hurtle through fractal landscapes, you must create layers of music by bashing into objects in *Musorqua*



COMPUTER
music10 years
back

The age of Reason comes to computer musicians and **cm** gets a new helmsman

> Ahead of its projected release, the *Computer Music* team landed an exclusive preview of one of the most revolutionary pieces of music software ever made. Yes, **cm019** gave readers the lowdown on Propellerhead's Reason, the all-in-one application that would prove to be a real gamechanger, helping to bring music creation to the masses. And most of the features that we still use regularly today were in there from v1, including the 14:2 Mixer, Subtractor synth, Dr REX loop player, Redrum drum machine and, of

"Reason, the all-in-one application that would prove to be a real gamechanger"

course, all those cables round the back.

Our tutorial lineup that month included walkthroughs on using arpeggiators in Cubase, programming jazz-style drum patterns and getting SoundFonts running on your system. While the tutorials featured in previous issues tended to focus on getting beginners up to speed, many of these latest ones also gave more advanced computer musicians something to chew on – an effective blend of 'difficulty levels' that remains at the core of the magazine to this day.

All this was brought about by a change in leadership. Andy Jones took a climb up the career ladder to become an Assistant Publisher, leaving Ronan Macdonald to take over as Editor, a chair that he still occupies today, a decade later.



Propellerhead unveiled their Reason software ten years ago, in the spring of 2000



Drive time Emika

The former Native Instruments employee reveals the software behind her bass-laden sounds

NATIVE INSTRUMENTS MACHINE

"I can create super nice grooves with instant vibe using this simple software (integrated with the hardware). The workflow within the application allows me focus specifically on my creative direction. I use the grooves made in Maschine as snapshots of ideas, which then inform the macro structures of my work."

NATIVE INSTRUMENTS MASSIVE

"I am totally in love with the sound characteristics achievable in this application. Its super simple to make great sounds using the three oscillators and morphing capabilities. You can transform one basic sound into so many new variations with the macro controls, too. I use it to make spatially large plastic-sounding synths with weird shapes using the envelopes."

NATIVE INSTRUMENTS TRAKTOR

"This is used as support for my live show, as I can sync it with Maschine and use the two together simultaneously. Also, using all four decks in Traktor in the studio is a great way of making sonic mayhem, and I can play around with small ideas, mixing them up to then get inspiration for larger tracks."

APPLE LOGIC PRO

"This is the first sequencer I ever engaged with, and I will always use it for sequencing. Personally-speaking, I love the simple GUI design and workflow possibilities. I'm never

"I'm never distracted by the program itself, so I can focus on the sound or musical task at hand"

distracted by the program itself, so I can focus on the sound or musical task at hand. But this all comes down to my own experiences, and of course, it's all perfectly achievable in other sequencers, too. It's just a personal thing, I guess."

DIGIDESIGN PRO TOOLS

"In complete contrast to my reasons for loving Logic, Pro Tools forces me to stay very conscious of the decisions I make. Which is why I find it perfect for mixing. It keeps me somewhat removed from the music (I work only with audio, not MIDI) and again, the GUI is significant for me, as it suits my mixing perception."

Emika's debut single, *Drop The Other*, is out now on Ninja Tune
www.myspace.com/emikamyspace

Symptohm:Melohman PE

The Performance Edition of this sublime sample-based synth from Ohm Force is now completely free!



Developer **Ohm Force**
Format **PC VST/RTAS, Mac AU/VST/RTAS**
Web **www.ohmforce.com**

Eccentric French developers Ohm Force have been responsible for some amazing commercial plug-ins, and now they've re-released their cut-down flagship synth as freeware. We asked head of Ohm communications Cid Andrade what the difference is between this and the full, pay-for version of Symptohm:Melohman.

"The synth's biggest strengths are its filter and modulation sections," says Cid. "These are in the Performer Edition version, but 'locked'

"There's a demo of the synth, of course, but freeware creates much more buzz than a demo"

and not visible. Besides that, it's the same. Think of it as a 'tweakable preset player', where you can morph between presets using the Melohman features, and load your own waveforms into the two Sync-Grain Oscillators."

What's the thinking behind giving away the Performer Edition for free?

"The first and most important reason is that we receive lots of emails asking us to release a free synth, like we did with the Frohmag filter effect. We realised that we wouldn't have time to make a new synth, even a very simple one. We thought that setting the PE free would do two jobs at the same time: pleasing those who were waiting for the Ohm freeware synth and boosting the regular Symptohm's sales. There's a demo of the synth, of course, but freeware creates much more buzz than a demo."

Any tips for using the plug-in?

"Try clicking on the Oscillators buttons to change the waveforms, then morph between patches with the Melohman feature. You'll then realise that this synth is so exciting and powerful that the Performer Edition is actually more of a psychological preparation for the regular one. One could have a heart attack of contentment looking for the first time at such tweakable parameters!"

Symptohm:Melohman PE is on the **cm** DVD, in the **Software** folder.

Free 808 sounds

It might be nearly 30 years old, but it seems people just can't get enough of that awesome Roland TR-808 sound. Thanks to Trash_Audio, you can get your hands on a great set of 808 samples at the URL below, thoughtfully supplied in two separate versions for your programming convenience: a full-on Dynamic one, and a quick and easy Normalized pack. thedeelement.com/tr808

More mdsp

The ever-dormant Smartelectronix website showed signs of life this month with the release of 32-bit Universal Binary AU versions of several mdsp effects. The plug-ins in question include MdspDuckDelay, MdspDuckVerb, MdspFlanger and Analogue Delay. Note that, while these excellent effects are free, the developer welcomes donations should you find them useful. mdsp.smartelectronix.com

epic win

Variety of Sound have updated their epicVerb effect to v1.5. This new version fixes a number of stability issues (including memory problems that some users had reported) and other bugs. More excitingly, though, the update includes reworked reverb tail algorithms. Variety of Sound say that this has tweaked the characteristics of the sound in terms of density build-up, diffusion and depth perception. varietyofsound.wordpress.com



Freeware Classic GSnar

Developer **GVST**
Format **PC VST**
Web **www.gvst.co.uk**

GSnar is an incredibly useful freeware pitch-correction tool, offering much of the functionality of Antares Auto-Tune, but without the hefty price tag. We asked creator Graham Yeadon if AT had an influence on GSnar.

"Auto-Tune was indeed the

"Some people just really love to hate 'manufactured' music"

inspiration for GSnar. It was far too expensive for me and there weren't any free plug-ins that did the same thing - I had already found free versions of pretty much everything else online. However, I've never used or even seen Auto-Tune first-hand! Everything I know about it comes from reading articles on it - usually in *Computer Music*, in fact."

Why do you think many people criticise pitch-correction software?

"Some people just really love to hate 'manufactured' music, which we get so much of today. Pitch-correction is seen to be a major factor in this new trend and gets tainted by association. But it's just a tool - it can't be blamed for the evils of the music industry. I use pitch-correction sometimes because I don't sing very well, and I'm not going to criticise anyone else for doing the same. I also have frets on my bass - it's not so different, is it?"

Can we expect any more freebies?

"Things have changed since I started GVST. I have far less spare time these days and a mortgage to pay. My current thinking is that I might publish some interesting algorithms online and let some other musically-minded geeks improve on them. We'll see..."

You can find GSnar and the rest of the Graham's freeware goodies on the GVST website. **cm**

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Swissonic MDR-2

Mobile digital audio recorder

44.1kHz, WAV/MP3, stereo, built-in flash memory (up to 2h of MP3 recording). Slot for separate SD (16MB - 2GB) or SDHC (4GB) cards, built-in stereo condenser mic, 2 jack ins for external mics or guitar/line, headphone out, line out, mini speaker, USB 2.0 interface, frequency range: 20Hz to 20kHz, incl. external stereo mic and USB cable, dim. WxH: 15.5 x 8.5 x 3cm, weight: 200g.

order code 203423 **€ 75.-** **€ 65.-**

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 WxH: 6.7 x 2.9 x 10.7cm.

o. code 226599 **€ 89.-** **€ 77.-**

Yamaha Pocketrak 2G

Compact digital recorder

Recording format: Linear PCM or MP3, playback format: MP3, WMA, WAV or DRM10-WMA, 2GB memory, tilt-up microphone, level meters and ALC for optimum record levels, USB 2.0, incl. USB cable (for PC connection), AAA eneloop rechargeable battery (can also be powered with standard AAA alkaline batteries), stereo earphone (inner ear type), carrying leather case, DVD-ROM. Weight: only 49g. **€ 122.-** **€ 106.-**

order code 204895 **€ 122.-** **€ 106.-**

Tascam DR-07

Mobile digital audio recorder

Record and play MP3 (up to 320kb/s) and WAV files (up to 24bit), 44.1/48kHz, built-in stereo mic, analog automatic level input control, analog limiter, stereo in for external mic, stereo line input, headphone and line-out (3.5mm TRS mini jack), USB 2.0, powered by AA size alkaline or NiMH batteries, incl. 2 GB SD card and windshield. **€ 159.-** **€ 138.-**

order code 223287 **€ 159.-** **€ 138.-**

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. USB cable, stand, mic-stand adapter, power supply and 1GB SD card included. Bundle incl. the Lbone HD660 headphones. **€ 175.-** **€ 152.-**

order code 137629 **€ 175.-** **€ 152.-**

Tascam DP-004

Portable 4-track recorder

44.1kHz/16bit, record up to 2 tracks and playback up to 4 tracks at the same time, record on SD/SDHC card, internal stereo mic, 2 mic/line ins, headphone/line outs 3.5mm jack, level and balance switch for each channel, bounce, locator, cut and undo/redo functions, LC display, USB2.0, powered by 4 AA batteries/ accus or optional power supply, incl. 1GB SD card, dimensions WxH: 15.5 x 3.4 x 10.7cm. **€ 195.-** **€ 170.-**

o. code 219801 **€ 195.-** **€ 170.-**

Tascam DR-1

Mobile SD card stereo recorder

Built-in stereo condenser mic, variable angle mic mechanism with A/B configuration, 48 or 44.1kHz / 24-bit recording resolution, MP3/ WAV recording and playback, low cut, analog auto gain control, analog limiter, tuner, vocal cancel features, overdrive feature, stereo in for ext. mics, mono in for ext. mics, stereo line in, headphone out, rechargeable Lithium-Ion battery, USB 2.0, incl. 1GB SD card. **€ 239.-** **€ 203.-**

order code 204744 **€ 239.-** **€ 203.-**

Zoom Q3

Handy video audio recorder

Stereo condenser mic, true X/Y configuration, 2.4" LC display (320x240), video resolution 640x480 at 30 frames per second, video format MPEG-4 SP, NTSC/PAL TV out, audio formats with video: 44.1/48kHz 16/24bit Linear PCM or MP3 up to 320kbps, without video up to 96kHz/24bit Linear PCM WAV, up to 1 hour video with 2 GB SD card, auto record level, includes TV cable, soft case, wind screen, 2GB SD card and 2 AA batteries. **€ 239.-** **€ 208.-**

order code 234280 **€ 239.-** **€ 208.-**

Tascam DP-02CF Set

Digital 8-channel multitrack recorder

8-track recording, uses CF card, LC display, 2 mic/line ins (1/4" TRS), 1 switchable to guitar in, 2 XLR mic ins with phantom, effect send and stereo return, stereo line out (RCA), SPDIF digital out (optical), headphone out, MIDI out for MIDI timecode or clock, USB2.0 port, multieffect processor and reverb processor. Bundle including 2GB Thomann Compact Flash Card. **€ 289.-** **€ 251.-**

order code 203379 **€ 289.-** **€ 251.-**

Edirol R-09 HR 4GB

SD Card Bundle

Up to 320 kbps MP3 playback and recording, recording on SD or SDHC card (up to 8 Gbyte), built-in stereo condenser mic, OLED display, USB 2.0, stereo mic in, stereo line in, stereo headphone out, incl. power supply, 512MB SD card, USB cable, Cakewalk Pyro AudioCreator LE, wireless remote controller and a small table mounting plate. Bundle incl. 4GB SD card. **€ 289.-** **€ 251.-**

o. code 203737 **€ 289.-** **€ 251.-**

Sony PCM-M10

Portable 24bit/96kHz audio recorder

Built-in stereo mic, internal speaker, cross-memory recording, internal 4GB flash memory + MicroSD/MemoryStick Micro slot, limiter and low-cut filter, Senc. pre-record buffer, recording level control, USB 2.0, includes power supply, Soundforge Audio Studio LE, cable remote and cable, finish: grey. Bundle includes accus charger BCY-344 S, MDR-V150 stereo headphones and 4 accus NH-AA-B4F. **€ 325.-** **€ 283.-**

order code 239061 **€ 325.-** **€ 283.-**

Zoom H4 N Bundle

Digital recorder

Perfect for interviews, podcasts, meetings and live recordings, 24bit/96kHz, MP3 up to 320 kbps bitrate, two built-in stereo microphones switchable between 90° and 120°, needs 2xV or 4xV phantom power, USB port, incl. windscreen, USB cable, bag and Cubase LE4. Bundle incl. 2GB SD card and the Lbone HD660 stereo headphones. **€ 339.-** **€ 295.-**

order code 227414 **€ 339.-** **€ 295.-**

Olympus LS-1 I

Digital recorder

24bit/96kHz, 2 built-in mics, internal 8GB HDD, expandable up to 32GB with SDHC card, up to 23 hours record time, edit functions, PCM/ WAV/WMA/MP3 record & playback, built-in stereo speaker, display with backlight, SD/SDHC slot, USB, headphone out, silver metal housing, weight: 165g (incl. batteries), connection for external power supply, incl. wireless remote and Steinberg Cubase 4 LE. **€ 349.-** **€ 304.-**

order code 234496 **€ 349.-** **€ 304.-**

Zoom R16

USB audiointerface and DAW controller

16-track playback and 8-track record, 24bit/48kHz PCM recording, internal stereo condenser mic, battery or USB, 8 mic ins (2 with 48V phantom power), 2 outs, 8 balanced XLR / 1/4" TRS connections, internal effects, Mackie Control emulation via USB, for Win XP/ Vista and Mac OS, incl. Steinberg Cubase LE4 and 16GB SD Card (Support for SDHC-Cards up to 32GB). **€ 389.-** **€ 338.-**

order code 232058 **€ 389.-** **€ 338.-**

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", including 40GB hard drive. **€ 1279.-** **€ 1113.-**

order code 147007 **€ 1279.-** **€ 1113.-**

Phonic AM 440

Mixer

4 mono mic/line channels with 3-band EQ and low-cut, 48V phantom power, 4 stereo channels, 1 aux (pre-fader), 2-track I/O, RCA jack, pre-room out, headphone out, balanced master out, includes power supply. **€ 55.-** **€ 48.-**

order code 196369 **€ 55.-** **€ 48.-**

Phonic AM 220

2 mono mic/line channels **€ 36.-** **€ 31.-**
order code 196359

Phonic PHHB12 FW

Helix Board

Analogue 12-channel mixer for PC recording, FireWire connector, compliant to all PCs and Macs with FireWire port, 16bit/44.1kHz AD/DA converter, 12 inputs, 4 mic preamps, 16 digital real-time stereo effects, +48V phantom power, pre-fader solo for easy leveling, lots of possible routings, zero-latency monitoring, dimensions: 24.5 x 8.6 x 27.1cm, weight: 2.6kg. **€ 208.-** **€ 181.-**

order code 187884 **€ 208.-** **€ 181.-**

Phonic PHHB18FW

Helix Board

Analogue 18-channel mixer Compliant to Mac OS X and Win XP, 96kHz FireWire interface, 24bit digital multi FX processor with 16 presets, 6 mic/line ins (XLR/ jack) with inserts and 3-band EQ, 2 mono/ mic or stereo line ins with 3-band EQ plus 4 stereo/line ins with 4-band EQ, 3 aux sends, 2 stereo aux returns, +48V phantom power on mic channels, includes Cubase LE and rack mounting kit. **€ 311.-** **€ 271.-**

order code 186610 **€ 311.-** **€ 271.-**

Mackie 1402 VLZ3 Bundle

14-channel mixer

New XDR 2 preamps, 6 mono mic/line XLR/ jack combo inputs, 4 stereo line jack inputs, 2 stereo aux returns, 2 aux sends, 6 inserts, 3-band EQ, low cut filter 18dB, PFL, internal power supply, balanced outputs XLR/ jack, weight: 4.5kg, incl. Wizoo Publishing Sound Reinforcement and PA Guidebook. **€ 366.-** **€ 318.-**

o. code 219823 **€ 366.-** **€ 318.-**

Yamaha MG 166cx

16 channel mixer

8 mono mic/line ins (XLR/jack), 2 mic/line ins (XLR/stereo jack), 2 stereo line ins (jack), 3 aux sends, 8 inserts, 3-band EQ with parametric mids, internal compressor on each mic channel, SPX FX processor with 16 programs, 180dB high pass filter, high-end mic preamps, +48V phantom power, dimensions: 47.8 x 10.2 x 48.9cm, weight: 5.5kg. **€ 389.-** **€ 338.-**

order code 115511 **€ 389.-** **€ 338.-**

Alesis MultiMix 16

FireWire

16ch. mixer with FireWire interface 8 mic/line ins, 4 balanced stereo line ins, 3-band EQ per channel, 2 aux send/returns, 100 24bit FX programs, headphone out. FireWire interface: 18 ins, 2 outs. 24bit/48kHz ASIO/WMADW drivers for Win XP SP2, Core Audio drivers for Mac OS X, incl. Cubase LE. **€ 398.-** **€ 346.-**

order code 186079 **€ 398.-** **€ 346.-**

Phonic PHHB24 FW

Helix Board

24-input small-format analog mixer 96kHz FireWire interface for streaming 18 independent channels, 32bit digital multi-effect processor, 16 mic/line channels with XLR/jack with inserts and 3-band EQ, 4 channels mono/ mic or stereo line with 3-band EQ, 75Hz low-cut filter on mono channels, 4 aux sends, 2 with pre/post switch, 4 stereo aux returns, +48V phantom, 4 subgroups, includes Cubase LE and rack-mounting kit, weight: 10.5kg. **€ 415.-** **€ 361.-**

order code 188347 **€ 415.-** **€ 361.-**

Allen & Heath

WZ' 16:2 DX

16-channel mixer 16 mono ins with insert/direct out, PAD, 100Hz HP and 4-Band-EQ with para. mids, 48V phantom switchable, 6 Aux, Aux 5-6 internal effect, 2 stereo Aux returns, PFL, mute, phones, master insert, master out, mono out with separate fader, A/B out, 2 Digitech FX processors (2x16 programmes), MIDI input, internal power supply. **€ 922.-** **€ 821.-**

order code 132316 **€ 922.-** **€ 821.-**

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, 16 inputs, 6 auxiliary mixes, 4 subgroups, 16 Class A XMAX mic preamps, 44.1kHz and 48kHz sample frequency, 2 master DSP effects, talkback, dimensions WxH: 43.7 x 17.5 x 56.8cm. **€ 2098.-** **€ 1826.-**

o. code 225534 **€ 2098.-** **€ 1826.-**

Yamaha 01 V96 VCM

Digital mixing console

24bit / 96kHz, 40 analog inputs, 12 Mic inputs, 40 channels expandable, included ADAT interface, 4 effect processors, parametric EQ, incl. Studio Manager Software. **€ 2439.-** **€ 2122.-**

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Akai LPK 25

USB MIDI controller keyboard
25 mini keys, arpeggiator, sustain button, octave up and down, tap tempo controls, 4 programmable memory banks, includes software editor for Mac and PC, plug-&-play USB connection on Mac and PC, requires no driver installation, dimensions HWD: 2,79 x 34,04 x 9,65cm, weight: 635g.

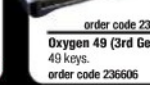


order code 235491

€48.-
£42.-

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/2000 and Mac OS X.

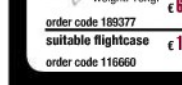


order code 236609

€91.-
£79.-

Korg SP-250

Stage piano
60 notes polyphony, amplifier 2x 11W, 30 sounds, reverb and chorus effects, layer function with individual volume controls, 2 headphone outputs, damper, MIDI in/out, keyboard stand, music stand, sustain pedal and power supply included, dimensions WDH: 129,5 x 38 x 14cm, weight: 19kg.

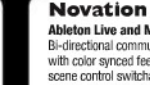


order code 189377

€666.-
£579.-

Korg SVI 73

Stage vintage piano
Real weighted hammer action 3 keys, 8 velocity touch curves, EDS and RX technology, polyphony 80 notes, 36 sounds, 8 tuning curves, 12AX7 tube, 36 demo songs, headphone out, MIDI I/O, USB, incl. music stand and sustain pedal, weight: 17,5kg.



order code 236242

€177.-
£1546.-

Focusrite Liquid-Mix 16

FireWire plugin processor and remote
24bit/192kHz Shark DSP processing with dynamic convolution technology, over 40 compressor & 20 EQ models, 7-band EQ (freely configurable as vintage EQs), 16 channels each with compressor and EQ @ 44.1/48kHz, 8 @ 96kHz, or 4 @ 192kHz, optional available DSP extension-board for 24 plugins @ 44.1/48kHz, bus or PSU powered, for Mac or PC.



order code 210257

€175.-
£152.-

Novation Launchpad

Ableton Live and MIDI controller
Bi-directional communication, 64-button Grid with color synced feedback over the status, scene control switchable to control volume, sends, muting and more, up to 6 units at the same time, USB bus-powered, large rubber grips to hold it steady, automap-enabled, incl. Dedicated Launchpad Ableton Live 8 version, weight: 0,76kg.



order code 236641

€175.-
£152.-

Swissonic Easy FireWire

24bit/96kHz FireWire audio interface
2 line ins 1/4" TRS balanced, 2 line outs mono 1/4" TRS balanced, 1 stereo out 1/4" TRS (usable as line out or headphone out), volume control for headphone out, frequency response: 20Hz - 20kHz, line I/Os switchable between +4dBu and -10dBu, bus-powered, connection for optional 12V power supply.



order code 218447

€27.-
£23.-

ESI DuaFire

24bit/96kHz FireWire audio interface
2 ins with level controls (1/4" jack), mic preamps with phantom power (XLR), 2 Hi-Z ins, 4 analogue outs, direct input monitoring with level control, headphone out, bus powered or by separate power supply, supports DirectWire 3.0, MME, ASIO 2.0, GSIF 2.0, DirectSound and Core Audio, incl. power supply and Steinberg Cubase LE 4.0.



order code 206255

€95.-
£83.-

Cakewalk UA-25 EX CW

USB audio interface
2 channels, 24bit/96kHz AD/DA, mic/guitar/line ins, 48V phantom power, USB powered, integrated line and analogue compressor, ground lift, headphone out, MIDI I/O, direct monitoring, compatible with Windows XP/Vista and Mac OS X 10.3.9 and higher.



order code 235896

€188.-
£164.-

Steinberg CI2

USB audio interface and DAW controller
USB studio with 24bit/48kHz, 2 mic/line XLR/TRS inputs with switchable 48V, input 1 with Hi-Z switch for direct input of guitar and bass, 2 balanced line outs, 1 stereo headphone output, latency free hardware monitoring, incl. Cubase AI 5, compliant to Mac OS X, Win XP and Vista.



order code 235705

€188.-
£164.-

Digidesign Mbox 2 Factory Bundle

USB/MIDI audio interface
2x mic in (XLR), 2x line I/O (jack), S/PDIF I/O, MIDI I/O, zero latency monitoring, pro tools LE software (WinXP and Mac OS X), 37 rig/Track- & 7 bomb factory-plugs, pro tools ignition pack, incl. plugins (moogerfooger analog delay, joermeeke SC2 and VCS, digidesign maxm).



order code 187325

€399.-
£347.-

Apogee Duet

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.

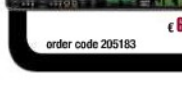


order code 122312

€409.-
£356.-

MOTU 828 MKIII

19" FireWire audio interface
and 28/16 digital mixer with FX, 24bit / 192kHz, 19" IRU, integrated DSP for EQ, compressor and reverb, new CueMix console, 2 mic/guitar inputs with internal hardware limiter, 48V phantom power, 8 balanced line I/Os, 2 XLR main outs, 2 sends, 2 ADAT I/Os, S/PDIF I/O, 2 RCA (24bit/96kHz), MIDI I/O, word clock I/O, 2 headphone outs, for Mac & PC.

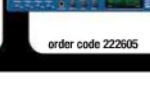


order code 205183

€689.-
£599.-

MOTU Traveler MKIII

19" FireWire audio interface
8 analogue balanced I/Os 24bit/192kHz (4 mic/line ins), 48V phantom power and 4 line ins), ADAT I/O switchable to S/PDIF output, S/PDIF I/O RCA, AES EBU I/O, headphone out, MIDI I/O, zero latency monitoring, useable as stand-alone mixer, for Mac OS X & 10.x and Windows Me/2000/XP, incl. AudioDesk software for Mac OS.

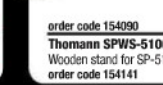


order code 222605

€715.-
£622.-

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, stereo aux output, MIDI in/out, USB port.



order code 154090

€328.-
£286.-

Thomann SPWS-5100

Wooden stand for SP-5100
order code 154141

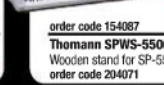


order code 154141

€46.-
£40.-

Thomann SP-5500

Keyboard / Stage Piano
88 hammer action keys, 559 sounds, 203 styles, 3 user styles, 100 songs, 64-note polyphony, accompaniment controls, dual mode, split mode, metronome, DSP, transpose function, lesson function, pitch bend, stereo aux I/O, MIDI I/O, USB port, design: silver grey.



order code 154087

€377.-
£328.-

Thomann SPWS-5500

Wooden stand for SP-5500
order code 204071

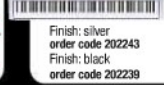


order code 204071

€46.-
£40.-

Yamaha P85

Stage piano
Graded Hammer action with 88 keys, 2x 6W speakers, 64-note polyphony, 10 different sounds, stereo samples, reverb, dual performance, 10 demos and 50 demo songs, metronome, 2 headphone outs, incl. music stand, sustain pedal FC-5 and power supply.

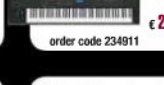


Finish: silver order code 202243

€633.-
£551.-

Yamaha S70 XS

Synthesizer and master keyboard
76 keys, AWM2 tone generator, 128 voices polyphony, presets: 1024 voices + 64 drumkits, 6M: 128 voices + 1 drumkit, user: 128 x 4 voices + 32 drumkits, control slider and knobs, SMF playback, connections: headphone, 2x foot control, 2x foot switch, mic input, MIDI in/out, thru, line out, USB, incl. power supply and Cubase AI, dimensions WDH: 135 x 38,5 x 17,3cm, weight: 20,4kg.

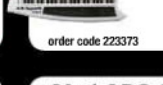


order code 234911

€2222.-
£1933.-

Roland AX-Synth

Live synthesizer with shoulder strap
Built-in sound engine with voices from Roland's Fantom series, 49 Keys (with velocity), 128 voices, 256 tones + 8 special tones, ribbon controller, modulation bar, knobs, USB MIDI, dedicated V-LINK button for video/visual control, long battery operation, foot pedal, USB connector (USB MIDI), MIDI connector I/O, AC adaptor, LED display, incl. shoulder strap and power supply.

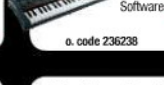


order code 223373

€975.-
£848.-

Korg Microsampler

Sampling keyboard
37 keys, 36 samples per Bank, 9 total (8 user + 1 ROM), 16 voices, 21 effect types (compressors, filter, 4-band EQ, distortion, reverb, delay, LCR delay), input: 1/4" jack (rear), XLR balanced (top); with mic-line switch, level knob, L-Mono, 1/4" stereo jack, MIDI I/O, USB, dimensions: 51,5 x 23,8 x 6,5cm, weight: 1,88 kg, incl. microSAMPLER Editor Librarian Software (PC and Mac OS X).



o. code 236238

€444.-
£386.-

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 sequencing with 64 patterns per group, step sequence programming and realtime recording, drum grid and piano roll editors, sampler, >20 built-in effects, >5GB sounds, for PC/Mac.



order code 223060

€559.-
£486.-

Native Instruments Komplete 6

Complete software package
Contains: Kontakt 4, Absynth 5, Guitar Rig 4 Pro, Reaktor 5, Battery 3, FM8 and Massive, 7000 presets and sample libraries with over 60GB of professional samples, all instruments run stand-alone, supported interfaces/drivers: Kore, Audio Units, VST, RTAS (Pro Tools 7/8), ASIO, Core Audio, Core MIDI, DirectSound.

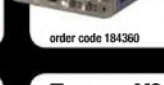


order code 235777

€458.-
£398.-

M-Audio Fast Track Pro

USB audio interface
24bit/44,1kHz, 16 ins in stereo up to 24bit/96kHz, USB powered, 2 mic/instrument preamps with switchable phantom power, 2 inserts, 2 balanced line outs, 4 additional RCA outs, S/PDIF coaxial I/O, S/PDIF out even for AC-3/DTS surround sound, MIDI I/O, compatible with both Mac and PC.

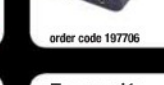


order code 184360

€144.-
£125.-

EMU 0404 USB

24bit audio interface
2 microphone inputs Hi-Z or line, digital I/O (optical and coaxial), MIDI I/O, headphone output, line output, compatible with Windows XP (SP2 or higher or XP x64) and Mac OS X.



order code 197706

€178.-
£156.-

Tascam US-1641

USB 2.0 audio interface
24bit/96kHz, 8 mic/line ins with phantom and level meters on the front, 2 balanced line/instrument ins on the front and 4 balanced line ins on the rear, 4 line outs, monitor out, S/PDIF I/O (switchable to AES/EBU), MIDI I/O, 19"/IRU, for Win XP, Vista 32 and Mac OS X (10.4 or higher), including Steinberg Cubase LE 4.

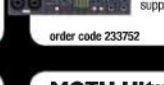


order code 138750

€289.-
£251.-

Focusrite Saffire Pro 24 DSP

FireWire audio interface
Virtual reference monitoring technology, real-time effects (EQ, compressor, comfort reverb), 24bit/96kHz, total I/O count of 16 ins (incl. int. loopback) and 8 outs, 2 mic preamps, 4 analog ins, ADAT I/O optical, 1 S/PDIF I/O coax, 2 headphone outs, MIDI I/O, 48V phantom, LED meter, incl. plug-in suite and power supply.



order code 233752

€369.-
£321.-

M-Audio ProFire 2626

24bit/192kHz FireWire audio interface
26 analog/digital I/O, ideal for project studios, 8 preamps with Octane™ technology, flexible on-board DSP mixer, user-assignable master volume knob, standalone operation, critically acclaimed jitter elimination, Pro Tools M-Powered compatible, 8 analog mic/line jack in with phantom, 2 instrument ins, 8 analog outs, 2 ADAT I/Os.



order code 207107

€444.-
£387.-

MOTU Ultralite MKIII Hybrid

FireWire and USB audio interface
24bit/192kHz, 2 mic/instrument ins, 6 bal. ins and 10 outs (1/4" TRS), 48V phantom power, S/PDIF I/O, headphone out, CueMix FX, internal DSP, LCD display, suitable for use as a standalone interface, compatible with Windows and Mac, supports WDM, ASIO and Core Audio, incl. AudioDesk software for Mac.

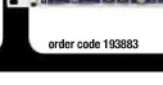


order code 239141

€477.-
£415.-

RME Fireface 400

FireWire audio interface
24bit/192 kHz high performance FireWire audio interface, analog technology of ADI-8 converter, mic pre-amp technology of Quad and OctaMic (2 mic pre-amps), TotalMix technology of Hammerfall DSP series, very reliable drivers.

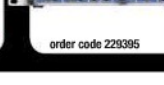


order code 193883

€795.-
£692.-

RME Fireface UC

USB audio interface
36 channels, 24bit/192kHz AD/DA converter, 48V phantom power, 18 I/Os usable at the same time, instrument input, 8x analog I/O, ADAT I/O, S/PDIF I/O, 2x MIDI I/O, WordClock, intelligent clock control, SyncCheck, SyncAlign, SteadyClock, DIGICheck and TotalMix, 9,5", I.U.

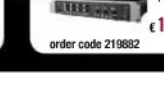


order code 223095

€822.-
£715.-

Digidesign Digi 003 Rack+ Factory

24bit/96kHz FireWire audio interface
28/16 simultaneous channels of audio I/O, 8 analog I/Os, 8 professional mic preamps, 48V phantom power, 8ch. optical ADAT I/O or 2ch. S/PDIF optical I/O, 2ch. S/PDIF digital I/O, MIDI I/O, BNC WordClock I/O, 2 headphone outs, incl. Pro Tools LE, Factory Plug-In Bundle and Pro Tools Ignition Pack 2.



order code 219882

€1199.-
£1043.-

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Fax: +49 9546 9223-24

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- free shipping to the UK and Ireland on orders above £159

the t.bone Micscreen Mini

Portable absorber and diffuser

With microphone clamp, reduces the transmission of unwanted room reflections, echos and ambient noises. recommended for vocals, instruments, live and studio applications, quick and easy mounting on nearly every standard microphone stand.

€66.-
£57.-

order code 223803

the t.bone Micscreen

Portable absorber/diffuser

Positioned behind any microphone, reduces the transmission of unwanted room reflections, echos and ambient noises, recommended for vocals, instruments, live and studio applications, quick and easy mounting on nearly every standard microphone stand.

€93.-
£81.-

order code 209023

Rode M3

Condenser microphone

Cardioid pattern, ideal for recording strings, choir and acoustic guitars, frequency range 40Hz to 20kHz, 130dB SPL, 21dBa noise background, impedance 200 Ohms, 48V phantom power or battery 9V, status LED, high pass filter, windshield and stand mount included, dimensions: 225mm length, 33mm diameter, weight: 360g.

€85.-
£83.-

order code 114494

Rode NT5

Condenser microphone stereo bundle

2 matched small diaphragm condenser microphones, 0.5" gold sputtered capsule, polar pattern: cardioid, frequency response: 20Hz to 20kHz, excellent for drum overhead, acoustic guitar and stereo live recordings, including plastic case, microphone holders and wind screens.

€269.-
£234.-

order code 154595

Neumann KM 184 Stereo-Set

Small diaphragm condenser mic bundle

2 condenser microphones KM 184 (with sequential serial numbers), polar pattern: cardioid, frequency range 20Hz to 20kHz, incl. 2x WNS 100 windshield and 2x SG 21/17 stand adapter, incl. wooden box.

Finish: silver
o. code 153692
Finish: black
o. code 158648
€1155.-
£1005.-

the t.bone SC440 USB

USB condenser studio microphone

USB connection for direct access to Mac and PC (doesn't work with Windows Vista), cardioid polar pattern, frequency range 20Hz to 18kHz, incl. plastic case

€55.-
£48.-

order code 197603

StudioProjects BI

Large diaphragm condenser microphone

1" Capsule, transformerless circuit, needs +48V phantom power, polar pattern: cardioid, frequency response: 20Hz - 20kHz, Sensitivity: -34dB (0dB=1V/Pa), output impedance: <200 Ohms, maximum SPL: 132dB, noise: 12dB-A (IEC651), incl. foam wind screen, zippered bag and shockmount.

€88.-
£77.-

order code 180703

sE Electronics SE 2000

Large diaphragm studio microphone

Cardioid pattern capacitor, gold sputtered 1" mylar diaphragm, frequency response: 20Hz - 20kHz, sensitivity: >16mV/Pa -36±2dB, impedance: <200Ω, output noise: <17dB typical (A weighted), THD: <0.5% at 125dB SPL, phantom power 48V ±4V, incl. wooden case and shockmount.

€89.-
£77.-

order code 223700

the t.bone SC450 Set

Studio large diaphragm microphone

Cardioid, external low cut and -10dB pad switch, impedance: 200 Ohms, requires 48V phantom power, frequency range 30Hz to 20kHz, dim.: 50.5 x 190mm, incl. shockmount and PVC case. Bundle incl. the t.bone MS180 pop shield.

€83.-
£81.-

order code 203194

SC450 Stereo-Set, matched stereo pair in case, w/o pop shield.
€169.-
£147.-

order code 174363

the t.bone SC450 USB

USB studio large diaphragm microphone

USB for direct connection to computer, for Windows XP and Mac OS X, no special drivers needed, phantom powered via USB, polar pattern: cardioid, frequency range: 30Hz - 20kHz, external low cut and -10dB pad switch, incl. shockmount, USB cable and plastic case.

€83.-
£81.-

order code 195302

AKG Perception 220

Large diaphragm condenser mic

1" diaphragm, metal housing, cardioid polar pattern, frequency range: 20Hz - 20kHz, switchable 300Hz lo-cut filter, switchable -20dB pad, 135/155dB max SPL, incl. elastic holder and carrying case, dimensions: 53 x 165mm (diameter x length), weight: 525g.

€139.-
£121.-

order code 206310

Rode NT1 MS-180 Bundle

Large diaphragm microphone

Frequency range 20Hz to 20kHz, polar pattern cardioid, impedance 100 Ohms, dynamic range: 132dB, max. SPL: 137dB, incl. mic holder, SM1 shockmount and bag. Bundle incl. the t.bone MS180 popkiller.

€159.-
£138.-

order code 222997

the t.bone SC1200

Large diaphragm condenser microphone

35mm gold dual diaphragm capsule, selectable polar pattern: omnidirectional, cardioid or figure-8, -10dB or +15dB pad switch, hi-pass filter 75Hz or 150Hz switchable, frequency range: 20Hz - 20kHz, impedance: <200Ω, equivalent noise level: 11dB (A-weighted), max SPL: 143dB for 0.5% THD (with pad on), with solid elastic suspension, synthetic leather bag for the mic and aluminum case for mic and all accessories.

€188.-
£164.-

o. code 225143

the t.bone SCT800 Set

Studio tube microphone

12AT7 tube, frequency range 20Hz to 20kHz, impedance: 200Ω, incl. deluxe case, shockmount and external power supply. Bundle incl. the t.bone MS180 pop shield.

€188.-
£164.-

order code 203198

SCT800 Stereo-Set, matched stereo pair without pop shield.
€377.-
£328.-

order code 174362

Rode NT2-A MS-180 Bundle

Large diaphragm microphone

Polar pattern switchable between omni, figure eight and cardioid, 1" diaphragm, frequency range 20Hz to 20kHz, max. SPL 147dB, delivered with shockmount SM2. Bundle incl. the t.bone MS180 popkiller.

€266.-
£231.-

order code 223002

the t.bone SCT2000 Set

Studio tube microphone

Truly warm sound, frequency range 20Hz to 20kHz, omni, cardioid and figure-8 plus 6 intermediate stages, up to 130dB SPL, incl. case, shockmount and power supply. Bundle incl. the t.bone MS180 pop shield.

€279.-
£243.-

order code 203196

AKG C214

1" large diaphragm microphone

Polar pattern cardioid, frequency range: 20Hz to 20kHz, switchable pad 20dB, requires phantom power 12 - 52V, XLR connector, dimensions: 186 x 9.5cm, weight: 260g, incl. case, windshield and shockmount.

€339.-
£295.-

order code 211318

EV RE20

Dynamic large diaphragm microphone

RE series, polar pattern cardioid, switchable HP, variable D design, 150 Ohms, frequency range: 45Hz to 18kHz, incl. clamp and box, weight: 737g, length 217mm, diameter 54mm, ideal for vocals, brass and bass drum.

€449.-
£391.-

order code 128926

AKG C414 B-XLS

Universal multi-pattern mic

5 polar patterns (incl. cardioid and hyper-cardioid), frequency response: 20Hz-20kHz, pad (6/12/18dB), hi-pass filter (40/80/160Hz), incl. shock mount (H85) and windscreen.

€655.-
£570.-

o. code 105783

Neumann TLM 103 Studio Set

Large diaphragm cardioid microphone

pressure gradient transducer with one-diaphragm capsule, transformerless circuitry, extremely low noise: 70dB, high-quality professional equipment for limited budgets, finish: silver, incl. shockmount, delivered in a box.

€958.-
£834.-

order code 174067

ART Tube MP

Tube microphone preamp

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

€37.-
£32.-

order code 191529

SM Pro Audio TB202

Dual microphone preamp

Hand-selected 12AX7 tube, Class A transformerless high voltage signal path, switchable phantom power, switchable phase reversal, optical compressor, EQ circuitry, input gain control, -20dB pad, 110V - 220V external power supply, dimensions: 19"/1RU.

€105.-
£91.-

order code 174864

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, that allows the tube to blend as little, or as much of the tube drive they want, 48V phantom power, balanced outputs on XLR and 1/4".

€111.-
£97.-

order code 183260

dbx 266 XL

Stereo compressor/limiter/gate

Patented OverEasy technology (attack & release times), XLR I/O, -10/+40dB switch, stereo link, dbx sound.

€139.-
£121.-

order code 131808

dbx 166 XL
2-ch. compressor/limiter/gate, stereo or dual mono, OverEasy or hard knee mode, PeakStop limiting.
€219.-
£191.-

order code 131035

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.

€169.-
£147.-

order code 179985

RNLA 7239 Really nice levelling amplifier
10Hz - 100kHz 0.5dB @ 0dBu clip point.
+22.5dBu @ 3% THD.
€205.-
£178.-

order code 190166

Focusrite Octopre LE

8-channel Class A microphone preamp

8 analog outs, 8 balanced 1/4" jacks located on front panel for quick and easy access, first two channels can be used for DI free plug-in of guitars and basses, channels 1 and 2 also allow a microphone signal (input using the rear panel XLR connections), frequency response: 10Hz - 122kHz, 19"/1RU, weight: 4.2kg.

€269.-
£234.-

order code 178709

Focusrite Octopre

8-channel Class A microphone preamp

Compressor and limiter, phantom power, analogue output (25-pin Sub-D), digital expansion with wordclock optional.

€369.-
£321.-

order code 154507

SPL GoldMike 9844

2-channel tube preamp

Discrete Class A solid stage, 48V phantom power, phase reverse, pad function, flair presence enhancement, very clear and warm sound, 19" rack format with 2RU.

€425.-
£370.-

order code 123370

Mindprint Invoice MKII Digital Edition

Valve microphone preamp

Mic Line preamp, semi-parametric bass & treble, fully parametric mid, EQ, 19"/1U, incl. DI-MOD USB digital interface with USB.

€469.-
£408.-

order code 182221

Avalon U5 Mono

Instrument DI preamp

Pure Class A technique, low noise, +30dB variable gain, 6 tone presets (EQ), high-frequency filter, speaker level input, signal LED, balanced mic & line outputs, dimensions: 2U x half rack width.

€499.-
£434.-

order code 156661

Peavey Q1311

31-band equalizer

Constant Q factor, 1/3 octave, switchable 6dB or 12dB -40dB low cut feature, frequency range: 20Hz to 20kHz, XLR and 1/4" TRS inputs and outputs, output LED display, dimensions: 8.9 x 48.3 x 19.1cm (19"/1U), weight: 4.1kg.

€45.-
£39.-

order code 238485

the t.tracks EQ-233 IE

2x 30-band equalizer

20Hz - 20kHz, status LEDs, volume control per channel, low cut filter on each channel, balanced 1/4" Jack and XLR I/O, ±120dB, 19"/2U.

€75.-
£65.-

order code 235291

the t.tracks EQ-1215E
2x 15-band EQ, 25Hz - 16kHz, low cut 10 - 250Hz on each channel, range: ±6dB and ±12dB, 19"/1U.
€55.-
£48.-

order code 235290

the t.meter MPAA1

Multi-purpose audio assistant

31-band ISO spectrum analyzer, frequency range 20Hz to 20kHz, sound level meter, hand-held with integrated microphone, line level meter (dBu, dBV Volts), phase checker, RS232 connection, includes CD-ROM.

€187.-
£163.-

order code 182968

Lexicon MX200

Stereo effect processor

2 independent processors, 24bit converter, VST plug-in architecture with USB interface, MIDI interface, tap-delay bottom, legendary Lexicon algorithm like halls, chambers, plates, delays, chorus, flanger, tremolo, rotary, etc., dbx dynamic algorithm, 2 simultaneous useable effects, analog and digital ins and outs, internal power supply, 19"/1U.

€188.-
£164.-

order code 180403

tc electronic Finalizer 96k

Studio mastering processor

Gain maximizer, 96kHz 24bit AD/DA, multi-band compressor/expander, 3-band spectral stereo image and uncorrelated dithering, format conversion AES/EBU, S/PDIF and Tos-link, enter and exit at any sample rate e.g. 32, 44.1, 48, 88.2 and 96kHz and make even asynchronous conversion possible, manual or auto fade tool.

€1179.-
£1026.-

order code 133460

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- free shipping to the UK and Ireland on orders above £159

AKG K-121 Studio

Stereo headphones

Semi-open dynamic headphones, 55 Ohms rated impedance, 200mW maximum input power, frequency range 18Hz to 22.5kHz, 101dBV sensitivity, self-adjusting headband and auto-shut-off feature, single side jack, incl. 3m cable with 3.5mm stereo mini-jack plug, 1/8" to 1/4" screw-on adapter, weight: 220g (without cable).



€85.-
£74.-
o. code 219545

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.



€115.-
£100.-
order code 135709

AKG K271 MKII

Closed dynamic studio headphones

Circumaural design, 550, max. input power 200mW, 16Hz - 20kHz, sensitivity 104dBV, self-adjusting headband and auto-shut-off feature, cable length 3m, incl. 5m coiled cable and 1 pair velvet pads, weight: 240g, incl. gold plated 1/8" to 1/4" screw-on adapter.



€148.-
£129.-
order code 206951
5m extension cable
Stereo jack 6.3mm.
order code 153216
€10.30
£9.-

Sennheiser HD-25 LE

Dynamic professional headphones

Closed back, sound pressure level: 120dB, impedance: 700, frequency response: 16Hz - 22kHz, incl. 150cm cable and nylon bag, weight: 140g.



€149.-
£130.-
order code 219041

AKG K 701

High-end reference headphones

Revolutionary flat wire voice coil technology, dynamic, open back, impedance 620, efficiency 105dB, frequency range 10Hz - 39.8kHz, max. input power 200mW, hard gold plated 1/4" jack plug, 3m cable, weight: 235g (not including cable).



€205.-
£178.-
order code 185476

M-Audio StudioPro 3

Active 3" desktop monitor system

2-way desktop reference monitor, 3.25" low frequency driver, 1" high frequency driver, 10W/Kanal, frequency response: 100Hz - 20kHz, magnetic shielding, bass boost switch, incl. stands, dimensions HWD: 20 x 14 x 15cm, weight: 4kg, pair price!



€84.-
£56.-
order code 186629

Event S100

Active 8" studio subwoofer

8" polypropylene cone with damper rubber surround and high-temperature voice coil, frequency response: 35 - 120Hz, -3dB, LFE crossover 120Hz, 2nd-order, noise >70dB below full output, mono line in with 1/4" connector, line in with RCA, 2 RCA mains monitor channel pass-throughs, dimensions HWD: 30.5 x 42.3 x 27.3cm, weight: 14.5kg.



€105.-
£91.-
o. code 114515

KRK RP5 Rokkit G2

Active studio monitor

75W, 5" + 1" speaker, frequency response: 53Hz - 20kHz, magnetically shielded, dimensions HWD: 27.6 x 18.5 x 25cm, weight: 8kg. Unit price!



€138.-
£120.-
order code 213024
KRK RP5 Rokkit G2
8" / 1", 140W.
order code 213090
€235.-
£204.-

Mackie MR5

Active nearfield monitor

5.25" woofer (100W), 1" tweeter (50W), frequency response: 60Hz - 20kHz, max. SPL per pair: 113 dB SPL @ 1m, XLR, jack, 6.3mm) unbalanced and RCA, magnetically shielded, dimensions HWD: 29.2 x 19.7 x 26.6cm, weight: 6.5kg. Unit price!



€139.-
£121.-
order code 207239

Yamaha HS50M

Active 2-way studio monitor

70W Bi-Amping bass reflex system, 5" woofer, 3/4" tweeter, frequency range 55Hz to 20kHz, inputs XLR and TRS, adjustable input level mid EQ, room control, high trim, switchable low cut, fully magnetically shielded. Unit price!



€145.-
£126.-
order code 186461

ESI nEar05

Active 5" studio monitors

Magnetically shielded, 33Hz - 22kHz, bi-amped, bass: 42W, treble: 33W, balanced XLR input, 6.3mm jack input, dimensions: 25 x 16.6 x 20cm. Pair price!



€169.-
£147.-
order code 160180

Yamaha HS80M

Active 2-way monitor

120W bi-amping bass-reflex system, 8" woofer, 1" tweeter, frequency range 42Hz to 20kHz, XLR and jack input, mid EQ, room control, high trim, low cut switchable, magnetically shielded. Unit price!



€239.-
£208.-
order code 186463

M-Audio EX66

Active studio reference monitor

Bi-amplified with 200W PWM power per channel, high-impedance analog inputs (XLR and 1/4" TRS balanced), S/PDIF and AES/EBU digital input up to 24bit/192kHz for total digital studio connectivity. Unit price!



€258.-
£224.-
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Adam A5 Pro

Active nearfield monitor

5.5" woofer, 2x 25W, magnetically shielded, frequency response 55Hz to 35kHz, inputs balanced XLR and unbalanced RCA, dimensions: 28.5 x 17.2 x 20cm, weight: 5kg. Price per unit!

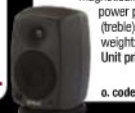


€266.-
£231.-
order code 207900

Genelec 8020BPM

Active 2-way studio monitor

Power switch, frequency response 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, power per channel: 20W (bass), 20W (treble), dim: 22.6 x 15.1 x 14.2mm, weight: 3.7kg, wall bracket included. Unit price!



€279.-
£243.-
o. code 235038

Adam A7

Active nearfield studio monitor

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.



€385.-
£335.-
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Syrincs M3-220

2.1 active speaker system

220 W RMS, completely magnetically shielded for PC/AV use, incl. 1m cables (signal & power) for the satellites, bal. XLR input, 111dB SPL peak @ 1m, 1" neodymium peak and RMS limiter, 8" woofer, stainless steel mountable on a mic stand (M10 thread).



€415.-
£361.-
order code 140877

Genelec 8030APM

Active 2-way studio monitor

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



€459.-
£399.-
order code 171718

Genelec 8040APM

Active 2-way studio monitor

48Hz - 20kHz free field frequency response (±2dB), 115dB SPL peak per pair with music material @ 1m, 165mm high efficiency bass driver, 19mm metal dome tweeter with DCW (Directivity Control Waveguide), 3kHz crossover, magnetically shielded aluminium construction, amp power per channel: 90W bass + 90W treble, dimensions: 35 x 23.7 x 22.3cm, weight: 8.6kg. Price per unit!



€745.-
£648.-
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JBL LSR 4328PAK

Active studio monitor bundle

Includes LSR 4328P and LSR 4300 ACC, 8" woofer 150W, 1" tweeter 70W, with room mode correction technology, analyses room frequencies and trims the speakers, frequency response: 50Hz - 20kHz, max. SPL: 112dB, ins. XLR and balanced plug, AES/EBU (XLR) and S/PDIF (COAX), USB data connection, HiQnet network, incl. accessory kit (microphone, remote control, software and USB cable).



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£1118.-
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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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£146.-
order code 223751

Behringer VMX1000

7-channel DJ mixer

5 dual input stereo channels, 2 mic channels with mic-on switch and FX effects send, intelligent dual auto BPM counter, XPO stereo surround effect, VCA controlled crossfader, 3-band kill-EQ (-32dB), gain control and precise level meters per channel, auto-talkover function, subwoofer out, balanced main & additional zone outs.



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Allen & Heath XONE:1D

Professional DJ MIDI controller

5 rotary encoders with "push to switch" function, 19 push buttons (4 illuminated), 8 detented rotary pots, 56mm faders, USB and MIDI connections, 43 MIDI messages, jog wheel, dimensions WDH: 8.8 x 35.8 x 12cm.



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£231.-
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Allen & Heath XONE:22

2-channel DJ mixer

4 inputs, 2 mic inputs, 2 phono/line switchable, 3-band EQ, crossfader curve, VCF filter (20Hz - 20kHz), FX send/return, mic input (XLR) with 2-band EQ, XLR master output, monitor output.



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£243.-
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Pioneer DJM 800

Professional 4-channel DJ club mixer

Cross fader assignment, fader start, 3-band EQ (-26dB - +6dB), talk over (-20dB), peak level meter, rotary pots for master output, dimensions WDH: 32 x 38.1 x 10.8cm, weight: 7.5kg.



€1399.-
£1217.-
order code 191080
suitable flightcase
order code 193933
€89.-
£81.-

Swissonic CDM P

Compact CD/MP3-Player

40 seconds anti-shock, pitch ±16%, loop function, slot-in drive, balanced XLR output, direct headphone output with volume control, master level for the line output, IR remote control, 19"/1HE.



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£121.-
order code 221521

Numark MP 302 MKII

High-Quality dual MP3/CD-player

Anti-shock, ability to create seamless loops both CDs and MP3 discs, displays text for ID3 tags and folder names for easy navigation, multifunction jog/shuttle wheels for track access, search, and pitch bend, dual-range ±8% and 16% pitch control for beat matching, single, continuous and programmable playback with cue points, fader start, analog RCA and digital S/PDIF outputs, 19", 2x 2U.



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£259.-
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Denon DN-D4500

Twin CD player with MP3

permanent memory for up to 10 MP3-CDs, 2x 10 sec. shockproof, CD-R/RW rendition, CD text, 50mm jog wheels, loop, hotstart, stutter, -40% to +50% turntable hold over jog wheel, turntable brake, permanent memory for up to 300 tracks per drive, pitch control: ±16%, 2x S/PDIF.



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£535.-
order code 183504
DN-D4500 headphone bundle
incl. the lbone TDJ1000
order code 108162
€629.-
£547.-

Pioneer CDJ-400

MP3 single CD player

with ID3 tag & CD text, MIDI controlled via USB, jog wheel, scratch jog FX, ±6/10/16% pitch control, master tempo control, reverse play function, shock-proof memory, hot loop & beat loop for 10 cue/loop points per disc (maximum).



€666.-
£579.-
order code 193921

Pioneer CDJ-900

Professional single CD player

Compatible with MP3, AAC, WAV, AIFF and Titanium 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.



€1245.-
£1083.-
order code 238584

the t.mix DJ Box

DJ system for all DJ systems eg. Rane Serato, Final Scratch, Torq, Mixvibes, Virtual Vinyl, Ableton or Traktor, allows easy control for 2 DJ systems such as Laptop or CD players as well as 2-channel mixers to be routed together, both systems can be controlled with Timecode vinyls.



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Hercules DJ Console RMX

DJ controller

with integrated USB audio interface, 2 jog wheels, 6 faders, DJ buttons for DJing control, effects and loop buttons, mic in, headphone out, 4 line outs (1/4" mono balanced TRS), 4 RCA outs, 2 stereo ins, incl. Virtual DJ DJC edition software (PC and Mac).



€285.-
£248.-
order code 208113

Numark Omni Control

Professional DJ hardware controller

Complete professional computer DJ package, hardware controller with integrated audio I/O, incl. Native Instruments Traktor 3 LE and MixMeister Fusion Live software, heavyweight, sturdy feel, extremely clean, high quality sound card, reliable knobs, faders, and buttons, supports MIDI over USB.



€298.-
£259.-
order code 220244

Native Instruments Traktor Scratch Duo

Professional DJ system

Control digital music files using turntables or CD decks, up to 2 decks simultaneous, controllable by CD player and MIDI controller, USB 2.0 audio interface, bus-powered, 4 high-gain outputs, 4 inputs with phono preamps, 8 LEDs, 2 vinyls and 2 CDs.



€325.-
£283.-
order code 227391

Rane Serato Scratch Live

Scratch control interface

Complete bundle containing: USB interface, 2 CD's and 2 vinyls with time code, 4 RCA cables, USB cable, software, plays and controls audio files with the help of turntable or CD player, compatible with MP3, AIFF, WAV and Ogg Vorbis, adjustable latency (7-20ms), Mac and PC.



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From the makers of **COMPUTER
music**

THE BEGINNERS' GUIDE TO AUDIO & SAMPLING

In the second of five monthly tutorials for beginners, we look at the fundamentals of recording, playing, manipulating and editing audio in your software DAW and sampler



> In the early days of recording, engineers and sound designers faced an ongoing struggle to preserve audio fidelity. Capturing or playing back audio from an analogue recording medium would always add a certain amount of unwanted sonic artifacts and distortion to the signal, caused by the noise present in electrical circuitry. In fact, even the basic act of storing recorded audio on a format like magnetic tape would incur a degree of degradation over time.

In analogue recording terms, this meant that almost any decision to edit, bounce or process an audio track had to be weighed up against a subsequent loss in fidelity. A practical solution emerged in the early 70s, when companies including Denon and the BBC pioneered the use of two-track digital audio recorders. In simple terms, digital audio is a method of representing an analogue audio signal as a series of 0s and 1s.

When an audio signal is converted into a digital representation, it can be copied, edited and moved around indefinitely within the digital realm without any inherent loss in fidelity. Actions such as changing an audio track's volume level can be performed digitally with generally imperceptible signal degradation –

which is only caused when digital values need to be rounded up or down during multiplication or division – and it also means that any process or edit can be reversed easily.

The digital revolution

The earliest digital audio devices were simple two-channel stereo recorders. However, as computer technology has progressed, the scope to do more within the digital realm has significantly broadened. Nowadays, a modern home computer can effectively play the role of an entire recording studio – mixing dozens of tracks together, enabling virtually unlimited processing and giving engineers the ability to edit tracks at a level of precision never possible on any analogue medium.

Over the next ten pages, we'll guide you through some of the fundamental ways in which digital audio has revolutionised the nature of modern music production, from multitrack audio recording and editing, through to various methods of processing and manipulation. We'll do this in both the software DAW and sampler, the latter being a supremely flexible and creative tool for digital audio recording and playback.

Linear audio vs sampling

In the software DAW (digital audio workstation), your audio files and recordings exist as raw data on your computer's hard disk and in its memory. This enables software developers to provide endlessly flexible and creative ways for you to arrange, edit and manipulate them.

As a digital audio file tends to involve quite a sizeable chunk of data, and editing or manipulating it within a DAW is usually done via a scaled-down graphical representation of the audio's analogue waveform. Having audio tracks represented alongside each other graphically on a grid and timeline enables us to see where each instrument comes in and roughly what happens throughout its progression, all in direct relation to the other audio tracks.

Digital audio represented in this manner is known as 'linear'. However, there's another approach to working directly with audio, called sampling. Using a sampler instrument plug-in typically involves importing one or more digital audio files directly into it, from where it/they can be edited and manipulated. To play the audio files back, you trigger sounds with MIDI

note events on your keyboard, then record (or draw) them into your arrangement.

While both approaches can be used somewhat interchangeably - many producers preferring one over the other - each offers its own advantages and limitations...

The long haul

Let's first get to grips with linear audio, which is almost always the best choice when working with longer sections of sound - such as audio recordings of guitars, drums or vocal tracks - as it makes editing and positioning audio data very visual and intuitive. For example, by using your DAW's scissors tool, you can cut an audio track into two sections, whereupon any unwanted gaps or background noise can be trimmed out before rejoining the two sections into the final take.

To give another example, if you're working with a recorded drum track, you may want to make numerous tiny cuts and trim short bits of audio out to improve the timing and fix any sloppy hits captured in a take. With linear audio, this kind of editing tends to be very straightforward, as you can see all of your audio data represented visually in line with the rest of the arrangement.

Short but sweet

Sampling, on the other hand, is often the preferred method of working with shorter snippets of audio, particularly when you require some kind of performance variation during playback. For example, when using a single snare drum sample, you might want to trigger each hit at a slightly different volume level for authenticity.

One of the biggest creative benefits of



The linear audio functionality of DAWs such as Propellerhead's Record makes editing long recordings beautifully intuitive

sampling is that it enables audio files to be played back as MIDI instruments. A single bass note sample can be mapped across a MIDI keyboard, then played much like a synthesiser. It will respond to pitch changes by either slowing down or speeding up sample playback, can play for as long as a note's held (or not, if you prefer) and can be configured to respond to note velocity (how hard you hit the keys).

Samplers also enable you to set loop points in an audio file, whereby playback will continually cycle through a certain section of audio for as long as the note event triggering it is held. This enables you to turn a short bass or synth sample into a continuous tone, which can then be modified further by setting volume and filter envelopes - emulating the natural attack, decay and release of a performance instrument's volume and tone.

Whichever approach you'll end up favouring will most likely come down to how you prefer to think about music and audio - it's possible to construct melodies using short snippets of linear audio, aided by pitchshifting and volume envelopes, just as it's possible to work with long audio recordings being triggered from a sampler. Generally speaking, though, each situation will suggest one approach or the other.



With software samplers like Native Instruments' Kontakt, you can trigger short snippets of audio from your MIDI keyboard

Bit-depth and sample rate

In digital audio, the level of detail at which an analogue audio signal can be captured, stored and recreated largely dictates the resultant sound quality. A digital audio file comprises a string of samples - ie, tiny snapshots in time, each representing the amplitude of the analogue audio signal at that particular moment.

In terms of recording, the sample rate refers to how many samples per second we're using to capture an incoming audio signal. Using a high sample rate can mean that you're taking tens of thousands of samples per second, thus more accurately capturing the fast fluctuations present in any audio signal you're recording.

A low sample rate takes fewer snapshots and is therefore less able to represent the signal clearly. With fewer samples, higher frequencies that cause faster fluctuations in the audio signal can't be captured as accurately and are prone to incur what's known as aliasing - think of spinning car wheels or helicopter blades in films, where the object is rotating faster than the film format can capture, which causes it to appear as if it's moving at a much slower pace or even going in reverse.

According to Nyquist's sampling theorem, a signal can be perfectly reconstructed when the sample rate is twice as high as the highest frequency

being sampled. So if the highest frequency of an audio signal is 1kHz, sampling it at 2kHz should result in a perfectly represented audio signal.

Bit-depth, on the other hand, refers to the number of digital bits used to represent each sample. In other words, the resolution we're using to capture the amplitude of the signal at any given moment. A higher bit-depth enables us to track smaller fluctuations in the incoming signal, and, as there's a greater range of values between the highest and lowest signals we can represent, dictates the dynamic range and signal-to-noise ratio of a digital audio signal.

> Step by step

Playing back a drum loop as linear audio



1 > To play a drum loop as linear audio in a DAW, the first thing we need to do is make sure we have a fresh audio track to work with. Any audio file dragged onto this track will be simply played back on the timeline. We also set our loop markers (the left and right indicators) over one bar, as shown, and engage the **Loop** switch.



2 > Now we need to load a drum loop. In Ableton Live, this can be done using the File Browser on the left-hand side of the main screen. Audition your drum loop by clicking it, then drag it from the File Browser to the looped section on your audio track. Other DAWs may have their own browsers, or you can drag audio files in from Windows Explorer/OS X Finder.



3 > Hit the **Play** button in the transport section. In Live, the loop should automatically play back in time with our track tempo. In other DAWs, you may have to adjust the tempo of the track or timestretch the audio file to get it looping smoothly - most professionally recorded loops give the tempo in the file name to help you out in this regard.

> Step by step

Playing back a drum loop with a sampler



1 > To play a drum loop back using a sampler, we first need to create a MIDI track and place a sampler plug-in on it. In Live, select the Device Browser on the left-hand side (second button down, as shown above), locate **Sampler** in the Instruments section and drag it onto a new MIDI channel.



2 > With our MIDI channel selected, open the Disk Browser menu on the left-hand side of the screen and locate a suitable drum loop. Once you've decided on one you like, drag it into Sampler's Sample Display in the Track View Selector, which you'll find along the bottom of the screen.



3 > To trigger our sample, we need to send the Sampler module a MIDI message. Go into Live's Session View (**Tab**) and double-click a spare clip slot on our MIDI channel to create a MIDI Clip. Using the **Pencil** and **Arrow** tools, create a one-bar-long note on C3. Upon playback, this probably won't be in time, so adjust the track tempo until it loops smoothly.

File formats

The standard format for uncompressed digital audio is **PCM** (Pulse Code Modulation), which is typically stored as WAV files on PC and AIFF files on Mac, although both systems can play back either format. PCM holds samples taken at uniform intervals, and can be used to represent audio with any combination of sample rate and bit-depth, within reason. This makes it the ideal choice for recording applications - it gives uncompromised audio quality, as well as the ability to create very high resolution masters.

The only real drawback of PCM is its size. A few full tracks of uncompressed 96kHz/24-bit audio will require a substantial amount of hard drive space, which, in this day and age, can make sharing projects and getting involved in collaborative efforts over the internet a somewhat slow and frustrating experience.

FLAC is a lossless compressed audio format, which means the size of the file can be reduced without any apparent loss in data or sound quality. FLAC can typically compress audio files by around 30-50%. This has made it the first choice format for high quality music downloads or those recording their own CD or vinyl collections.

MP3 is a hugely popular audio format, employing loss-inducing data compression - high data compression rates can be achieved, but at the expense of sound quality. MP3's success stems from the fact that it can represent reasonably good audio quality at sometimes less than 10% of the size of the equivalent PCM file. This makes storing music and uploading/downloading it to/from the internet much more manageable. However, the resultant loss in quality makes it a less than ideal choice for most recording applications.

Lastly, **REX** is a lossless compressed audio format, which is especially designed for looped passages of audio that are created in Propellerhead's ReCycle software. A REX file will typically contain a looped section of audio, which has been chopped up into a string of shorter individual events, all represented as separate hits. This means looped sections of audio can be imported straight into your songs, where they'll map themselves to the tempo and groove of your track. It also makes editing loops very straight forward, as individual hits can be rearranged or assigned their own channels, and can also be tuned independently.

Audio editing and processing

Working with digital audio in a DAW or audio editor gives you virtually unlimited scope when it comes to editing and processing. The audio channels in DAWs enable you to place and arrange all your audio tracks in relation to the timeline. Each channel generally corresponds to an individual mixer channel, too, on which track volume, panning and additional processing can be applied to everything on that channel.

Among the most common edits you're likely to perform are 'cuts'. Much in the same way an engineer could slice off bits of tape to remove unwanted noises or silence on a reel-to-reel recording, a digital

audio editor enables you to select and remove unwanted bits of audio. You might do this to remove unnecessary silences on recordings - which would otherwise be taking up disk space - or to ensure that the track or sample you're working on comes in at exactly the right moment.

Chopping mad

Being able to cut, copy and paste sections of audio also open up possibilities when it comes to rearranging tracks. For example, a single bar of recorded drums can be chopped up into a sequence of hits, which can then be pieced back together to create entirely new

"A single bar of recorded drums can be chopped up into a sequence of hits"

rhythms or add variations and embellishments to a regular beat.

Audio editors also enable you to timestretch and pitchshift tracks. The former involves changing the speed and duration of an audio file without affecting its pitch. For example, a slow beat can be sped up without changing the tone or tuning of the drums themselves.

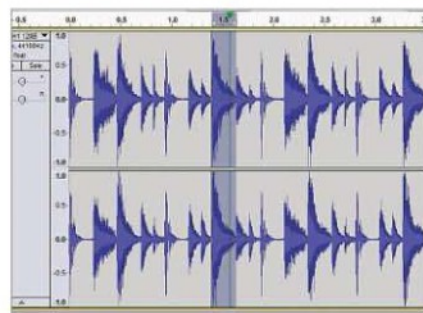
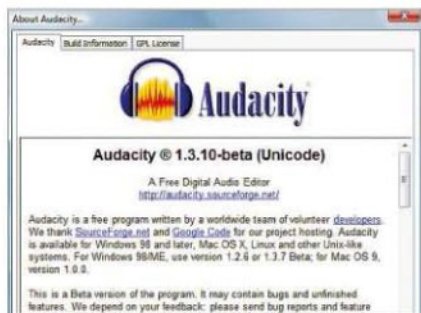
Pitchshifting enables you to

change the pitch without affecting the speed or duration of a sound - it can be used when you want to change the key of a recorded track, to name but one use.

Lastly, fades can be used to bring a track in gradually or fade it out smoothly, while the 'reverse' function plays an audio track backwards, and is most commonly used as a special effect.

> Step by step

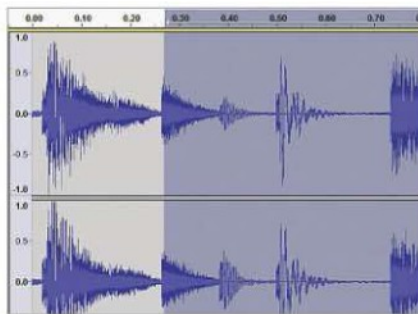
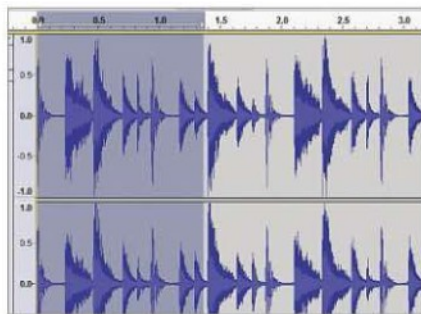
Cutting a drum hit out of a loop in Audacity



1 > There may be times when you want to cut a drum sound out of a loop, so you can use it by itself for constructing your own loops. An audio editor can be employed to isolate the hit from the rest of the loop and clean it up. We're using the free Audacity, which is available at audacity.sourceforge.net.

2 > The first thing you'll want to do is find a suitable drum loop - clean sounding loops with well-spaced hits and very little reverb are usually easiest to work with. Load your drum loop and observe where the peaks and dips occur in its waveform.

3 > Play your drum loop through a few times and notice which peaks correspond to which drum sounds - you'll usually find the snare on the second and forth beats of the bar. Highlight each snare hit by dragging the mouse over them, then play each one individually to hear which hit sounds best in isolation.



4 > Once you've located your snare hit, delete all of the unwanted sounds that come before it. Highlight everything to the left of the hit, leaving a tiny bit of space before it, so that you don't chop the attack portion off, and press **Delete**.

5 > Next, locate where the snare hit ends - if an additional sound, such as a hi-hat or kick drum, comes in before it's faded out naturally, cut up to this point. In the same manner as the previous step, highlight and **Delete** everything you don't need after the snare hit has played out.

6 > You should now have your isolated snare drum roughly cut out of the rest of the loop. Zoom in and clean it up, deleting any unnecessary noise on either side of the snare itself, so that the sample starts cleanly and ends before any other noises occur.

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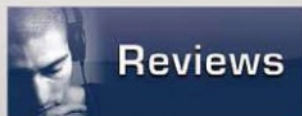
Sounds and inspiration from some of the world's best known music producers and artists directly to your desktop.



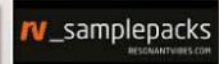
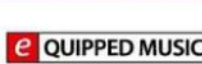
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Adjusting clip lengths in Live is just one form of non-destructive editing

Appetite for destruction

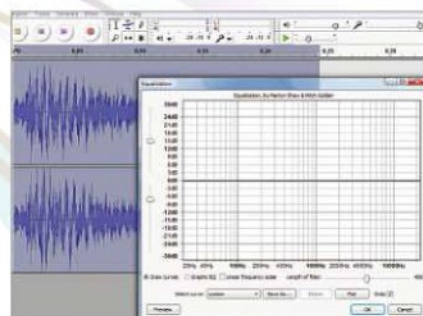
There's two ways in which a DAW or audio editor can process digital audio: it can either modify the samples in the audio file itself, or it can modify the way the samples are played back. The first of these methods is called 'destructive' editing, as it changes the samples themselves. For example, when you load an audio file into an editor and cut a section of silence out at the beginning, you've actually deleted a series of samples from the file, which will be gone for good as soon as you save the file.

'Non-destructive' editing involves changing the parameters or processes the computer employs when playing an audio file back. This can be illustrated by changing the start point for an audio clip in Ableton Live, which merely tells the software the point from which it should start playing the clip, without having to alter the audio file at all.

For convenience, and sometimes to save memory and resources, there are many situations in which destructive editing may be preferable - trimming unnecessary silence or noise from samples, applying CPU-intensive processes permanently, or when producing a master recording. The only drawback is that for every change you make to the source audio file, you're altering and losing information from it - which can sometimes result in subtle but cumulative losses in fidelity, as well as eventually being unable to track back and remove certain processes or edits once they're done.

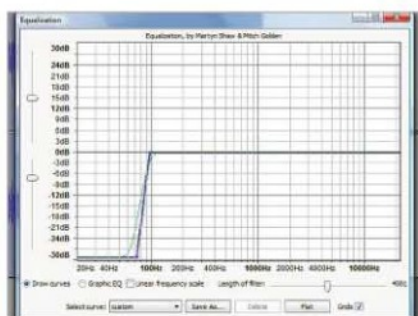
When editing non-destructively, any processes are applied during playback. So, changing a track's volume or panning in a virtual mixer are examples of non-destructive editing, as is processing a sound with plug-ins.

> Step by step Destructive processing of a drum hit



1 > There are many reasons you might choose to process digital audio. It will generally come down to either fixing problems that make a particular sample difficult to work in a mix, or altering it creatively to achieve a certain sound. Here we're processing our snare drum from the previous walkthrough in Audacity.

2 > A common process when working with digital audio is to remove any unnecessary low frequencies or rumble with a high-pass filter or EQ. The reason for this is that low frequencies take up a lot of space in the mix and can easily clash with each other. Select **Equalization** from Audacity's **Effect** menu.



3 > To remove unwanted low frequencies, we need to draw a curve that drops off below around the 80Hz mark. This is done by double-clicking a point on the equalization graph at 100Hz, and another at 80Hz. Now simply drag the point we've created at 80Hz down as far as it will go.

4 > You should find the wave looks a little cleaner. Unfortunately the tail end of our snare cuts off quite abruptly from where we cut it earlier. To smooth this out, let's create a simple volume envelope to add a more natural decay. Select **Fade Out** from the **Effect** menu.



5 > To make the decay sound natural, and give the sound a sense of space, we want to apply reverb. The first thing to do, however, is lengthen the sample to give the reverb time to ring out. Move the selector to the end of the sample and select **Silence** from the **Generate** menu. Add a few seconds of silence and hit **OK**.

6 > Choose **Plate Reverb** from the **Effect** menu - you'll need to have installed the additional effects from the Audacity website under **Plug-ins and Libraries** to be able to find them. Apply a 4-5 second reverb. You should now find that your snare sample is clean enough to use in a drum loop of your own making, cutting through clearly and ringing out naturally.

> Step by step Non-destructive processing of a drum beat



1 > There are some processes that are better performed non-destructively – ie, in real time, as you go. A typical example of this involves helping a sound sit better in a mix, which is a subtle process that involves lots of small tweaks rather than drastic changes. With your snare drum now imported into your DAW, you can start to apply plug-ins.



2 > First up, let's apply a compressor plug-in to control the dynamics of the snare. This enables us to increase its snare's average volume and adjust the sharpness of its attack. In Ableton Live, add a Compressor plug-in from the Device Browser, experiment with the parameters, then copy our settings.



3 > Next, we need some EQ to control the brightness and clarity of our snare drum – we can also come back to it later to add presence in the mid-range or scoop out any frequencies that conflict with other elements of the mix. For now, drop in an EQ Three plug-in after the compressor with the **Boost HiHats** preset.



4 > Adding a saturation plug-in is one of the easiest ways to increase the presence of a sound within a mix. Saturation can be thought of as a subtle form of distortion, enabling you to boost volume levels and keep things nicely controlled. Add the Saturator plug-in to our chain with the **A Bit Warmer** preset.



5 > Now you've got a chain of three processes running in series on your snare drum sample. An advantage of non-destructive processing is that each one can be dropped out and brought in again at any time. Try switching the effects on and off (using the power button at the top-left of each plug-in), and listen to how they affect the sound.



6 > Another advantage of non-destructive editing is being able to change the order of the processes at any time. Sometimes the result of changing plug-in order can be quite subtle; at other times, such as when running an EQ into a distortion plug-in, it can be more blatant. Try re-ordering the plug-ins used here to hear what we mean.

Loop slicing

Drum and instrument audio loops are a mainstay of computer-based music production. A loop is simply a recorded melody or rhythm pattern that can be played on repeat as part of a composition – drum loops are very popular, as they capture the natural characteristics of a live performance, which may be difficult to recreate or approximate when working with single-hit samples.

Loop slicing is a technique by which you rearrange and edit loops, while retaining their natural timing, as well as many of the other nuances of a live performance. For example, you may want to add playing variations to a drum loop, rearrange the beat completely, or change its timing to fit a different groove or tempo.

Not so long ago, loop slicing was done manually, by cutting your loop up into a number of blocks that could then be resequenced in whatever order you liked – many modern genres, such as drum 'n' bass, evolved specifically from this technique. Nowadays, many DAWs and plug-ins offer automatic loop slicing facilities. This means the software can analyse an audio clip and find all of the points where it appears that notes or drum sounds begin. By chopping up the sample into a series of shorter samples at these points, the loop can easily be rearranged, and parts can be copied, repeated or removed completely to form radically different patterns.

Propellerhead's ReCycle was one of the first popular loop slicing applications. It works as a standalone application, enabling you to create sliced versions of audio files, ready to be imported into compatible sequencers, such as Cubase and Reason, where the slices can be loaded with their relative spacing (timing) intact, then edited and switched around to create interesting variations.

Newer versions of Steinberg's Cubase, amongst other DAWs, offer a similar form of loop-slicing that utilises hit points. With this, any audio file can be imported and analysed using hit-point detection, and once you're happy with the location of each hit, the file can be cut into slices.

Many dedicated loop-slicing plug-ins exist, too. FXpansion's Guru, Native Instruments' Kontakt, plus iZotope's iDrum and PHATmatik Pro all offer various forms of loop slicing and rearranging facilities, which you can use on any samples you like.

Samplers and sampling

The first affordable digital samplers revolutionised home music creation when they were released towards the end of the 80s, providing a whole new sonic paradigm for producers to exploit. A sampler can be used to lift sections - creatively or otherwise - out of other people's music, or it can be used to emulate instruments such as pianos, guitars and drum kits, by recording many notes and variations, and mapping them across the keyboard.

Today, a digital sampler can reside in your computer as a plug-in instrument. Popular soft samplers, like Native Instruments' Kontakt, offer a vast range of

built-in audio processing and performance controls, enabling you to construct complex and highly expressive instruments from your source material. There's also a wide range of high quality sample libraries available on CD, DVD or via download, which typically comprise meticulously multisampled studio recordings of various instruments, along with often hundreds of performance patches.

When preparing a multisampled patch, the MIDI keyboard typically needs to be split up into various sections, with each one corresponding to a particular sample and/or set of playback

parameters - including such things as start and end points, effects settings and volume envelopes. Setting up a multisampled drum kit, for example, would normally involve splitting the keyboard up into a series of single notes, each corresponding to a particular drum hit. However, a multisampled piano may not require a separate sample for each note on the keyboard, so the keyboard can be split up into a number of short sections of perhaps four or five notes each, where each sample can be pitched up or down a few semitones without losing too much of the piano's natural quality.

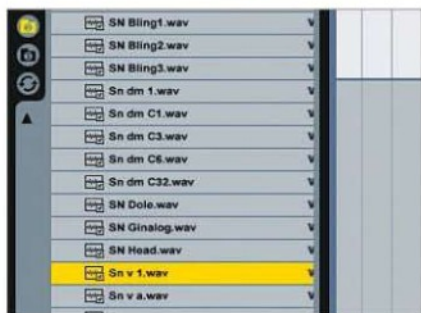
Multisamples can also be

divided based on other parameters, such as velocity. In such a case, a note played above a certain velocity may trigger a harder sounding piano sample, while a note played below a certain velocity may trigger a softer one. Many samplers also enable you to crossfade between two or more alternative recordings of a note, so that the transition from soft to loud sounds much more natural.

Unlike working with linear audio, a sampler plug-in typically sits on a MIDI channel, where rather than having sections of audio playing directly from your arrangement, MIDI notes are used to trigger the sounds of each key and its velocity.

> Step by step

Creating a drum kit and beat in a sampler



1 > Creating a simple drum kit and beat is a standard starting point when building a track. The first thing you're going to need is a collection of basic, neatly cut up and edited drum hits: a kick drum, snare and closed hi-hat should do for now. We're using Live here, but any DAW and sampler plug-in will do.

2 > We're going to play our drum hits from a sampler plug-in, so we need to create a new MIDI track. We've done this in Live's Arrangement view, from the **Insert** menu in the top bar, but you can also do it in the Session view by right-clicking a space in the Clip/Device Drop Area and selecting **Insert MIDI Track**.

3 > Find the Impulse module in Live's Device Browser on the left and drag it onto your newly created MIDI channel. Go to your File Browser and drag your kick drum, snare and hi-hat into empty sample slots within Impulse, which is a drum/percussion-orientated sampler.



4 > Now you should have three samples loaded and ready to trigger via MIDI. The next step is to create a MIDI clip by double-clicking one of the spare clip slots on your MIDI track (or drawing one in in most other DAWs). You'll see that your samples are assigned to individual slots in the Note Ruler.

5 > With your drum samples loaded and MIDI clip ready to use, you can get to work drawing your drum beat in with the **Pencil** tool, which you'll find above the Clip/Device Drop Area. Enter a simple beat pattern, just as we have here.

6 > Hit **Play** in the transport section and your beat will play back in a loop. It's unlikely things will sound quite right at this point, so now you can go back to your Impulse module's **Track** view and, by highlighting different sample slots, adjust the volume levels and decay times of each sample.

ESSENTIAL READING FOR ALL REASON USERS



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cmDVD

PC MAC

Nomad Factory's MFX-Rack, over 2000 samples, the latest reader demos, house king Foamo on video and more, all on this month's disc!

DVD contents Full software

Full software

Nomad Factory MFX-Rack
(PC/Mac)
Ohm Force Symptom:Melohman
PE (PC/Mac)
Cakewalk AFX1 (PC)
Cakewalk AFX 2 (PC)
Cakewalk AFX 3 (PC)
Cakewalk SFZ+ (PC)
Cakewalk Square I (PC)
Zynewave Podium 2 CM (PC)

Demo software

Cableguys VST Package (PC/Mac)
Magix Samplitude 11 (PC)
Progress Audio Kinisis (PC/Mac)
u-he ACE (PC/Mac)

Tutorial files

cm Focus
Fidget on a Budget
Mid/Side Mastering
Off the Dial
Q&A
Sound Essentials
The Beginners' Guide to
Audio and Sampling
The Max Factor
Totally Trackers
Studio Session

Samples

2043 24-bit Ultimate Sample
Toolkit samples

Reader Music

Choc - *Final Breath*
Manaslu - *Tangled*
rubix_cube - *the scene*
Silent House Party - *Everytime*

NOMAD FACTORY MFX-RACK (PC/MAC)

This month's featured giveaway is a powerful multi-effect plug-in from Nomad Factory, featuring reverb, delay and filter effects, amongst others. For full details and step-by-step instructions on installing and using this superb software, turn to p40.

System requirements

PC Windows XP, VST host

Mac OS X, AU/VST host

Web www.nomadfactory.com

This extremely easy to use multi-effects unit from Nomad Factory is all yours - get it installed and turn to our guide on p40 to discover its many charms

ZYNEWAVE PODIUM 2 CM (PC)

A fantastic and ultra-customisable DAW with features to rival high-end commercial packages, Podium 2 CM is free exclusively to *Computer Music* readers. See *cm Studio Session* on p44 for a guide to the software's advanced effects routing capabilities.



System requirements

PC 800MHz CPU, 256MB RAM,
Windows 2000

Web www.zynewave.com

RAM, Windows 98, VST/RTAS host

Mac G4 CPU, 64MB RAM, OS X
10.1, AU/VST/RTAS host

Web www.ohmforce.com

OHM FORCE SYMPTOM:MELOHMAN PE (PC/MAC)

This awesome synth from Ohm Force was previously payware, but now it's been set free! See *Freeware News* on p18 for more details on this exciting instrument.

System requirements

PC Pentium II CPU, 64MB

Podium 2 CM is your exclusive free DAW - find out all about its built-in effects and mixer in our guide on p44

FREE CAKEWALK PLUG-INS (PC)

Cakewalk have released a selection of their old gold as freeware. In the **Free Cakewalk VSTs** folder, you'll find a load of excellent plug-ins, including two instruments developed by RGC Audio: the convenient SoundFont player SFZ+, and the awesome virtual analogue synth Square I. There are also three of Cakewalk's AFX plug-in packs, comprising the Dynamic Processor, SoundStage, AmpSim and TapeSim effects.

System requirements

PC VST host

Web www.cakewalk.com

Demo software

CABLEGUYS VST PACKAGE (PC/MAC)

This plug-in set includes demos of FilterShaper 2 and VolumeShaper 2, as well as *full* versions of PanCake and Curve 0.5b. The trial versions will only load the built-in presets and are each limited to a single instance, but PanCake and Curve can be used as you see fit.

System requirements

PC 1.5GHz CPU, Windows XP, VST host

Mac 1.25GHz CPU, OS X 10.4, VST host

MAGIX SAMPLITUDE 11 (PC)

Magix's professional DAW is back, with tons of extra plug-ins and all kinds of workflow improvements. The trial version doesn't include all the plug-ins and audio content from the full software - these can be downloaded if you decide to buy it online - and will expire after 30 days.

System requirements

PC 1.5GHz CPU, 512MB RAM, Windows XP

Web www.samplerate.com

U-HE ACE (PC/MAC)

The latest synth from the creators of Zebra 2 is here, and it's a semi-modular sensation. ACE stands for Any Cable Everywhere, and while the English might be questionable, that should give you a good idea of the concept behind this synth: maximum flexibility. The instrument also sounds superb, but don't just take our word for it - try the demo, with which vinyl-like crackle will be output intermittently.

System requirements

PC SSE-compatible CPU, VST host

Mac G4 CPU, OS X 10.4, AU/VST/RTAS host

Web www.acesynth.com

PROGRESS AUDIO KINISIS (PC/MAC)

This innovative timeline-based synth is built for sculpting complex sounds that move, evolve and develop in interesting ways over time. The demo won't load saved patches and is limited to 30-minute sessions.

System requirements

PC Windows XP, VST host

Mac OS X 10.4, AU/VST host

Web www.progressaudio.co.uk



Magix return with their flagship DAW - give the Samplitude 11 demo a try!



We simply love u-he's new synth - check out our review on p92, then take ACE for a spin yourself with the demo on this month's disc



If you're itching to get some movement into your synth parts, Progress Audio's Kinisis could be the answer you've been looking for

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!

Nomad Factory MFX-Rack

PC MAC



Nomad Factory and **cm** have come together to bring you this great-sounding and easy-to-use multi-effects plug-in for PC and Mac. Here's how it works...

> Nomad Factory are responsible for some amazing plug-ins, including the Blue Tubes series and the Analogue Signature Pack. Their latest, MFX-Rack is a stunner, too, and it's free for *Computer Music* readers in PC VST and Mac AU and VST formats.

MFX-Rack is a multi-effects unit, containing six astounding

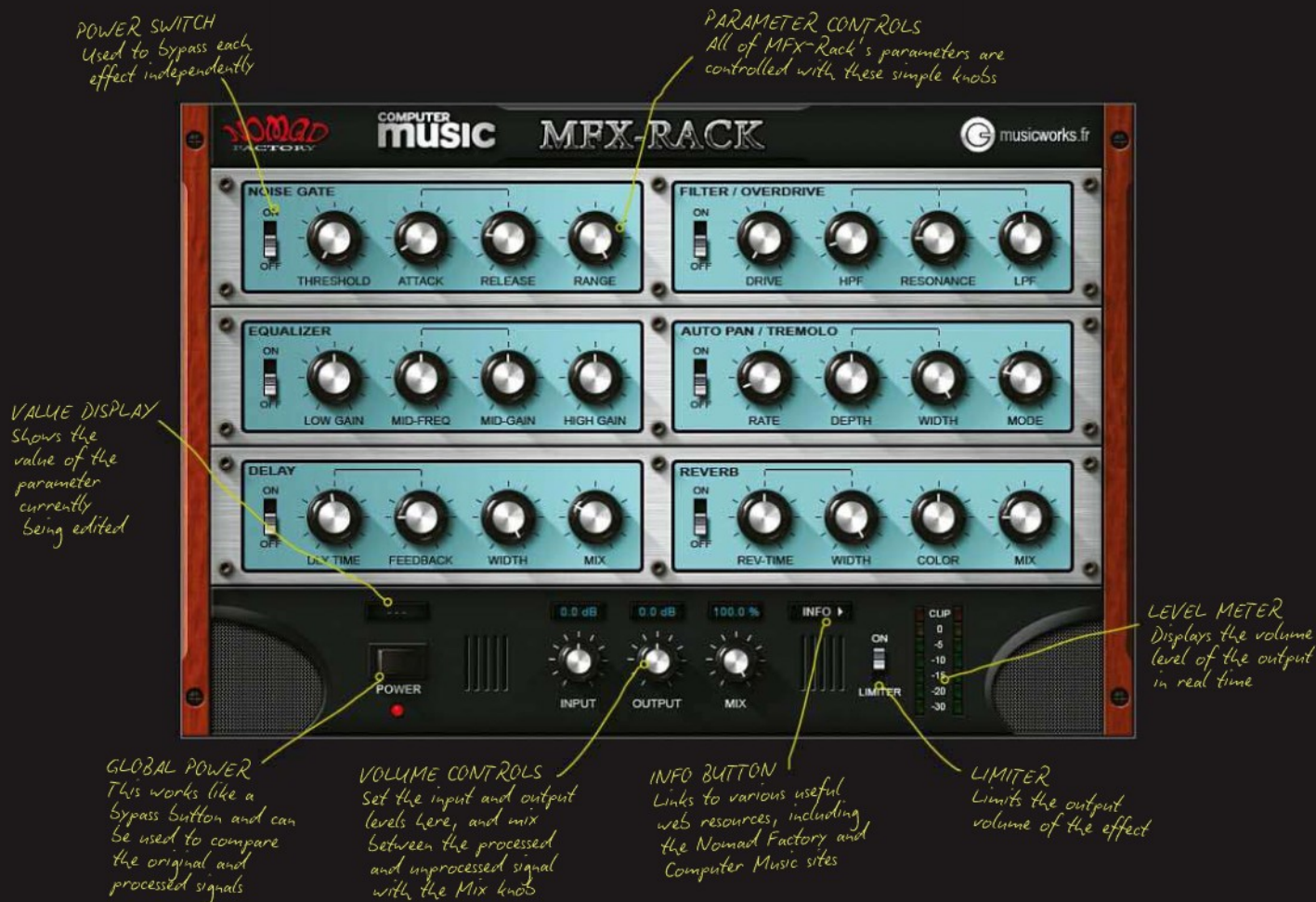
processors, some of which are capable of producing more than one effect, giving you a huge number of sound-shaping options.

MFX-Rack takes your audio signal on a scenic trip through Noise Gate, Filter/Overdrive, Equaliser, Auto Pan/Tremolo, Delay and Reverb effects with its fixed serial routing. This simple

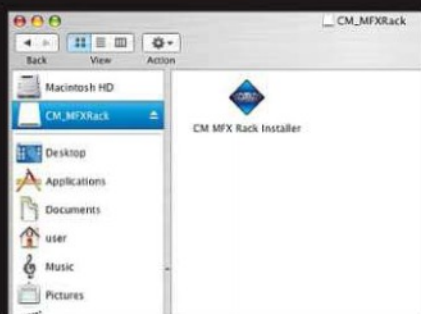
architecture combined with straightforward interfaces for each of the six components makes MFX-Rack easy to use even for beginners, but there are enough handy features and tools onboard to make it a great option for more experienced producers, too. Despite its multiple engines, MFX-Rack is extremely light on

system resources, taking up just a single effect slot, making it perfect for use in more lightweight hosts.

In this tutorial, we'll show you what each of MFX-Rack's parameters does, and give you some expert hints on how you can get the most from this powerful plug-in. So, slip in that **cm** DVD and let's get c-rack-ing!



> Step by step Using MFX-Rack in your DAW



- 1** > You'll find the MFX-Rack installer file for your platform in the **Software\PC Software\Full Software\Nomad CM MFX-Rack** or **Software/Mac Software/Full Software/Nomad CM MFX-Rack** folder. PC users can simply run the .exe file, while Mac users should run the .dmg file to mount the disc image, then double-click the installer within it.



- 2** > Follow the installer's instructions, and in a few clicks, MFX-Rack will be installed on your system. This effect plug-in requires host software to run. We're going to use Cockos' Reaper DAW, which you can find in **Software\PC Software/Library** or **Software/Mac Software/Library**. Whatever DAW you're using, launch it and create an audio track in a new project.



- 3** > We're going to need some audio in order to hear MFX-Rack doing its thing, so copy the file **ForChopping.wav** from the **Tutorial Files/Q&A** folder to your hard drive and drag it onto the audio track. Set the project tempo to **140bpm** and loop the bar containing the file.



- 4** > Next, add MFX-Rack as an insert effect on the audio track. The plug-in's interface will appear, but you won't be able to change the sound of the loop until you activate one of the effect sections. Let's start with the Reverb at the bottom right-hand corner. Click this section's **On/Off** switch to move it into the **On** position. Upon playback, you'll hear the effect of the reverb.



- 5** > The **Mix** knob sets the balance between the wet (processed) and dry (unprocessed) sounds. A useful technique when working with effects is to initially set the Mix control to **100%** - do this now. Play the project back, and you'll hear only the reverb and none of the unprocessed signal. This helps us to clearly judge the effects that the other knobs are having.



- 6** > Our reverb is pretty over the top, but we can make it subtler by turning down the **Rev-Time** knob. The **Width** parameter sets the stereo width of the reverb, and the **Color** knob controls the damp level - meaning the lower the Color setting is, the duller the reverb will be.



- 7** > Turn the Reverb section **Off** now, and turn your attention to the Delay. Activate this by switching it **On**. The **Mix** and **Width** knobs work the same as they do in the Reverb section. The **Delay Time** parameter controls the length of time between the original signal and the delayed signal. Try sweeping it as you play the audio back.



- 8** > You'll hear that you can create all kinds of crazy tape-style effects by adjusting the **Delay Time** value. The **Feedback** knob controls how much the processed signal is fed back into the delay's input. By turning this up, you can get some really intense effects, but watch out that you don't go too far, as the sound can build up quickly.

POWER TIP

>Autopilot

You can really bring your effects to life using your DAW's automation features. Consult your software's documentation to see how this is done. It's not usually very complicated, and it gives you much greater flexibility both in terms of mixing and sound design. For example, try turning up the Delay's **Feedback** and automating the **Delay Time** to create twisted dub-style effect. If it becomes too intense, simply turn the **Feedback** knob all the way down to stop it feeding back into itself.

> Step by step Using MFX-Rack in your DAW (continued)



10> Turn the Delay section **Off** and let's check out the Auto Pan/Tremolo. You'll notice that this effect has both **Width** and **Depth** controls. Both of these affect the stereo width of the effect, but in different ways. For example, turn the **Depth** knob down to zero and you'll hear the beat play back in mono, as this controls the amount of stereo width.



11> Return the **Depth** knob to its original value and turn the **Width** down to **0**. You'll hear the beat play back with the volume level modulating rapidly. With the Width control turned down, this section functions as a tremolo effect. The **Mode** knob on the right switches the shape of the LFO used to modulate the signal between sine, triangle, square, saw up and saw down.



12> Turn the Auto Pan/Tremolo **Off**, move over to the Equalizer section and turn it **On**. This is perhaps the simplest of all MFX-Rack's effects, comprising a simple three-band EQ. Two of the bands (low and high) are fixed - you can only turn their levels up and down. Turn up the **Low Gain** and **High Gain** to boost the beat's low- and high-end.



13> Return the **Low Gain** and **High Gain** knobs to their default positions. Now let's focus on the **Mid-Freq** knob. You can jerk this around all you like, but it won't do anything until you adjust the **Mid-Gain**. Turn this up to its maximum value and sweep the **Mid-Freq** knob, and you'll hear how it boosts the frequency range you select - setting the **Mid-Gain** below halfway will cut the mids.



14> Deactivate the Equalizer section and turn **On** the Filter/Overdrive section. Turn the **Drive** knob all the way up. You'll hear the beat become heavily distorted. That's not all, though - it's also become duller. This is because the low-pass filter in this section is set about halfway, attenuating all frequencies over 6.2kHz. Turn the **LPF** knob up to hear the distorted beat unimpeded.



15> The **Resonance** knob in between the HPF and LPF knobs controls the resonance levels of both. Turn it up and sweep the **LPF** and **HPF** knobs around in turn. These filters are simple, but quite useful, and can of course be used with the **Drive** level turned all the way down to get a clean but filtered sound.



16> Turn the Filter/Overdrive section **Off**. The final section is the Noise Gate, which may be a little trickier to understand than the other sections. We can demonstrate how it works fairly simply, however. Turn the **Attack** and **Release** knobs all the way down, and keep the **Threshold** at **0**.



17> A gate only lets the signal through when it reaches a specified volume level. Turn the **Threshold** up gradually, and you'll hear the quiet parts of the beat progressively cut out until you're left with just the kicks and snare, and eventually nothing. The **Attack** and **Release** times dictate how long it takes to fade between full volume and silence.



18> The **Range** knob acts like a kind of intensity control. At 100%, it will completely cut anything that doesn't reach the **Threshold** level, but lower values only reduce the volume. Finally, have a play with the **Mix** knob at the bottom of the interface - this is used to set the wet/dry mix for the entire plug-in.

>Royalty-free, pro-quality sounds!

2043 samples

PC MAC



This month's huge collection of loops, hits and FX gives you a comprehensive library of raw material for making pro-quality tracks

The Ultimate Sample Toolkit Groove Criminals

To compliment our cover tutorial on audio and sampling (beginning on p25), we've commissioned a collection of more than 2000 samples designed to serve as 'workhorse' sounds in your productions. Here are the specifics, broken down...

Cyclick

Multisampled instruments, dance drum beats and synth loops are just some of the audio delights to emerge from the house of Cyclick this month.

7 multi-sampled bass patches

56 basslines

7 drum kits

56 drum loops

24 electric guitar loops

3 keys multisampled

12 keys loops

16 monosynth loops

4 monosynth multisamples

14 percussion loops

16 polysynth loops

4 polysynth multisamples

These beats, hits and one-shots from the mighty Groove Criminals make perfect sampler fodder, drawing from a variety of acoustic, analogue and digital sound sources.

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Hatatrixx

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8 monosynth multisamples

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Open Our Ultimate Sample Toolkit whenever you're in need of sonic inspiration



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 Foamo

He's got some of the biggest basslines in the business and remixed some of the coolest acts around. In this exclusive video, Foamo shows us how he creates his ear-battering, dance-floor filling beats using little more than Propellerhead Reason, Ableton Live and a MacBook Pro.

Web www.myspace.com/foamo



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, CMU149/March/09, Bath BA1 2BW. And don't forget to include your full name and 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 (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

Ummet 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

XT Software Energy Pro (PC)
Step sequencing analogue-style synth

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

EFFECTS

KResearch KR-Delay (PC/Mac)
Dual delay lines with filters and sync ability

KResearch KR-Reverb (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 CompressiveCM (PC/Mac)
Compressor/limiter with sidechain input

Audio Damage Pulse Modulator (PC/Mac)
Wild, stompbox-esque modulation effect

**START
HERE**

Get the **cm Studio** installed with our easy-to-follow PDF guides! They're on the DVD, in **The CM Studio/CM Studio Tutorials** folder

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



Find your own little piece of modulation heaven with Sanford's Phaser-CM

cm Studio session

Effects in Podium 2 CM



We didn't have enough space to cover all the main features of this superb DAW last time, so here's a look at its built-in processors

> Last month, we introduced Podium 2 CM, an amazing PC DAW that combines a highly configurable architecture with innovative features and powerful project management functions. In the accompanying tutorial, we showed you how to use the software at a basic level, but really only dented the surface of this

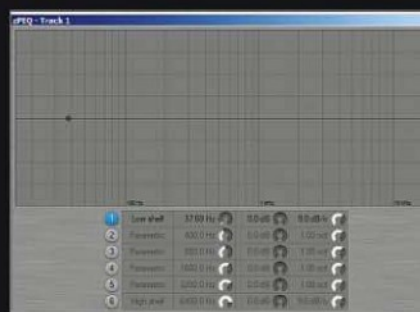
production powerhouse.

Here, then, we'll show you how to use Podium's effects and mixer, the second of which is really quite special, and in many ways more advanced than those found in its more expensive rivals. For example, can you route sends from any point in a track's insert effect chain in your big-name DAW? Thought not.

If you missed last month's issue, don't worry - there's an updated version of Podium 2 CM on this month's disc in the **Software\PC Software\Full Software\Zynewave Podium 2 CM** folder. Being only a guest in the **cm Studio**, though, Podium won't be on the disc every month, so make sure you keep your disc safe!

There's far too much going on in Podium 2 CM for us to comprehensively cover it all, but if you want to learn more about the software's flexible routing features, check out the user guide, which can be accessed by selecting **Help»Open Podium Guide**, or from the **Zynewave Podium Free** program group.

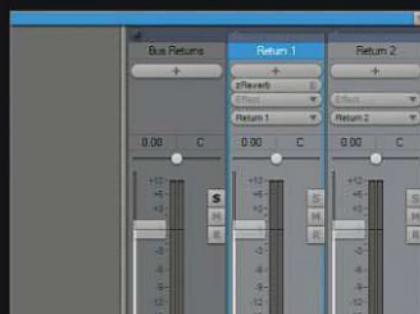
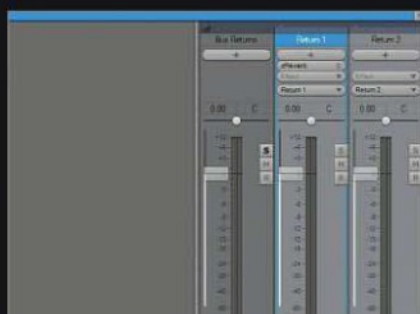
> Step by step Effects in Podium 2 CM



1 > Start by copying **Snare.wav** from the **Tutorial Files/Studio** folder on the **cm DVD** to your hard drive. Drag it onto Track 1 in Podium and bring up the mixer by clicking the **Mixer** button on the transport bar at the bottom of the screen. At the top of the Track channels, you'll see **Send1**, **Send2**, and **+** icons.

2 > To add an insert effect, click the **+** icon. A list of the available plug-ins will appear. Select **Zynewave Effects»zReverb**. An icon saying **zReverb** will appear below the **+** icon. Click this to bring up the effect's interface. Use the **+** icon to add another effect. This time select **Zynewave Effects»zPEQ**.

3 > **zPEQ** is a parametric equaliser, and it's a special case because the graphical display appears on the channel strip. Bring up the interface by clicking the newly created **zPEQ** icon, and activate one of the EQ bands by clicking one of the numbers at the bottom of the interface.



4 > You should now be able to adjust the settings of this EQ band from the mini-interface on the channel strip, as well as the main interface. You can change the order of the effects on the channel strip simply by dragging them up and down, and delete an effect by right-clicking it and selecting **Delete**.

5 > As well as inserts, Podium 2 CM enables you to use send effects. In the default project, there will already be two Return channels set up by default on the right-hand side of the mixer. Add effects to these just as you would insert channels.

6 > To route a track to these effects, turn up the corresponding send level on any track. Send controls can be freely placed and reordered in the channel strip, meaning that it's possible to send from any point in the effects chain! For more info on buses, see p100 of the Podium Guide. **cm**

Reader music

What will our expert producers and engineers make of the latest demos to turn up in **cm**'s 'Cloud'?



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

RUBIX CUBE the scene

Artist Andrew Powell
Contact www.soundcloud.com/powell



> To get the full impact of this track, you have to have good low-end reproduction. Without it, this is almost meaningless, as it lives and breathes from the eighth and 16th pulses that go on down low and are virtually inaudible on the average system. Driving at 130bpm, the on-beat kick and off-beat hi-hat form the backbone with the

pulsing bass, around which tonally sculpted percussion samples are programmed and manipulated to create an excellent dynamic environment. As well as sample length, Andrew plays with rising band-pass cutoffs and resonances, plus varying delay times, to build a riveting, simple piece that keeps you tuned in.

The overall sound is heavy and tight - no mean feat - and although it appears simple, the minimalism derives from a precise focus on the elements, stripping them to their essence. The percussion sounds are a good choice: some quite mechanical, some ring modulated, but all combined well with the white noise elements into a semi-industrial sound. If you only listen to one track this month, try this one.

What the artist says:

"I wanted to write a simple, driving, minimal techno track, with white noise sprays, pumping bass and some poppy/clicky techno sounds. For this track, then, I decided to experiment with the length/pitch of samples, and how to use the changing length/pitch of samples to create builds and emphasise drops."

Equipment used Apple MacBook Pro, M-Audio Fast Track Pro and Oxygen, Propellerhead Reason 4 and ReCycle, Pioneer DJM 909 and HDJ1000, KRK RokIt 5 monitors

CHOC Final Breath

Artist Vincent Choqueuse
Contact www.myspace.com/choc29



> Starting with strings and piano, this immediately sounds like a film soundtrack, albeit with a twist in the form of glitchy beats and noises. Reading Vincent's comment below, one can't but help imagining a sad scene from *ER*.

It's a heart-rending song lead by the sombre minor-key strings. Their sound pulls at you

with their very slow attack, while the deep piano bass notes are a rich accompaniment. The contrast of the beats is very necessary to lift it out of the sentimental mire, with the kick containing a perfect heartbeat - although a touch more of the click being rolled off wouldn't harm it. The programming of the top-end percussive elements is really good.

The arrangement could be expanded by another 20% to increase the dynamics and the drama, though. After the intro, the orchestration doesn't really develop, and there could always be some other layers brought in to build it. The beeping is all very well in the context, but the flatline at the end? What about a happy ending?!

What the artist says:

"I wanted to create an electronic track that illustrates a synergy between humans and machines. The scene takes place in a hospital where breathing apparatus, heart and lung machines and other devices try to maintain a near-death patient. *Final Breath* invites you to this neuralgic trip between hopefulness and resignation."

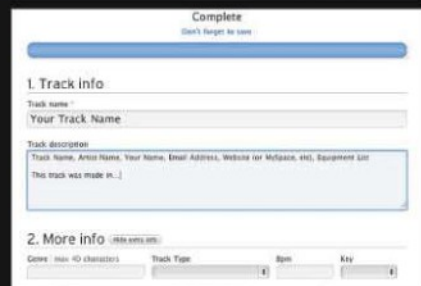
Equipment used Pentium PC, M-Audio Fast Track Pro, AKG 141 studio headphones, Steinberg Cubase SX 3 and The Grand, Propellerhead Reason, Native Instruments Absynth 4 and Kontakt 3



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.

SILENT HOUSE PARTY Everytime

Artist Jack Randall

Contact www.myspace.com/silenthouseparty



➤ Beginning like the intro to an old Cure or Joy Division track, this remains essentially an 80s indie backing track with punk rap riding on top of it, and that's not a bad combination. The song itself is both strong and immediate and there is a lot of potential for it, although as it stands, the mix underachieves.

One of the most glaring flaws

is the vocal sound, which is distant and dull. It needs to really be in your face, spitting and pumping with rude compression and cutting through with some extreme EQ. The main vocal is quiet compared to the second, plus its arrangement needs consideration, because it feels like the verses go on forever. Some more hip-hop doubling/stereofying/harmony and 'off-stage' banter. More variety from the instrumentation might also further the verses' cause and shift the linearity - some interesting MGMT-style synth noises perhaps. The jump into the chorus is good, but needs to develop with some counter-melody synths or backing vocals. The bass guitar is great, although it clashes at times because of an overdub. This track is certainly worth developing, though.

What the artist says:

"The track came about from Jack (inspired by electro/indie) and Jamie (inspired by hip-hop) merging interests. We've been trying to find the right balance between our different styles. The song is based around meeting a girl, with the track recorded in Jack's shed/studio."

Equipment used Apple MacBook and Logic Pro, M-Audio FireWire 1814, IK AmpliTube, NI Massive, Propellerhead Recycle, Roland Juno, Korg Microkorg, Jackson DK2 guitar, Fender P-Bass, Shure SM58, SE SE2000, Sonus G2M

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?

Tim Oliver takes time out from a hectic recording schedule to give his professional opinion on this month's featured reader demo

Producer Tim Oliver

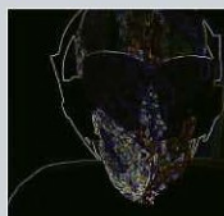


Tim's studio tan is a sight to behold, and not just because it's winter. A combination of work on the latest Goldfrapp album, a soundtrack album for the documentary *A History of Irish Music* and various Real World projects have all conspired to keep him from the light of day.

MANASLU Tangled

Artist Chris Cordwell

Contact www.myspace.com/manaslucisn



➤ This is a dreamy, down-tempo, chillout track lead by an Auto-Tuned vocal. I had it on in the background when I first heard it and it went down very easily - the wafting pads and airy vocal created a kind of cosy duvet on a cold winter night. The meat of the song is built around two chords, and the intro does a good job of establishing the vibe over the first 16 bars by building the layers before the verse comes in. The verse goes on a bit,

though. Finally, after 32 bars, the chorus appears and I realise why it was held off for so long - it's just not as strong as the verse. Still, the verse should probably be half as long at least, with a bit of punctuation in the middle, and the chorus could be developed more to establish a hook. Or maybe I've got completely the wrong end of the arrangement stick and the chorus is the last phrase of each four-bar section, because it's that resolve that stays with you? Chris clearly likes the long, drawn-out section, because the solo after the chorus is also 32-bars long! However, at least there's more travel provided by the synth solo in this section, before the arrangement gets quickly wrapped up by a short verse and chorus. Now I'm all for unorthodox arrangements, but I'm pretty sure this needs some more variation to help break up the verse.

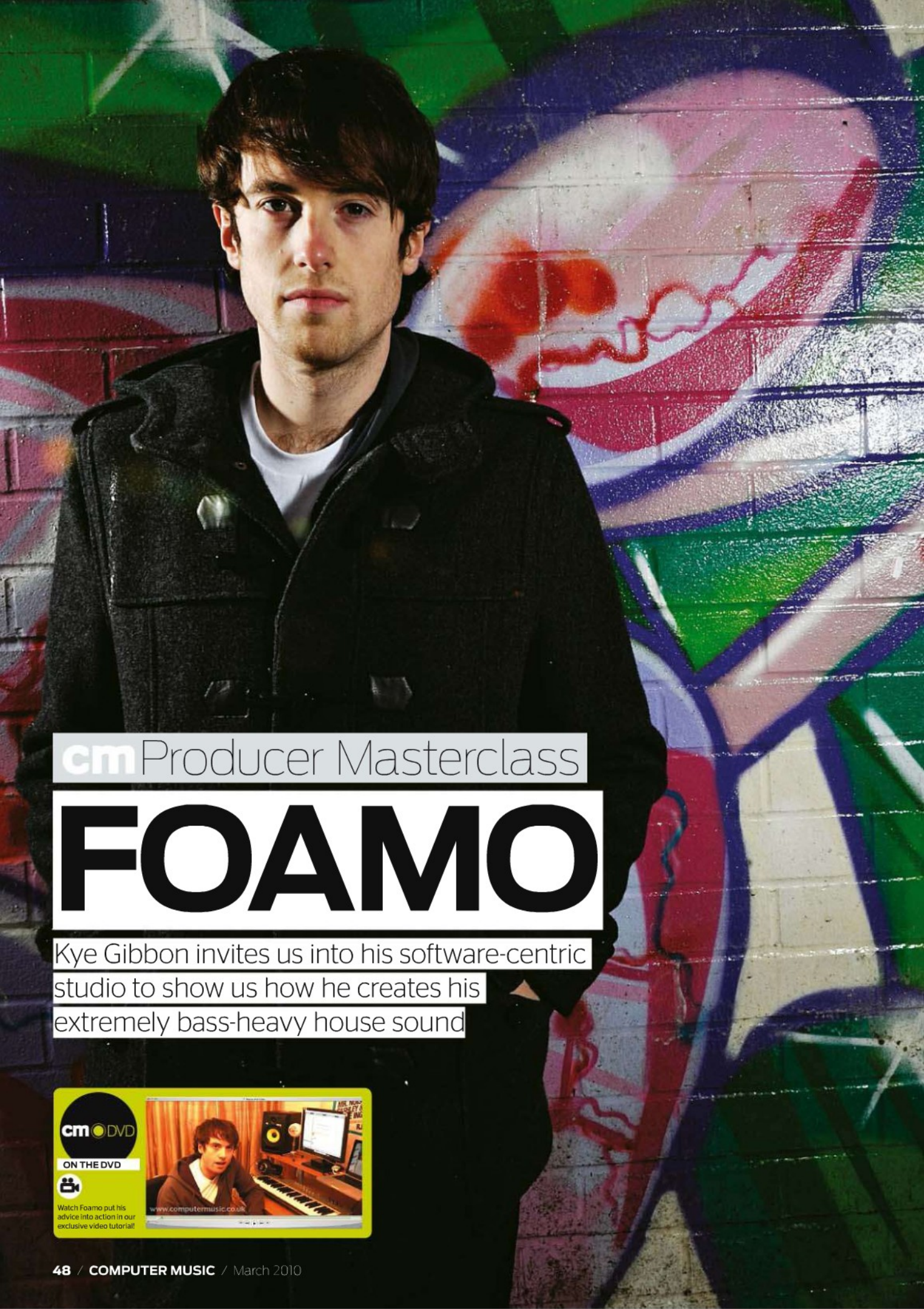
The instrumentation is all about layers and the textures of sounds associated with the human voice: choir pads and formant synth sounds, and approaching from the other direction, the human voice is almost turned into a synth with Auto-Tune. So there's a confluence of familiar comforting sounds almost opiate-like in its effect and perfect for the chillout environment. The piano sound adds richness, too, and the reverbs provide enough depth for a big soundscape.

The overall tone and balance of the tune is good, yet no amount of mix riding is going to maintain interest and excitement with the current arrangement. The skill here is in the way the sound gets under the skin with some sort of primeval resonance and induces a trance-like state. However, it's a fine line between this and wallpaper.

What the artist says:

"The song began life with the lyric 'should have kept it in a box' and the piano phrase, and came together quite naturally from there. It was created entirely within Reason, apart from the vocals, which were recorded in GarageBand using a touch of Enhance tuning, transferred as an audio file to an NN-XT sampler and treated within Reason."

Equipment used Apple MacBook and GarageBand, Propellerhead Reason 4, Akai MPK49, Tascam US-122, Rode NT1-A, Samson Resolv 65a



cm Producer Masterclass

FOAMO

Kye Gibbon invites us into his software-centric studio to show us how he creates his extremely bass-heavy house sound



Bubbling over

> **Producer and DJ Kye Gibbon, better known as Foamo, is a relatively new face on the house music scene, but he's already made considerable waves with his original tracks and remixes. Blog-scouring readers will be familiar with his stunning bootleg of Skream's *In for the Kill* remix, which impressed La Roux's label enough for them to commission him to remix the band's *Bulletproof*. We caught up with the High Wycombe hotshot to find out more about his production secrets. So, how did Kye get involved in making music?**

"When I was about 13, my mate gave me a Mickey Finn mixtape from One Nation, which was amazing! So, my brother and I got some cheap turntables and started buying vinyl. At 14, I started DJing at these massive under-18 raves. A mate and I used to play back-to-back, and we even had some big MCs on our sets, like Fearless and Eksman - it was pretty mad! It went a bit quiet after that, but I was always fiddling about on my computer making weird beats and DnB. I got into dubstep for a bit, then moved onto house when I started listening to The Loose Cannons' radio show and heard Kissy Sellout play. Only a few months after that, I made my first house tune, gave it to a few people and got quite a bit of radio play - MSTRKRFT put it on their Essential Mix - and it all went from there!"

Going ape

Kye uses Propellerhead Reason and Ableton Live in his projects, as he explains...

"I was probably 14 when I started using Reason, and only switched to Live a couple of years ago. I love the way you can just whack audio straight onto the sequencer in Live. Now I use Live and Reason at the same time with ReWire. I know a lot of people will patch each channel out to a separate



Foamo's setup proves that even the most minimal equipment can enable you to produce quality tracks

channel in Live, but I always just have everything coming in on one channel. It's pretty simple and I've never really had any problems with it. I only really use Reason for the synths nowadays, though.

"Live's warp features are useful for doing remixes. The different warp settings sound different on different things, so you have to find the one that distorts it the least. I've got Live 8 and the new Complex Pro mode can sound a lot better, but sometimes it sounds a lot worse than the normal Complex mode! I like the new compressor they introduced, with sidechain inputs - you can solo a track and still hear the effect, too. I've stopped using other sidechain compressor plug-ins and just use the standard Live one now. I

also use Voxengo stuff, especially the limiter: I always use Elephant.

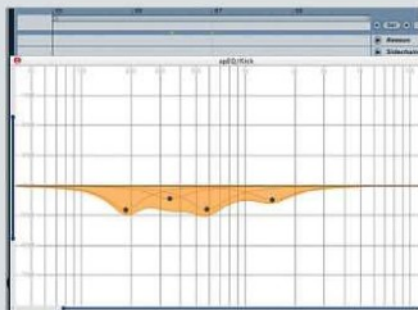
"I still do a lot of my producing on headphones, because I mainly work at night. I use AKGs, which are not that bass-heavy, so you really hear the bass instead of feeling it. I do my final mixdowns here and never really do any mastering - all I have is a limiter on the master. Many tracks I've released have just come straight out of Live! If it needs mastering, I wouldn't try and do it myself - I'll bounce it down with quite a bit of headroom and let someone who knows what they're doing do it!"

Here and in the exclusive video on the DVD Kye shows us how he created his remix of CagedBaby's *Forced*.

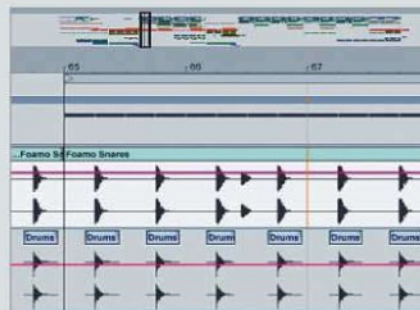
> Step by step Remixing CagedBaby's *Forced*



1 > Kye starts with that fundamental house sound, the kick drum. "I have a folder with my favourite kicks that I've built up over the years. I put the kick drum in a sampler because I want to be able to adjust the **Decay** - if it's too long or has too much bass and is clashing with the bassline, I can adjust the Decay to make it fit it."



2 > The only processing on the kick is apuSoft's apEQ, which is now known as apQualizr. "I've just taken away a load of the mids and the low mids, because I thought it sounded a bit bloated as it was, and I wanted it to sound a bit cleaner. I actually find I do that a lot on drums, synths and vocals, EQing the 150-500Hz region, which is often where things can get bloated and muddy."



3 > A snare is placed on the offbeats. "For this track, I wanted more of a live drum feel, which is why I've got a snare rather than a clap. This is quite a good snare sample that peaks at around 150-200Hz, which gives it a nice thud. I haven't done much to this, apart from high-pass filter it - I pretty much high-pass everything, apart from kick drums and bass, which take up all the bottom-end."

> Step by step Remixing CagedBaby's *Forced* (continued)



4 > There's a limiter on the snare, too. "This is just bringing up the level and fattening it out a bit," says Kye. Unlike the kick, the snares and the rest of the drum sounds are on audio tracks. "Instead of using drum machines and stuff, I'll just do everything in audio - I love the way you can chuck audio into the sequencer, cut it up and arrange it," explains Kye.



5 > With lots of drum sounds on audio tracks, the arrangement can quickly become cluttered, but Kye has a trick up his sleeve in the shape of Live's **Consolidate** feature. "I lay down the hi-hat samples, and afterwards Consolidate them, because then it's easier to move them around when I'm arranging. Whenever I do this, I un-warped it, too, because sometimes it warps it for you."



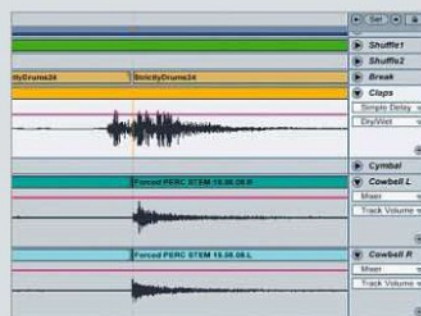
6 > "On top of this, I've got another layer that's the actual live drums from the original track, which, again, I've high-passed. This is simply to add another layer to thicken things up. Instead of a driving beat, I wanted it to be quite shuffled. Instead of using a groove template, I move the 16th-notes manually, so they're about a 64th-note late."



7 > "That's still sounding a little raw, so I add a bit of dirt with an old breakbeat, which is high-passed and has a heavy compressor to take out all the transients of the drums and simultaneously bring up all the reverb. I then put a limiter on it to really smash it."



8 > "At the end of the first eight bars, I wanted to bring in some more percussion to have a bit of variation, so I bring a cowbell in. I wanted to make it really wide, so I got two different cowbell hits from the original track and panned them hard left and hard right."



9 > "I have a clap loop that I want to feel quite groovy and disco-y, so I made them quite loose. I created the clap sound on another track - it's just a bunch of claps that are unquantised but playing loosely on the same beat. To get it feeling wide, I use a stereo delay that's really wet, with short delay times for each speaker."

POWER TIP

>Kicking off

Getting your hands on the best quality sounds is a priority when you're a dance music producer, and Kye has an ingenious technique for getting the most bangin' kick drums possible.

"A lot of my kicks drums are stolen from progressive house tracks! You'll get a progressive house track and it'll be just a pure kick drum for the first two minutes. It's not *that* cheeky, though, because it's just the basic kick drum and I'll always layer stuff over the top of it, so that I don't feel too guilty about doing it!"



10 > All the drums in the track are routed to a drum bus, where they go through Voxengo compressor and limiter effects, which helps bring them together. Kye also has a bus to which sounds that are to be sidechain compressed are routed. This also has a compressor on it, with the kick drum sound routed to the sidechain input.



11 > To fill out the frequency spectrum and add movement, Kye uses white noise samples to compliment the drums. "I have different white noise for the left channel and the right channel, so that it's really wide. I've got a burst of white noise on the drop, then maybe it'll filter back in towards the end of eight bars. It's quite quiet and subtle, so you might not even notice it, but it helps make an impact on the drop."



12> "I found a really nice synth hook in the stems I was given. I put this in the track and made a copy of it, which I've warped and transposed an octave higher. I then layer this with the original. I put quite a few effects on this higher synth, including quite a bit of chorus and Live's Autopanner plug-in, which is used to modulate the volume level."



13> "As the drop approaches," Kye continues, "I automate the Wet/Dry level on the reverb effect, so that it gradually fades into reverb and helps build up to the drop. I've also put a limiter on it, and these synths are routed into the sidechain bus, so that they get ducked out by the kick drum."



14> "I wanted to have some of the vocals from the original come in before the drop, so I've got three audio tracks in Live with cut-up vocals. They sound a bit weird on their own, but cutting them up like that creates tension before the drop." Additionally, Kye uses some of the riser effects from the original version to increase the tension before the drop.



15> "I made an intro by looping the first bit of that high synth I made. I kept the arrangement pretty simple, because I'm making a tune for DJs to play out. When I play a tune, I hate it when there's a two-bar break or something, because it makes it a nightmare to mix. So I make the arrangement as easy to mix as possible, with eight- and 16-bar sections."



16> "Next, I need to make a bassline. Because I have a lot of musical parts to work off, I want to get something quite musical in there, especially as I've got quite a groovy drum pattern, so I don't want it too rinse-out." The bass sound is created using Reason, the stereo outputs of which are ReWired into Live and routed straight to the master output.

POWER TIP

>Analyse this

For Kye, using spectral analysers really helps get a great mixdown.

"I love using EQs with spectrum analysers on them - when I was on a PC, I used to use Voxengo GlissEQ, which is wicked because you can layer different channels on top of each other and see where things are clashing. I know you're not meant to mix with your eyes, but when you've got the analyser up, you can instantly see peaks and cut them. Over time, it helps teach you what different frequencies sound like - it's trained my ears using this over the years!"



17> "With the bassline, I only use one instance of Thor - sometimes I'll use two or maybe even three routed into a Spider, then into effects, so that they're processed together. I find that the problem when making basslines is that it can sound too static, so I think the best way around that is to modulate and automate as much as you can, to give the sound some life".



18> To create a bass sound with more movement, Kye uses Reason's automation lanes. The filter envelope is modulated to switch between a rounder, bouncier sound and a more sustained tone. Other tricks he uses include adjusting the filter envelope decay time, adding some subtle pitchbending, and changing the octave that oscillators play in.

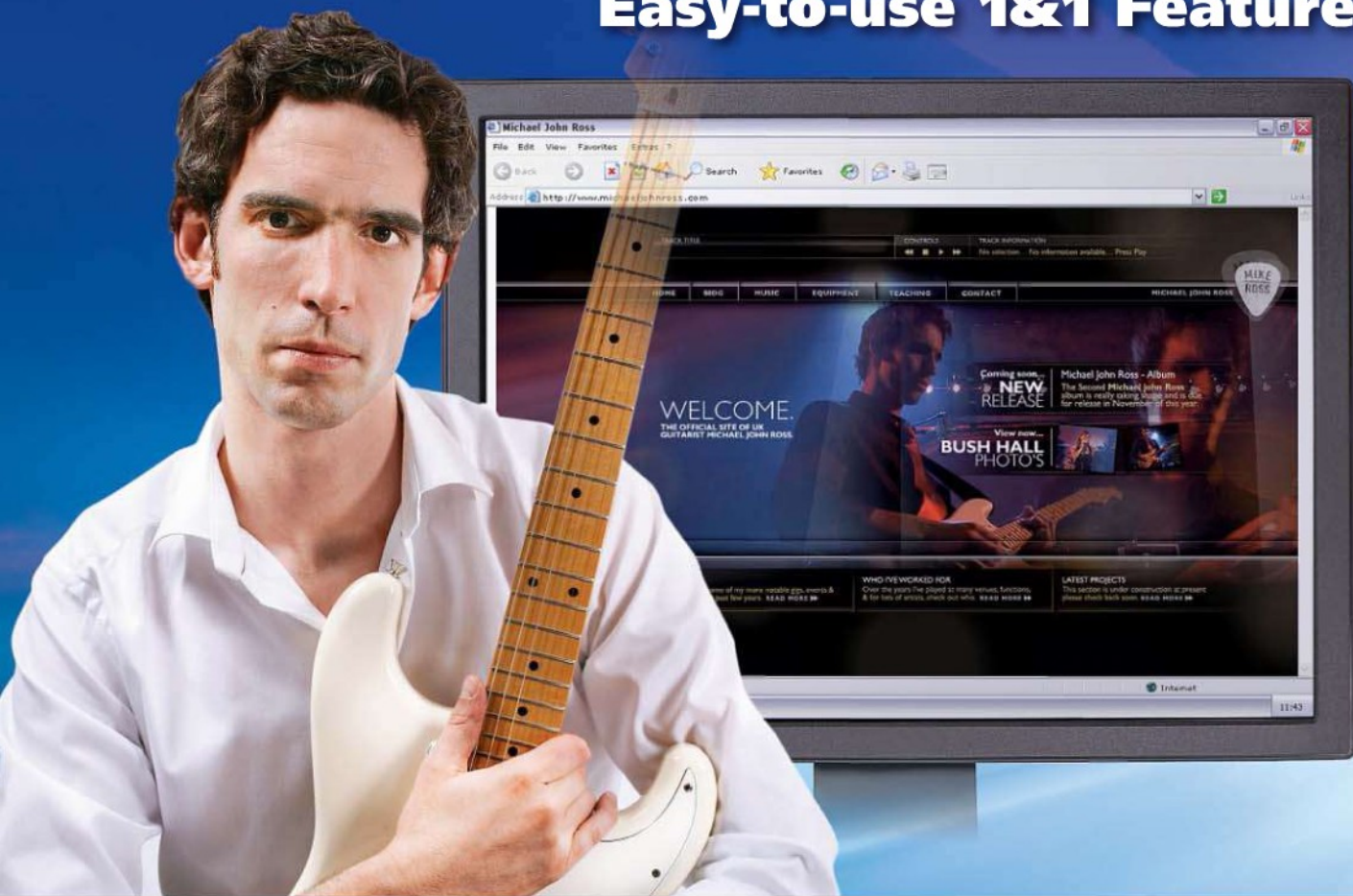


19> Kye also uses Reason's effects to dirty up the bass sound, including Thor's built-in chorus. To add more width, the left and right outputs are processed separately with their own delay effects. Finally, each signal is EQ'd, distorted with Scream 4, run through Reason's vocoder (set to EQ mode to add warmth), and finally put through another Scream 4.

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THE MAX FACTOR

Max for Live brings comprehensive device creation and manipulation to Ableton's ubiquitous DAW. Here we'll show you some of the things it can do and indulge in a spot of light programming

➤ **What if you had the ability to create any synth, audio effect or MIDI processing unit that you could imagine? And what if you extended that scope to encompass bizarre hybrid plug-ins that could manipulate your DAW, generate visuals and even send and receive data over the internet? Well, the brave people over at Ableton and Cycling '74 have distracted the programming deities, yanked their power away and handed it all over to you with a little bow tied round it: welcome to Max for Live!**

Just like Google Wave and subprime mortgages, Max for Live is one of those things that everybody seems to be talking about but hardly anyone really understands. Ableton are billing it as a toolkit for making new Live devices, which sounds great but doesn't really explain how it all works. Essentially, though, all you need to know is that Max for Live takes Cycling '74's visual programming environment Max/MSP and hooks it up to Live, so that the two can interact, passing data and audio between them.

All of this is done using objects, which contain everything from basic mathematical functions like addition and subtraction to higher level objects like filters and oscillators, with everything connected together by virtual wires. In fact, it's a bit like the programming equivalent of a modular synthesiser – you don't have to open the individual modules and tinker with

them if you don't want to, but if you're up to the challenge, you can start right at the lowest level and work upwards.

So, what can you do with it?

The system can handle pretty much anything you throw at it, within reason. It receives a huge variety of input types: audio, MIDI, controller data, mouse movements, the current state of any object in Live, and so on. Each of these can be converted into other kinds of data, then processed and pumped back out again into Live. To control these processes, you can add interfacial elements to make things friendlier and easier to use – Max for Live comes with a selection of buttons, knobs and faders that have been taken directly from Live, so your devices can look, behave and be automated exactly like the Live devices that you already know and love. And once your creations are ready, you can simply drop them straight into any MIDI or audio track, just as you would with other plug-ins.

Although it seems a bit daunting at first, Max for Live does come with a host of plug-ins and effects that can be used straight out of the box, so you don't even have to program anything if you don't want to. Basically, you get to decide how deep you want to go. So, over the next five pages, we'll give you the grand tour, then get our hands dirty with some Max programming.



> Step by step

Destroying a drum loop



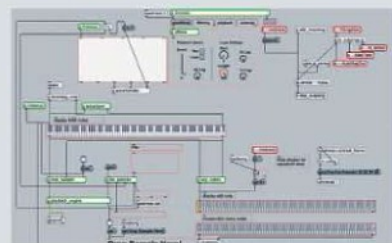
1 > Buffer Shuffler is a re-sampling tool that's great for rearranging loops. You can set **Constraints** to limit the places where glitches occur, use **Dice** to randomise settings on each loop, and process each stereo channel individually by turning **Duplicate** off for even more craziness. Note that the top **Randomize** buttons change the slice ordering, and the bottom one the slice direction.

> Step by step

Tweaking a pad sound



1 > Let's use more Max for Live plug-ins to add some colour to a fairly generic pad sound, kicking things off with Chamberverb - an unusual and very characterful reverb plug-in. Note that you can hit the **Edit** symbol (the left-most icon in the top right-hand corner of the plug-in) to take a look under the hood and expose the Max programming within.



Open a Max for Live device via its Edit button and you get to see all of its Max/MSP innards

Maxing out

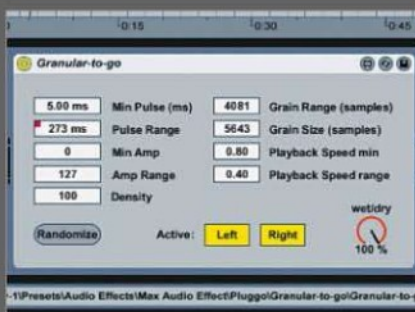
Max's core function is to enable users to develop their own plug-ins, but it also comes with a huge variety of prefab effects and devices (we've only scratched the surface in the walkthroughs on this page), and it's well worth taking the time to explore them fully. As well as Cycling '74's Pluggo effects and instruments, there's a brilliant new step sequencer, as well as Loop Shifter (a morphing loop player that's absolutely perfect for DnB basslines), 20 basic 'building block' effects and a host of MIDI processing units, all ready to go.

If you're curious about how any of these were put together in the first place, you can simply hit the **Edit** button at the top of the device to open it in Max. All of these bundled devices are well annotated, so you can start to pick apart the logic involved in their workings and get tweaking. In fact, editing these devices is one of the best ways of exploring Max: as you're starting off with code that already works, you don't have to worry about learning a whole new language and getting the most basic functions up and running. As soon as you start fiddling, though, you'll realise that Max really is capable of pretty much anything you can dream up, so you'll appreciate that there's still a need for careful planning when it comes to creating your own devices from scratch.

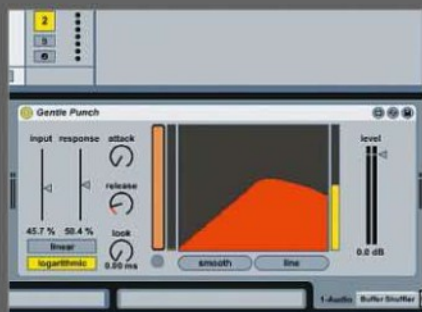
Whenever you discover an object that you don't understand, that's the time to turn to Max's comprehensive included tutorials. In general, we found these to be very understandable and informative, although we reckon you're best off completing a few of the early Max ones to begin with, then swapping over and delving into MSP. This will give you a good grounding in the basics.



2 > We extend our chain of destruction with Cyclotron, from the included (and no longer available separately) Cycling '74 Pluggo collection. Cyclotron is a step sequenced filter: it's great for lo-fi, chiptune-type filtering effects, and is particularly suitable for drum loops.



2 > Here, we're using a Granular-to-Go unit to create an odd-sounding texture from our pad sound. This handy little plug-in is great for electronica-style glitch processing. Just as its name suggests, it provides instant, Autechre-style granular madness.



3 > To round things off, we use the Dynamical plug-in's **Gentle Punch** preset. Like most of the Pluggo collection, this is a bit of an unusual twist on a classic theme: it's a basic dynamics processor, but one that enables you to draw in a response curve with the mouse. Remember to check out our audio examples of each plug-in on the **cm** DVD.



3 > We're really starting to load up on the processing now! Let's add Comber (a stereo effect that contains two modulated comb filters) and the brilliantly-named Squirrel Parade - another very powerful granular plug-in that's capable of some serious sound-mangling. Again, you can expose all of their inner workings within Max in order to learn about or even customise all these plug-ins.

> make music now / the max factor

> Step by step

My first synthesiser



1 > Let's look at how to build a simple synth. Grab a new Max for Live Audio Device from Live's Device Browser and stick it on an audio track. So far it's fairly self-explanatory: audio comes in from the input and leaves via the output. It may not look like much, but the ability to get audio out of Live and route it back in provides us with a huge amount of power. Hit the **Edit** button to get at the inner workings.



2 > There are two sides to Max, which together give it its full name: logic (Max) and audio processing (MSP). We want to use a couple of MSP objects here to generate a simple test tone: **cycle~** (created by choosing **New Object** and typing it into the box that appears), which is a simple wavetable oscillator, and **plugout~**, which sends audio to Live. **plugin~** isn't required, so **Delete** it.

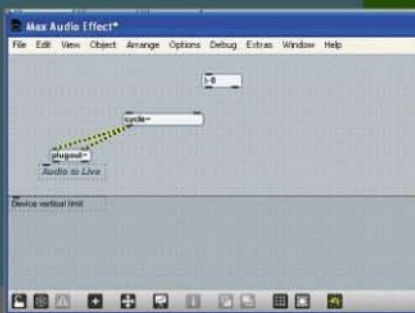
POWER TIP

>Have patience

When you're learning any kind of programming language (even a visual one like Max), there are two things we recommend you do. Firstly, go through all the basic documentation that's available to get a sense of how everything operates - luckily, Max for Live comes with a huge volume of tutorials to explore. Secondly, start testing out your knowledge by building some basic applications. Adopting both methods will ensure that you get a good technical grounding, with the practical side stopping it getting too dull and theoretical. The initial time investment that Max requires is quite large, but it's well worth it in the long run.



3 > Objects in Max are connected with patch cords, which are created by clicking and dragging the points between them. Don't try this particular configuration at home, by the way, as you'll probably get a very loud impulse click! **cycle~** defaults to a cosine wave running at 0Hz and continually blasts sound from its output, so we need to find some way of telling it what to do...



4 > Add a **number** object from the **New Object** menu. **number** is a Max object (you'll notice it doesn't have a ~ in its name like the MSP objects we've just been using) that simply outputs numerical values typed in or scaled using the mouse. Note that Max makes a distinction between floating point numbers (numbers containing a decimal point) and integers (whole numbers).

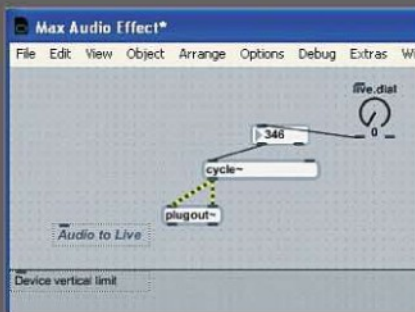


5 > Connect the number object to the inlet of the **cycle~**, so that we can use it to control the frequency of the oscillator. Select **Presentation Mode** in the bottom panel, click on the number object and sweep the mouse up and down to vary the frequency directly - you've just made the most basic possible synthesiser! As you can see, very simple constructions like this can be built in a matter of seconds.

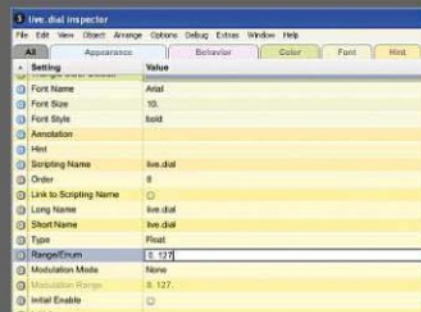
POWER TIP

>Get a clue

By placing our mouse pointer over the left inlet of the **cycle~**, we can see that it accepts both signal and float as input types, and that these can be used to set the frequency. Don't be put off by the jargon, though: this simply means that we can lob a number at the object and it will do something! If you don't know how any specific bit of Max works, it's easy to find out: just place your mouse pointer over it and refer to the handy Clue window, or open up the Inspector to find a big list of parameters and attributes for each object. The main thing is to not get intimidated!

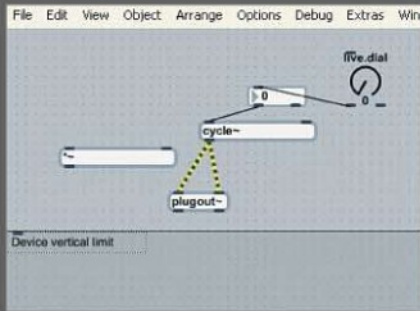


6 > Let's add some control to our basic synth by adding a **live.dial** from the **New Object** menu (you'll recognise this) and connecting it to the input of our number object. This UI object will send its value straight to the number, which will output the same value - in fact, most Max objects will pass values between each other in this way.

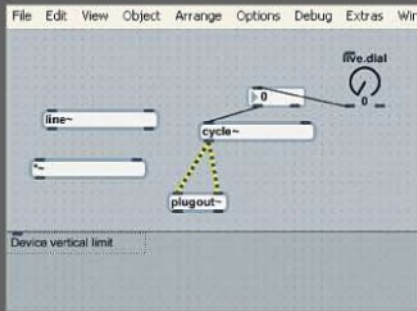


7 > This is working fine, but we're only able to go up to 127Hz, which isn't very high at all! We can change the range of the dial using the **Inspector**: just find the correct parameter (in this case, **Range/Enum**) and tweak it. Change the top value (shown above on the right as 127) to **999** - now we can sweep through a much wider frequency range using the dial alone.

> Step by step Adding some complexity to our synth



1 > Our strange little tone generator is all well and good, but it would be nice to have some more control over it. First off, add a ***~** object. Remember, the **-** in the name just means that it's an MSP object and is thus used for signal processing. ***~** simply multiplies audio signals, as you might expect. That makes it handy when used as part of an amplifier...

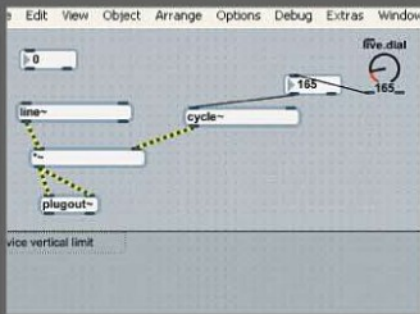


2 > We can't just use ***~** as an amplifier on its own, though: directly multiplying the amplitude of an audio signal instantly would cause some horrible glitches. What we're going to do is build a system that enables us to gradually change the amplitude over time. Add a **line~** object, as shown above, which we'll use as a basic envelope (or 'ramp') generator.

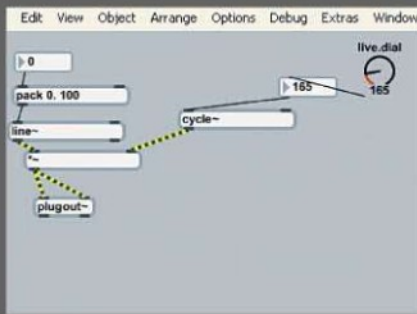
POWER TIP

>Patching things up

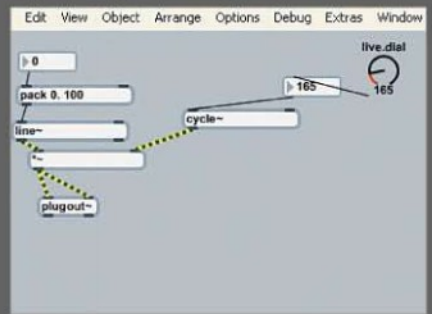
Line- and cycle- need to be connected up to ***~**, so we add some patch cords. The placement of objects within Max actually makes a difference in some cases. Messages within devices are ordered thus: "1. Right-to-left, then bottom-to-top. 2. Depth-first traversal of connected objects." You won't have to worry about that until you get into fairly advanced Max programming, but it does help to have an idea of what's going on. Also, use the **Route Patch Cords** command (invoked by right-clicking a cord) to tidy up your connections - keeping things neat helps when you're creating more complicated devices!



3 > Now we've hooked up the basic parts of our amplifier, we need one more piece of information: the amount that we want the volume to change by. Add a **number** box in preparation for this. We've found that it's good to start off with a simple number box when you're first creating a value that needs to be changed as it makes things easier to see at a glance.



4 > **pack** is a very handy object, which combines its inputs into a list, then sends this list on to the next object. We're using it to provide line- with two bits of information: the value from the number box (this will eventually become the volume level we're setting with ***~**) and the number of milliseconds that the amplitude changes will take.



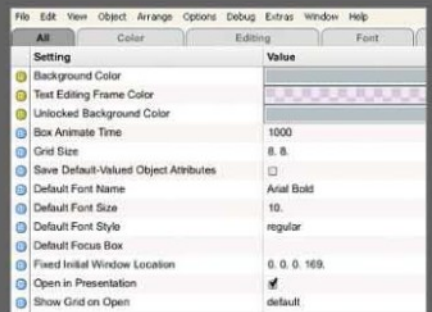
5 > Notice that you can type **0**, and **100** directly into the pack object (by double-clicking and typing in the values) as what's called an 'argument'. This is because Max objects don't always have to have inputs sent to them by other objects, as you can often directly specify certain values or modify what the object is going to do by adding an argument.



6 > Our amplifier is now functional! However, we need to create an interface for our device to be able to actually use it in Live, so select the number box, right-click and choose **Add to Presentation**. Do the same with the live.dial. Max has two modes: Presentation and Patching. The former shows the actual interface, while the latter reveals what's going on under the hood.



7 > With Presentation mode enabled, and the number box and live.dial added to it, we can lay out our GUI however we like by simply dragging the components into a visually pleasing position. This is useful, as it means that the physical locations of your objects within the device don't have to literally match the positions at which the end user will see them on the screen.

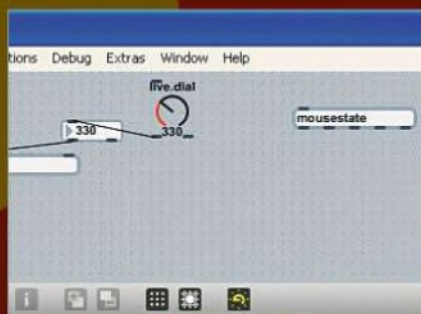


8 > The final step to make the device usable in Live is to select **Open in Presentation from View»Patcher Inspector** - now our GUI layout will appear instantly when the device is loaded, rather than having its innards splashed everywhere. In fact, you should always try to lay out your devices as simply as possible to keep things clear when you actually come to use them.

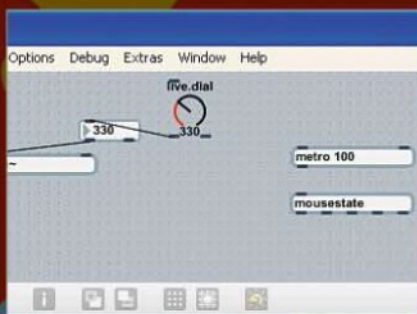
> make music now / the max factor

> Step by step

Adding features to our synth using more advanced Max techniques



1 > One of the best things about Max is that it can accept all kinds of input sources. Now that we have our tone generator in a vaguely controllable state, we can start to add to it. **mousestate** is an object that accepts information from the mouse - add it from the **New Object** menu and let's have some fun!

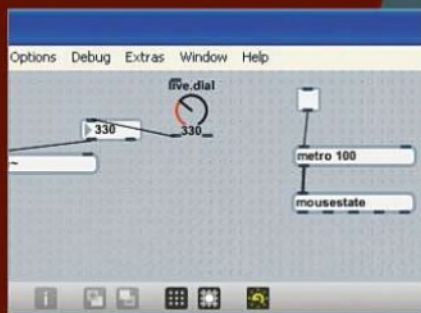


2 > Mousestate can't get info from the mouse constantly - it needs to 'poll' (or check) the mouse at regular intervals. We can use the **metro** object to tell mousestate how often it has to poll. In fact, Ableton's Robert Henke lists this as his favourite Max object: it's surprisingly powerful, as it sends a series of bangs (see Power tip) from its output at a rate that you specify: we've gone for **100** here.

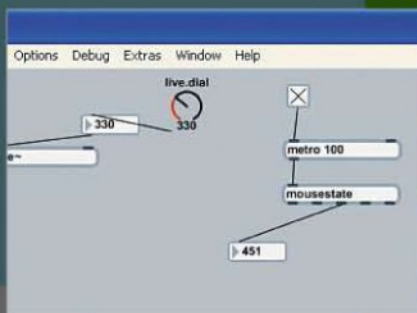
POWER TIP

> In the beginning

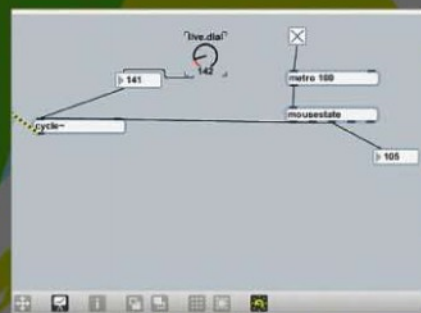
One very important concept within Max is the 'bang'. This is a very simple message, which, when sent to an object, tells it to 'go'. For example, a message object will send its information from its output when it receives a bang, and a button sends a bang from its output when pressed - many other objects use bangs in conjunction with other messages in order to fulfil their functions. Bangs can be used to create huge chains of dynamic objects - take a look at the inner workings of some of the weird and wonderful patches out there to see what we mean...



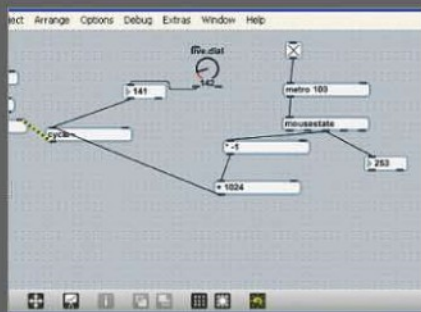
3 > Next, we need to add a **toggle** to the metro and connect them as shown above: toggle outputs 1 when checked and 0 when unchecked. This will mean that the metro will only start outputting bangs when we want it to. You'll find yourself using this toggle/metro combination a lot, especially as you begin to make more advanced patches.



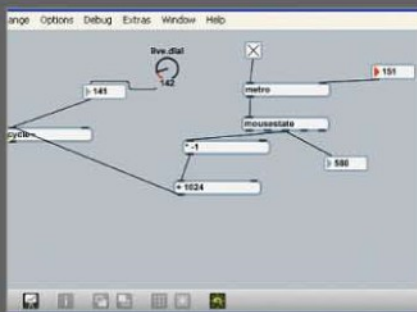
4 > Add another **number** box and connect it to mousestate's middle output to check that everything is working correctly. mousestate's outlets all provide different info about the mouse, so it's important to use the right one, as shown here. The vertical position of your mouse will now be output as a number. It's always worth checking everything stage by stage to avoid trouble later on.



5 > Let's connect everything up and turn on the sound output. We've connected mousestate to the same input of cycle~ that we used for our pitch dial in the previous walkthrough. Now the pitch of the cosine wave is being determined by the vertical position of the mouse pointer, and we have ourselves a kind of ludicrous theremin - just what we always wanted!



6 > Currently, the pitch of the cosine wave rises as the mouse moves down the screen. We want to flip that around, so let's get that functionality together. Add a couple of blank **New Objects** to do just that and enter *** -1** and **+ 1024** (including the spaces) in each one, then connect everything up as shown. Once anything becomes a number in Max, you can process it however you want.

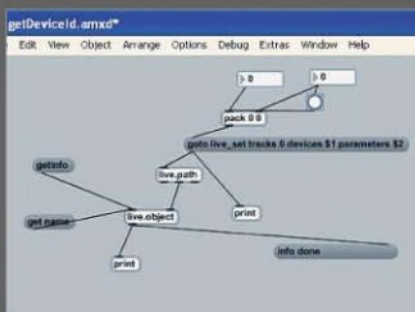
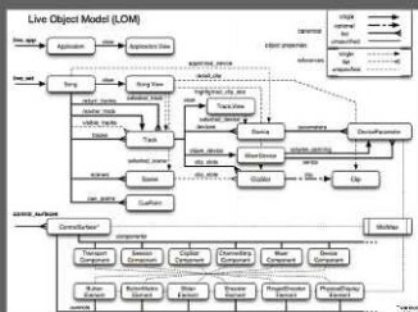


7 > Everything sounds great, but let's add another number box to the metro, so that we can try some different effects with mouse polling by entering different values into the number box. For example, polling the mouse very fast will result in smooth variations, whereas infrequent polling will trigger jumps in pitch that sound rather like a step-sequencer.



8 > Now that our device is complete, we can stick some effects on it (reverb and delay sound particularly good) and play it just like any other synth in Live. The brilliant thing about Max for Live is that, because all of your edits take place in real time, you can really sculpt the sonic results you want. What's more, very simple objects, like this one, can actually sound great!

> Step by step Live API programming



Further exploration

Even though Max for Live is only a few months old, there's already a wealth of great devices and interesting ideas on how to use the program available online, so here's a rundown of places to look...

The free **Schwarzonator MIDI** plug-in by **Henrik Schwarz** takes any input notes and maps them to predefined scales and chords, essentially preventing you from ever hitting the 'wrong' note and bypassing the need for knowledge of music theory. Watch the video of **Henrik** giving you the lowdown on all the fantastic things his plug-in can do to learn how it works:

www.ableton.com/schwarzonator

It's easy to get very nerdy with Max for Live and end up forgetting that, essentially, you have a massive toolkit of sound manipulation tools at your disposal. For example, we're looking forward to messing around with the buffer-MSP object to grab bits of samples and then destroy them to our heart's content. Check out Richard Devine's first jam with Max for Live to get some inspiration: www.vimeo.com/7969531

We've shown how easy it is to make simple objects that control faders in Live, but we're looking forward to seeing what programmers come up with once they've had a few more months to digest everything. Entirely new ways of recording and performing music could be developed, helped along by Max's support for videogame controllers and suchlike. We've no doubt that lots of weird peripherals will soon be making their way onto the stage. For now, though, have a look at what can be achieved with the Novation Launchpad and their free StepSeq patch:

[www.novationmusic.com/
news/article-36](http://www.novationmusic.com/news/article-36)

Of course, there are bound to be things on the way that we can't even imagine right now. With support for interface protocols like Open Sound Control (opensoundcontrol.org) and the possibilities offered by simple electronics platforms such as Arduino (www.arduino.cc), a world of insane possibilities has opened up. For example, here's a great tutorial on combining Arduino and Max for Live from Make: tinynr1.com/vf57awz

Max for Live can also link up with other programming languages and libraries - we're particularly amused by Nick Rothwell's M4L Twitter client using Java and Python:
www.vimeo.com/7552259.cm

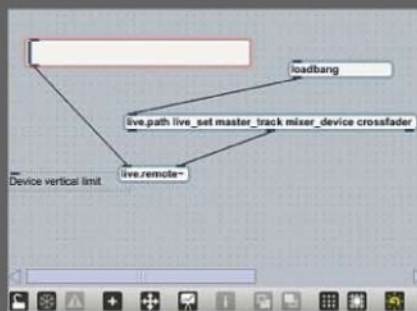
1 > Max for Live enables us to customise Live's functionality. It can get a little complicated, as you can see from the diagram above, but stick with it. We're going to be using the Live API (Application Programming Interface), which will enable us to control almost any aspect of the current Live set from within Max. Let's use it to build a device that could be used with a touchscreen interface...

2 > This Max device we've knocked up enables us to use the Live Object Model to find the name of a parameter within our set. The two key objects here are **live.path** and **live.object**: these let us 'navigate' to the exact part of Live we want to change, which we'll explain shortly.

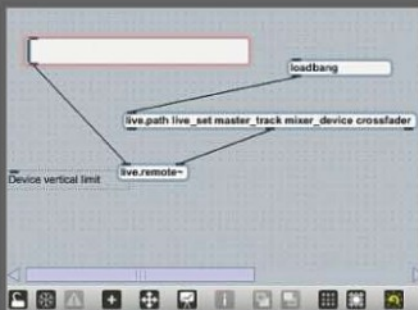
POWER TIP

>Live and direct

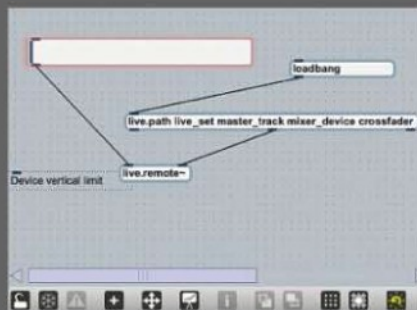
Although the Live Object Model and its associated objects are confusing at first, they're really quite simple. A typical path would be something like "live set tracks 1 devices 1 parameters 2". The handy "getinfo" command, which live.object accepts, can tell you everything you need to know in order to exert significant control over Live. This is brilliant for building devices that change multiple effect parameters at once, or automate common processes that you always find yourself doing. You could save some serious time by building a few Max devices to tweak your sets for you!



3 > Copy what we've done here. This device enables us to control Live's crossfader with one of Max's sliders (pictured top left and found in **New Objects** along with everything else). It's a fairly simple patch, but if used in conjunction with a touchscreen, it could make for an awesome, hands-on DJing experience. Let's discover how it works.



4 > This Live path **live_set master_track mixer_device crossfader** essentially points Max to the crossfader in Live, which is simple for it to locate, as it's always in the same place! What comes out the other end via the live.path output is a device id: this is just a shorthand way for Max for Live to automate parameters.



5 > Finally, to explain our patch further, we've used for the all-powerful **live.remote-** object to give us the ability to edit Live's parameters in real time. It employs a signal input, so you can do weird stuff like use an oscillator to control track volume, or link an effects send to an audio level. In short, it's brilliant!



MID/SIDE mastering

We show you how to produce masters that are tight and punchy yet full of space, with our guide to this highly useful technique

> **Mastering engineers don't see things the way other people do. They not only have very different conceptions of things like EQ, compression and limiting, but they don't even think of musical space in the same way. To an engineer, music arrives in a three-dimensional field, and mid/side processing is used to fiddle with that field and make a stereo recording sound bigger and more impressive.**

Although it was originally conceived as a recording technique, mid/side processing at the mastering stage works by separating the mix into two parts: the mids, where you'll find all your lead instruments and mono sounds (kick drum, vocals, etc), and the sides, where you'll find reverb and other 'wide' sounds. Now imagine being able to process one part of a

single stereo file mix entirely independently, without affecting any other part. If you want to bump up the lead vocal without affecting the other instruments, to give it a bit more presence, you can. If you'd like your track to seem wider, to have more atmosphere and to come from all angles at once, you can jump into the sides and play around without affecting any of the instruments that give the track its presence and form. All of this and more can be done at the mastering stage, thanks to the power of mid/side processing.

Taking the lead

In this guide, you'll learn how to use EQ to lift the lead instruments out of a mix in the mids, and compression to make them seriously obese. We'll show you how reverb applied carefully to

the side channels can add air and space to your song. This guide mostly deals with plug-ins (such as iZotope Ozone and Flux Alchemy), but we'll also show you how to split your mids and sides into two separate sound files manually in your DAW.

If you're interested in the history of this classic studio technique (which goes back all the way to when the first stereo discs were cut in the 1930s), then our interview with Air Mastering engineer Ray Staff should prove enlightening. You'll also learn how mid/side recording works, and how to get your head around concepts like phase, which are so crucial to mid/side processing.

So, dig out a mix that you'd like to experiment on (and/or load up our audio examples from the DVD) and let's get stuck in the middle...

The history of mid/side processing

Read any material on mid/side processing online and you're likely to come across the phrase 'engineer's secret weapon' more than once. Yet in reality, mid/side mastering has been around for quite some time.

It was Alan Blumlein who invented stereo recordings - he cut the first stereo disc in 1933 after two years of experimentation - but mid/side, although widely known as a

microphone recording technique used in classical music, was developed for the mastering process because of a specific problem with cutting vinyl.

According to Dave Moulton of Moulton Laboratories, the placement of instruments such as kick drum or lead vocals in the middle of the stereo image came about due to old-school analogue mastering processes. When discs were cut, any stylus motion that wasn't square in the middle of the recording had a vertical component. If this vertical component got too loud, the needle would jump right out the groove. It used to be common practice to stack coins on turntable cartridges to stop this from happening - this is where the term 'skip' comes from.

One man who knows all there is to know about the history and theory of mid/side processing is Ray Staff. He's held down senior roles at premier studios the likes of Trident, Alchemy and Air Mastering, where he currently resides. Ray has cut masters for The Rolling Stones, Led Zeppelin, David Bowie and Supertramp, among others.

"Historically, mid/side processing was also used for FM broadcasting," he says. "The stereo information was sent as a different channel on the FM transmitter. Obviously, it's been used for microphone techniques, and when it comes to mastering and processing, it's been used in principal for controlling the stereo image at the mastering stage."

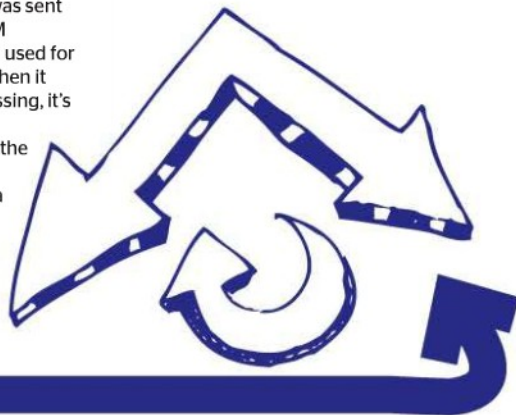
He goes on: "You may have a mix where you want to pull out the bass guitar or the bass drum without affecting what's happening on the extremities,

so you could add some bass onto the centre image, and likewise with any instrument. If it's located in the difference information, you can try to access it. It maybe means you can be more gentle with the mix overall than if you were in stereo mode."

Although Staff can't recall any specific bands with which mid/side processing proved to be exceptionally useful (we were hoping for tales of his fixing Mick Jagger's wayward howl), he remembers several classic pieces of equipment, namechecking the Fairchild 670 compressor and a 1970s Neumann console with a built-in sum/difference facility. And as for the concept of mid/side processing as some sort of secret weapon for mastering engineers...

"I don't use it a lot," says Staff. "I do use it, but it's something to be used with a great deal of caution. It's selective, like anything else. You have to have a reason to use anything; if you use an EQ, why are you using it? What do you want to do? What are you trying to achieve? Mid/side processing enables you to achieve certain goals or improve on certain issues, but those issues only really arise occasionally."

After many years in the industry and a position at Air Mastering, Ray Staff is a dab hand at mid/side processing



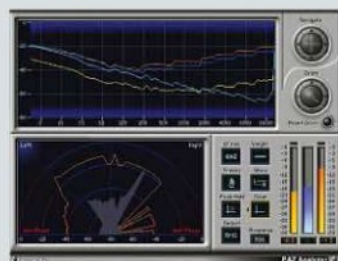
> Step by step The basics of mid/side mastering



1 > The easiest way to split your song into its mid and side components is to use a plug-in designed to do the job - Voxengo MSSED, for example, which you can download for free at www.voxengo.com/product/msed. Make sure you're working with a mixed-down stereo file, and apply the plug-in as an insert either on the master fader or the track itself. Audio on the DVD: **Track_mix.wav**.

2 > MSSED is really straightforward to use. You can elect to hear either the mid or side bits of your track by using the mute buttons, and boost them using the **Gain** - there's an A/B comparison button to reference your changes. Here, we've activated the sides only - as you can hear, it's just the reverbs and instruments at the edge of the stage. Audio: **Track_side.wav**.

3 > You can use the same technique to hear the mids only - ie, the big mono sounds at the centre of your soundstage, like vocals and lead instruments. We've soloed the mids and used the **Gain** knob to boost them, giving a really punchy sound to that part of the track. At it's simplest, this is what mid/side processing is all about. Audio: **Track_mid.wav**.



Recording sounds using mid/side miking techniques can give you a rich stereo field to play with, as shown in the PAZ Analyzer here

Mid/side recording

Although mid/side processing is a recognised mastering tool, it was originally only a recording technique. If you've got the microphones, it's a great way to give yourself loads of options at the mixing stage and create a very rich stereo field, while still leaving your mix entirely effective when played back in mono. Although this was (and still is) originally used as a recording technique for classical orchestras, it's very workable and useful with other genres and instruments as well.

To do it, you need two mics: one directional or cardioid - which will be used for your mids - and one bi-directional or figure-8 for your sides. You need to set these up so that the directional (or cardioid) mic is pointing straight at your sound source (drums, guitar, sitar, whatever) and the bi-directional (or figure-8) is pointed off to the side of it. Both mics need to be as close together as possible, without actually touching.

In addition, you'll need a mixer with a phase reverse switch; most decent outboard mixers have this, but you can probably do it with the mixer in your DAW as well. You'll need to set up your DAW so that the sides signal - the bi-directional mic - comes through in stereo. Reverse the phase of one of the channels using that phase reverse switch, then pan one channel hard left and the other hard right. If both channels were centred, they'd cancel each other out, but when they're panned, you'll hear the sides perfectly. It's also a good idea to link the two channel strips, so that they're controlled in unison.

This setup enables you to mix the mono mids and the stereo sides together as you like, giving you a lot of control over the sound - it essentially gives you three different channels of material to play with.

> Step by step

Equal on the middle



1 > After you've split the signal using MS/ED, load up a linear phase EQ. It needs to be linear phase, like T-Rack3' potent Linear Phase EQ, to get complete transparency in your mix and also avoid any odd effects occurring due to phase discrepancies.

2 > One common use of mid/side EQ is to bring up the vocals without affecting the stereo placement of the instruments. To do this, switch to the mid channel, and start boosting the vocals at around 1kHz, keeping the slope gentle. This will see your vocals pop out of the mix nicely. Audio on the DVD: **EQ Boost1.wav**.



3 > Now move to the sides channel and apply a gentle EQ boost at around 6kHz. It's worth being even lighter with your touch than on the mids, but a boost here will give your track a rich, wide sound as the sides of the soundstage are boosted and opened up. If you have any reverb in place, this is where it'll be most affected. Audio on DVD: **EQ Boost2.wav**.



4 > You can do some creative cutting, too. Although mid/side EQ works far more obviously when boosting specific frequencies, it can also be used as a corrective measure to fix problems. If, for example, you have some instruments clogging up the middle that you think need to be toned down a little, cut them in the mids, and boost the same frequency at the sides.



5 > Don't be scared of overdoing it slightly, either. Mid/side processing is fairly forgiving on heavy adjustments. Just be sure to keep referring back to your entire mix, though; hearing how the EQ on one part is affecting another is crucial, and may not always be immediately evident.

POWER TIP

>We'll pass

If you want to keep the bass, drums and other low-frequency elements of your track entirely mono (ie, not bleeding into the sides at all), you can do so using the side EQ. Select the lowest frequency and make it a high-pass filter, then bring it up gradually until you're confident that you've eliminated all the really low-frequency content from the sides. Don't overdo it, though; a little too much high-pass won't be noticeable on hi-fi speakers, but on a club sound-system, they'll hear it.

> Step by step

Complete compression



Spectrum ride

Although many processing plug-ins will offer some visual representation of the frequency spectrum (iZotope's Ozone overlays one on its EQ display), sometimes it makes sense to use a dedicated plug-in to visualise your signals. This is especially important when working with mid/side processing, as you're quite literally positioning bits of your mix in the equivalent of a physical space.

If you're using mid/side processing to make very fine adjustments to your mix, it can be useful to be able to 'see' what you're doing. A great tool for this is Waves' PAZ Psychoacoustic Analyser, which enables you to see not only the entire spectrum, but also a highly intuitive visual representation of where your sound is. You can freeze the image, too, which is extremely useful if, for example, you want to precisely control the reverb level in the sides.

If you don't feel like shelling out for the whopping Waves Diamond Bundle that the PAZ comes in, there are multiple free options for both Mac and PC, too. Your first port of call should be VertexDSP's Multinspector, which comes in both free and paid-for versions. It's nowhere near as complex as the likes of PAZ, but it does the job.

1 > Compression is one element of mid/side processing that can have a serious impact on your sound. It won't fix a bad mix - not that any mastering technique will - but it can really polish your sound and make it stand out. Here, we're using Flux's Pure Compressor, which has some good mid/side functions.

2 > The general rule with mid/side compression is to go a lot harder on the mids than the side - in fact, a lot of mastering engineers leave the sides alone entirely. Turn the **M/S Width** knob on and turn it all the way over to the left; this will isolate the mids in your mix.



3 > Your **Threshold** and **Ratio** settings will depend on the track in question, but you shouldn't really need to compress all that hard. Your **Attack** and **Release** settings should be reasonably fast. Keep swinging the **M/S Width** knob back to the centre to reference your changes, and don't forget to boost the output gain once you're done compressing. Audio on the DVD: **Mid_Compressed.wav**.

4 > One thing that can be extremely helpful is the soft knee switch. Pure Compressor has a controllable soft knee built in, providing far greater control over compression - your sound will be a bit more natural with a little knee applied. Audio: **Mid_Compressed_Knee.wav**.

> Step by step

Trick of the trade



1 > There are certain plug-ins you can use to really sweeten your sound. Another Flux plug-in (that actually incorporates the Pure Compressor) is Sollerai. It has a knob labelled **Angel's Share**, which can make your mid/side adjustments sound extra sweet.

2 > Get aggressive with the **Ratio** and **Threshold** - more than you ever would do normally - then turn up the **Output Gain** enough to compensate for the compression. You'll often be cautioned about compression leading to a 'pumping' sound, but we find that it doesn't matter so much here.

3 > Turn up the **Angel's Share** knob - you can quite happily crank it to 100%. At higher levels, you'll hear a lot more 'air' in the mix, especially on the sides, and the compression will be a lot less noticeable, making for a more pleasing sound. Audio: **Angels_Share_Compression.wav**.



> Step by step Reverb space



1 > Unless you're employing the manual splitting technique described at the end of this guide, you'll need to use a plug-in with both built-in reverb and mid/side functionality to get the best out of reverb on the mids and sides of your track. iZotope's Ozone is particularly good for this, packing a solid reverb module alongside its mid/side functionality.



2 > One of the great things about mid/side reverb is that you can really make your lead instruments bounce up out of the mix without affecting the stereo spread. To do this, switch Ozone to **Mid** mode and **Solo** that channel, then **Solo** the reverb signal. Turn the **Room Size** and **Room Damping** sliders all the way down.

POWER TIP

>Send it away

It may end up complicating things unnecessarily, but one way to experiment with different effects on your mix working simultaneously with your mid/side processor is to set them both up as send effects, rather than inserts. A little judicious routing means you can then use that great reverb plug-in you've got stashed away. This works well with something like Voxengo's MSER, for example, which will split the signal and enable you to do what you like to either side.



3 > Now give it a little pre-delay - not too much, but just enough so that you get a tiny bit of reverb. Keeping the reverb signal soloed, push the **Wet** slider up a touch. **UnSolo** the reverb signal to hear the effect. What you're aiming for is a touch of reverb signal on your mids, but the effect should be almost imperceptible. Audio on the DVD: **Mid_reverb.wav**.



4 > The sides are where you really get to use the reverb to crank up the space and atmosphere. **Solo** the **Sides**, then **Solo** the reverb signal as before. Here, you can use a much heavier touch than on the mids and be far more experimental, as this means you'll get great effects at the edges of your stage without affecting your big lead vocals and instruments.

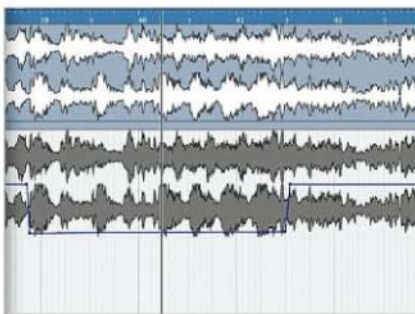


5 > You'll find you have to **UnSolo** the sides (and listen to the entire mix) to get a sense of what the reverb on the edges is doing to the whole package, but don't be too scared about dialing in a lot of **Wet** reverb mix. Your aim is to really spread the sound at the edges, so depending on your track, you can have some fun with the room size and damping, too. Audio: **Side_reverb.wav**.

POWER TIP

>One sound

When you're making a track using sampled instruments, you're likely to find that the default format for many of them - particularly if you use single notes or short loops - is mono. That's not a problem, but it does mean that if you haven't taken the time to add some panning or reverb to your track and its elements before mixdown, you simply won't have a side image to play with at the mastering stage, as even if your track is exported in stereo, it will sound mono. This is something to bear in mind before you get to the mastering stage.



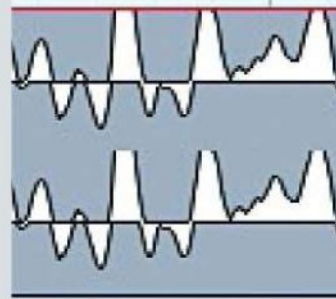
6 > Be careful if you have mix elements panned hard left or right, as is the case here with the chorus vocals, which suddenly pop up in the side mix and run smack-bang into the atmospheric reverb. A little automation can work wonders here to (temporarily) bypass or tone down Ozone's reverb module. We've decided to leave it active, however, as the effect sounds quite good.



7 > There's a useful spectrum analyzer in the Ozone reverb module, and one of the things you can do with it is check the phase (see the boxout on p65 for more on this). Inverting the left and right channels is disabled when in mid/side mode, but it does enable you to turn the phase 90 degrees to check if everything in your mix is still present.



> Step by step Manual override



A perfectly in phase stereo signal, which will output exactly the same waveform from both the left- and right-hand speakers

It's just a phase

A mono track has no directional information: it comes from one source and even if played through multiple speakers, will sound the same coming out of all of them. A stereo track, on the other hand, contains audio, in sync, that comes from both the left and the right – in other words, it has two distinct sound sources that can be used to create an illusion of space. Things like vocals and drums, when they're recorded, will most likely be in mono. Prefab samples, on the other hand, will probably be dropped into your DAW as stereo files. Almost without exception, mastered tracks will be exported in stereo.

It gets a bit more complicated when you start talking about phase. Put simply, an audio file comprises several soundwaves. Open up your DAW, load a file and zoom in right up close; you'll see what we mean. If you have a stereo audio file (one left channel, one right channel), you'll have two parts to your track, each with different sound waves.

Now, if two soundwaves of equal size – one left, one right – hit each other, they cancel each other out and you hear nothing. Think of two waves (water waves this time) of equal height, one underwater and one on top, meeting in the ocean. The surface of the water will go flat at the point of impact. This isn't an absolute – if a track is 'out of phase', it means that only part of the wave is interrupting the other part. The debate is still open as to whether humans can actually hear small phase errors, but if a track is out of phase badly, there's a chance you'll notice it – it'll sound a little blurred, thin and dull.

This is mostly a problem at the recording stage – where two mics capturing drums, for example, interfere with each other – but most DAWs come with a phase reverse button to fix such problems. [cm](#)

1 > Although the most common way to split your track into mid/side elements is to use a dedicated plug-in, there is also a way to do it using the functions in your DAW or audio editor. The free Audacity is particularly good at this, as it enables you to split and sum files without having to export them.

2 > Select your track, then use its dropdown menu at the top left next to the cross and select **Split Stereo Track** (Take care not to accidentally click **Split Stereo To Mono**). Select one of the resulting 'sides', then hit **Effects>Invert**. This will invert the phase on that side of the track, so you'll have two mono files, one with an inverted phase to the other (see boxout, right, for more on this).

POWER TIP

>Times two

One of the benefits of this kind of manual tinkering is that it gives you two distinct files to play with. That means you have a lot more leeway in what you can do to the mids and sides, as you can then apply whatever effects you like to them. This is more useful at the mixing stage; you could take a stereo section of your track, such as a sample, separate it into mid/side and go wild with effects for some insane sounds. See how some delay will sound when applied only to the sides, for example.



3 > Select both your mono tracks and, using the dropdown menu on one of them, choose **Make Stereo Track**. This will leave you with two separate and distinct stereo tracks: your original file, and one with one side inverted. Select the stereo track you did the inversion on and click **Tracks>Stereo Track to Mono**.



4 > Because of the phase inversion you performed earlier, the end result will be a mono track that takes in just the sides of your mix. Import your original file, and alongside your processed track, perform the same action on it – this will give you your mids.

5 > Export the final version at this stage and you'll have a purely mono track. To rectify this, pan the mid and side tracks hard left and right respectively, then run MSED on the master bus in **Encode** mode. This will convert the two mono files back to stereo. This is actually easiest to do in a less clunky DAW than Audacity, so transfer the files if necessary.

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In this recession-busting dance music masterclass, we show you how to produce a fidget house track from start to finish, using nothing more than a few pieces of free and low-priced software

> **Fidget is a pretty silly sounding word, making fidget house a pretty silly sounding genre title, which makes sense, as it was first used as a response to an equally silly question: "How would you describe your style of music?"**

About four years ago, a DJ/producer called Dave Taylor was beginning to make serious waves with his unique production style, typified by his *A Bit Patchy* track. Produced under his Switch pseudonym, it mashed up Apache by the Incredible Bongo Band with some outrageously shuffled breaks and a rumbling, wonky bassline from hell. Owing much to the choppy, modulated basslines of speed garage, it laid down the blueprint for what we now know as fidget house. And, for once, there was no doubting who came up with the name - Switch himself, along with Jesse Rose, using it as a tongue-in-cheek description of the music they were making (and had no real desire to categorise).

So what constitutes fidget? Well, it's

characterised by choppy, heavily swung and often glitchy synths, basslines, vocals and beats, all around a four-to-the-floor rhythm. Influences are taken from across the spectrum of electronic music, from hip-hop and house to reggae and speed garage.

What's in a name?

Originally just a title for the kind of music Switch and Jesse Rose were making, its simple, infectious groove has endeared it to the (mostly) younger crowd, and a few mainstream successes, such as Crooker's remix of *Day And Night* by Kid Cudi, have taken it to a much wider audience.

Now championed by the likes of Hervé Sinden and, of course, Switch himself, fidget is spreading and crossing over, often finding itself mixed into breaks, glitch and dubstep sets.

So why *Fidget on a budget*? Well, firstly, because it was a headline that simply begged to be used. More importantly, though, because few types of music lend themselves quite so well to the 'cheap and cheerful' studio setup. It's a raw, heavy style that prides itself on clever edits and powerful pitchbent riffs, rather than subtle layers and expensive-sounding processing. In fact, it's more than possible to make a perfectly powerful, credible fidget track

"Choppy, heavily swung and glitchy synths, basslines, vocals and beats, all around a four-to-the-floor rhythm"

without spending so much as a single penny (assuming you already own a computer and speakers) - in this tutorial, we're going to show you how to do exactly that.



Hear our complete track, and explore its various MIDI and audio elements

Kicking off

Fidget is the ideal recession-beating genre. Leaving aside the fact that it arguably promotes the very kind of fantasy-land thinking that bankers used to talk us (and, to a lesser degree, themselves) into our current financial pickle in the first place, we really are very lucky to have the internet. Of particular relevance to this feature, using just the computer you already own and the cheap or free broadband most phone companies now offer, you can easily source all of the tools you need to make music, for free. This includes plug-ins, samples and even DAWs and sequencers.

While there are some completely free sequencers available, none of them are as powerful as Reaper, which can be used for up to a month before deciding whether or not to pay the very reasonable fee required to fully register it. We'll be using Reaper throughout this tutorial - it's on the DVD.

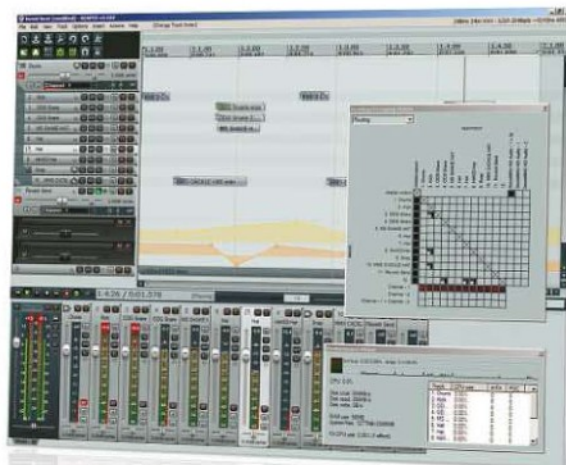
Other DAWs, such as Ableton Live and Propellerhead Reason and Record, offer fully functional demo modes, so that you can try things out in them while you save up to buy them. In fact, using internal audio capture, you can even take riffs and patterns you've made in demo mode and save them for use in other projects (we plan to do exactly that in this feature). Of course, this isn't always the most convenient way of doing things, but it can be quite liberating and inspirational, as it avoids the temptation to constantly tweak the same idea.

So far, so resourceful, but you needn't even be crafty to be thrifty, as many developers bundle stripped-back versions of their software in hardware packages that you might already own. MIDI keyboards and audio interfaces often come with cut-down versions of Live, Cubase, Reason, Sonar, etc, which will almost certainly be enough to get you started and produce decent results. And of course, there's also the very capable energyXT **cm** Edition, which you can find in the **cm** Studio on our DVD every month.

Plugging the gaps

As for plug-ins, you actually have to try pretty hard not to stumble across the

Cockos' Reaper can be used for up to a month for free, whereupon you can decide whether you want to carry on with it and pay the reasonable license fee



A streamlined approach to the DAW, XT Software's energyXT 2.5 Core cm Edition is free on the cm DVD each month

plethora of great free tools available. PC users are best served, as their platform of choice is so ubiquitous, but there's plenty out there for Mac users, too.

The best place to start is, again, the **cm** Studio on the cover DVD of this mag, but a trip to www.kvraudio.com will reveal more free plug-ins than you could ever actually need. We'll be outlining some of them later on, but here we'll just give a quick shout out to Togu Audio Line (kunz.corrupt.ch), a company offering a stunning range of synths and effects. We'd hope that if you use

them a lot, you'll show your appreciation for these free gems by making an onsite donation as soon as you can afford it.

OK, it's about time we got down to business, so install those plug-ins, boot up that DAW and get ready to, er, make small movements of the hands and feet in a display of nervousness and/or impatience.

And don't forget that, just as all of the production techniques we show you here can be applied to genres other than fidget house, so, too, can the plug-in procurement techniques!



Togu Audio Line's TAL-BassLine is a monster of a synth with many great features, including, of course, the fact that it's free!

Making the most of what you've got

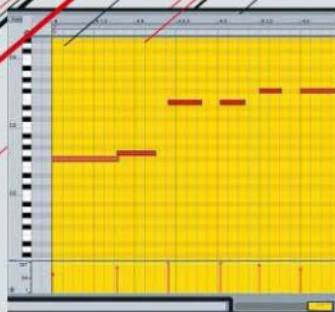
Since you're reading this magazine, there's a very good chance that you already have a sequencer/DAW of choice, so those 'free' plug-ins can be considered to include those that come built into it.

Some are slightly more comprehensively stocked than others, and it's probably fair to say that Logic Pro has had the edge here for a few years, as it ships with a ridiculously comprehensive collection. But the gap has narrowed dramatically in recent times, and now all of the major sequencers feature most, if not all, of the effects you need to

create, mix and, in many cases, master your tracks. In fact, we'd generally recommend getting to know the plug-ins you already have before chasing new ones, as it's always better to know ten plug-ins inside out than to only vaguely grasp the workings of 50.

Once you really do know your plug-ins intimately and reckon you can't possibly squeeze any more new tricks out of them, though, let the rampant freeware downloading commence! Or at least, get a few in that you can really learn in depth, then look for a few more and so on.

FIDGET ON A BUDGET



To get your grooves swinging, forget about templates – try instead to manually shift certain notes off the grid or play them in

Quantisation

By about this point in any 'genre' tutorial, we'll often start banging on about quantisation, but this time things are a little different. Yes, you can use groove maps to introduce swing, and it's also possible to extract these from other tracks and apply them to your own parts. In fact, you can apply the same groove to all the elements of your track to give it a tight, swung, coherent feel.

But never mind all that, as we're doing it all by hand this time for a very different feel. And there are two ways of doing it.

The old-school method is to manually move the parts by shifting key sounds slightly before or after the strict quantisation points (generally speaking, shifting them to the right to make them sound slightly later is best). We generally only apply this to eighth-note parts that don't also fall on quarter-notes (ie, not the kick or off-beat hi-hat), but if you think it's working on those, too, go for it.

The even older-school method is to play in the patterns, skips and riffs by hand, which can generate some really cool parts that you wouldn't get otherwise. Of course, regular readers will know that we always say that, but what makes it even cooler for fidget is that it can generate some really interesting swing values. You can always go through and tidy them up a little by hand afterwards, but the idea is to listen to some funky fidget shuffles and try to recreate them yourself.

Then, when it comes to applying the grooves to other parts, you can manually slide them along. Often, the tiny inaccuracies that result will add to the rhythmically disjointed nature of the proceedings.

Ultimately, with fidget-style grooves, you know you're onto a winner if your head and/or body are moving from side-to-side with the groove, rather than just bouncing on the spot or nodding.

No, seriously! Side to side...

> Step by step Beat it up



1 > The first thing we want to do is nail our beats, and these need to be very funky indeed. We start with a rather basic kick and hi-hat pattern, on the beat and off-beat respectively, using some suitably chunky sounds. These are a bit rougher round the edges than we might use for other house genres, but we do layer a big, bass-heavy 808-style sub under the kick for extra weight.



2 > Now comes the fidget part, largely from little skips. We gather a selection of reversed sounds (bass notes, vocal stabs and percussive hits are a winner) to use as little skips just before the second and fourth beats. Sometimes you might only want one before the fourth, but do keep them very frequent, as they aren't there to break up the groove, as in most dance styles – they are the groove!

POWER TIP

>Steal drums

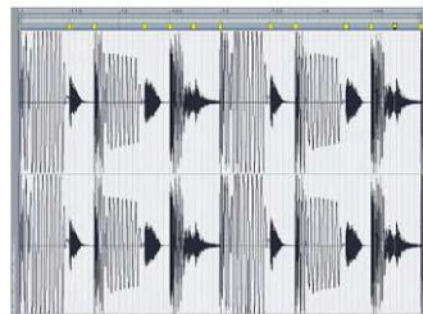
Finding drums is, as always, often best done by raiding some of your favourite tracks. There are, of course, plenty of sound libraries out there to buy (and some free ones, such as those on our cover DVD every month), and we'll use a couple of examples in this tutorial, but even these will often feature drum hits gleaned from other tracks in the genre – or other sample collections. Of course, you don't want to just take loops wholesale from other tracks, and should find some hits from farther afield, but don't fall into that beginner's trap of thinking you have to use nothing but 100% original drums!



3 > You can't really approach fidget percussion and vocals in isolation, as they're an essential part of the groove. We've used a breath noise sample every two beats to add some shuffle to our rhythm, then created some more syncopated grooves using a few words taken from a speech synthesis website.



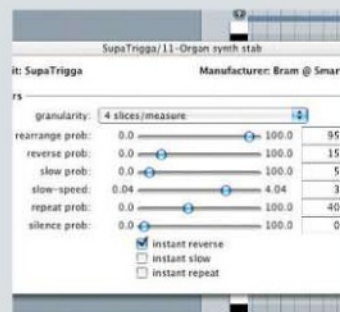
4 > Finally, we take a simple kick and hi-hat loop, tune it up high and add a little distortion to make sure we get that slightly grungy, sampled-loop vibe. This loop could be taken from another track or be an original one of your own creation. The point is that by messing around with it in Live, it sounds like it's been sampled from somewhere else.



5 > We want to introduce a bit of a ragga vibe to proceedings, so we use a loop from the Loopmasters Roosevelt High collection. It has its own distinct swing and groove, so it needs a few tiny timing tweaks. We use Live's warping to fix the timing, then record the loop internally onto another audio channel and put it to one side, as it's only going to be used in certain sections of the track.

> Step by step

The bassline and riffs



We've used SupaTrigga to glitch up our organ part and stop it becoming boring

Glitch it up

We've already looked at the wonders of LFOs and filters, and how they can transform your riffs and patches, but another good way to work up your parts is by applying some kind of the glitch plug-ins that are available out there. There are too many examples of these to list them all here, but one of the best of the bunch is a free PC plug-in called, cunningly enough, Glitch (illformed.org/blog/glitch). There are plenty of others to choose from, but anything that can get those Mac users drooling with envy every time they even hear it mentioned is certainly worth having in your arsenal.

Along very similar lines is the cross-platform SupaTrigga by Bram at Smartelectronix (bram.smartelectronix.com), which is also free. SupaTrigga is as obvious and easy to use as a locking lavatory door, and just as useful at times. In our track, we've used it to break up our organ riff, stopping it being relentlessly tough and monotonous by adding tempo-synced reverses and doubles to the proceedings.

Our only caveat when using glitch plug-ins is that they can be major groove breakers when over-employed. For example, a little reversed note on each bar can work on some riffs, but is usually most effective when placed every two or four times round. And really major edits should be approached with respect and caution.

But these problems aside, we whole heartedly recommend using glitch-orientated plug-ins in your fidget productions. Used sparingly and wisely, they can make even the most unspectacular of parts and turn it into something that's supremely groovy.

1 > Before we can play any riffs, we need to decide on a synth or two to use, and for this kind of music, it's hard to beat the two TAL synths, BassLine and Elek7ro. The former is a rather excellent clone of Roland's SH-101 (one of the most popular bass synths of all time), while the latter is just a bundle of detuned-oscillator filth. Between the two, we'll have all the grunt we'll need for our track.

2 > There are two main things that make a riff or bassline (they're often the same thing) characteristically fidget-like, and those are the pattern and the sound. Sound-wise, the best thing to do is go through your synth plug-ins' presets until you find some dirty patches. Buzzy, heavy bass sounds are the order of the day. Samples won't really cut it for this kind of thing, as we're about to see.



3 > Once we've found a patch we like in Elek7ro, the fun begins. We start by playing in a marching-style riff with a little roll or skip at the end, a pattern that has fidget written all over it. To really put the icing on the cake, though, we need to make the riff either ascend or descend over two bars. In fact, you could apply this blueprint to a violin riff and it'll still sound fidgety!

4 > To add more wonkiness, we set Elek7ro's LFO to control the filter Cutoff (with the Intensity set to full). Now, it's important to make sure that the Cutoff is set to about half-way, otherwise you won't get the full effect of the oscillator swinging it up and down. And the filter envelope also has a role to play - too high an Attack and you might not get time to hear the Cutoff move before the note ends.

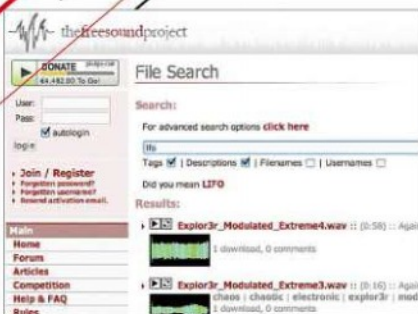


5 > All this sounds pretty cool but also very static, which is where the LFO Rate control comes in. Rather than having it set to Sync to project tempo, we set it manually. Letting our riff play and sweeping the value up and down delivers some deliciously wonky, juddering rhythms. We pick a few settings we like - some driving, some stuttering - and can now sweep them throughout the track.

6 > Enter TAL-BassLine for a deeper, rumbling bass, playing the same part as our lead riff. We want this to have bite and weight, so getting the right envelope settings is crucial. Punchy, flowing and weighty are the buzzwords, with a healthy Portamento setting, which can be modulated in places. We also use a single organ sample for that old-school rave vibe beloved of many fidget-heads.

FIDGET ON A BUDGET

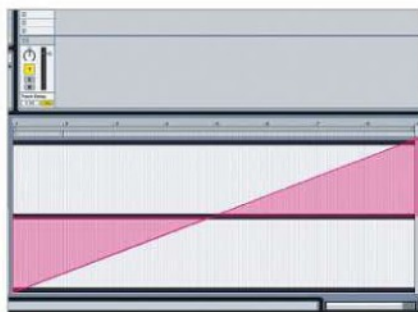
> Step by step Bits 'n' bobs



1 > Fidget is generally bursting with sound effects, synthy squiggles and all manner of crashes. You can make your own using synths, of course, but there's nothing wrong with searching the many free sample sites out there and trawling through your music collection for some examples of what might work.

2 > Now we can process our sound effects using more Togu Audio Line freebies, including delay, reverb, bitcrushing and filtering, then bounce them down as finished samples, ready to be dropped into our arrangement. With this in mind, we apply quite heavy compression to the end of the signal path, to lengthen the reverb and delay tails.

3 > Because we're using so many plug-ins, and going for some extreme sounds, it's very important to experiment with the order of them. For example, place your bitcrusher before the reverb to get a harsh sound with a nice reverb tail, but the other way round and the tail will be distorted and crackly, and instead of fading out, will break up before disappearing abruptly.



4 > Now for the rising pad - another fidget staple. We do ours in the Live 8 demo, which has lots of goodies that make these easy to create. We start with a synth pad with fast attack and release times, stack up four or five eight-bar-long notes an octave apart, then set the pitch bend level to a multiple of 12 semitones (full octave).

5 > We use clip automation to sweep the pitch-bend range from its lowest to its highest level over the course of the eight bars. A little distortion or bitcrushing gives us some top and edge, followed by delay and reverb. Chorusing is also useful, as is a high-pass filter to gradually remove the bottom-end as the pitch builds.

POWER TIP

>On the bounce

We keep going on about recording the results of your tweaks, but some programs disable bouncing in demo mode, making things like the delights of Live's Beat Repeat seemingly unattainable. To get around this, you can either use some kind of free internal audio capture utility (such as Audio Hijack for Mac) to record the output of your system before it goes to the audio interface. Or you can get really old-school and wire your physical outputs into your physical inputs. If using this, though, just be sure to have monitoring turned off if you want to avoid screechy, speaker-shattering feedback!

> Step by step Admiring our form



1 > Now it's simply a matter of trying out different combinations of our parts to plan the arrangement. The more observant among you will notice that we're using the demo version of Ableton Live 8 for this, as it makes it very easy to try out different combinations of sounds very quickly, even if we're planning to actually arrange in another DAW.

2 > We quickly realise that we have two distinctly different sections to our track, and Live enables us to create scenes to experiment with the transitions between the two (and practise tweaking our LFOs). It also makes it incredibly easy to assign hardware controllers, so we tie our LFO to a keyboard knob and record about two minutes of Live tweaking. You never know - it might come in handy!

3 > Finally, we just need to make sure we have all the required parts of our track to arrange. Most of our parts are bounced audio loops by now (with enough space to capture our delay and reverb tails at the end, of course). The only exceptions to this are our lead riffs, so for these, we just need to save the synth preset and MIDI file, ready to open in our main sequencer.

Fidget arrangement tips and tricks



01 Fidget isn't like normal house music, so avoid overlong intros and edits. Many tracks are just 4:30-5 minutes long, as opposed to 7-8 for the average modern house track. This reflects the choppy and fast moving nature of fidget – it's not designed for epic mixing, so it doesn't need epic arrangement.

02 Despite being shorter, fidget has to be DJ mixable, so it still needs intros and outros, even if they're only 8-16 bars long, as opposed to the 24-32 bars more common in other club genres. You can use vocals, breaks and anything you like, as long as it's still mixable.

03 Breakdowns in fidget needn't be drawn-out affairs, but don't be afraid to throw in as many bells and whistles as you can. Thick synth patches, pads and sirens are commonly used, usually with a wide pitch-bend range, sweeping up over eight or 16 bars.

04 Choppy vocals are sprinkled liberally throughout our track as they give a nice sense of... well, fidget. They're also the glue that binds the different sections of the tracks together, as it has two very distinct movements arranged to shift constantly between a

driving, rolling part and more wonky sections.

05 We place edits throughout the track, and these are made more interesting by using different combinations of parts. Simply by having about three or four edited parts, you can create enough combinations to have non-repeating edits all the way through your track.

06 One of the best bits of software for arranging fidget house tracks is Ableton Live. Even the cutdown versions you get with many hardware controllers are up to the job – you don't need that many channels or plug-ins to get solid results.

07 Use pitch-bend, or transpose certain parts, to create eight-bar sections in which the riff goes up every one or two bars. Sprinkle these a few times throughout the track at transition points between different movements.

08 We use a few patches that are layered up to thicken them as much as possible. This is a great way to get really phat sounds, but it's important to make sure that they're edited and processed together afterwards to keep them sounding tight, like one massive patch.

09 One advantage of bouncing parts as audio regions, as we've done here, is that it makes it much easier to chop up the track and create fast, glitchy edits. This keeps things sounding solid and enables you to stick to the fast, choppy method of editing we spoke about earlier.

10 With more complex genres, we often split the parts onto many different tracks, using auxiliaries to combine drums for processing together. With fidget, though, we prefer to keep things very simple, as this tends to suit the modern, rough sound.

11 Fidget is, by its very nature, an extremely promiscuous style, taking influences from many different genres, and our track is no exception. In this section, we have some reggae/bashment-influenced drums – in others, it's a simpler standard house backing – each has a matching bassline style.

12 Fidget is inherently wonky, so if you're using filters in parts of your track, tie them to LFOs and automate them for exciting and dynamic variation. A good way to do this is to record in a series of live sweeps and either bounce them as audio, or keep them as MIDI/

automation data for editing and re-sequencing.

13 LFOs can sound great when synced to track tempo, but here, we're sweeping the Rate manually throughout the track for a more 'organic' effect. Sometimes we have fast, manually edited sections, and at others, we draw in changes from one big value to another. And remember, we want the LFO to retrigger with each note press.

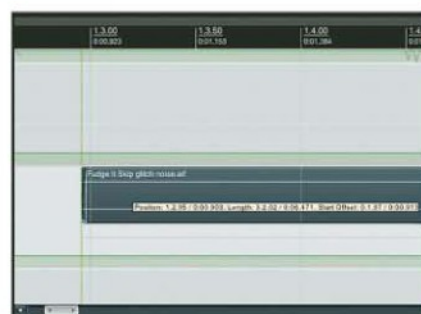
14 Our lead riff also gets the filter cutoff, envelope and modulation amount treatment. All of these can have a massive impact on the sound, which is made all the more noticeable when the LFO is engaged and being triggered.

15 Our trick uses an early Switch-style arrangement, based largely around one main bass-lead blasting throughout the track. All the edits and short sections serve as interludes to keep our main section sounding fresh and interesting.

16 For the outro, we just use a small effect with a very short delay tail (not more than one bar) when the groove drops out. As with the rest of the arrangement, things are kept really raw and simple.

HIDGET ON A BUDGET

> Step by step In the mix



1 > The only DAW we're using here that offers a fully-functional trial period is Reaper, which also happens to be a rather superb bit of kit. It features a relatively straightforward mixer, which suits us just fine, as we want a rough and ready mixdown. We start by zeroing all of our levels.

2 > We've balanced our sounds and added effects and EQ while writing the parts in Live, so it should just be a matter of setting levels. As always, we get the kick and bass balanced first, then bring our other elements in until the mix is full and balanced. The key is to set the kick and bass no higher than a third of the way up the meter, giving room to raise them later.

3 > At this point, we take the time to really double check all our grooves. Much of the process of getting parts to fit well, in terms of both groove and mix, is using a few milliseconds of delay on different channels. We'd normally do this as we were writing, but we want to move fast with this track, and we've been constantly bouncing and editing parts until now.

POWER TIP

> Chaining manual

If you're using software that doesn't enable sidechaining, it's worth remembering exactly what sidechaining actually does in most dance music contexts. It's just an automatic volume control to enable your main elements like kick and bass to coexist happily, so there's nothing to stop you from drawing in the values manually - dropping the level of a bass note that falls on a kick drum hit right at the start with a volume command, for example.



4 > Our arrangement is designed to only play the parts of the track that complement each other simultaneously. So in effect we're doing two different mixdowns. The trick now is to make sure that each has the same weight as the other, or at least doesn't sound out of place before or after, so we check the transitions from section to section.

5 > The main issue is to avoid hammering one section to get it balanced. If there's a large discrepancy between two sections, but both sound good in isolation, you should think about trying to find the middle ground, rather than just getting the quieter section to hammer more, as you might end up ruining it. Of course, if it works boosted all the way, that's fine too!

> Step by step Something for the DJs



1 > Mastering is a tricky subject, but when you're making music for the dancefloor, you should always be sure to do a version that's loud enough and phat enough to compare to the other tracks it'll end up being played alongside. These days, that means it needs to sound very loud and limited indeed! For this process, we fire up the Live 8 demo once more.

2 > First we throw in an instance of Live's EQ Eight, set to **High Quality** mode. A bit of brightness from the high shelving lends an overall polish to proceedings. Then we add a Multiband Dynamics, with both **Soft Knee** and **RMS** disengaged for a sharper effect. We start by setting the low frequency band in isolation, adding some **Input** gain to give it the real punch and weight we want.

3 > The top-end is next, then the middle, checking each in isolation from time to time, plus the different combinations. The trick is to not apply compression to all bands just for the sake of it. A/B with the dry signal constantly to make sure it's actually being improved. A Limiter is last, driven to about -3dB, then we capture the audio. It can be worth doing a screenshot of the settings, too, for future reference.



Be sure to bounce down an unmastered copy of your track in case you decide to get it mastered later, and remember to back everything up!

How not to feel the pinch

One of the main things to watch out for when using free or budget plugs is when dealing with dynamics. While many free distortion effects, delay-based effects, samplers and even filters and EQs can sound fantastic, one area in which budget algorithms don't seem to be able to compete quite so effectively is compression and limiting. So it's important to be careful when using them.

Now, you might be thinking that fidget often sounds a bit rough and ready anyway, so does it really matter? Well, with dynamics, unfortunately it does, as they can thoroughly ruin the balance of a mix and destroy the weight and strength of an individual channel or complete track. And while we might enjoy mixes that aren't pristine and shiny, we don't like mixes we can't hear properly and that have no dynamics, weight or punch.

So, does this mean that all is lost and we can't possibly get our tracks sounding big and powerful with our budget approach? Not at all, fortunately. But it does mean that we need to be very careful about how much dynamics processing we apply. This is always good advice, but becomes especially so in this case.

Of course, that's not to suggest that we can't ever risk pushing our sounds at all, but it's vital to constantly compare the dry and effected signal, as the chances of over-cooking things and losing something in translation are much higher. And rather than pushing one effect to the max and damaging the signal, it's often much better to use multiple instances of an effect - say two compressors in sequence - so that the signal gets gradually and gently thickened, without ever being really crushed in one go. It's a bit like gently rolling snow into a ball in your hands before squeezing, because as the more playful and mischievous amongst you will know, if you just grab a fistful of snow and close your hands, you'll get a formless mush! And you ain't gonna destroy many dancefloors or rule the airwaves with a formless mush!

Our parting advice is tried and tested, but particularly important when working like this: always make sure you keep an unmastered copy of the track, in case anybody wants to do some mastering on it later (or you want another crack yourself). Yes, in theory you can bounce another one, but you'd be amazed how easily (and quickly) essential files can get lost, even when you think you've done a complete backup of the project (also a good idea, of course!). So save yourself stress and hassle later by bouncing and saving now! cm

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Switch it up

We forge ahead with our exploration of Psycle, looking at how to change patterns and add variations

DOWNLOAD
Psycle at
psycle.pastnoteat.org

cmDVD
ON THE DVD
All the Psycle project files
referenced are in the
Tutorial Files folder

> Because nobody likes to hear the same musical pattern repeated ad infinitum without some sort of break, we're going to look at how to expand the length of our song and change the order of patterns.

As is the case in all trackers, Psycle's song sequencing information is a coupling of two numbers displayed down the left-hand side of the screen. The first number always runs sequentially and represents the song position. The second number determines the pattern that will be played at the corresponding position.

In Psycle, there are also a number of tools to the right of the sequencing data that enable the construction, re-arrangement and deletion of song sections. Most are fairly self-explanatory, though, so we'll just address the basic ones here.

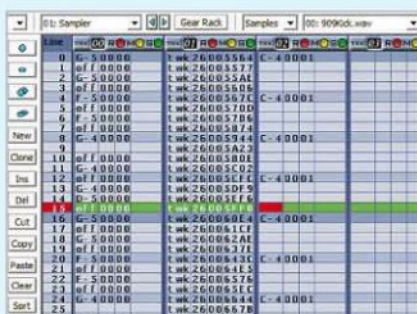
The most important buttons to get to grips with are the + and - icons at the very top, which increment or decrement the pattern number. These are used in conjunction with the **Length** arrows at the very bottom, which dictate the length of the sequence, enabling you to essentially create and arrange your song

without touching any of the other buttons.

Other buttons too handy not to use include **New** and **Clone**, the latter duplicating the contents of the current pattern and adjusting the sequence length accordingly all in one hit.

We're going to continue from where we left off last month, so load up your end file from last time. For those who bunked off to raid the tuck shop last lesson, don't worry - everything you need is in the **Totally Trackers** folder on the DVD, along with the Dominator VST synth, which you'll find in the **cm Studio**. Now let's begin...

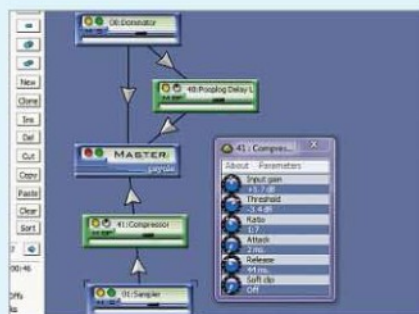
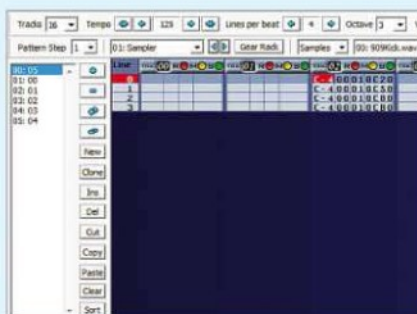
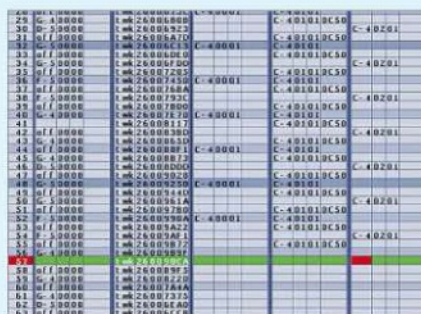
>Step by step Manipulating patterns in Psycle



1 > Picking up from last time (load **CM_trackers_tutorial_21f** if you weren't with us), let's create a drum track to sit alongside our hook - load the four samples in the **Totally Trackers** folder. Press the **Load** button at the top right of the screen and choose the first sample. Then click the 'right arrow' to move to the next slot and load the next one. Continue or load **CM_trackers_tutorial_22a**.

2 > Press **F2** to enter Machine mode, double-click the blank space and add a native Sampler machine. Connect it directly to the master - hold **Shift**, then click and drag. Press **F3** to switch back to the Pattern view. In the next free track, initiate Edit mode with the **Spacebar** and enter a four-to-the-floor **909Kick** pattern on middle C (**Q** on the keyboard). Continue or load **CM_trackers_tutorial_22b**.

3 > Now click **Clone**. Psycle automatically takes you to the duplicate pattern and position. On the next free track, add a rhythmic **808Hat** sound. Click **Clone** again and, on another track, add an offbeat 4/4 **OpenHat** into the mix. Play back the song to hear how it's starting to build up. Continue or load **CM_trackers_tutorial_22c**.



4 > Choose **Clone** twice more from the last position and add the **909Snare** sound, just as we have above. Go back to the previous position by clicking it in the sequencer data. Select all drum and hi-hat hits at line 56 and below, then hit **Delete**. This will give a nice drop before our snare kicks in. Continue or load **CM_trackers_tutorial_22d**.

5 > To add an intro, click the first positions and choose **Ins**. Select the newly inserted position and click the + icon until you reach a blank pattern. Right-click the pattern and choose **Pattern Properties**. Change the **Line Length** to 4. Now plumb in four **909Kick** sounds, one after another with increasing volume. Continue or load **CM_trackers_tutorial_22e**.

6 > Finally, switch back to the Machine view with **F2** and insert a compressor (we've gone for the Arguru Compressor) between the Sampler and the Master. Play with the **Ratio**, **Threshold** and **Input Gain** to beef up the drums. If your pattern data starts to look confusing, simply click **Sort** to make every pattern unique and sequential. **cm**

The harmonic series

We delve further into the fundamentals of harmony with a look at the intervals used in seventh and second chords

> Since **cm146**, we've been deriving some of the basic building blocks of harmony from the harmonic series. In other words, we've been largely bypassing the usual route into music theory that one would typically follow, yet still extracting the same material from the very nature of sound itself. So let's take this a stage further...

If you're familiar with the harmonic series, you'll be aware that the higher up you go, the closer the notes become. By last issue, we covered the fourth to sixth steps (or partials, as they're known) in the series, which create major and minor thirds, giving rise to most of the simple chords that have been in use for hundreds of years.

One small step...

Fig 1 shows the C major triad, which is made up of the fourth, fifth and sixth partials of a harmonic series based two octaves below middle C. If we add the seventh partial, we get a C7 chord. To be ruthlessly honest, though, this seventh partial isn't quite in tune with our modern 'equal temperament' chromatic tuning (it's actually a little flatter), but most ears will accept the B^b as being near enough to the mark. So not only do we have major and minor chords, but our basic dominant seventh, too. The next note up in the harmonic series will be another C, immediately above the B^b, which creates the interval that we call either a major second, a tone or a whole step. In fact, this interval also occurs between the next few notes (see **Fig 2** for an example of this). Again, being scrupulously honest, we have to admit that each interval gets a fraction smaller the higher



1: A C major triad and dominant seventh derived from the harmonic series **2:** The next few notes in the harmonic series are more or less a tone apart **3:** A crunchy second is sweetened by the inclusion of the rest of the chord notes **4:** Clusters built on several different scales: C wholetone, C major and C dorian

up you go, but with the exception of the F[♯], which is distinctly flat, the tuning is near enough for all but the purest of ears. We now have one of the essential building blocks of most commonly used scales, and the other - the interval of a minor second, semitone or half step - pops into existence the moment we go any higher. So with these two resources, we can construct any major, melodic minor or modal scale, and the harmonic minor only requires us to add the three-semitone minor third.

So what harmonic use are these major and minor seconds? Well, when we invert seventh chords, we readily see that the seventh and the

root are often voiced next to each other (see the boxout for a reminder about inversion and an example in notation). With a C7 chord, for instance, the B^b and C can cheerfully coexist as next-door neighbours. Try playing the B^b and C together on your MIDI controller with a basic piano patch loaded up. This will create a mild dissonance that's not totally unpleasant but still lacking a clear harmonic sense. However, by adding the E above and G below (see **Fig 3**), this effect is somehow softened from the original, slightly crunchy sound, almost as if they are 'explaining' to the ear why they're there.

Eerie does it

But can we construct harmonies out of seconds, rather than having them occur simply as by-products of chords built of thirds? Well, yes, this kind of chord is commonly called a 'cluster', and it may be loosely defined as a chord with the kind of note-density that you would normally expect in a scale. Alternatively, though, you could think of it as a scale with all of its adjacent notes sounding simultaneously. A well-known example is the unsettling monolith music in the Stanley Kubrick film *2001: A Space Odyssey*, which featured a vocal piece by György Ligeti.

However, unless you're after an outrageous effect, this kind of harmony needs to be handled sensitively, perhaps as a background pad. **Fig 4** shows how clusters might look in notation. The wholetone scale is harmonically a little ambivalent, but the other two examples would fit melodies that stick rigidly to their particular scale. If your keyboard skills don't stretch to playing such chords in real time, you might want to use some of those re-sampling skills that we covered in **cm147** to create some patches that will give you one-finger clusters. **cm**

Notes on inversion

The words 'invert' and 'inversion' have special meanings for musicians - an interval is inverted simply by transposing the lower note up an octave (or upper note down an octave), somewhat changing the character of the sound, though not dramatically, as it's not changing any of the actual notes used. So we see a major third - C to E - becomes a minor sixth, E to C. Likewise, a minor seventh becomes a major second.

A similar process is also used to invert

chords. For example, a chord such as C7 is normally played in 'root position' with C at the bottom, but with the C transposed up an octave, so that the E is now the lowest note, it becomes a "first inversion" chord; with G at the bottom, it becomes a second inversion; and with B^b as the lowest note, a third inversion. In chord symbol terms, inversions are usually notated with slashes, such as C7/E, C7/G and C7/B^b, with the plain old C7 suggesting root position.



Here, a third is inverted to become a sixth, a seventh to a second, and a C7 is made to jump through hoops

Paradoxical music



Our audio renegade sets himself the task of creating music based on contradiction, then invites you to try doing the same thing yourself

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.

> A paradox is defined as a "person, thing, or situation exhibiting an apparently contradictory nature". Paradoxes might seem rare, but in fact, the world is filled with them! We're surrounded by the paradox of technology, in which the same shiny new devices that simplify life (by providing increased functionality) also complicate it (by being hard to learn and use). As designers (of sound), we all live with the classic design paradox 'less is more', which flies in the face of its non-paradoxical cousin, 'bigger is better'. Physical reality itself is built on the paradox of wave-particle duality, with all energy/mass behaving like both waves and particles, a glaring (apparent) contradiction.

Even our personal, emotional lives are thrumming with paradoxes: love-hate relationships; Eros-thanatos, or the urge to create and destroy; ambition running alongside self-sabotage; the ability to do good coupled with the power to do great harm; and perhaps the grandest of all human paradoxes - spending a lifetime building grandiose personal edifices (career, relationships, family) that will all eventually come tumbling gloriously down. Yippee-ki-yay, mother****er!

Doing a 180

You probably think of paradoxes as obstacles or stumbling blocks - things that confuse you, hinder your progress and prevent you realising your goals. But I encourage you to do an about-face and come to see paradoxes as points of great potential energy and inspiration - try to view

them as windows that open out to exotically beautiful uncharted landscapes. These days, when I run into a paradox, I feel like I'm getting close to 'the truth' (whatever that is). And of course, as soon as I try to grasp/hold onto it... it all falls apart, as befits its paradoxical soul.

Musical paradoxes

There are all kinds of paradoxes that arise in music, such as the parameter of pitch. For example, a note may sound high and low at the same time; a melody can be simultaneously in key and keyless, tonal and atonal, ordered and random; an interval can be both consonant and dissonant; and a chord progression can very well exhibit directed directionlessness.

Then moving onto duration/rhythm, there are passages that are, at the same time, slow and fast; grooveless grooves; sequences of ungridded (meter-less, tempo-less) events; and there's time itself speeding up, slowing down or even stopping during the rendition of a piece.

Volume-wise, a passage can sometimes be both loud and soft, or near and far. In the realm of timbre, a piece can be both beautiful and ugly, mellow and edgy, or gentle and harsh. Randomness is closely related to paradox, too, as a kernel of order underlies all randomly generated music. Likewise, a kernel of randomness is present in even the most exquisitely ordered music.

Anyway, is any of this of any real use to you as a composer? Well, as with all music theory/conceptualisation, it comes down to whether it helps you make more compelling music. If not, drop it mercilessly. However, if it does manage to infuse your work with new vitality, then keep at it, dig deeper and dare to go where no musical paradox explorer has gone before!

"I encourage you to do an about-face and come to see paradoxes as points of great potential energy and inspiration"

Compositional koans

A koan is a kind of riddle that can't be solved by rationality. Here's one of my favourites: "When you can do nothing, what can you do?" At first glance, it might seem like a trite, silly question. But if you spend some time thinking about it, it gets very deep indeed.

Koans are often paradoxical, which is why Zen Buddhists use them to transcend logic and achieve satori (enlightenment). Full-on satori may or may not be of interest to you,

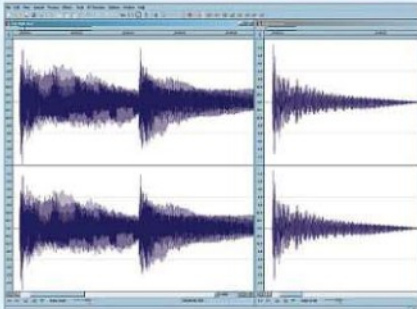
but musical satori surely is. To help you move towards it, I offer you ten compositional koans. Pick one that resonates and hang on for as long as it takes to 'solve' it - an hour, a day, a month, year - then move on.

Is silence a presence or an absence? What kind of music would a computer compose for another computer? What kind of music would you compose if you knew that no one (except you) was ever going to hear it? Can

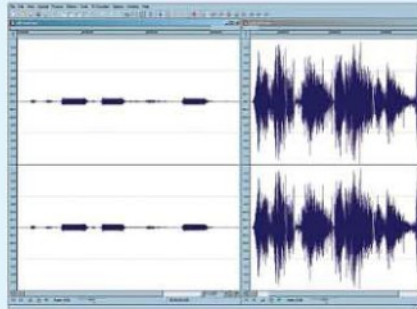
there be music without sound? Can there be sound without music? Is musical emotion in the music or in the listener? Is it possible to hear a piece of music as you see a painting - in its entirety, or all at once? Is a song a living organism, and does it have independent existence? What is the sound of gridless music, with no meter, tempo, key, or scale? If you deleted all the music you ever composed, would you be diminished?

>Step by step

Paradoxical music



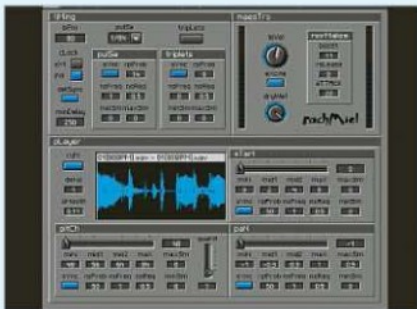
1 > To demonstrate paradox in the realm of pitch, I choose acoustic instruments capable of sounding low and high at the same time. Low steel-string guitar notes sound both low (fundamental frequency) and high (strong upper harmonics/partial): **Low-high.wav**. Whereas, high plucked contrabass notes sound high (fundamental) and low (contrabass body and string resonance): **High-low.wav**.



2 > I use vocal sounds to demonstrate volume paradoxes. These birthing screams sound loud, though their amplitude is actually very low (peaking at -24dB, about 1/16th of the perceived 'full' OdB volume): **Soft-loud.wav**. This whisper, though high in amplitude (peaking at OdB), also sounds soft, due to the low volume we associate with whispering: **Loud-soft.wav**.



3 > Onto the parameter of duration/rhythm. To demonstrate the paradox of fast slowness, I use one of my Reaktor grain re/de-samplers, mr pink reMix, to fragment/granularise a slow legato passage (processed soprano voice), thereby imbuing it with a feeling of speed. Here's the original passage, followed by five mr pink'd variants: **Slow-fast.wav**.



4 > One of my favourite rhythmic paradoxes is what I call 'free gruuv': a gridless (no fixed pulse, beats, meter, tempo, etc) sequence of percussive events that somehow manages to sound groove-like. If I've succeeded, this miniature free-gruuv love song will come across as being gridless (free) and gridded (gruuv): **Free-gruuv.wav**.



5 > Randomisation is rich in paradox, but how does the human brain, which is so drawn towards order, process music that relies heavily on chaos? Here's an excerpt from an extended melody in which all pitches, rhythms and durations are generated by guided randomisation: **Random-ordered.wav**. Observe how your brain imposes some sort of order (or melodic sense) on the chaos.



6 > The ugly/beautiful paradox interests me a great deal. 'Noises' most people would call harsh and ugly often sound gorgeous to me. I've done plenty of composing in this realm over the last decade (ever since I discovered Reaktor), but this piece has got to be one of my most extreme ugly-meets-beautiful examples: **Bellycheer.wav**. Enjoy (and get ready to protect your ears)!

Experimentalists' corner: Embrace paradox!

Rational thought is a wondrous tool. Without it, we'd be just another tasty link in the food chain. But rationality has its limits. For example, imagine a perfectly rational Jimi Hendrix, Janis Joplin or Led Zeppelin: a whole lotta bor-ing! When it comes to inspired activities - music, art, invention - one needs to go beyond the rational. And that's where paradox comes in, as the ultimate expression of irrationality.

In the previous boxout, I presented you with a set of compositional koans to get your paradoxical songwriting juices flowing. Now I'm going a step further and daring to cross the music/life border by encouraging you to embrace paradox in both your musical and non-musical life.

It's common for musicians to lead an emotional double life. Musically they flourish, while their non-musical lives

remain a bit of a mess. If that rings a bell, try applying the freedom and joy you feel in your music to your 'real' life. No one can tell you exactly how to do this, but a good start is to embrace paradox (ie, contradiction, conflict and so on) in whatever form it happens to present itself - as you would resolve a tricky phrase in a new song, you can do likewise with a tricky phase in a new relationship. 'As in music, so in life.' cm

Building backwards

Exploring the use of the classic reverberated reverse sound and expanding on it to create exciting musical build-ups



> It has been over 20 years since my first professional studio session. At the time, all but the wealthiest musicians were limited primarily to basic home recording equipment. My previous album had been tracked on a Tascam Porta 05 tape deck, for example, so my brain was buzzing with the possibilities of using a facility armed with a half-inch reel-to-reel machine, a 'proper' mixing desk and a rack full of effects devices.

Little did I know that mishaps were just as likely to happen in a commercial setting as they

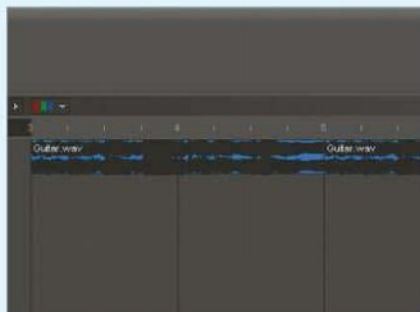
were at home. Such an occurrence took place late in the game. I wanted to sweeten the intro of my song by adding something to build up to the moment when the first vocal part kicked in. However, we were fresh out of tracks, having layered and double-tracked too liberally, so we had to record on the vocal track itself. Big mistake. The engineer missed the mark and chopped off the first half of the opening salvo!

I was mortified. The vocals represented the most difficult and costly sessions, so to have to recapture a similar performance was out of the

question. Fortunately, the engineer in question had a very clear idea to try to save things. He flipped the tape reel, shuttled to the reversed opening lyric and slapped on some thick reverb.

When he flipped the tape back over, we had a reverse sweep that hid the error beautifully. As an added benefit, it sounded even better than the build-up I had originally planned for the track. I had, of course, heard this effect numerous times before that day, but I'd no idea how it had been achieved. Nowadays it's a technique that I turn to again and again.

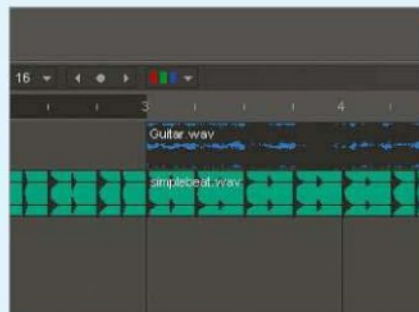
>Step by step Reverse reverb build-up



1 > The sound of a reversed cymbal hit has become something of a cliché in recent times, but we can create the same sort of sweeping build-up with some reversed effects. Load the **Guitar.wav** sample into your host, starting at bar 3, and duplicate it. The sample is a little longer than two bars, so you might need to adjust the tail end to compensate.



2 > Here, I've got a basic drum machine pattern underpinning the recording. You can use the same pattern, **Simplebeat.wav**, which you'll find on this month's **cm DVD**, or make one of your own. Our track is set to 4/4 time and a rather pedestrian 120bpm. Most DAWs default to these settings upon start-up, but adjust them to match if yours doesn't.



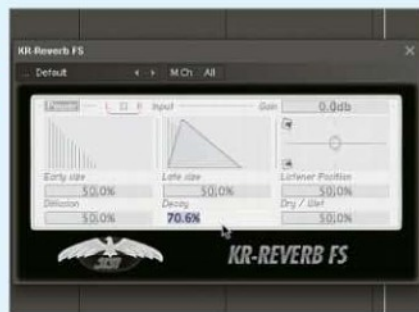
3 > Have a listen to the project and note that the guitar bursts onto the scene in a rather abrupt manner. You may need to adjust the relative mix between the two parts. We can use a build-up to add some tension and drama. We'll start with the easiest answer, so call up a reverb plug-in with a long decay.



4 > As you can see, I'm using the free KR-Reverb FS. It provides a decent sound and enough malleability to tailor the effect to suit my needs. It should be noted that I put the reverb on a channel insert, rather than on an auxiliary send, to keep things simple. By default, the reverb **Decay** isn't nearly long enough, so let's stretch that out to around **78%** or so.



5 > That'll work quite nicely. Of course, we're still working in the original direction at the moment. To generate a reverse reverb, we need to flip our sample around. That's easily done within most DAWs. I'm using energyXT2, where the task is accomplished by right-clicking on the file and selecting **Process»Reverse**.



6 > Take a listen to your reversed sound with the reverb applied. You'll need to separate the reversed clip from the copy that follows it, in order to let the reverb tail fade into silence. The reverb lasts a bit too long. We're only aiming for two bars of reverb, so try reducing the **Decay** to **70%**.

BUSTING JARGON

MULTITAP DELAY

A multitap delay is like any other delay effect, except that it injects its repeats (aka, 'taps') into the signal path at various points before the total delay time is achieved. This provides a number of distinct, repeated echoes that can be dealt with individually - it's this complexity that makes a multitap delay useful as a build-up if you flip the signal front-to-back.

RECOMMENDED LISTENING

THE BEATLES, *RAIN*

This classic B-side contains one of the first backwards recordings. Both John Lennon and George Martin claim credit for the idea of flipping Lennon's vocal. Lennon says it was the result of accidentally putting the tape on backwards, while Martin insists it was deliberate. No matter - the effect was profound and was used on the upcoming *Revolver* LP.

PRO TIPS

TOO MUCH OF A GOOD THING

As I've already said in the main text, I've turned to reverse effects again and again. In fact, it's all too easy to abuse an effect that sounds this cool. Therefore, you'll probably want to show some restraint, as it's a great gimmick that can add a bit of excitement and drama when used once or twice in a track; but it will lose its impact if used on every measure.

BACKTRACKING

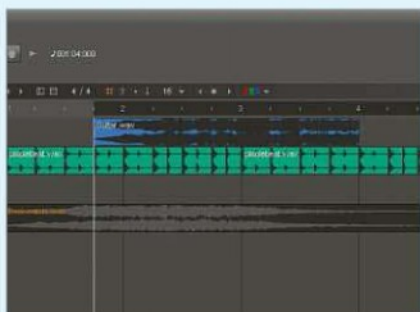
There's fun to be had with reversed recordings, too. I know of one musician who flipped his vocal recording over and memorised the whole thing in reverse, then sang it that way on the flipped tape - actually, Thom Yorke is reported to have used a similar technique on the Radiohead track, *Like Spinning Plates*. When the tape was returned to the proper side, the words were all the right way round, but sung backwards, if you get my meaning! Try it out to hear the effect for yourself.

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

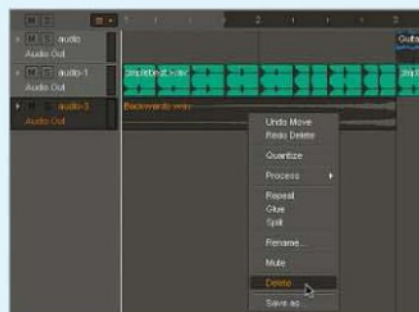
acclaimed synths, samplers and drum machines, not to mention the **cm** Studio. On rare occasions, he manages to find time to make records for Beta-lactam Ring Records under the name Christus and the Cosmonauts.



7 > Now for the tricky stuff. Solo your guitar/reverb track and render it to your hard drive (or straight to another track). Make sure you render only the guitar and two bars of reverb tail. Import it back onto a new audio track starting at bar 1, beat 1. Next, use your DAW's reverse process to flip the rendered track around.



8 > Delete your reverb from the guitar channel, then flip the original guitar recording the right way around and drag it back to the start of bar 3. You can scoot the duplicate back to join with the first, too. Now, crop the new track at bar 3, beat 1, so that it ends just as our original guitar part begins, as shown above.



9 > It might take a few tries with varying wet/dry ratios of the effect to achieve exactly the sound you want. Take a listen to our version, **Buildup1.wav**, to hear what it can sound like, which you'll again find on the **cm** DVD. Now let's take our experiments a step further. **Delete** the reversed reverb sound.



10 > Repeat some of the processes: reverse the guitar track yet again and drag it across to provide some space between it and any duplicates. Now, turn to your channel inserts. Instead of reverb, let's try using a bit of echo. I'm going to use one of my current favourites, KR-Delay CM, which is part of the **cm** Studio on the disc.



11 > By default, KR-Delay CM doesn't do a thing. We've got to dial in some settings. The first thing is to engage the **Sync** function, so that our echoes lock to the project's tempo. Try different **Delay** times for each channel and **Pan** 'em hard left and right. Call up enough **Feedback** to echo across multiple bars.



12 > Finally, repeat the processes we performed to finalise our reverse reverb build-up: flip the files the right way around and scoot them to their proper positions. Ditch the delay plug-in and have a listen. Now you can try combinations of both (or other) plug-ins for more cool reversed effects. **cm**

> **Githead are a high-brow supergroup, comprising some of the UK art-house music scene's biggest players. Colin Newman has spent the last three decades as part of art-rock outfit Wire, during which time he's released dozens of cutting-edge tracks. Robin Rimbaud, aka Scanner, is another artist well known for his experimental output, from early compositions based on often-scary phone conversations, up to the recent scoring of the 1921 film, *Dr Jekyll and Mr Hyde*.**

Robin and Colin are joined by Colin's wife and Minimal Compact member Malka Spigel, and drummer Max Franken. Considering their combined commitments to other projects, the fact that Githead exists at all is somewhat surprising - and all the more remarkable, in fact, given that they only came together originally for one night! Robin takes up the story...

"I tend to embrace projects for the dynamic or the excitement," he begins. "Colin and his wife Malka live in the same area as my family, so we became friends around 20 years ago. They both run the Swim record label and were planning a tenth anniversary celebration when I was round their place. They said it would be great for me to get involved, but I hadn't actually released anything on the label."

"Malka and I wanted to do something for the night, something new," adds Colin. "One thing we had never done before - rather incredibly - was to actually be in a rock band together. Especially considering I'm a guitarist and Malka is a bass player. To cut a long story short, Robin turned up at our studio, we fired up a drum loop and more or less started playing. What happened was remarkable. Within the space of minutes, we actually had our first piece, *Reset*, the opening track of our debut EP. It simply worked and we knew instinctively that this was more than a one-off fluke, as more music followed in quick succession. Githead had already accumulated half a dozen or more songs by the time I headed off for a Japanese tour with Wire less than a month later!"

Githead have released three albums to date and toured extensively. It's a very different life for Robin, especially. This is a man usually hunched over a laptop breaking new ground with his solo output. Playing guitar? In a band?!

"To put it bluntly, I have issues," he laughs. "But it's working with friends - family almost - so we can have great fights and make up afterwards. You're meant to record an album and then tour to support it, playing the same gigs over and over. I've never done that in my life and find it conceptually to be a bizarre idea. It's like *Groundhog Day*! So we only do it twice a year for two weeks, and we all have other jobs. I have a full time job being Mr Scanner, so it's hard to take on another role, but I do enjoy the immersion in something else that I'm not totally responsible for. And what's great is that, because Colin and Malka are married, they always blame each other for mistakes, even if it's me who messed up! I let them carry on - it's fantastic!"

How does a typical Githead track come together, then?

"It's usually me with a cyclical guitar riff," says Robin. "Malka joins in with the bass, Colin then joins in and suddenly it locks into this groove. In the studio here, we use a drum machine or loop, but we then record in our studio in Rotterdam and Max the drummer comes in from



GITHEAD



Githead, clockwise from top left:
Max Franken, Robin Rimbaud,
Malka Spigel and Colin Newman



They only got together for a one-off gig but have since released three albums. We uncover the science behind this most intriguing band



Amsterdam. It ends up being a combination of jams that turn into full songs or us just improvising, which we cut up in Pro Tools. Colin is very good at using Pro Tools to cut up audio and make tracks out of scratches and things."

Guitar tech

"In fact, Pro Tools is involved from the first second of any new Githead track," adds Colin. "The band has a way of being able to build a piece very quickly from a couple of simple ideas to something with a finished structure. The whole piece can be there before anyone's really thought about sounds, so I always record everything: pure DI, as well as any effects and amps that anyone has got going on. It gives me maximum flexibility to build up a sound picture later on. It's not really in the culture of Githead to be attached to individual sounds, but the way the parts fit together is paramount."

"Obviously, if you're doing stuff with guitars," he continues, "especially when you have them recorded as pure DI, then amp simulators are pretty essential. My favourite at the moment is Pod Farm. I've got all the tone sets and it's great for really thick, chunky sounds. To be honest, though, I use every guitar amp/pedal sim I can get my hands on, including GTR Solo, Guitar Rig, AmpliTube, Eleven and SansAmp distortion, plus I'm running stuff through physical pedals, too."

"For the rest," he concludes, "there are some plug-ins I always use, like Renaissance Bass. I'm not the first and won't be the last to say that Waves set a gold standard, and I also love Doubler, Renaissance Axx and, of course, the EQ. Otherwise, I use very little reverb but do use delay – usually the Digidesign one, as I know it very well. I also like the TAL-Dub delay, which I use under a wrapper (that TAL stuff is really quirky and nice – and free!). DUY Shape can be a quick and easy fix on drums, and Vocalign is great for the way I like to do vocals – tracked but accurate. But I think that, beyond the plug-ins,

Live at the BBC

Playing live at the BBC is every band's dream, but Githead's big session almost ended in disaster...

"We did a live session for BBC Radio 6," Robin explains. "It went really well, considering we didn't do any rehearsals. We got lost on the way, so didn't have much time to set up, so it was very rough compared to the studio work. Usually when you're playing live, you get feedback from an audience, but with a radio session, you've got one bloke: the presenter. Mark Riley is great, but he was just nodding along, so we weren't getting feedback on the performance. Also, acoustically, we were all wearing headphones and we had all these tiny amps that sounded great through the headphones but really tinny otherwise. At one point Colin took his headphones off, because he couldn't hear his guitar and realised it wasn't plugged into his amp! So when you hear the session, everything sounds really boxy. It's quite bizarre!"



Githead in the round, joined by engineer Frank Lievaart in the bottom shot



the most remarkable thing about Pro Tools is the way it incorporates so much power in such an unassuming way. Elements like Beat Detective and Liquid Audio provide fantastic tools for me in a world where the performances on the recordings are all about the energy of quickly assembling an idea, rather than being honed to perfection over hours of rehearsal."

The Scanner approach

The Githead compositional process is very different from Robin's approach to his solo performances as Scanner, as he reveals...

"The standard things I use are Logic and Live. With Live, I put ideas together. What I like about Logic is its full sound - Live has been a bit thin in the past, so I've combined the two, working on ideas in Live and bouncing them into Logic.

"The standard plug-ins I always return to are the PSP things, like VintageWarmer," he continues. "I use it on nearly everything I do, it's so simple to use - very light compression and it just adds a gloss to the system in a sense. I use all of the NI stuff as well. Kontakt I've used a lot over the years - the quality is supreme. There's one thing in Reaktor that I always use, which is this thing I adapted so I could freeze-frame audio and go through it part by part. It allows you to take any melody and open it up, like putting it on a huge rubber band - great for taking one little sound and granularising it."

Colin adds some interesting thoughts on the development of technology as a whole, too. It seems there's a lot more to be done...

"So many things have become possible and, more importantly, have become possible at an affordable price point since I made the first Wire album in 1977," he says. "However, one thing that hasn't changed much is the 'bulk' involved with the ever popular guitar/bass/drums-type instrumentation. It's not just the instruments but the amplifiers, cables, jack plugs and sockets that all add up to stuff that needs to be carted round, dealt with and fallen over!

"It's also really boring to operate a computer with a guitar round your neck," he continues, "especially if you have to dive around behind the mixing board or computer to find a dodgy cable. Let's start by having wireless everything, amps that sound huge and fit in a small suitcase, and drums that sound amazing and pack into a small backpack! On a more prosaic level, I wish someone would make a simple, cheap bit of software that would allow me to use the huge number of free and cheap plug-ins available for PC in Pro Tools on my Mac!"

Getting back to Githead, Robin is very much enjoying his 'other life', particularly the fact that it's opened up a whole new audience to him.

"It's been five years and so far it's worked," he says. "We believe the work is good and we had

"So many things have become possible, and at an affordable price, since I made the first Wire album in 1977"

fantastic reviews for the latest album, *Landing*, but it's all within a very narrow area - a certain type of music for a certain type of audience. But I've never known my audience before. Also, what's great with working in this rock 'n' roll environment is the physicality of it - striking a chord and having it resound around the hall."

More, more, a lot more

When it comes to the future of the band, as you'd expect with Robin and Colin involved, it's going to be anything but conventional...

"We'll take the same aesthetic, the same feel and approach, and just build it up"

"There will be some gigs in March and possibly a US trip later in the year, but we're also continuing to work on different approaches to what we do," says Colin. "Githead has always had a strong 'art' dimension, not just relating to the strong visual iconography around the band, but also to the way we ourselves see what we do. Our biggest supporters tend to come from the world of fine arts, rather than pop and rock, and we actually don't see anything strange in that. So this year, we've taken the decision to find ways to overtly court collaboration with different art forms and different ways in which our work may be contextualised."

"We did a thing called ArtGit, where we took it to an arty level, making tracks 12 minutes long," adds Robin. "This year, we've decided we're going to make it more like that. We'll take the same aesthetic, the same feel and approach, and just build it up to see how far we can take it."

As well as Githead, Colin and Robin will have a busy 2010. For Robin, there are as many very different and eclectic projects in the pipeline...

"There's *Falling Forward*, a short film opening at Panorama in Le Fresnoy, France, where I'm Professor Scanner," he says. "I'll be touring the *Dr Jekyll & Mr Hyde* soundtrack, and then there's *Monolake Vs Scanner*, a very special release in that every listener will hear a unique version of this recording!"

"I'm also doing some ballet soundtracks for Royal Ballet Flanders and Dutch National Ballet, a song album with singer Sally Doherty, another with Erik Karols from Cirque du Soleil, a remix of Ben Frost, plus my musical *Kirikou et Karaba* will tour around France again."

Colin, meanwhile, is starting work on the next Wire album...

"We were meant to have started in Rotterdam already, but the best laid plans..." he smiles.

"Wire are lined up for Primavera this spring - a very big Spanish Festival - so we'll have to prepare for that. It's also likely I'll take a collaboration started last year with Chicago post-rockers Tortoise onto a live stage and continue my 'festival curation' career. I've also got the option to have access to the multitracks of my first solo album (*A-Z*), which I could remix. Otherwise, stuff just pops up. Without doubt, the most notable thing that will happen this year is something I currently know nothing about!" **cm**

Scanner vs Githead

Having fully immersed himself in the rock 'n' roll of Githead, Robin, you won't be surprised to hear, is very much on the case when it comes to remixing the resultant material as Scanner.

"Yeah, I'm doing that now," he says. "When you have a word and a voice, it takes it to a certain place, but most of my work is instrumental, so I'm interested in taking it to a new place. A friend of mine, DJ Spooky from America, asked to remix the album, so I'm collecting the stems for him. I'll also do some very open-plan, wild versions. It'll be great because some of the tracks have great rhythm sections. I'd like to tear them apart, that's what I really want to do."

"The good thing about the sound is that it's kind of minimalist Kraut-rock, but being so minimal means there's space to work in around it. So the idea of remixing it to start with is great. I'll also work with filmmakers to visualise the sound. That would be very rewarding and I like the idea of opening it up this year."

Robin's selected gear

Apple MacBook Pro
Apple Logic Pro 9
Ableton Live 8
Audio Damage Automaton
Camel Audio CamelSpace
Cycling '74 Pluggo
GForce ImpOscar, M-Tron Pro,
Minimonsta and Oddity
Line 6 Variax guitar
NI Battery 3, Kontakt 3 and Reaktor
Ohm Force Hematohm, Mobilohm,
OhmBoyz, Ohmicide, Predatotohm
Sugar Bytes Effectrix
Togu Audio Line TAL-Dub II
Tannoy monitors

Colin's selected plug-ins

Digidesign Eleven/Pro Tools plug-ins
DUY Shape
IK Multimedia AmpliTube
Line 6 Pod Farm
Native Instruments Guitar Rig
SansAmp PSA-1 distortion
Synchro Arts Vocalign
Togu Audio Line TAL-Dub II
Waves GTR Solo, Renaissance Bass,
Renaissance Axx, Doubler and EQ

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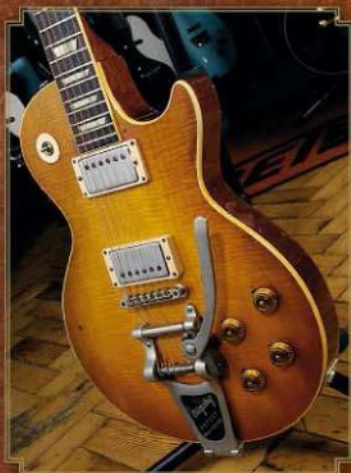
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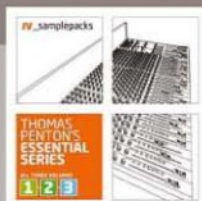


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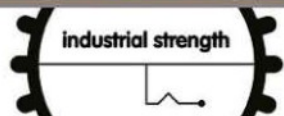
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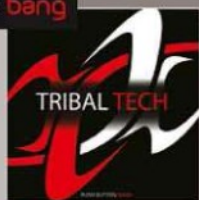


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90_ MAGIX SAMPLITUDE 11 PRO

We crank it up to 11 with this updated DAW



92_ U-HE ACE

A no-compromise approach to semimodular synthesis from the same stable as Zebra and Uhbik



96_ LEXICON PCM NATIVE REVERB PLUG-IN BUNDLE

The daddies of digital reverb bring their algorithms right to your DAW

This month

- 90_ Magix
 Samplitude 11 Pro
- 92_ u-he ACE
- 94_ Universal Audio
 Trident A-Range EQ
- 96_ Lexicon
 PCM Native Reverb
 Plug-in Bundle
- 98_ Softube
 Passive-Active Pack
- 100_ Cableguys
 FilterShaper 2
- 101_ 112dB Redline Preamp
- 102_ Progress Audio Kinesis
- 106_ Mini Reviews
- 110_ **cm** Recommends

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What the ratings mean

- 1-4_ A seriously flawed product that should be avoided
- 5_ This product's problems outweigh its merits
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- 8_ Very good. A well-conceived and executed product.
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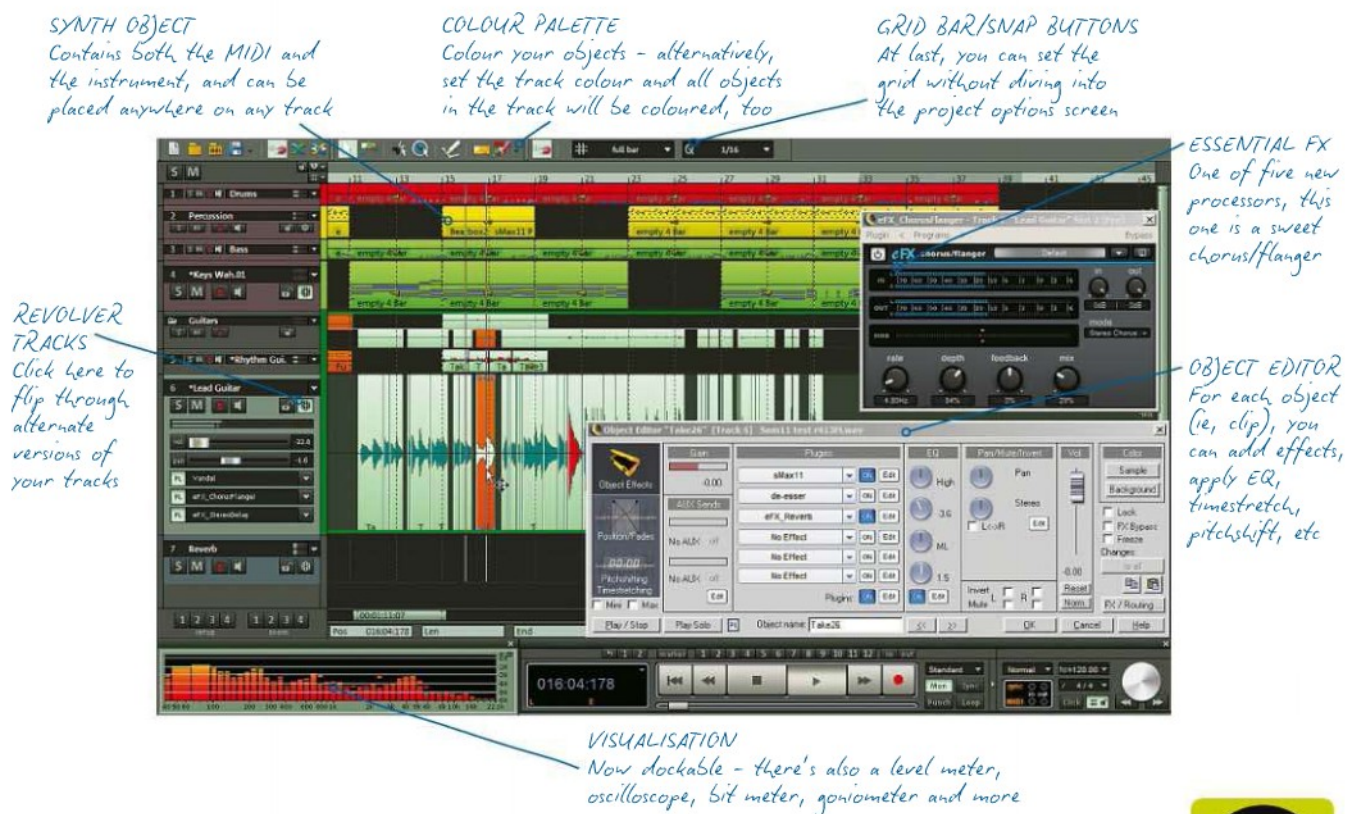
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In the opinion of our editor, the best product reviewed in the magazine this month



Magix PC Samplitude 11 Pro £725

Reaching version 11 is no mean feat, but are we in for another Magix moment or has Samplitude already peaked?

System requirements

PC P4/Athlon CPU, 512MB RAM,
5.5GB hard drive space (for full install),
Windows XP/Vista/7

> Samplitude is no newcomer to the great DAW race, having begun life in the early 90s as a sample editor for the good old Commodore Amiga. Its modern incarnation is a full-on DAW, offering recording, editing and playback of audio and MIDI; virtual instruments and effects; numerous graphic analysers; and much more. We're looking at the Pro version here, which includes such extras as the Analog Modeling Suite, Vandal amp sim and Revolver tracks.

Samplitude's plug-ins have dramatically swelled in number, so let's take a look at what's new. The crash-happy Independence LE ROMpler from v10 is out, thank goodness, but the same workstation-style sounds are here in the Vita player, which we've seen before in Magix Music Maker. Vita is easy to use, offering controls for amplitude and filter envelopes, easy delay and reverb, etc. There's no multi-out, though, limiting the use of the drum kits.

Samplitude has new 'Synth Objects', which are clips that also contain the instrument itself. There are four instruments here, and again, we've seen them before in Music Maker. Not impressing us much are the cheap and nasty

LIVID virtual drummer and the cheesy Drum & Bass 'beats 'n' basslines' module that looks like a 90s eJay escapee. The Atmosphere generator' is also present, complete with the hilarious Hiphop mode, with its Gunfight parameter! Unsurprisingly, these Mickey Mouse efforts seem rather out of place in Samplitude.

Beat dis

BeatBox 2 is the fourth Synth Object instrument and is far more agreeable. It's a step-sequencing drum machine with shuffle, 14 effects, and neat automation lanes. Each of its 16 slots can trigger a sample, a synthesised drum or a mix thereof. There are three types of synthesis and some terrific noises can be had. Sadly, there's no synth editing panel - instead, you assign a parameter to one of the six macro knobs, but with there being way more than six synth parameters, it's like performing keyhole synth surgery.

Also new is Revolva 2, a wicked soft synth that we felt was too full-on for Music Maker, but that suits Samplitude. It's got twin oscillators, noise generator, dual LFOs, step sequencer, mod matrix, dual effects and 150 or so presets. There



“These Mickey Mouse efforts seem rather out of place”

are a few rough edges, though: it clicks on new notes if you exceed the voice limit, for instance.

Another of our favourites from Music Maker made the transition – Robota is another drum machine, with an emphasis on synthesis. Raw waveforms can be mashed up with frequency/ring modulation, rectification, bit-depth and sample-rate reduction, filtering (with a zingin' comb mode) and tube saturation/compression. Meaty kicks, speaker-shredding zaps, harsh dissonances and more are all fair game.

Essentially quite good

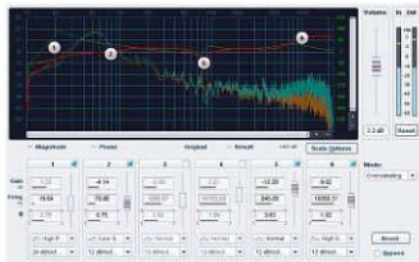
The essentialFX series is another Music Maker convert. StereoDelay Compressor, Phaser and Reverb can't compete with existing Samplitude plug-ins, but ChorusFlanger is a real gem, with its splendidly lush, shimmering chorus.

As for genuinely new plug-ins, the big one has to be the Vandal amp sim – see boxout. Elsewhere, there's the sMax11 brickwall limiter, which has four modes, a release control and simple gain/ceiling sliders. It does a great job, although it's not on par with the best third-party efforts. There's a new EQ, too, called EQ116. It offers six bands, with high-/low-pass, peak and shelf for each; normal, oversampling and linear phase modes; an analyser; and a phase plot.

It's not all new plug-ins, of course. A key new feature is Revolver Tracks, enabling you to make alternate versions of any track's contents and flip between them at will. It's akin to A/B'ing presets on a plug-in, except you're switching between track contents instead, making it ideal for trying out arrangements, alternate edits, etc.

Also new are a velocity-manipulating MIDI tool/plug-in and a groove system. Grooves can be grabbed from MIDI, or from audio using the Audio Quantization Wizard, which as with v10, can be quite hit and miss (mainly the latter). While we're on the topic of quantisation, Samplitude finally has a button on the toolbar for changing the snap grid. Further interface tweaks are a dockable interface system, a nicer skin and easy object/track colouring. You can browse for loops in the Manager and preview them in sync, too (but with certain audio modes, it was consistently *off* the beat – ouch).

A few instabilities reared their heads during our test sessions. The system would often freeze when saving projects using Vita with certain



The all-new EQ116 equaliser. Note the green curve – this shows how the phase response becomes twisted



Play merry hell with your guitar tracks by slapping Vandal on them

Vandalised

It's de rigueur for today's DAWs to offer guitar and bass amp simulation, and Magix have followed suit with Vandal. Operation is simple, with the main amp section offering gain and EQ knobs as well as a Voicing section that's like a parametric cut or boost. There's a choice of Classic, British and Modern amp styles (each with Clean, Crunch and Lead channels and Class A or Class AB power amp), as well as a bass amp.

The mic section enables you to select a speaker and enclosure, and position and mix two mics (there's a condenser and two dynamics). Stomp FX include four overdrives, chorus, phaser and wah wah. There's no

compressor pedal, sadly, but there are two 'rack' effects on the output, with compression, delay, modulation and reverb, the latter being very sweet.

Sonically, Vandal really delivers, with everything from modern rectified growling distortions to glistening clean tones being adeptly handled. While you don't get zillions of models to toy with, there's definitely no lack of variety, and the slick, guitarist-friendly interface makes it easy to steer the tone as you wish. Vandal will also be made available as a VST plug-in at the end of March, priced £150, and we'll be covering it in a dedicated review as soon as it's ready to rock.

audio modes engaged, and also when enabling a laptop's onboard audio. Magix are aware of the issues, though, and are working to solve them.

The good and the bad

And that's about it. Existing features such as the excellent object-based editing system, superb effects (am-track, VariVerb Pro, Room Simulator, etc), Melodyne-esque Elastic Audio, per-clip freezing and extensive visualisation options are all pluses. As for downers, the biggest has to be the busy, fiddly GUI with its intimidating menus, endless options, irritating inconsistencies and odd omissions (proper transpose command, duplicate track function, etc). It'd be great if Magix overhauled the interface and plug-ins to give them all the pro look of am-track, Vandal, Revolver 2, etc. Perhaps instead of Samplitude 12, a Cubase SX-style 'reset and refresh' is in order.

Overall, this one feels like a slightly lazy update, what with the plethora of plug-ins appropriated from Music Maker; yet for all its quirks, there's no denying that Samplitude remains a very powerful DAW. **cm**

Contact samplitude@magix.net
Web www.samplitude.com
Info Samplitude 11, £365

Alternatively

Cakewalk Sonar 8.5
cm146 >> 10/10 >> £435
Another PC-only powerhouse

Steinberg Cubase 5
cm137 >> 9/10 >> £499
A great all-round DAW, although its effects aren't as good as Sam's

Verdict

For Great new Vandal amp sim
essentialFX ChorusFlanger is tasty
Object-oriented editing
Deep and powerful featureset
Excellent built-in effects
Some worthy new instruments...

Against ...and some questionable ones
Inconsistent, sometimes confusing GUI
A few worrying instabilities

It doesn't feel as focused as some DAWs, but Samplitude remains strong in terms of power, flexibility and sound quality

7/10



u-he ACE

PC MAC

€69



Urs Heckmann's latest soft synth is a semi-modular monster, but does it really offer anything we haven't seen before?

System requirements

PC SSE2-capable CPU, VST host

Mac PowerPC/Intel CPU, OS X 10.4, VST/AU/RTAS host

> Here at **cm**, we see so many soft synths that it's sometimes hard for us to get excited by them. But u-he's new ACE - or Any Cable Everywhere - has managed to get a serious rise out of us. Not only is it born of excellent stock (u-he's Zebra 2 synth and Uhbik effects bundle both earned 10/10 reviews in **cm**), but it uses an approach that's actually quite uncommon in soft synths: it's a semi-modular design that doesn't differentiate between audio signals and modulation sources.

ACE offers a fairly standard set of core modules: two oscillators, two LFOs, two filters, two ADSR envelope generators, ramp generator, and all the requisite mixer-type modules. You'll also find a 'circuit bending' section, a mapping generator, an oscilloscope and built-in effects.

Modules are connected together using virtual patch cords, but even with none plugged in, you have a usable synth, because ACE's modules are pre-routed in a standard configuration. Using the patch cables is much more fun, though, as it's far more rewarding to craft your own patches. In the spirit of the Any Cable Everywhere philosophy, module

demarcation only really refers to the function each unit is streamlined towards - you can use an LFO to generate an audio signal just as readily as a VCO, for example. Just like a hardware modular synth, any of ACE's module outputs - whether it bears 'audio' from an oscillator or a 'control' signal from an envelope - can be patched into any module input.

In and out

Most modules have several inputs and one or two outputs, and you can run as many cables as you like from each output. For example, an ADSR envelope module with decay and sustain set low could control the cutoff and resonance of a filter, giving a plucked timbre. You could take another output from that same ADSR generator and patch it to the mix control of the noise generator, for a more aggressive transient. It's quite a cool sound already and that's using only one module output - ACE has 24!

Further routing flexibility can be had with the two Multiple modules, which can mix up to four signals, and by using the Mod input, can provide crossfading between signals, as well as ring and

“Attaining the sonic charm of vintage hardware has become a holy grail for soft synth developers”

amplitude modulation. The latter options are useful not just for the expected metallic noises but for scaling control values. The operation of Multiples is explained in detail in the manual, and from what could seem like quite a technical standpoint to less experienced users. This ‘scientific feel’ is a trait that runs throughout ACE, and you can’t really get away with just tweaking and patching blindly until something cool happens, as you might on a typical VA synth. Instead, you have to get your head around what’s happening to the waveforms to get ACE to do what you want – the oscilloscope comes in handy here, especially for visualising how filters alter a sound. It’s a shame, though, that the oscilloscope can’t also display LFOs and envelopes, or indeed, anything patched into it.

Summing it up

ACE’s range of features is so massive that we can’t begin to cover all of them in depth, and even if we could, it’s the ways in which the components interact that make this synth so special. There are a few things worthy of mention, though, such as the ultra-fat chorus, the portamento with multiple glide options, the different oscillator modes (subharmonic, sample and hold, partial, etc) and the beautiful interface.

There’s a whole lot of flexibility and power, then, but u-he mastermind Urs Heckmann actually describes ACE as a synth “for newcomers” to modular synthesis. It’s not for total beginners, though, as while ‘getting inside’ a patch is a solid, from-the-ground-up way to learn, using ACE is going to be tricky if you haven’t got at least some knowledge of modular synthesis already. There are too many distractions for true beginners and the manual assumes a lot of prior knowledge. We can’t really blame Heckmann, though – the statement just betrays his lofty intellect. Him saying that ACE is “for newcomers” is akin to Einstein saying that degree-level quantum physics is “for beginners”.

Something else to be aware of is that ACE can be extremely CPU-intensive. u-he are entirely upfront about this, with a clear warning on their website that only a modern computer can make proper use of it. Part of the reason for ACE’s processor-punishing nature is that all signals are



ACE's outputs can accommodate as many patch cables as you like, making it a truly flexible beast



The Tweak panel houses further goodies – in the upper left, you can detune voices individually

Tweaker's paradise

Most of ACE's most important features live over on the Synth panel, but the Tweak panel houses some pretty cool things, too. The most significant of these is the mapping generator: a digital unit that acts as another modulation source. This modulation source is basically a list of values: you set each value in the list, and when playing, ACE decides which value to output depending on which mode it's set to. So, you might set up a simple list of eight random values to control filter cutoff, with the cutoff changing to the next value every time you play a note. Alternatively, you could set the mapping generator to key mode so that

the value output depends on what note you play – ideal for creating slight tuning inaccuracies to make ACE sound even more analogue.

Speaking of even more analogue, the Tweak panel also houses the Circuit Bending section. Strangely, there's no mention of this in the manual, but as far as we can tell, the three knobs (labelled Slop, Crosstalk and Osc Cap Failure) are designed to introduce that analogue unpredictability, warble and general feeling of instability to your sounds. You can get some really insane noises here, but we found that setting each knob to about 10% gave us results that were most like a real analogue synth.

calculated at *at least* twice the host sample rate, unlike the typical VA approach where control signals are calculated at a much lower rate than that of audio. This is what facilitates tricks such as audio-rate modulation – eg, using an oscillator to modulate the filter cutoff. If it's all too much, though, you can reduce the CPU hit by opting for one of the lower quality modes.

But can we, in good conscience, dock ACE points for being neither light on CPU or easy for beginners? No, we can't, for two reasons. First, there's the sound: even before you start plugging in cables, this synth sounds stunning. Attaining the sonic charm of vintage hardware has become something of a holy grail for soft synth developers and even the biggest synth makers often still can't get it quite right. ACE, on the other hand, has that elusive analogue charm in abundance, and the tradeoff for this next-gen sound generation is an increased CPU hit.

Perhaps even more astonishing than the sonics is ACE's price tag: it's only €69. Can't quite believe it? We'll prove that's not a typo: it's sixty-nine Euros. A steal for what is, hands-down, one of the best synths we've ever used. **cm**

Contact urs@u-he.com
Web www.acesynth.com

Alternatively

u-he Zebra 2
cm108 >> 10/10 >> \$199
'Wireless' modular synthesiser from the makers of ACE

Arturia ARP 2600 V 2.0
N/A >> N/A >> £179
ARP 2600 software emulation with an authentic analogue sound

Verdict

For Charming 'analogue' sound
Endless routing possibilities
Fun to use
Crazy low price

Against Not for beginners
Patch cables can get messy
CPU usage can be high

This exceptional synth is about as close as software gets to a genuine analogue semi-modular experience. It really is ace!

10/10

Universal Audio

PC MAC

Trident A-Range EQ \$249

Yet another meticulously modelled UAD EQ, but in these hard-up times, is there enough here to tempt you?

Recent plug-in releases from Universal Audio, such as the Fatso Jr/Sr speciality compressor and the EMT250 reverb, have been UAD-2-only, so it's good to see that their latest release is compatible with the older cards, too. More tantalising is the fact that it's touted as an accurate recreation of the renowned EQ section from the Trident A-Range Desk.

That console was designed in the early 1970s and Trident tuned the EQ design 'by ear', so although they attempted to achieve minimal distortion, the inductor design actually contributed to a coloured sound with plenty of phase shift. It sounded good, though, and indeed, this is what made it so popular and why it now makes for a desirable plug-in choice.

The basic design offers four configurable bands, along with high- and low-pass filters. The low-mid and high-mid bands are bell-shaped and book-ended by low and high shelving filters. The Trident A predates sweepable EQ designs, and each band features four switchable frequencies. However, gain is continuously variable (± 15 dB) and, like the original, uses faders instead of the usual knobs. Note that there are no Q settings, so the shelf and bell shapes can't be tweaked.

The high- and low-pass filters each have three frequency settings, and rather unusually, these can be combined, resulting in more extreme settings. The high-pass filters are 18dB/octave, with the low-pass operating at 12dB/octave. Rounding things off are a phase reverse switch, output level control and global EQ bypass switch. Finally, it's worth noting that the plug-in orientation has been rotated 90 degrees compared to how the EQ section appeared on the original desk.

The colour and the shape

So how does it sound? Firstly, it's a powerful sound-shaping tool and sonically very obvious. This makes it great for EQing drums, beats and



anything for which colouration is desirable. Even so, its fixed-band nature can sometimes leave you struggling for specific frequencies, particularly in the low-mids.

With very little frequency overlap between bands, you might assume the A-Range is pretty clinical, but band interaction is considerable. For example, boosting the low and high shelves together eventually results in the highest frequencies being subdued. The high-mid EQ also changes shape slightly as you boost the low-mids. What's more, each mid-band curve is affected by the frequency setting of the other, even if the other's gain is zero.

Finally, the three-way filters also add their own degree of flavour. So, combining all three high-pass filters results in a steeper tail-off than using just 100Hz. In terms of DSP usage, we managed three stereo instances on our UAD-1e card (a UAD-2 Solo is said to manage 11 stereo) - not a huge number, but in line with similar UAD 'analogue' EQs like the Neve 1081.

Overall, the Trident A-Range is an idiosyncratic EQ that can be both confusing and charming - just like the original. Once again, Universal Audio have made available a rare classic sourced from the original equipment, and that fact may make the price tag a little easier to swallow. **cm**

Contact Source Distribution, 020 8962 5080
Web www.uaudio.com



System requirements

PC 256MB RAM, Windows XP/Vista, UAD-1/UAD-2 card, VST/RTAS host

Mac 256MB RAM, OS X 10.4, UAD-1/UAD-2 card, AU/VST/RTAS host

Alternatively

Softube Trident A-Range
N/A >> N/A >> \$279

Forthcoming native emulation of the same EQ

Waves API Collection
cm118 >> 9/10 >> \$1000

For analogue flavour, it's hard to beat Waves recreation of the classic API desk modules

Brand management

Unusual in the world of pro audio, Trident is famous as both a recording studio and an analogue hardware brand. However, it was the studio that got the ball rolling in the late 60s. This Soho facility played host to many famous sessions (including those for Bowie's *Space Oddity* album) and producers such as Tony Visconti and Gus Dudgeon.

By the early 70s, changing equipment demands led them to develop their own mixing desk, and the Trident A-Series was

born. This led to a gear-manufacturing business (Trident Audio Developments) and further consoles. However, only a handful of the A-Series were made (13 in total), and this scarcity combined with their unique sound ensured them legendary status.

Malcolm Toft, part of the driving force behind the A-Series, is still active in the ever-evolving world of pro audio equipment and the Trident Studios site now houses an audio post-production facility.

Verdict

For Great coloured sound

Interesting band interplay

Clever high-/low-pass filter design

Modelled on a rare classic desk

Against Expensive

Layout mildly confusing

Less clinical than modern parametrics

Universal Audio have done it again with a fascinating reproduction of a quirky classic

8/10

Play Live



LAUNCHPAD

THE ABLETON LIVE CONTROLLER

'Playing' Live is so much more than just launching clips.
Find out how 64 buttons can put Ableton completely at your fingertips, visit:

www.novationmusic.com/launchpad

DESIGNED AND DEVELOPED BY



PRESETS

A fantastic range of well-categorised patches, just as you'd expect from Lexicon

MULTIBAND DISPLAY

Lets you see the shape, response and EQ of the generated reverb in real time

EQ WINDOW

Shape the reverb response using the included eq curves

SOFT ROW

These nine faders are your main handles on the PCM Bundle

COMPARE

When activated, shows all the controls in the preset's default state - handy for reference

EDIT

Reveals the sub menu for tweaking advanced parameters

STORE

Save your presets and even customise which parameters the faders control in them

TAIL WIDTH

Great for placing reverb tails centre stage - eg, to centralise snare drums



Lexicon PC MAC PCM Native Reverb Plug-in Bundle £1174



Legendary for their hardware units, these DSP pioneers have finally leapt wholeheartedly into software with a hall-encompassing package

System requirements

PC 1.6GHz CPU, 1GB RAM, Windows XP/Vista/7, VST/RTAS host

Mac G5 1.8GHz or Intel CPU, 1GB RAM, OS X 10.4.10, AU/VST/RTAS host

> Lexicon hardware units take pride of place in many pro studios, and over the company's 39-year history they've become *the* gold standard in digital reverberation. Indeed, whenever a reverb plug-in is reviewed in **cm**, if it's very lucky, it might draw comparison with 'that lush Lexicon-esque sound'.

The company have made tentative forays into software over the years, notably with the Lexiverb back in 1999 - a major complaint with that one being that it simply didn't sound much like their mega-priced hardware boxes.

Hallowed halls

More than a decade on and Lexicon have finally caved in and released the self-descriptive PCM Native Reverb Plug-in Bundle (let's call it the PCM Bundle from here onwards). Could this be the Holy Grail of digital reverberation for computer musicians? Let's take it for a spin...

The PCM Bundle comes in VST, AU and RTAS formats, uses iLok dongle protection, and has a straightforward installation procedure. As its name implies, this isn't a single reverb plug-in, but a suite of seven visually identical ones, all using the same clean GUI, which resembles a Lexicon PCM96 (see boxout). Each plug-in's name denotes the Lexicon reverb algorithm that it uses, these being LexVintagePlate, LexPlate, LexHall, LexRandomHall, LexConcertHall, LexChamber and LexRoom.

The PCM Bundle plug-ins are easy to get a handle on, taking a direct and professional approach to the controls, with functionality being the key. From left to right, there's the customary in/out metering, a real-time display and finally an EQ display. These are underscored by a set of nine faders collectively termed the Soft Row, and these react in a pretty 'realistic' way when manipulated, with some pleasing

"Ultimately, what you're paying for is the fact that it's the 'real thing'"

inertia to their movement. The Soft Row offers up the most commonly adjusted reverb parameters, such as predelay, decay time and the obligatory dry/wet mix. Click the Edit button at the bottom left and a submenu appears, revealing more detailed settings and advanced parameters for the particular plug-in you're using - check the manual on the disc if you're dying to know exactly what they are.

Plumb in the plug-ins on auxiliary channels and top-drawer reverb sounds are had immediately, all without delving into the more detailed edit menus, which is testament to the design of the presets and, of course, the sound quality. The 950 presets built into the Bundle impress right away - each named preset has five sub-types, which can really speed up a session when the dreaded "the same... but a bit different" request arises. The sub-presets typically offer EQ changes or other tonal tweaks and are named accordingly - eg, Dark (high-end roll-off), Notch (midrange 'V' cut) and so on.

Gold-plated

While plug-in reverbs were once poor relations to hardware, there's been a proliferation of high-quality in-the-box examples over the last year or so, and indeed, several that we've described as having a Lexicon-esque sound. So now that the PCM Bundle is here, where does it sit in relation to its contemporaries? Comparing the Large Hall preset from the LexHall to similar-sounding presets on the SSL X-Verb (9/10, **cm147**) and 112dB Redline Reverb (10/10, **cm144**) is interesting indeed, particularly considering that both of these competitors seem to owe much of their design and sound to Lexicon units. In fact, comparing is something of a headache, as sound quality-wise, it's hard to pick a winner - they all do luscious, polished reverbs to a T. Each unit has strengths: Redline, price; X-Verb, usability; PCM Bundle, presets. That the PCM Bundle's presets have the upper hand comes as no surprise, seeing as they're derived directly from those of Lexicon's highly successful hardware. If pushed, we'd say the Lexicon is sweeter-sounding than Redline Reverb and more professionally put together



The Room plug-in/algorithm, shown here with its advanced editing parameters exposed



A genuine PCM96, now rendered splendidly redundant by the PCM Bundle

Lexicography

The PCM Bundle utilises the algorithms and presets from the Lexicon PCM96 hardware reverb (the exception being the Bundle's Vintage Plate, which is an amalgam of unspecified Lexicon 'verbs'). Buying one of these units will set you back over £2000, so thinking logically, the PCM Bundle offers better value for money at around half that. And an obvious boon of the software format is you can run as many plug-in instances as your system can handle, rather than being limited by the restrictions of the hardware - you can only run two stereo reverbs at once

using the PCM96 in FireWire plug-in mode, and just one standard stereo configured effect using its analogue connections. For those who can see the value in Lexicon hardware, the PCM Bundle makes a great deal of sense.

It should be noted that the PCM Bundle doesn't offer *all* the effects of the PCM96 - while the reverbs are very much present, the other effects (delays, pitch, modulation, etc) are nowhere to be found. This is no massive loss in the great scheme of things, as most people will want to buy the PCM Bundle for one thing only.

than both. Ultimately, what you're paying for with the PCM Bundle is the fact that it's unarguably the 'real thing' rather than merely an *attempt* at a Lexicon-style reverb - it goes without saying, then, that it sounds incredible!

The bundled nature of this package does present a few issues. Selecting the right plug-in (and hence algorithm/model) for a given task is hit and miss at first, and until you're familiar with the sound of each, you could be loading and closing the different plug-ins over and over. It's strange that the PCM Bundle isn't presented as a single plug-in with selectable algorithms, thus operating more like the PCM96 on which it is based. Minor complaints are that there's no Ctrl+click shortcut to return a control to its default state, and that the PCM Bundle doesn't support MIDI control (although you can always automate it using your DAW). Also, many potential users may feel aggrieved that Lexicon have not announced plans to split the PCM Bundle into more affordable chunks.

Going native

So that's the PCM Bundle - it's finally here and Lexicon have given us a classy software reverb that sounds just as good as their fabled hardware. With such a hefty price tag, this plug-in collection is clearly aimed at pros, many of whom will relish the opportunity to replace their Lexicon box with a plug-in equivalent. Considering it contains the exact same digital algorithms, there can be no disputing that what you're getting is a virtual PCM96, and we'll no doubt be seeing a rash of real ones popping up on eBay in the coming months. That may be all you need to know! **cm**

Contact www.soundtech.co.uk
Web www.lexiconpro.com

Alternatively

112dB Redline Reverb
cm144 >> 10/10 >> £149

Straightforward in operation, with a Lexicon-esque sound and presets

SSL X-Verb
cm147 >> 9/10 >> £253

Very 'pro', with a superb sound and patch-morphing capability

Verdict

For Amazing sound
Easy to use
Loads of expertly-crafted presets
Replaces Lexicon hardware

Against The price!
Presented as separate plug-ins

Lexicon reverb in a plug-in - do we really need to say more?

9/10

SATURATION METERING

Displays how much saturation is going on

MAIN DISPLAY

The radio tuner style display is the starting point for dialling in high- and low-pass filters

SATURATION MODES

The saturation option includes two tailored modes that protect high and low frequencies from the effect

VARIABLE BANDS

These bands' frequencies change to suit the range of the cut filters, hence the missing frequency legends

ACTIVATED BANDS

Once a band or filter is activated, the red knob markers are illuminated

METERING

The current value of selected parameters is conveniently indicated above the output meters

PEAK SWITCHING

The bell sharpness selector also acts as the band activation switch

Softube

PC MAC

Passive-Active Pack £146

This EQ bundle takes its inspiration from a couple of rare consoles and also offers up a fresh take on equalisation

System requirements

PC PIII CPU, Windows XP/Vista/7,
512MB RAM, VST/RTAS host

Mac PPC/Intel CPU, OS X 10.4,
512MB RAM, VST/AU/RTAS host

> Swedish software designers Softube made their mark a couple of years ago with Vintage Amp Room, a guitar amp modelling plug-in. Since then, they've applied their DSP mastery to various designs, including the Abbey Road Brilliance Pack (cm138, 9/10). The Passive-Active Pack continues on the EQ tip, containing three plug-ins, each with a specific angle. One is based on active circuitry (modelled on the Filtek Labo Mk5 desk EQ) and one on a passive design (modelled on the Neumann PEV 930 desk EQ). The third, Focusing Equalizer, combines both circuitry types in a variable frequency design.

Two's company...

It may seem a little odd releasing a three-plug-in bundle when you could simply combine all options in one interface. Softube are upfront about this, saying they aimed to recreate not just the sound but the simplicity of classic analogue designs. This certainly applies to the Passive and Active Equalizers. The former is the simplest, with three bands: low shelf, high shelf and mid-range presence. The two shelves are fixed (60Hz and 10kHz) and the mid-range offers

seven fixed frequencies (700Hz to 5.6kHz). Both shelves have stepped 3dB cut and boost, with the presence boost only in 2dB gradations.

The Active Equalizer is more flexible, offering three slightly overlapping parametric bands and high- and low-cut filters (18dB/octave). Once again, the controls adjust the gain in steps (2dB this time), with up to 16dB boost or cut. To round things off, each parametric band has two Q settings: sharp and wide.

The Focusing Equalizer is more complex and can operate in either passive or active mode (based on the same modelled units). However, the three bands work differently. The upper and lower shelving bands are boost-only, with cut or boost for the mid-range. These work in conjunction with the high- and low-cut filters, and moving the cutoff points of these actually affects the EQ frequencies of the three bands. The plug-in is rounded off with a three-flavour variable saturation control.

Passive aggressive

So, how do they sound? The Passive EQ has a real point-and-shoot simplicity to it. We found



"We found it best to treat these units like old-school hardware, tweaking until it sounds good"

this particularly effective on acoustic guitar, with boosts on the low and high bands scooping out the mids. In typical passive style, you'll also find that there's interplay between the bands, and a sharpening Q on the presence band as you reach maximum boost. Obviously, it's no good for surgical tasks, but it's a great choice for sweetening your masters or making broad tonal changes.

The Active EQ sounds completely different, emphasising the difference in the underlying (virtual) circuits. The dual Q options per band enable much more accurate EQing, and with 16dB to play with, we were easily able to completely reshape some test drum loops. The narrow Q option gives particularly sharp results and is great for adding punch to lifeless kicks and snares. This plug-in temporarily indicates currently selected values above the meters - something that the Passive EQ doesn't do. Finally, you'll find that if you boost like frequencies using two different bands, you won't get a crazy doubling up of gain, and this helps keep overloads at bay.

Coming into focus

With the same underlying passive and active algorithms as the other plug-ins, the Focusing Equalizer's point of interest has to be its variable frequency system. Softube advise you to use the high/low-cut filter sliders to set upper and lower limits for your sound, and this in turn dictates where the EQ bands operate - as you narrow the range, the low/mid/high bands move to target that area.

The sound of the cut filters also follows the global active/passive setting, with the passive ones being much gentler (6dB/octave) than those of the active mode. The 'sliding' display (which looks just like an old-school radio tuner) depicts only the cutoff frequencies here - there are no other frequency indicators, and with no markings on the controls and no feedback above the meters, you really have to rely on your ears. Indeed, to further investigate, we even loaded up a frequency analyser.

In practice, however, we found it best to treat these units like old-school hardware, tweaking until the sound is good, rather than obsessing over frequency values. Used in this way, the



Softube make a number of cool plug-ins, including the FET Compressor (top) and Tube-Tech CL 1B

Home on the range

Although the Passive-Active Pack is the first Softube-branded product we've reviewed in *Computer Music*, the company produce a wide selection of native plug-ins. Recently, they've released the FET Compressor and the Tube-Tech CL 1B. The former sports the retro brushed metal looks of the Passive-Active Pack and is based on the classic Urei 1776, while the latter is an official emulation of the hardware of the same name. Coming soon is an official Trident A-Range EQ to complement the EQ pack reviewed here. On the reverb and delay front, they have the surprisingly adjustable Spring Reverb and Tube Delay effects.

Beyond that, it's all about guitars, with the three Amp Room plug-ins: Vintage, Metal and Bass. Each one features recreations of classic industry-standard amps and boasts a rather nifty 3D interface. You'll also find reasonably flexible click-and-drag mic positioning. What you don't get is an enormous list of amps (the Bass plug-in is simply one amp head and three cabinets). However, what these lack in options they more than make up for in realism, being more lifelike than many other amp simulations. Softube also have an Acoustic Feedback plug-in, which makes a pretty good stab at artificially creating feedback.

Focusing EQ offers all the flavour of the other two plug-ins, with greater flexibility. Its saturation effect is also a winner, with the Keep Low and Keep High settings helping you avoid damage to low and high frequencies. It's only a shame that there's no saturation bypass switch, for easy A/B comparison.

Overall, the Passive-Active Pack is a great piece of work from Softube, designed with vision but also with full regard for the sound of some pretty rare kit. What's more, the price tag is considerably more modest than comparable top-flight analogue emulations. **cm**

Contact Adam UK, +44 1992 525 670
Web www.softube.com



Complete with brushed aluminium finish, the Passive Equalizer provides that retro vibe in both look and sound

Alternatively

Universal Audio Harrison 32C
cm138 >> 9/10 >> \$249

Just one of the UAD DSP platforms excellent analogue-modelled EQs

PSP Audiware sQuad
cm138 >> 9/10 >> \$249

Brilliant EQ pack, recently bolstered by the addition of a fifth unit

Verdict

For Unusual source EQs
Great-sounding Passive EQ
Novel Focusing EQ design
Good price

Against Focusing EQ labelling limited
No cut filters on passive EQ
No saturation bypass switch

Softube have served up three wonderful examples of just how good modern analogue-modelling plug-ins can be

9/10

Cableguys FilterShaper 2 €69

PC MAC



A powerful dual filter plug-in that lets you draw your own modulation curves. Things are about to get wobbly...

> Modulation, movement and all things wobbly are en vogue right now, with LFO-heavy genres like dubstep showing no sign of bowing out as we enter 2010. So it seems that Cableguys FilterShaper 2 has arrived right on time.

FilterShaper 2 is a filter plug-in that enables you to draw complex curves that can be used as waveforms for the LFOs. You can design up to ten custom waveforms (per patch) using breakpoints (similar to drawing automation curves in a DAW), and select one of these for each of the four LFOs. The latter can then be made to modulate the cutoff, resonance, volume and/or panning of the two onboard filters.

The two filters in FilterShaper 2 are identical. They boast ten filter modes, spanning low-pass, high-pass, band-pass, notch and peak filter types, and three octave slopes. The response from each is pretty standard, although they can sound shrill when the resonance is cranked up - we'd prefer a throatier, fatter sound.

The LFOs each have independent speed settings, in beats/bars or Hz. This is standard fare, but you can set the LFOs to go very fast indeed, giving vocal/ring mod sounds as you push it into the audible range (check out the first half of our **Dubstep-bass.mp3** example on the **cm** disc to hear this in action).

Enter the matrix

The four LFOs can each control the cutoff and resonance of the two filters, as well as volume and pan controls, and the routing for most of this is handled by the Modulation Matrix. It's a fairly plain grid-based affair, but it's quite fiddly to use, compounded by the fact that the LFOs themselves aren't actually labelled numerically.

As for the waveform editor itself, the breakpoints come in three degrees of strength, with the softest enabling you to create smooth, sweeping curves, rather than harsh angles. You can use up to 20 breakpoints per envelope but no more. This limit is rather unfortunate,



though - it's not nearly enough for creating intricate dubstep bass modulations, to name just one example.

Another major gripe is the fact it's difficult to work out how your curve correlates to the metre of the piece. Three gridlines at 25%, 50% and 75% of the way along the X axis suggest an understandable leaning towards 4/4 time, but changing the LFO speed to 3/4 (for example) means that gridlines now occur on every dotted quaver - not a particularly intuitive 'guide value'. Being able to change the grid to musically sensible values (8ths, 16ths, triplets, etc) would vastly improve usability here.

As a final thought, we're disappointed that FilterShaper 2's LFOs can't send out MIDI CCs, as it'd be great to be able to control the parameters of different plug-ins using those nifty modulation curves. Adding this feature, along with fixes to the points we've mentioned above, could transform FilterShaper 2 from a decent but flawed filter into an essential LFO modulation solution. **cm**

Contact: contact@cableguys.de
Web: www.cableguys.de

System requirements

PC 1.5GHz P4, Windows XP/Vista/7

Mac 1.25GHz PPC/Intel CPU, OS X 10.4

Alternatively

Sugar Bytes Thesys
cm144 >> 8/10 >> €99

A step sequencer for creating complex modulation and more - with CC out!

FabFilter Volcano 2
cm129 >> 9/10 >> £94

Gorgeous filter, with advanced modulation routing options

Verdict

For Lots of routing possibilities

Brings serious movement to sounds

Good range of filter types

Parallel or serial filtering

Against Filters could sound fatter

Limited number of breakpoints

Confusing in places

FilterShaper 2 offers a neat concept and is not without its merits, but it could be so much more with a few further tweaks

6/10

Serial success

FilterShaper 2 has two filter chain modes: serial (one after the other) and parallel (side-by-side). The fact that you can assign the same complex filter curve to both filters makes the two modes really useful. Check out our **Dubstep-bass.mp3 example for an example of serial use - we employed a complex waveform to modulate the cutoff of filter 1 in 12dB LP mode for a standard wobbly bass, then sent that same waveform to filter 2 in 12dB peak mode to accentuate**

the sweep even more.

In parallel mode, the two filters run alongside each other and you get individual volume and pan controls for each one - check out our example (**Parallel-filtered-drum-loop.mp3**), where we've used the same curve to modulate a LP filter panned left and a HP filter panned right. You can, of course, send different curves to each filter, if you like, or simply use one filter on its own.

112dB **PC** **MAC**

Redline Preamp \$99

The Redline range expands with a virtual preamp, but can 112dB maintain their high standards? Get reddy to find out...



➤ Thus far, 112dB's Redline series has impressed us greatly, with Redline Reverb and Redline Equalizer both scooping perfect 10/10 scores. Up next is Redline Preamp, an analogue preamp emulation that imparts "warmth, character and overall mojo" to signals. Not sure what a preamp is? See our boxout for a crash course!

Redline Preamp isn't based on a particular piece of real-world equipment, so it gives you controls with which to define its character. The topology is as follows: the input signal is split into three frequency bands, then tube-style saturation is applied to each. These three are mixed and sent through an optional clipper, and the resulting signal is mixed with the dry input.

There are controls to set the overall drive amount and "warmth" (even or odd harmonics, or a combination of both), and the centre section sets the drive per band. The clipping threshold can be adjusted and any loss of level compensated for with the Makeup knob. There's optional mid or side operation, too.

In da mix

Our initial impressions were underwhelming - it was hard to tell if Redline Preamp was working at all on many sources. The penny dropped, though, when reminding ourselves of what it emulates: preamps are not *supposed* to radically alter the sound. Closer listening revealed that there is indeed something subtle going on.

Many engineers will attest that differences between preamps become apparent when they're used on every track in a project, so we plonked an instance of Redline Preamp on every track in a busy mix, to simulate running the tracks through an analogue summing device or console... Bingo! Whereas the elements of the mix had previously been jostling for sonic space, the tube sim's gentle taming of errant dynamics enabled each to sit in its rightful place, giving greater cohesion. It sounded like the same mix, but smoother, easier to listen to and more 'pro'.



We also used Redline Preamp to accentuate the relevant ranges of instruments. For instance, driving the low band of a bass sound can make it more consistent across different notes. The treble band does a fine job of highlighting the 'breath' of sound sources (and we don't mean just vocals). And it's ideal for use with edgy guitar sounds: more of the harsh treble can be cut with EQ, then air, sparkle and presence 'restored' with Redline Preamp.

The mid band gives the most obvious effects, particularly on the resonance of a snare drum. And it was with percussive sounds that we most appreciated the Warmth knob: turned up, it fills out the body, while low values emphasise transient snap. Oh, and you *can* create obvious distortion, too, by cranking the drive dials and boosting the input with a gain plug-in.

We'd place Redline Preamp low down on the list of 'must haves' for aspiring producers - we'd recommend investing in quality compression, EQ, reverb, etc, plus a good monitoring setup. More experienced engineers, however, may find Redline Preamp is just what they need to kick their mixes up a notch or two. **cm**

Contact info@112db.com
Web www.112db.com

System requirements

PC Athlon 800+/PIII 850MHz CPU, 256MB RAM, Windows 2000/XP/Vista (32-/64-bit), VST/RTAS host

Mac PPC/Intel CPU, 256MB RAM, OS X 10.4, AU/VST/RTAS host

Alternatively

Acustica Audio Nebula3

N/A >> N/A >> €80

Offers sublime recreations of real preamps and much more

Slate Digital

Virtual Console Collection

N/A >> N/A >> £TBC

It's not out yet, but there's a buzz about this console channel sim

Verdict

For

Combats 'digititis'
Great for accentuating mix elements
Flexible preamp character
Easy-to-use and CPU-friendly

Against

Subtlety will be lost on some
Not for novice producers

If you're already creating good mixes, try Redline Preamp - it could be just what's needed to edge them towards greatness

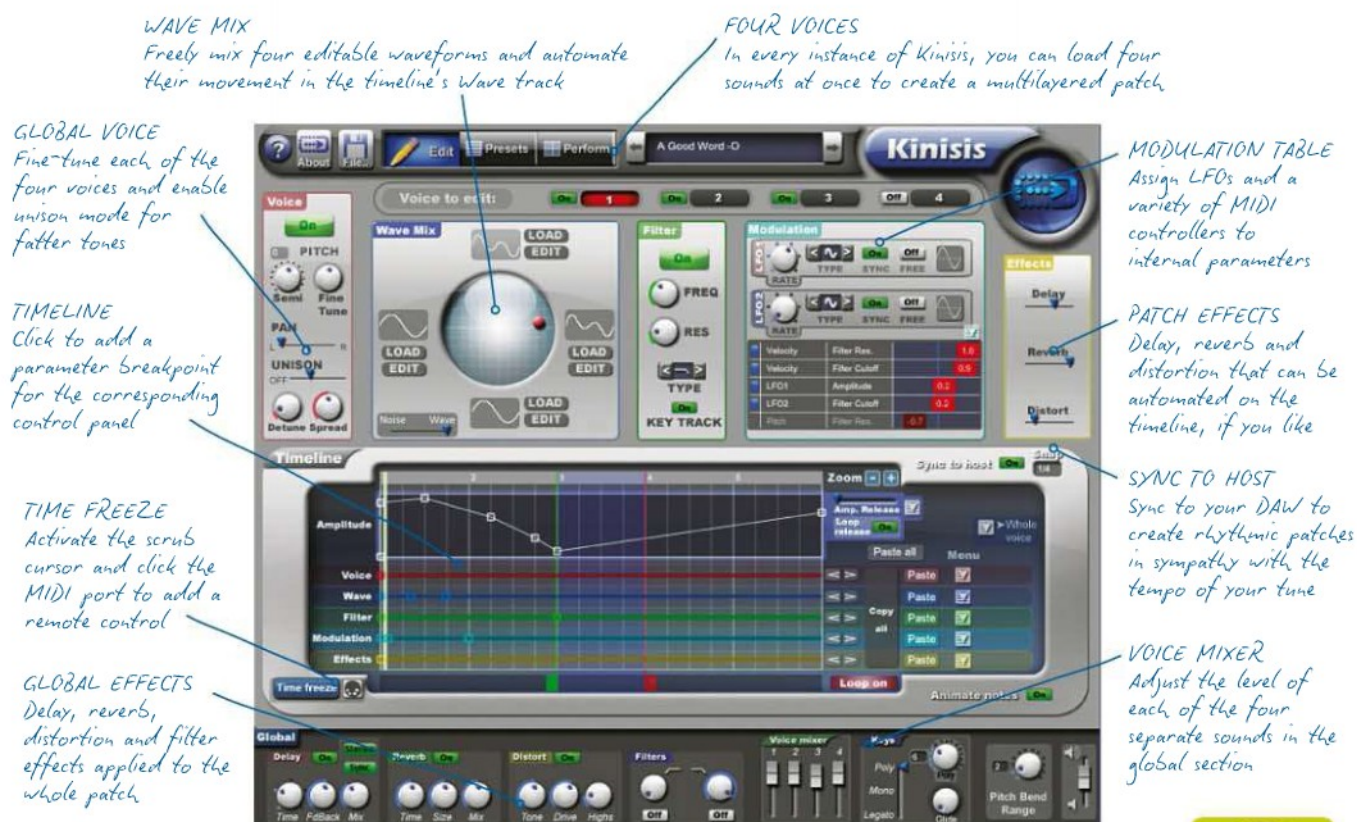
9/10

Pre school

To understand where 112dB are coming from with this plug-in, it's necessary to grasp what a preamp is and the effect it has on a sound. A preamp is an analogue device that converts a low-level electrical signal into one that's of a sufficient level to drive the equipment following it (eg, a recording device, a mixing console, amp and speakers, etc).

Preamps are largely intended to deliver a clean reproduction of the input signal -

however, with analogue gear, it's inevitable that a very small amount of signal 'colouration' (typically harmonic distortion) will take place, and this becomes especially apparent when the unit is driven hard. The character of this saturation is what endears experienced engineers to 'name' preamps such as API, Neve and SSL. Likewise, many analogue mixing desks have preamps built in, and the console channels themselves can lend similar colouring.



Progress Audio Kinisis £80

PC MAC



With a name inspired by the Greek word for movement, this adventurous and innovative synth resolutely refuses to stay still

System requirements

PC 1.5GHz P4/Celeron CPU,
Windows XP/Vista/7

Mac 1.4GHz G4/G5/Intel CPU, OS X 10.4

> If you've ever tinkered with 3D or Flash animation software, you'll be familiar with the concept of key frames. They're markers on a timeline that are used to define a specific value (or values) for an object at that particular point. It could be its X or Y position, for example, or perhaps its size. Once you've defined your key frames, the software will calculate a smooth transition between these values, thus creating a seamless impression of movement without the need to 'hand draw' each frame.

Automation made easy

It's exactly this system of movement that Kinisis attempts to bring to synthesis. Each parameter, in what is a fairly regular synth engine, can be given a specific value at any point along a timeline. After a note is triggered, Kinisis starts playback of the sound while updating parameter values according to the key frames along the timeline. Set a start filter cutoff value to zero, for instance, and a max value a few seconds later, and the filter will open smoothly over the duration of the note. It's a little like creating fastidiously automated synth tracks in

your DAW, only Kinisis is far more spontaneous and much more fun.

The GUI can take some getting used to, especially when your first instinct is to play with the various knobs and sliders. Trying this while playing notes reveals that most will refuse to budge. This is because the timeline is active and you first need to create a 'point' on it that relates to a particular parameter panel - that done, you can twiddle away, which will actually define the settings of those parameters for a specific point in time. The parameter panels are colour-coded to match their timeline counterparts.

Despite this initially unintuitive behaviour, the big bonus is that creating moving and evolving sounds is far easier than manually automating such changes in your DAW. This means you can pull off neat tricks, such as adjusting the waveform mix as the sound evolves. Speaking of which...

To the vector, the spoils

Up to four waveforms can be blended using a circular mixer - it's just like the vector synthesis pioneered by Sequential Circuits in the 80s and

"The real power comes from the integrated waveform editor"

further developed by Korg's Wavestation in the 90s. The waveforms are selected from menus that appear on the four compass points of the mixer. There are standard saw, square and sine shapes, as well as a small library of waveforms from other sources. However, the real power comes from the integrated waveform editor, with which you can add harmonics, adjust their phase and set their amplitudes.

This is powerful stuff, and the results of this decidedly digital form of synthesis typically sound harder, edgier and more cutting than classic analogue designs. Sadly, none of this power has been tied to the timeline, as each waveform remains static after selection - it'd be great if there were ways to influence the waveform's harmonic structure via the timeline.

Move any mountain

The oscillators can be pumped through the filter section, but you're limited here to 12dB implementations of low-, band- and high-pass models, which perhaps further accounts for the 'digital' sound of the output. A more extensive selection of filters would be most welcome.

After the filters, there's a modulation matrix for modulating parameters like the oscillator's amplitude, pitch and pan values; a filter's cutoff and resonance; and the waveform mix. Modulation sources include the two LFOs, pitch, velocity, aftertouch and modulation wheel.

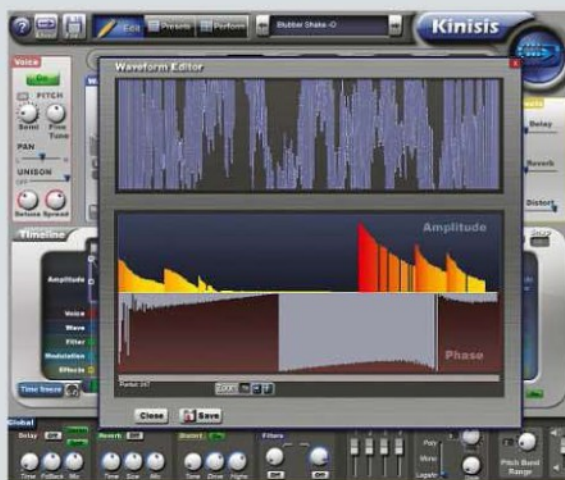
As mentioned earlier, subtle colouring in each of these panels corresponds to a coloured track on the timeline. Click a point in the cyan timeline, for example, and any adjustments you make to the similarly-coloured modulation section will be stored at the current breakpoint. This timeline approach is unique, powerful and a lot of fun to play with.

You can select multiple breakpoints to move, copy and paste them, or adjust parameters for all of them. Values can also be copied, cut and pasted between tracks, and any sub-section can be looped.

The Amplitude track works a little differently from the others in that it's presented as a traditional multipoint envelope - you can thus create a standard ADSR shape with it. There's a



If timeline automation isn't enough, you can use six XY pads to control almost all other parameters in the synth



Sick of sines, squares and, er, sawteeth? Then import or draw your own waveforms!

How does it sound?

Kinisis is bundled with a considerable array of patches, and the synth engine is more than capable of emulating all the staple sounds you'd expect from a modern workstation. There are short stabbing basses, semi-realistic acoustic instruments, 80s-style polyphonics and soft, delicate lead sounds.

But it's only when you modulate the sounds with the timeline that you begin to hear the difference between Kinisis and many other sound generators, and that generally only happens when a sound lasts longer than a second. The *bbabasy_BB* patch, for instance, breaks from the standard envelope to produce a glitchy repeat three seconds into

playback, while *Bass_Strings_Morph* uses a clever combination of automated vector synthesis and a loop to produce what sounds like an authentic brass/string combination.

The pads are fantastic. The warbling *AsTimeGoesBy5* is a great example and would be virtually impossible to create with any other synth. And as you might expect, some of the rhythm patches make best use of the timeline, delivering pulsing, bleeping sounds that would add energy to most tracks. The patches *SheVanishedToo* and *140bpm -O* illustrate this beautifully, especially combined in a multitimbral configuration.

'release' switch that fades the output after the timeline has finished playing, but it's frustrating that there aren't one or two normal (and host tempo independent) ADSR envelope generators so that you can use modulations (of the amp, filter, etc) that aren't bound to the timeline.

You can sync playback to the host, locking the timeline's duration, and value changes from the timeline can be either relative or absolute. Another neat feature is the Time Freeze button. This enables you to drag a cursor backwards and forward across the timeline and hear the resulting effect, and you can even assign this to a MIDI controller!

Our inner obsessive would like to see smooth spline curves as well as straight lines, and perhaps the ability to set different loop lengths for each track, but there's more than enough here to keep you twiddling for months. Although the synth engine itself is nothing spectacular, Kinisis' clever modulation system means it's capable of many wonderful and unique sounds, and we can't think of another synth that offers such a powerful method of making dramatic parameter changes over time. **cm**

Contact alex@progressaudio.co.uk
Web www.progressaudio.co.uk

Alternatively

Smartelectronix Augur

N/A >> N/A >> £Free

A free emulation of the classic Prophet VS vector synth

Native Instruments Absynth 5
cm145 >> 8/10 >> €179

A different approach, but gives similarly wacky, synced output

Verdict

For Can generate unique sounds
Novel and powerful timeline system
Excellent in-place wave editing
Good for real-time performance

Against Limited range of filter types
Poor reverb and distortion effects
No standard ADSR envelopes
GUI looks dated

Kinisis' forward-thinking timeline approach will thrill those seeking a fresh perspective on synthetic sound design

8/10

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cm mini reviews

A rapid-fire round-up of sample libraries, ROMplers and more

Toontrack

Custom & Vintage SDX £119

Contact Time+Space, 01837 55200

Web www.timespace.com

Format SDX for Superior Drummer 2

Originally for the old DFH engine, C&V is now reborn in the superior SDX format. The drums used are not your typical big-name brands - instead, you get old-schoolers like Slingerland and Ludwig alongside modern-day desirables from Noble & Cooley and Craviotto, all recorded at London's 2kHz studio using a Beatles-tastic EMI TG console.

There are a whopping 20 snares, including a few damped versions and high/low tunings, and bona fide legends like a Ludwig Supraphonic and pre-war Black Beauty. There are four tom positions, with five sets, with the small, single-ply Noble & Cooley Star Series and rubbery, tubby Slingerland Studio King set being particularly characterful. The six kicks are similarly beefy and rotund. There are 35 cymbals and seven sets of hats, from Zildjian, Paiste and Istanbul Agop.

The overall sound is big, round and appropriately 'loose', with that subtle, smoky darkness that we associate with a vintage tone. C&V SDX hits the mark, then, especially for styles like ballsy rock, soul, jazz/big band, country, etc.

8/10



DanceMIDISamples DMS Dimension £50

Contact via website

Web www.dancemidisamples.com

Format PC VST, SF2

This trance-specific VST ROMpler for PC sports 1.2GB of euphoric content (all supplied in SF2 format too). You get amp and filter envelopes, reverb and delay. Most sounds are

dual-layered, with controls to set the balance.

There are 49 pads, 41 leads, 10 hoovers, 22 basses, four pianos, and two FX banks (bangs, whooshes, etc). There's a lot of detuned sawtooth action going on with the pads - more variety and evolving sounds would've been good here. The leads are more interesting, but be aware that there's no monophonic mode (and no glide). The tight and punchy basses and cutting pianos, meanwhile, are highlights. The overall tonality is a touch brash and bright, and the internal reverb is best disabled and an external one used. We'd have liked more sounds that leverage the sample-based format, but overall this is a decent buy for aspiring trance producers.

7/10



Fixed Noise Rhythm Objekt £128

Contact Time+Space, 01837 55200

Web www.timespace.com

Format PC/Mac, VST/AU/RTAS

Producer Jimmy Edgar has crafted an intriguing genre-hopping collection of "erotic electro" sounds, powered by the ubiquitous Kontakt Player. It's packed with heavily tweaked granular-sounding FX, synth chords, electronica-style clicky drums and snarling analogue basses.

The "erotic" tag might be a tad silly, but some of the "sexed-up" effects are really quite striking: synth moans and groans, coupled with nasty-sounding vocals! In fact, it's made up of an odd mix of brilliantly versatile sounds - such as the fantastic drum loops, one-shots and innovative FX - and uninspired, repetitive stuff. There are far too many minor chord stabs and samey bass loops, for example, and these particularly grate in the absence of a good selection of pad sounds or multisampled bass patches.

Having said that, the overall production quality is high, and if you're writing electronica-infused pop, then this could be a godsend. It's slightly pricey for what you get, but the greatness of the drums helps to tip the balance.

7/10



Soundware round-up

Dark Side of the Tune DOWNLOAD Queen's English \$30

Contact info@darksideofthetune.com
Web www.darksideofthetune.com
Format WAV



Pay attention, you miserable worm: Queen's English consists of 176 spoken-word stereo WAVs performed by plummy-voiced dominatrix Miss T, ranging from kinky commands to, er, food-oriented innuendos. You like that, don't you? Well, you shouldn't, because once you get past the barking, the boring and the badly delivered, there's not a lot left. The recording quality is sub-optimal, all needlessly in stereo, with the mic position audibly changing from sample to sample. There's some over-zealous trimming, too, resulting in certain orations finishing a little, um, prematurely. Overall, we think DSOTT need a good spanking for this.

4/10

Loopmasters DOWNLOAD Marshall Jefferson House Generation Vol 2 £25

Contact info@loopmasters.com
Web www.loopmasters.com
Format WAV, REX2



Loopmasters return with a second instalment of this collection from house legend Jefferson. There's a good selection of basic elements like bass and drum loops, but also some more unusual material, such as the horn and synth loops by nu-jazz musician Onyx Ashanti. This is very much a classic house pack: modern, chunky percussion and particularly powerful sounds are generally absent. As long as you're prepared to do your own layering and processing, though, there are some decent sources to work with here.

7/10

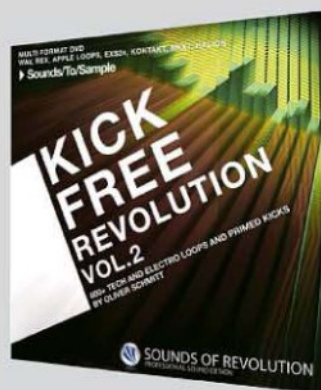
Producer Loops DOWNLOAD Classic Bollywood £70

Contact info@loopmasters.com
Web www.loopmasters.com
Format WAV, AIFF, Acid WAV, Apple Loops, ReFill, REX, Stylus RMX



This sample pack is an attempt at capturing the "true sound of Bollywood movies" and was recorded by composer Gaurav Dayal. Right from the get-go, you're confronted with very chunky percussive dholak loops, flute stabs and pleasingly aggressive, sweeping string sections. There's also a host of unusual instrumental and vocal lines that could fit into pretty much any genre of music: don't underestimate the adaptability of these samples, despite the overt Bollywood branding. The pack is construction kit-oriented, though we think it could've been stronger with a focus on simply providing a standalone loop library. Nevertheless, this is a very interesting collection.

8/10



Sounds of Revolution DOWNLOAD Kick Free Revolution Vol 2 €47

Contact via website
Web www.sounds-of-revolution.com
Format WAV

Now we're talking! SOR's Oliver Schmitt returns with yet another impeccable pack for dance musicians. This library provides over 500 percussive loops for all four-to-the-floor dance genres: minimal, electro, trance and house of any flavour will benefit from this collection of glitchy, clicky, processed joy, categorised according to their general style. The clever bit is that all loops are programmed from scratch, but come sans kick drum. Thus it's easy to use them in your productions and drop your own kicks in there (70 bonus kick drums are thrown in too). We could even imagine some of these loops working their way into DnB and breaks tunes: the superior production quality means that you'll be satisfied even if you just grab a short section of each loop. This one is just shy of classic status - it's not quite unique enough for that - but that's certainly not to disrecommend it in any way.

9/10

MyLoops DOWNLOAD Ultimate FX Vol 1 €30

Contact via website
Web www.myloops.net
Format WAV



This 460-sound FX library is aimed squarely at the dance market. You've got your decidedly 1996-era-Time+Space big major pads; 'risers' and 'descenders'; and stabs, booms and crashes. There are also some tonal noises, and a folder full of melodic loops that you may or may not have any use for. As alluded to, the stylistic angle of the pack isn't especially contemporary; however, the production quality is good, everything is competently put together, and there are no clangers. Our only grumble on the technical front is that it would've been good to have dry versions of some of the delayed/reverbed noises. Ultimate FX Vol 1 is somewhat reminiscent of a cheese sandwich: it's adequate enough, but you really end up wishing you'd got some meat in there as well.

7/10

Loopmasters **DOWNLOAD**

Dom Kane Tech House Producer Vol 2 £25

Contact info@loopmasters.com
Web www.loopmasters.com
Format WAV, REX2



Another very-much-OK pack from Loopmasters, lacking a little in the sparkle and excitement departments. We're reviewing the download version, which contains WAV and REX2 files only, but many other formats are available in the physical version. It's a straight-up tech house pack at bottom, and the expected percussion loops, glitchy FX and thumpy bass patches are all there. A greater focus on usability - for instance, fewer bass multis and pointless "groove loops", plus more percussion and innovative noises - could've made this pack more vital. The quality level is high, but there's too much showing-off and not enough punch.

7/10

Best Service Black Pearl £89

Contact Time+Space, 01837 55200
Web www.timespace.com
Format WAV, Acid WAV, REX2, HALion, Battery 3, Soundfont, NN-XT

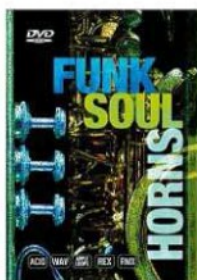


If the sounds of producers such as Timbaland, Swiss Beatz and Darkchild float your boat, then Black Pearl is aimed squarely at you. Featuring 35 construction kits of loops and single hits (over 1GB in total), this set goes beyond the typical crisp beats and tough bass sounds to include various kit-specific elements, such as guitars, synths, keyboards and sound effects. Both the loop programming and processed sounds are excellent, with styles ranging from smooth ballads to up-tempo lurchers. If your urban sounds need an update, check this set out.

10/10

Big Fish Funk Soul Horns £67

Contact Time+Space, 01837 55200
Web www.timespace.com
Format WAV, Acid WAV, Apple Loops, REX, Stylus RMX



This DVD features a six-piece horn section (two trumpets, trombone, alto, tenor and baritone saxes) within ten loop-based construction kits. These contain anywhere between 13 and 24 individual loops, ranging from one to eight bars long, and each comes as a mixed blend and individual instruments. You'll also find a useful folder of individual per-kit licks, bringing the loop total to over 2100. Sonically, this set is both consistent and well played, and stylistically the title tells you everything you need to know. In short, anyone making soul- and disco-influenced club music will find good use for this excellent library.

9/10

Best Service Accordions £153

Contact Time+Space, 01837 55200
Web www.timespace.com
Format Kontakt 3/4



Produced by Eduardo Tarilonte, this 2.7GB library comprises five 41-key accordions (two musettes, one bassoon, a piccolo and one for bass chords only), a concertina, a bandoneon, and a bonus Steirische Harmonika. The interface has been tailored to the job at hand, including CC-mapped convolution reverb and volume (swell) settings. You'll also find various instrument-specific 'noise' parameters (key, release, bellows and so on). In practice, these elements, plus the three velocity layers and three round-robin alternatives, deliver very playable, lifelike results.

9/10

Prime Loops **DOWNLOAD** Guitar Anthology (Combo Pack) £33

Contact info@primeloops.com
Web www.primeloops.com
Format WAV, Apple Loops, Live, Akai MPC



This contains five Prime Loops guitar packs rolled into one multi-genre bundle. Each pack - Acoustic, Funk, Indie, Jazz and Rock - features 50 loops played on a variety of instruments, including Les Pauls, Stratocasters and various acoustics. The loops vary in length from one to eight bars, and include short licks, as well as more complex patterns. To round things off, they've also included a set of clean and distorted single chords. This library covers a lot of ground, then, making it a great resource for quick results. But although it's sonically on the money, the lack of detail may frustrate some.

8/10

Puremagnetik **DOWNLOAD** PM Grand \$12

Contact info@puremagnetik.com
Web www.puremagnetik.com
Format Live, Kontakt 3/4, Logic



Want a multisampled Yamaha Conservatory Grand that won't eat up your RAM? Well, here you go. This one was recorded using a combination of X/Y close mics and a spaced pair of omnis. The sample set has been reduced to a reasonable 567MB footprint, and also includes 50 further looped clips (116MB). In typical Puremagnetik style, they've made good use of the raw material to provide nine sampler patches, including a backwards piano and infinite looped option, and authenticity is improved by additional key release and pedal resonance samples. With only three velocity layers, it's no surprise that PM Grand doesn't break any realism records, but we're very impressed by the overall sound and usability of this super-affordable pack. **cm**

8/10

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cm/recommends

The best new gear from the last three issues...



Cakewalk Sonar 8.5 £435 PC MAC

Rating 10/10
Reviewed **cm**146
Contact Edirol Europe, 020 8747 5949
Web www.cakewalk.com

What is it? Rather than the expected Sonar 9, this year we've got a point release that you have to pay for. But what an upgrade it is! AudioSnap and the Step Sequencer have been pumped up to v2, there's a brand new Matrix View for firing off audio and MIDI clips, new plug-ins in the form of the PX-64 Percussion Strip and VX-64 Vocal Strip, and loads more.

Verdict "Don't be fooled by the name: Sonar 8.5 is essentially a full new version in disguise and a must-have upgrade"



Solid State Logic X-Verb £150 PC

Rating 9/10
Reviewed **cm**147
Contact Solid State Logic, 01865 842300
Web www.solid-state-logic.com

What is it? A reverb plug-in for SSL's Duende DSP system, this is the company's first foray into artificial ambience. X-Verb doesn't lack controls, with tens of knobs for hardcore tweekers and a Quick Controls strip for everyday use. Its sound won us over, instantly bringing to mind the kind of lush, expansive virtual spaces that we'd associate with megabucks hardware units.

Verdict "SSL prove that they're not only about EQ and dynamics, with X-Verb joining the upper ranks of the reverberation elite"



Ableton/Cycling '74 Max for Live €249 PC MAC

Rating 9/10
Reviewed **cm**148
Contact customercare@ableton.com
Web www.ableton.com/maxforlive

What is it? It's Max... for Live! Max is a graphical programming environment that enables you to patch together your own instruments, effects, sequencers and more, and now you can harness this power to create custom devices for Live. The level of integration is highly impressive, with the Live API enabling Max programmers to tinker around with the state of the DAW itself.

Verdict "Max for Live is a monstrously powerful package that will no doubt lead to a deluge of amazing devices"

What we've been using this month



Ronan Macdonald
Editor

One of the best sounding soft synths ever made, ACE is a groundbreaking model of modern instrument design. Get it now, before u-he realise they've misprinted the price.



Lee du-Caine
Deputy Editor

PSP's sQuad EQs are all over my mixes, and the 1.5 update makes the pack even more vital. The expanded ClassicQx is most welcome, and as for the all-new McQ, let's just say I'm lovin' it.



Tim Cant
Multimedia Editor

As a hypochondriac, I'm ever alert for new symptoms, but none of my oddly coloured rashes have been enough to distract me from Symptom:Melohman Performance Edition.



Craig Hitchings
Production Assistant

FabFilter's Pro-Q is quite simply a cut above the rest, and it's a real boost knowing that I can play with its luscious curves and admire its gorgeous 'face after a hard day at the office.

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SUNDAY 25 JULY 2010



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Back issues

Have no fear, editions of *Computer Music* from the last six months are here...



Issue 148 February 2010

- Zynewave Podium 2 CM and 1,994 fidget house samples on the DVD
- The beginners' guide to effects
- Instant arrangement (build tracks fast)
- 'Casting the net' (make pro-quality podcasts)
- Producer Masterclass: Subscape
- Celemony Melodyne editor, Ableton/C74 Max for Live, FabFilter Pro-Q and more reviewed



Issue 147 January 2010

- NuGen Audio Stereoizer CM and 2041 vocal samples on the DVD
- Resampling!
- Hardware vs software
- The **cm** guide to Sonar 8.5
- Producer Masterclass: Shut Up & Dance
- NI Guitar Rig 4 Pro, Spectrasonics Trilian, SSL X-Verb, VSL Vienna Suite and more reviewed



Issue 146 December '09

- Toontrack EZdrummer Lite and 2032 uplifting samples on the DVD
- Mobile music
- Mastering for beginners
- The **cm** guide to backing tracks
- Producer Masterclass: Phonat
- NI Kontakt 4, PreSonus Studio One, Cakewalk Sonar 8.5, iZotope Alloy and more reviewed



Issue 145 November '09

- Intelligent Devices MegaDelayMassCM and 1954 guitar samples on the DVD
- Vintage sounds (retro studio techniques)
- Into the groove (swing and shuffle explored)
- The **cm** guide to FL Studio 9
- Producer Masterclass: King Charles
- Novation Launchpad, Image-Line FL Studio 9, NI Absynth 5 and more reviewed



Issue 144 Autumn '09

- IK Multimedia X-GEAR **cm** Edition and 2046 house samples on the DVD
- The essential guide to house 2009
- The **cm** guide to Logic 9
- Build a Linux DAW
- Producer Masterclass: Matrix & Futurebound
- Cockos Reaper 3, Sugar Bytes Thesys, C-Thru Axis-49, U&I MetaSynth 5 and more reviewed



Issue 143 October '09

- 1121 Loopmasters samples and 2000 **cm** Sound Effects on the DVD
- The **cm** guide to Propellerhead Record
- **cm** Focus: Dubstep
- Massive attack (transient shaping)
- Producer Masterclass: John "OO" Fleming
- Propellerhead Record, Apple Logic Pro 9, Avid Sibelius 6, D16 Nithonat and more reviewed

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>Your questions answered

Q&A

Need some advice on building a setup that's right for your needs and budget? Running into problems with a particular bit of kit? Or would you like help getting your favourite artist's sound? Send your questions to cmhelp@futurenet.co.uk

A pile of files

Question I have thousands of samples spread across several DVDs. How do you recommend I should catalogue all these files, so that I can find what I want easily? Is there a piece of Mac software to help me with this, and do the files provided on CDs already have all the appropriate meta information?

I have a big USB drive ready to put all the files on, but copying the folder structures from the DVD doesn't seem to be the best way of ensuring that I'll be able to find anything later when I'm looking for the perfect sound or loop.

Andrew Mayfield

Answer The most appropriate tool for this task would be the excellent Audio Finder. This sample-cataloguing software features some very handy search functions, includes built-in audio editing features and enables you to play samples at different pitches via the built-in virtual keyboard. Version 5, which should be available now, includes new rating and metadata tagging capabilities, plus it's a free update for existing users. www.icedaudio.com is the place to go in order to download the free

trial version.

If you have the time and dedication to tag all your sounds, then there's little disadvantage to keeping your sample libraries' individual structures; but if not, you might find it's convenient to move samples of a particular type into the same folder, to save time when browsing for sounds by type.

In a jam

Question I am a mature person who has never used music software before. I play guitar, but would like to make electronic music. I like Eno, Tangerine Dream, sitar music and that sort of thing. I have seen the World Music Jam Pack from Apple, but I don't have a clue how to use it! What would I need to make sitar music using this Jam Pack? Do I need a special cable to play instruments on computer software?

Barry Major

Answer You don't state what computer hardware you have already. However, since you've already been checking out Apple's Jam Packs, we're assuming that you're in possession of an Apple Mac. If this is the case, then you're in

luck, because all Macs made in the past few years come preinstalled with Apple's iLife software suite, which includes the excellent and easy-to-use GarageBand. This program is designed primarily for computer music novices, and even includes built-in tuition on how to use it. What's more, Apple's range of Jam Packs will only work with GarageBand or the more complex Logic software. These packs include virtual instruments and loops that you can use to compose your own tunes, and you'll be



Apple's GarageBand Jam Packs are the ideal solution for those in need of easy-to-use patches and sounds

pleased to hear that the World Music version does indeed include a sitar patch!

If you have a Windows PC, on the other hand, Mixcraft 4 (which can be downloaded from www.acoustica.com for \$65) is the closest you'll get to a GarageBand-style experience. The easiest way to get your hands on a sitar instrument to use with Mixcraft is the free Syntar VST. The homepage of this instrument is long gone, but it's still hosted on various sites, including www.vst4free.com.

It's possible to sequence these virtual instruments in the software with just a mouse and keyboard, but if you'd like to use a more immediate, tactile input method, you could invest in a USB MIDI controller. MIDI is a language that computers and music hardware use to send information between each other. A MIDI controller keyboard, such as M-Audio's excellent Oxygen8, doesn't actually make any sound itself but can be used to play virtual instruments and record your playing into your sequencer software. The Oxygen8 itself is a good, affordable buy - it has an RRP of £107 for the 25-key model, but can be picked up online for under £70.

A keyboard is only one type of MIDI controller, however, and since you're a guitarist, you might be more at home with something that



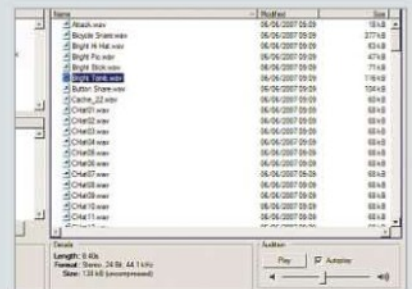
Audio Finder is the perfect tool for those looking to catalogue their samples, especially if you're like us and have thousands of them!

> Step by step

Loading samples into Reason instruments



1 > Reason has several instruments that support WAV format samples – NN-19, NN-XT and Redrum. The simplest of these is Redrum. Start by copying the samples you want to use to your hard drive. Open Redrum in Reason, right-click the instrument and select **Initialize Patch**. Next, click the **Browse Sample** folder icon on any one of the sample slots.



2 > Use the Sample Browser to navigate to the folder where your samples are located. You can audition samples by clicking them. To load a sample, double-click it. Your chosen sample will then be loaded into the sample slot. You can use the same technique to load REX2 files into the Dr REX loop player – just click the **Browse Sample** button on the interface.



3 > To load a sample into NN-XT, bring up the instrument, initialise it as we did Redrum and click the triangle in the bottom left-hand corner. The **Browse Sample** folder icon is located in the top left-hand corner of the expanded interface. Once a sample is loaded, you can set the keyrange of it with the graphical range controls or the **Lo Key/Hi Key** knobs.

The free UVI Workstation is great for playing back single samples, although it can't load multisamples



enables you to use your existing skills. It's possible to use a standard electric guitar as a MIDI controller using an audio-to-MIDI converter, such as the Sonuus G2M Guitar to MIDI Converter (RRP £80), but this is monophonic, which means it'll only allow you to play single notes at a time. An alternative would be to acquire a guitar-style MIDI device like the Yamaha EZ-AG – the company no longer actually produces these, but you'll no doubt be able to pick one up secondhand on eBay.

Sampling the delights

Question Is there a simple, free soft sampler or ROMpler that will enable me to straightforwardly load in any sample and play it?

Max Cidon

Answer There are some terrific free software samplers, including shortcircuit (available from www.vemberaudio.se) and HighLife (available from www.discodsp.com). shortcircuit in particular offers features that rival expensive commercial software samplers, including advanced modulation options and a wide variety of filters and effects. However, shortcircuit and HighLife are both PC VST only.

Thankfully, the excellent free ROMpler UVI Workstation (downloadable from www.uvisoundsources.com) is available as a Mac AU and VST plug-in, as well as PC VST, so everyone can use it. This will play back 24-bit wave files and REX2 loops, with the catch being that it can only load one sample at a time. So, it's not possible to create your own multisampled instrument patches. Still, it's got lots of sound-sculpting capabilities and a superb

selection of built-in effects, and is definitely worth a download.

Reason to be

Question How do you get cm samples into Reason 4? I've downloaded free ReFills from the Propellerhead website before with no problem, but I can't figure out how to use samples.

Obai Frempong

Answer Using sample files with Reason might not be quite as self-explanatory as using precompiled ReFills, but it's still quite straightforward. For a step-by-step guide, see *Loading samples into Reason instruments*, right.

Control issues

Question Is there a reason to buy a hardware effect or hardware synth, aside from the greater reliability during live performance? Are there sound quality or onstage usability issues?

Also, I understand the Wiimote can be used as a MIDI controller. What can it control? Can I get just the controller without the whole Wii station?

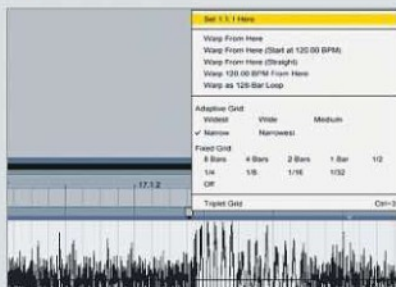
Tamir Hativa

Answer There are a variety of reasons one might choose a hardware synth or effect over comparable software. Let's take the Minimog Voyager synth as an example. One advantage of this beast is that you can easily access all the synth's parameters via the unit's knobs without having to worry about MIDI or latency issues –

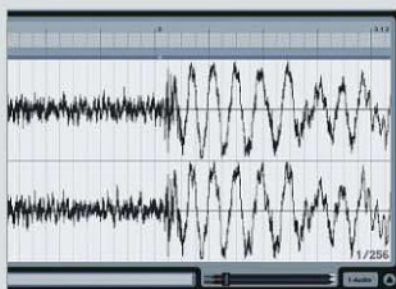
“shortcircuit in particular offers features that rival expensive commercial software samplers, including advanced modulation options and a wide variety of filters”

> Step by step

Warping tracks in Ableton Live 8



1 > Drag the track you want to warp into a slot in Live 8's Session view. Live will automatically detect the transients. We recommend switching to **Complex Pro** mode when you're Warping full, mixed tracks. Locate the first downbeat in the track. If there's already an accurate yellow warp marker at the start of the first downbeat, right-click it and select **Set 1.1.1 Here**.



2 > If there isn't already a warp marker, create one by double-clicking the grey bar where you think it should be. Next, right-click the 1.1.1 marker and select **Warp from Here**. You can now go through the track, ensuring that it stays in time - you may find it helpful to have the metronome or a previously warped track playing at the same time to ensure correct timing.



3 > If the track drifts out of time, create a warp marker at the start of the nearest bar of audio and drag it to the correct bar on the timeline. If you're working with a particularly 'loose' track, we suggest activating the clip's **Loop** mode and setting it to a **Length of 1 bar** to ensure that each beat syncs perfectly to the metronome.



A hardware synth like the Minimoog Voyager is great for tweakability, but it's a very expensive acquisition

it's quite literally hands-on control.

The other big attraction of the Voyager is that it uses analogue oscillators to create its raw waveforms, along with analogue filters, analogue envelope generators and so on. Countless software synths aim to recreate the sounds of real circuitry as closely as possible, the reason being that the analogue sound is still highly desirable and generally considered to be the template for how a (subtractive) synth should sound. While modern soft synths are extremely close and arguably indistinguishable, with a synth like the Voyager, you're getting the real thing, so you'll never be in any doubt as to whether it has that 'warm and punchy' analogue tone. This is a big part of why analogue synths still continue to be produced.

The big downside of hardware is the price - the Minimoog Voyager retails at £1899, and that's just for the rack version, which is the cheapest of the bunch. This is pretty steep compared to the relatively thrifty £229 RRP of the (admittedly less powerful) Arturia Minimoog V, a software emulation of the vintage 70s Minimoog. Of course, with the latter you can also load as many instances as your computer can handle and save a huge number of presets for instant recall of your favourite sounds. So, you pay your money and take your choice.

Investing in a Wiimote is a much cheaper proposition, and no, you don't even need to own the Wii console, just the controller itself, which retails for under £30. This connects to your computer via Bluetooth, and can be used in conjunction with GlovePIE on the PC (carl.kenner.googlepages.com/glovepie) or WiiToMidi (mike.verdone.ca/wiitomidi) on the Mac to communicate MIDI data. You can then use it to control software just as you would any other MIDI controller. See bit.ly/2PuTXu for more details on this.

Warp factor

Question I use Live for DJing and have just upgraded from v7 to v8, and I'm finding the new warping system totally baffling - it seems completely backwards from the old system! Can you explain how to use it please?

Clifford Lawson

Answer The new Ableton Live Warping system is quite literally backwards in relation to the old system - rather than moving the timeline at the top to fit the track, you now move the track to fit the timeline. The new system actually makes more sense, because you can very easily see how the track is being processed relative to the timeline, as opposed to the old system, which didn't show this as effectively. It might sound confusing, but the walkthrough *Warping tracks in Ableton Live 8*, left, should clear things up for you.

Analogue to digital

Question Back in the late 70s and early 80s, I got into binaural recording after visiting and taking some advice from Mike Skeet. I built a dummy head and bought a Marantz Superscope cassette recorder. In a short while, I had built up quite a catalogue of pretty good quality recordings. Unfortunately, the recording equipment was lost in a fire, but I still have the tapes.

Now I'm getting into the DAW scene, but would like to convert my old tapes to digital, using the Tascam DR-07 that I now own, and incorporate them into my current projects.

My question is about the age-old binaural problem of reproducing this material through speakers - can Wave Arts' VST

"Investing in a Wiimote is a much cheaper proposition, and you don't even need to own the Wii console"

Panorama be used to cancel the cross-talk, or are there any other techniques or plug-ins that can be used to get reasonable results?

Colin P Stevens

Answer We asked Bill Gardner from Wave Arts if this was possible, and it looks like you're in luck...

"Yes, you can convert your binaural recordings for speaker playback, but you need to use WaveSurround, not Panorama. The two products are similar, in that they both contain binaural synthesis and crosstalk cancellation algorithms. What you want is just crosstalk cancellation, because the binaural cues are already recorded. WaveSurround lets you turn off the binaural synthesis and just run crosstalk cancellation. Panorama doesn't have this mode, but it probably should, since in most respects, it is replacing WaveSurround.

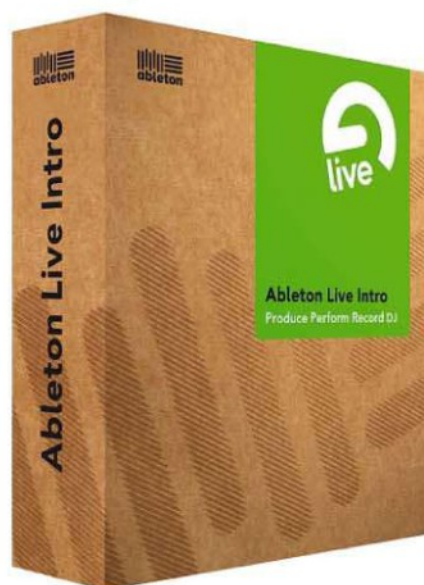
"In WaveSurround, enable 3D Sound, but set

Filtering to Off, and select speaker playback by clicking on the head. Set the desired angle by dragging the speakers, turn the reverb off, and set the wet/dry level to 100%. There you have it!"

Oldie but a goodie

Question I have recently come into possession of a friend's old Windows laptop, which is great, as I've wanted a portable music-making solution for a while. The only problem is that this machine is quite old now and only has a 1.2GHz processor and 512MB RAM. I'm also loathe to install my copy of Cubase on it, as I'd rather not risk taking the

To experience the Live method of making music, you can always check out the cutdown Ableton Live Intro software, which is packed with great features



Question How do I chop up breakbeats, 1992-style?

Sean Lennahan



1 > Getting that old-school hardcore feel with your breaks requires forgoing a lot of the modern conveniences found in today's music software. Here, we're using NI's Kontakt software sampler. Drag the sample **ForChopping.wav** (on the **cm DVD**) into a new instrument. Set the keyzone to a single note, and reduce the amplitude envelope **Release** to **0ms**.



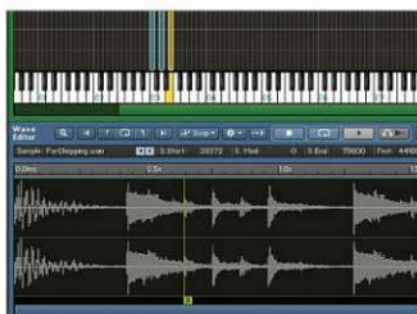
2 > Set your DAW to loop over a bar, and program the break to play for the whole bar, as we have here. We're going to change the tempo of the break to fit the project tempo - we set it to **150bpm** and turn on the metronome. The breakbeat needs to be pitched up, by gradually increasing the instrument's **Tune** value.



3 > Holding **Shift** gives fine tuning, and in this case, setting **Tune** to **1.28** puts the breakbeat in time with the project tempo. Now let's start chopping our sample up. Old-school producers would usually cut beats into quarter- or eighth-note beats, which is quicker and easier than slicing up each drum sound individually, and helps keep the groove intact.



4 > Right-click the keyzone and select **Copy Zone(s)**, then right-click and choose **Paste Zone(s)**. This will paste the new zone over the top of the existing one, so drag it onto the next white note to the right. Open the **Wave Editor** and move the new zone's start point to the beginning of the snare, just as we have here.



5 > Repeat the procedure, copying out another zone, and this time put the start point at the beginning of the 'chicken tikka' ghost snare part of the break, as we have here. Now we have three versions of the break, each starting at different points, and we can use these to create our own version of the beat.



6 > Return to the MIDI editor and create a new pattern using the three different versions of the beat, as shown. If you require finer control over the beat, you can create more zones with different start points. To get a real old-school feel, though, layer up multiple breaks and experiment with different rhythms.

copy protection key out and about with me in case I lose or damage it.

Can you recommend a cheap, relatively processor-efficient audio and MIDI sequencer that I can use on this machine? Any instrument and effects recommendations would also be appreciated!

Jamie Gibbs

Answer In terms of sheer portability and value for money, it's hard to argue with Cockos Incorporated's Reaper, which has an extremely reasonably-priced, non-commercial license. For \$60, you get a full-on audio and MIDI sequencer that comes with dozens of effects plug-ins, is cross-platform and will even run from a USB stick! The downside is that its complement of built-in instruments is limited, and while the effects are numerous, they aren't the most polished units around. We highly recommend

downloading the trial version from reaper.fm, which is non-expiring, so you can give it a thorough test-drive before you invest in the license. If you don't have access to the internet, you can find the latest version (at the time of going to press) on the **cm** DVD in the **Software/PC Software/Library** folder.

XT Software's energyXT is another option. It has less in-depth audio and MIDI editing than Reaper, but it does include a handy modular routing interface for creating complex instrument and effect combinations, and can also run from a USB stick. It's competitively priced, retailing at a cheery €49. You can download a demo from www.energy-xt.com, or try the special *Computer Music* version energyXT2.5 Core **cm** Edition, which is in the **CM Studio** folder on the DVD.

If neither of those do it for you, then perhaps Ableton Live Intro (available as a download for

€99) will tickle your fancy. This DAW might not be quite as slimline as the others we've mentioned, but it's got tons of amazing features and excellent built-in effects. You can also try before you buy with a time-limited demo that can be downloaded from www.ableton.com.

As for instruments and effects, you should definitely try the Kjaerhus Classic Series (available at www.kjaerhusaudio.com, and also in the Library folder on the **cm** DVD), Vember Audio's shortcircuit sampler (www.vemberaudio.se), Ichiro Toda's Nord Lead clone Synth1 (www.geocities.jp/daichi1969/softsynth), and all the goodies from Smartelectronix, including Antti's excellent ASynth (antti.smartelectronix.com). Oh, and don't forget to give the classic mda collection a whirl too mda.smartelectronix.com. Many of the plug-ins in the **cm** Studio are also resource efficient, so make sure you give them a go.

Question

How do I automate the LoopMash instrument's output level in Cubase 5?

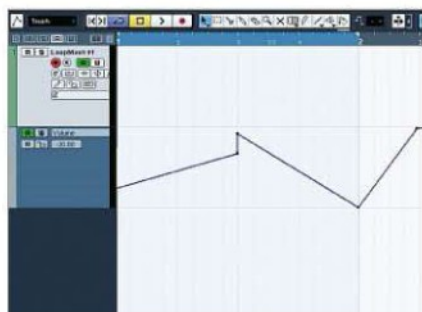
Matthew Archer



1 > Instruments in Cubase 5 can be sequenced via two types of tracks: instrument tracks and MIDI tracks. We'll use an instrument channel for this walkthrough. To bring up the automation track, hover the cursor below the keyboard icon on the automation track - an icon labelled **Show/Hide Automation** will appear, as shown here.

2 > Click the icon and the automation track will be displayed. This is set up to control the track volume by default, which is perfect for our needs here; but if you wish to change the parameter it controls, click the area that reads **Volume** and select a different parameter from the list.

3 > Automation lanes will only affect the selected parameter when their **Read** button is active. Activating the **Write** button enables you to record parameter automation by manually tweaking the value of a parameter in real time as the track plays, so this should be left off unless you want to record automation on the fly. Click the **Read** button now.



4 > To draw a fade on the automation lane, click the blue line and a point will appear. This can be dragged around as necessary, and you can create as many points as you like. To delete a point, click it and press **Delete**. You can also use the **Pencil** and various shaping tools in the top bar to draw in curves, etc.

5 > When you create automation, Cubase will reduce the number of points used, so that the curve doesn't become a mass of points. The amount Cubase reduces this information by can be controlled with the **Reduction Level** value in the Automation Panel, accessed from the **Show Automation Panel** button.

6 > To add more automation lanes, click the **+** icon on the existing one. For an instrument track, the process is the same, except you should automate the **Mix Out - Volume** level on the LoopMash instrument track, rather than using the MIDI volume automation lane (this only changes the volume of new notes).

Question How do I make 'vocal' lead sounds with Z3TA+?

Joshua Leonard



- 1** > Cakewalk's Z3TA+ is ideal for making vocal-style sounds, thanks to its wide range of parameters. Call up the synth in your DAW and select **Program>Initialize** to create a blank canvas. Activate the first oscillator by clicking where it says **Off** in the **Wave 1** section of the oscillator panel. This changes the waveshape to **Vintage Saw 1**.

- 2** > It doesn't matter what wave shape we set this oscillator to, because we're not actually going to be hearing it. Instead, we're going to use it to hard sync oscillator 2. To do this, set **Group** to **Sync**. While you're at it, set the **Octave** tuning to **-2**.

- 3** > Select oscillator **2** in the Oscillators panel. This is the oscillator we're actually going to hear. Therefore, the wave shape choice for this oscillator will have a big impact on the sound of the patch. We go for the **Sin ^2** wave shape from the **Others** category, as it gives the kind of tone we're after.



- 4** > If you play the patch, you'll hear that it already has a fairly vocal tonal quality. We can bring this out dramatically using a bit of modulation and processing. We'll start by modulating oscillator 2's pitch. Activate LFO1 by setting its **Wave 1** shape to **Sine**, and its **Phase** to **0 Deg**.

- 5** > Turn to the modulation matrix, where we can route LFO1 to oscillator 2's pitch. Set the first line of the modulation matrix to **Source: LFO1, Range: m87.7 - M100, Curve: Pitch 10, Destination: Osc2 Pitch**. In conjunction with the hard syncing, this pitch modulation affects the harmonics, rather than the overall pitch, creating satisfying rhythmic movement.

- 6** > The secret ingredient in synthetic vocal lead sounds is sample rate reduction. Without going into detail, this has the effect of adding crunchy harmonics to the sound. To achieve this, click **Effects** to bring up Z3TA+'s effects page, and set **Decimate** in the Distortion panel to **32.9%**



- 7** > The patch now gives a fully-formed vowel sound. If you play the patch up and down the keyboard, you'll notice that the vowel sound changes with the pitch. We can fix this by setting the second oscillator's mode to **Fixed, Sync**. Note how the vowel sound is consistent up and down the keyboard now.

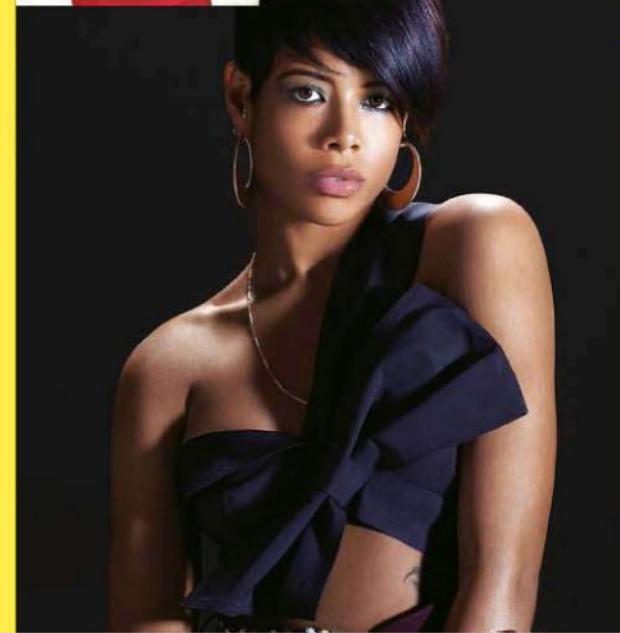
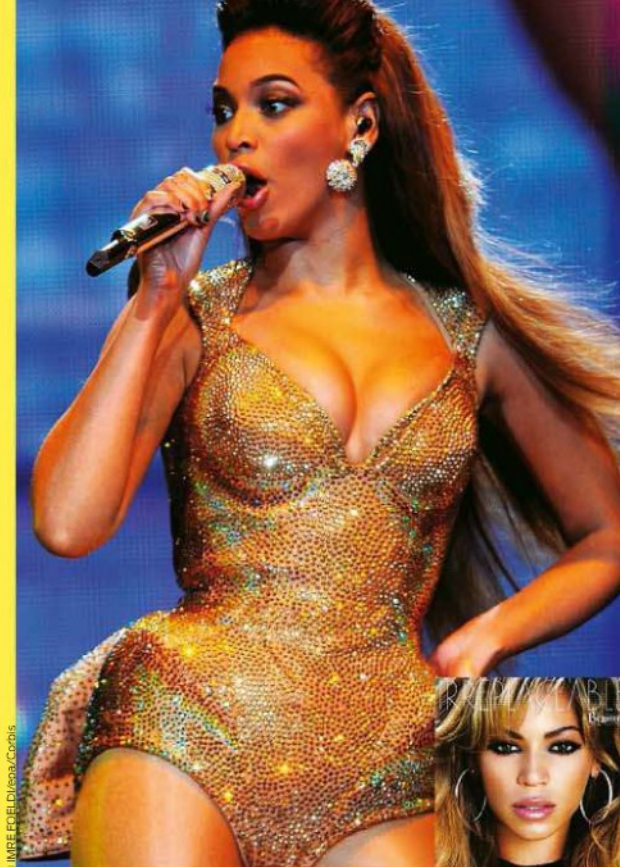
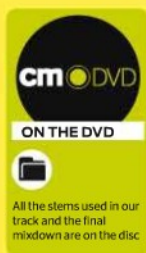
- 8** > We can adapt the vowel tone using the Range setting of the first line of the modulation matrix. To change the sound from a 'Yi' to an 'Oh', set the **Range** to **m:12.3% M:32.9%**. Different Ranges result in different vowel sounds, and if you really want to get clever, you can manipulate the Range in real time...

- 9** > The easiest way to do this is to set the **Control** field to **Mod Wheel**. You can now use your keyboard's mod wheel to control the vowel tone. Narrow the **Range** to focus in on a particular sound - we found **m:21.9% M:82.2%** worked best for shifting between 'O' and 'I' sounds. **cm**

>cmfocus

Break out your soulful side with our guide to the production techniques behind this ever popular and supremely polished genre...

SMOOTH R&B



> The term **Rhythm and Blues** has been around since the 1940s, used as a blanket term to cover multiple African American musical genres, such as soul and funk. However, the roots of smooth R&B trace back to the soulful sounds of Barry White, Isaac Hayes and Teddy Pendergrass, whose sexy slow jams have supplied the soundtrack to many a romantic interlude. **Baby.**

In the 1980s, the style developed into what was then known as 'contemporary R&B', which fused the raunchy vocals of soul with drum machine rhythms and increasingly electronic instrumentation. While many of these records – such as Marvin Gaye's genre classic *Sexual Healing* – became hits, it wasn't until the 90s that the likes of Mariah Carey and TLC brought the style firmly into the pop mainstream.

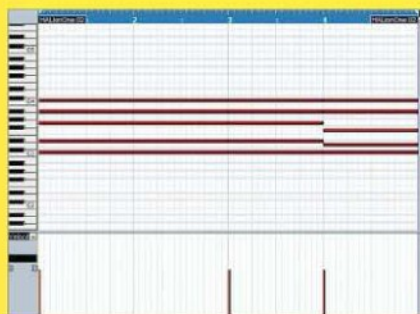
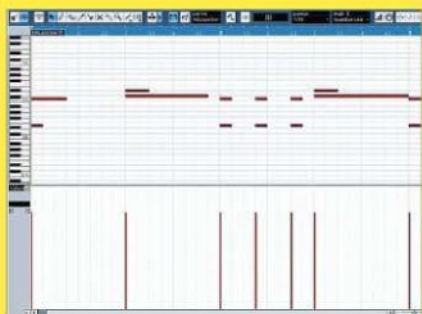
The 90s also saw an increasing number of collaborations between hip-hop and R&B artists and producers, notably Timbaland, whose work with Missy Elliot and Ginuwine broke new ground in both genres. In particular, the Missy Elliot and Ginuwine track *Friendly Skies* from Elliot's debut album *Supa Dupa Fly* is worlds away from its more organic forebears, combining a plethora of vocal processing, delayed percussion and abstract synth sounds.

Since this creative high point, the genre has only increased in popularity, with R&B artists regularly topping charts on both sides of the Atlantic. Although many of these hits are floor-filling bangers from the likes of Rihanna

"These sexy slow jams have supplied the soundtrack to many a romantic interlude"

and Beyoncé, artists such as Ne-Yo, R. Kelly and Alicia Keys continue to have success with their more laid-back take on the R&B sound, and it's this downtempo style that we're going to concentrate on here.

In this tutorial, we'll show you how to create your own soulful slow jam in software, including advice on recording and processing vocals, programming synth sounds and creating a flowing arrangement. On the DVD, you'll find all the stems that you need to recreate our track in your own DAW, so load up the disc and let's get it on!

> Step by step **Sketching out the rhythm and chords**

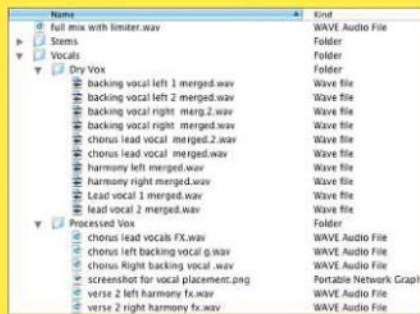
1 > R&B tracks are all about the vocals, so our first task is to create a basic loop that a vocal can then be recorded over. We opt to use Cubase's HALion One instrument with the **R&B Kit 2** patch loaded. The sequencer is set to **125bpm**, then a simple kick/snare pattern is programmed in. To thicken them up, multiple sounds are layered together.

2 > Our kick drum actually comprises two sounds, and clap and sidestick sounds are layered together to make a full-sounding snare-style sound. This will give the singer a basic rhythm to work with, but we also need some musical elements for them to harmonise with. To create a simple chord part, we use HALion One's **Yamaha S90ES Piano** patch. You can copy the chords above.



3 > Next, a complimentary bassline is programmed using a fretless bass sound. These parts are exported as both audio and MIDI, and sent to our vocalist, who writes chorus and verse sections. By keeping the music and beat simple at this stage, the vocalist has a greater degree of freedom, and subsequent production can compliment their work as necessary.

4 > Once the vocal has been recorded (see *Recording an R&B vocal* in the boxout), it's loaded into Ableton Live 8. The vocal is supplied as stems, but for simplicity's sake, we're going to use the complete vocal mix as one. The drum loop (as audio) plus the piano and bass MIDI parts are also imported into Live.



5 > We simply can't resist applying some extreme Auto-Tune to the vocal, so we add Antares' legendary plug-in as an insert. The **Key** and **Scale** are set to **C Minor**, with the **Retune Speed** at **0**. It doesn't sound great on everything, though, so we use an automation track to turn the effect on and off as necessary.

6 > As the vocal is already sounding great, it doesn't require any extra processing. However, if you would like to try your own production techniques on it, you'll find the dry and processed versions in the **Tutorial Files/Focus** folder on the DVD.

Recording an R&B vocal

To provide a sensual R&B vocal, **cm** called on dance diva **DMO**, also known as **Donna**. She's a skilled engineer and producer, as well as a vocalist, and did all the recording in her own studio.

"The vocal process began by writing some lyrics and a melody around the instrumental," reveals Donna. "First came the verse, followed by the chorus, then the backing vocals and ad libs. The vocals were recorded with an **SE Electronics Z5600 mkII** large condenser valve microphone, **SE Electronics Reflexion Filter** and pop shield, all routed into an **Apple Mac G5** with **Logic Pro 7** via an **ART TubeFire** audio interface.

"I started by recording the lead vocals and verses, which helped to keep the tone constant. I stood approximately **6"** from the pop shield, with the TubeFire's gain set at **10 o'clock** and the output at **3 o'clock**. Because the vocal line overlapped in the verses, I recorded onto two separate tracks using the same compression, EQ, busses and inserts. When the vocal chords begin to warm up and relax, the tone can often change, so by doing all of the verse lines back to back, this helped the consistency of the vocal tone. The same approach can also be used on the backing vocals, ad libs, chorus and harmony lines. The backing vocals needed to sound more breathy, so by singing few more inches away from the pop shield, I was able to change the proximity effect and the overall character of the vocal sound.

"To get a clean pop/R&B sound, I started with compression. Too much compression can make the vocals sound unnatural. But by using a soft knee and slow attack and release times, I could ensure that the vocals still sounded natural. For channel EQing, rolling off around **100Hz**, adding around **2dB** between **2** and **3.5kHz**, plus adding presence at **17-20kHz** worked well. In fact, it always helps to know the equipment you're using and the voice you're recording.

"Auto-Tune is often used in today's R&B production, so this was inserted onto the vocal tracks using a Chromatic scale in **C** with a Soprano voice setting. Because the vocal was well pitched, I used Auto-Tune to slightly 'colour' the vocals rather than change them. I also added Logic's Space Designer reverb with a **10ms** delay and a short release time via a bus. An EQ was placed after this to remove unwanted frequencies that can make the vocal sound 'muddy'."

Classic R&B jams

MARVIN GAYE

SEXUAL HEALING (1982)

Two years before his untimely death in 1984, soul legend Marvin Gaye recorded this all-time classic R&B track, which would also be one of the first hits to use Roland's TR-808 drum machine. *Sexual Healing* set the blueprint for drum machine-driven R&B, and has been sampled by a number of artists, including Bone Thugs-N-Harmony.

R. KELLY

BUMP N' GRIND (1994)

R. Kelly's ode to his favourite pastime combines G-funk leads, synthesised instrumentation and, of course, Kelly's over-the-top vocal stylings. A truly seminal track, *Bump n' Grind* turned Kelly into the 90s equivalent of Barry White, a role that he accepted with great relish, releasing countless paens to procreation, including the jaw-dropping *Sex Planet* and *Pregnant*.

GINUWINE

PONY (1996)

Produced by Timbaland, *Pony* was not only a big hit, but also a much more experimental production-wise than previous slow jams in the R&B genre. Featuring a catchy, talkbox-style synth hook and wacky cartoon-style sound effects, its unusual vibe is tempered by Ginuwine's smooth vocals, curiously encouraging the listener to ride his pony. Quite how that would help and why a grown man would own such an animal are not discussed.

BEYONCÉ

IRREPLACEABLE (2006)

One of Beyoncé's less dancefloor-orientated tracks, *Irreplaceable* is quite a mixed bag production-wise. The track wasn't originally written for Ms Knowles, being conceived as a more country-flavoured track, which goes somewhat towards explaining the unusual combination of electro-style drum machine beats, strings, brass and jangly acoustic guitars.

> Step by step Adding sensual instrumentation



1 > With the vocal sorted, our next task is getting the instrumentation sounding right. Spectrasonics' extraordinary Omnisphere is a veritable goldmine of keyboard and pad sounds, so that's what we're going to use for the bulk of our instrument sounds. To play the main chords, we select the luscious **Valve Radio Rhodes** electric piano patch.



2 > For the chorus, we want to lift the track up with added instrumentation. A variation on the main chord part is created and played with the **Plucked Dream Piano** patch. This plays over the top of the existing electric piano part to create a much denser chord section.



3 > The final Omnisphere instrument we use comes from the **Dreamy String Orchestra** patch. This is a fairly realistic-sounding string patch, and we've created a sparser variation on the chord part to play it with. Like the piano part from the last step, this also plays over the chorus to create a bigger sound.



4 > Along with the instrumentation, the original drum part is sounding good, but it needs some compression to make it louder and much fuller-sounding. We apply TC's PowerCore 24/7-C as an insert, which warms the drum sound up and helps it to punch through the mix.



5 > While it's functional, the snare sound hasn't got quite enough pop for our needs. In order to give it a bit more zing, a finger snap sample is loaded into Ableton Live's Sampler instrument and triggered on top of the existing snares.



6 > To replace the rather flabby fretless bass part from the rough version, the same MIDI part is used to trigger Sylenth1's **BS Another Moog** patch. To give this preset more punch, though, we set one of the envelopes to modulate the pitch, creating a quick downwards slide at the start of each note.

> Step by step Synth hooks and FX



1 > So far, the instrumentation is all quite restrained, without a real hook. In order to remedy this, we need a catchy synth part. We're using an initialised patch in Sylenth1 to create this from scratch. The first thing we do is set Oscillator A1 to the square shape and turn the **Voices** up to **8**. We also turn the unison **Detune** up to **1.76**.

2 > We then activate the second oscillator by turning up its number of **Voices** to **1**, and set this to the square shape, too. The second oscillator is tuned **2 Octaves** above the first. This gives the sound a brighter, more percussive quality.

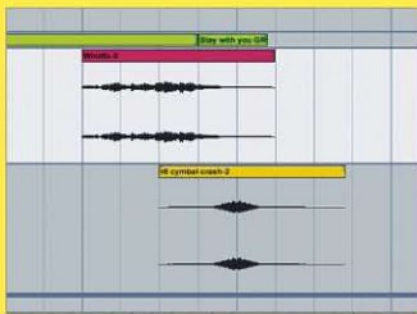
3 > To give the patch a less static feel, we use **LFO 1** to modulate **Pitch A**. Sylenth1's pitch modulation is quite sensitive, so we set a low modulation level of only **0.10** and use the **Gain** to fine tune the amount - we go for **3.81**.



4 > To give our patch a bit more funk, we set Filter A to low-pass mode and use **LFO 2** to modulate the **Cutoff** frequency. The LFO is synced to **1/8T**, and the cutoff level is also tied to the note played by setting the **Keytrack** knob in the Filter Control panel to **5**.

5 > Sylenth1's built-in delay, reverb and compressor effects are applied subtly to give the patch a more ambient sound, and Live's EQ Eight is used to roll off the low-end, which might otherwise interfere with the kick and bass sounds.

6 > This sound has the right feel and groove but it's a little too laid-back on its own, so we create another Sylenth1 patch to compliment it. This plays the same notes as the first, and the same part one octave up and a 16th-note later, creating a cool, trippy delay-style effect.

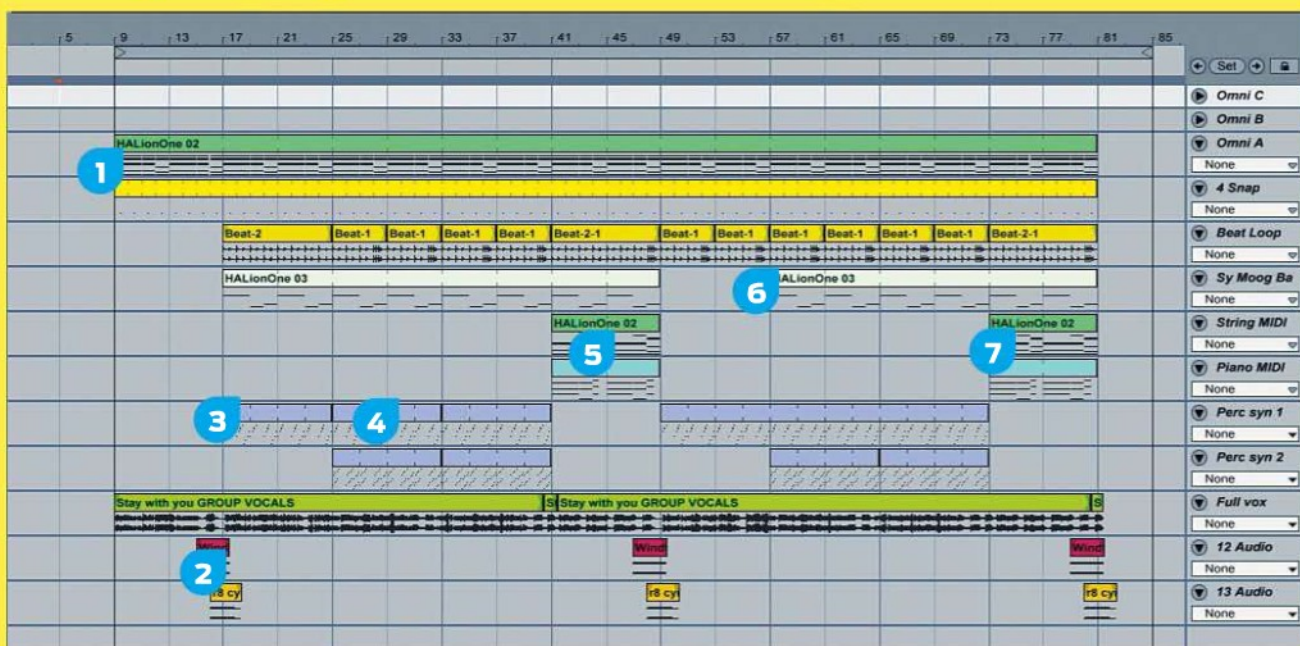


7 > This supplementary synth uses the same patch as the first, although the cutoff modulation has been disabled, the resonance and drive levels have been turned up, and one of the taps in the delay effect has had its sync set to **1/8T** to make the repeats more rapid. Like the first synth, this one also gets its low frequencies rolled off with EQ Eight.

8 > That's all the instrument parts we need, but some percussion sounds would be useful to help the track flow more smoothly, so we dig out mark tree and crash cymbal samples. These are used at the end of the chorus section. To make the mark tree flow smoothly into the crash, we reverse the latter and place it immediately before the unreversed version to create a sucking effect.

9 > These sounds are far too dry on their own, so we set up one of Live's Return tracks with a delay/reverb chain, which enables us to apply the effects to both sound by simply turning up their channels' Send levels. When using send effect chains, the first effect (at least) should be set to **100%** wet, so that the dry track signal isn't duplicated in the output.

Putting it all together



01 The arrangement begins with the electric piano chords, vocal and finger snap sounds. This gives the listener something to get their teeth into, while also leaving us space to let the track build.

02 The beats and bass are about to drop, so to smooth this transition, the mark tree and reverse crash cymbal sounds are used. Without any kind of transitional elements

such as these, moving between different sections of the track can sometimes be quite jarring.

03 The beats and bass drop, but only the softer of the two percussive synths is introduced at this point - we don't want to give away everything at once, do we?

04 The second percussive synth is introduced eight bars later and plays throughout

the rest of the verse. This is where the instrumentation is at its most intense.

05 For the chorus, the track actually becomes more laid-back, as the percussive synths are stripped away and the lighter piano and string parts take their place, creating a lush, less strident vibe.

06 We're back to the verse, this time taking a brief

respite from the bassline to stop it becoming too repetitive. Aside from this difference, this verse arrangement is the same as the one used first time round.

07 The second chorus works just like the first, including the use of transitional elements at the end. The delay used on these parts gives us a nice effect at the end of the track, rather than everything simply stopping dead. **cm**

Recommended software for smooth R&B producers



Omnisphere £359
As used in this tutorial, Omnisphere boasts a selection of sounds that are a cut above the rest, including truly amazing acoustic instruments, fat synth tones and gorgeous pads. If you're after more bottom-heavy sounds, however, its bass-centric little brother Trilian is an excellent investment, too.
www.spectrasonics.net



Kontakt 4 £337
When it comes to realistic instrument sounds, nothing comes close to Kontakt - not only does it feature an epic 43GB library of patches that cover everything from orchestral instruments to banging beats, it's also the industry standard sample playback engine, with hundreds of sound libraries available.
www.native-instruments.com



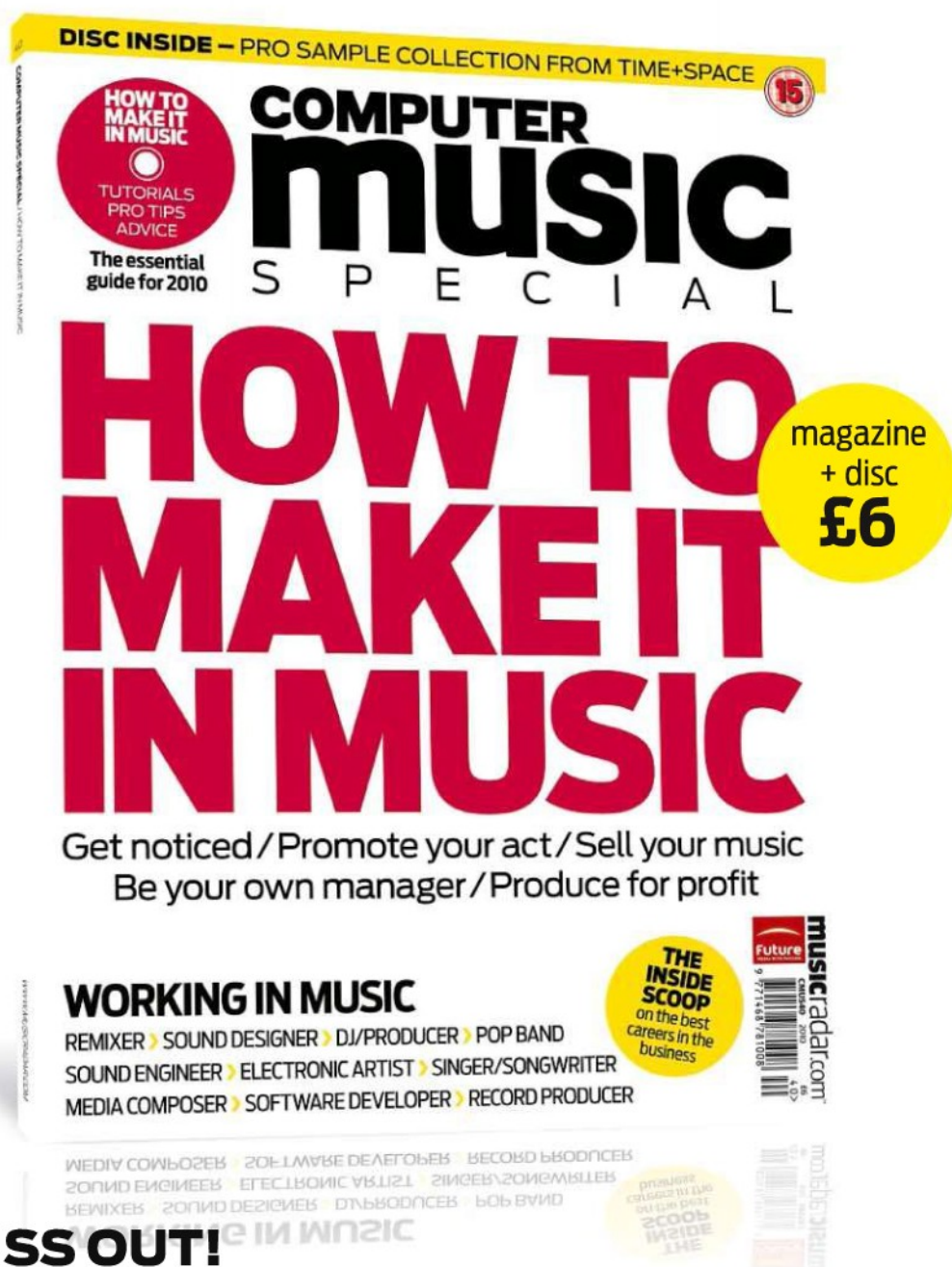
Twin 2 £104
While there are many excellent Minimoog clones out there, such as the Arturia minimoog V and GForce Minimonsta, FabFilter Twin 2 can create marvellous Moog-style tones and plenty more besides. PC users should check out FabFilter One **cm** Edition in the **cm** Studio, which is less fully-featured but just as funky.
www.fabfilter.com



Alloy \$249
Channel strip plug-ins offer a convenient way to apply multiple types of processing to a vocal, and iZotope's excellent Alloy incorporates six different sections. These include a handy de-esser for cutting down on unwanted sibilance, and a dynamics module for making your vocals as loud and punchy as can be.
www.izotope.com

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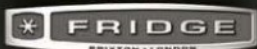
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