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welcome

Ever since laptops became light enough to realistically cart around internationally, I've taken mine on holiday with me every year for a little poolside music production. This year, however, I decided to leave the old girl at home, instead packing my iPad. I'd only had it for a couple of weeks, in which time I hadn't had the chance to properly explore its better music apps, so there was an element of risk to this.

As it turned out, though, the experience was an interesting and ultimately satisfying one. While the iPad is nowhere near as comprehensive and 'complete' a mobile production solution as a laptop, it's much more immediate and fun, thanks to the touchscreen interface, form factor and focused nature of its apps. Because of the lack of access to the file system, which Apple really need to budge on, there's little in the way of inter-app operability (Sonoma's excellent-but-not-yet-ubiquitous AudioCopy/AudioPaste notwithstanding), so getting a complete track of any intricacy together isn't an option. For beat-making, sound design, sketchpadding and just arsing around, though, it's absolutely perfect.

It's still early days for the iPad and Apple's iOS in general, but already their promise of an alternative new paradigm in music software is being realised, and some of the production and DJing apps currently in development are looking fantastic. The iPhone, iPod touch and iPad are now firmly established in **cm**'s editorial remit (with Google's Android set to join them as it becomes more relevant, musically speaking), and this issue sees our first ever 'iDevice' tutorial, on p57. Rest assured that Mac and PC are still – and always will be – our primary platforms, but when it comes to mobile music-making, make no mistake about it, the laptop no longer stands alone.

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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Message of the month

The crossover and greying of genres is becoming more and more confusing. No sooner does an artist emerge tagged with one specific style than their name pops up in discussions on many others. Is Deadmau5 minimal house, trance, neo-trance? I'm sure he himself wouldn't be too worried about where he fits, but life is more difficult when filling in the genre box on our MySpace sites.

The *Focus* section of your mag therefore serves a significant purpose by educating us in the world of some less obvious genres. The introduction gives info on the trademarks associated with the sound, then a more in-depth build-up of typical genre elements, and finally a selection of tracks to go and listen to. The complexity and ever-changing nature of music, though, doesn't mean that these artists sit in their locked-down position for long, but for now we have a starting point and some clarity.

So, is an artist's genre actually that important? Is Kromestar dubstep, jungle, drum 'n' bass, oldskool? Well, perhaps dubstep today, but who knows tomorrow? Genre identity does serve as a placard for inviting like-minded interest and fans to your own styles. And anyway, what would the forums debate if everything was perfectly clear?

Neil Ritchie, Barnsley

There are so many genres in electronic and dance music, and the lines between many of them are so blurred, that it can indeed be difficult to keep up. But they're just tags of convenience when all's said and done, and with the infinite stylistic diversity of today's producers, it could be argued that, really, any individual track constitutes a genre unto itself. Or something.

cm *Focus* has been a tremendous success since its relaunch last year, enabling us (and, consequently, you) to really get into the meat of a specific genre, sub-genre or key production element every month. We're open to suggestions as to subject matter too, so if you've got a particular topic in mind that you'd really like to see covered by our cm *Focus* experts, do let me know. *RM*

The writer of our *Message of the month* will receive a brand new Cakewalk A-500S controller keyboard, worth £155, courtesy of Cakewalk and Roland!

www.cakewalk.com

The wrong stuff

After 25 years as a presenter, DJ and producer in radio and TV, I now run my own home studio, producing my music, webcasts and remixes, and I hold beginners' courses in sound production, home studio, gig rigs and digital editing. **cm** has been instrumental in inspiring me to do this, and continuously helpful. Your 'anything goes' approach, and the fact that you never forget that you always have to be a beginner before you become a pro, are great tools of pedagogics.

There is one column that I really don't get, though: *What's wrong with my mix?*. There's never actually anything wrong with the mix! What's the point of a column with this name when it's full of positive cheering? I include a quote from the May issue: "With such a sparse arrangement, it's hard to get the balance wrong, but what really makes this mix shine is the use of echoes and reverbs to create depth. The vocal sound says a lot for built-in mic recording. The dry, loud vocal sound and the balance between it and the harmonies are perfect."

To me, this sounds more like a text for a column called 'What's great with my mix?'. Wouldn't we all learn more if the mixes actually were wrong in a way? To have it pointed out by a pro would help us to fix it next time.

Guttorm Andreasen, Oslo, Norway

***What's wrong with my mix?* always makes suggestions as to how the featured track could be improved. For example, also from the May issue: "The middle section could do with more consideration in terms of instrumentation."**

I guess you're suggesting that we use tracks that are positively 'broken', but the idea behind the piece is to take an already good track and constructively criticise it with a view to making it 'perfect', for want of a better word. *RM*

Genre hopping

Recently I was asked to provide some music for a snowboarding DVD that a friend was putting together. This required me to produce tracks that were stylistically a little different to what I would normally produce.

cm / reader music

What's wrong with my mix?

Expert producer and engineer Mark Frith breaks off from his studio work to cast judgement upon this month's featured reader demo

WATCHING SPACESHIPS
Fashion

What's wrong with *What's wrong with my mix?* Guttorm says there's never anything wrong, which is wrong. See?

Simon Green (aka Bonobo) shared his production secrets with us in our June issue – turn to page 121 now if you missed it...

Needing a few pointers, I dug out some old copies of **cm** for guides covering the styles that I needed, and they were a big help. Learning the nuances of other genres helped me out no end in improving what I write – even my music outside the project.

I just wish I'd taken the time to go through them all the first time round, instead of skipping through them as they "weren't relevant". I now know that you can learn just as much from one guide to an unfamiliar genre than in countless guides to your favourite style.

> "Learning the nuances of other genres helped me out no end"

Since then, I've been re-reading my old copies of the mag, looking for anything else that I may have missed or forgotten, and I've come across a few gems – not to mention laughing at the 'power' of the PC back in the day!

It just goes to show that you should never ever throw away old copies of **cm** – you never know when they'll come in handy!

Lee Whitfield, Melton Mowbray

Too right. Every issue of cm is very much intended to be archived as studio reference material after first reading, so don't bin 'em! *RM*

Producing the goods

Visiting producers in their studios and having them chat about their work in your *Producer Masterclass* series is inspiring and educational. It makes me feel like part of a community, and often leaves me with valuable tips, tricks and straight-up techniques. Which brings me to the specific feature I wanted to rave about.

Bonobo (**cm**152) showed us some cool techniques for putting stuff together using things he finds – sounds he finds. I got lots of inspiration from him, and some good tricks too.

It was particularly cool of him to actually create the sounds afresh, using the methods he used for the original track, so that, to a small extent, we saw a unique, never-before-seen variation on his track, put together on the fly for us!

He did that with the synth sample from that dollar dustbin record, and with the violin line. Way to show off his chops! Kudos to him and kudos to you for making it happen.

Darryl Huggins, Toronto, Canada

We're big fans of Bonobo's work round these parts, and his earthy, organic approach sums up much of what we reckon modern computer music is all about. We're glad you enjoyed his teachings – now load up this month's DVD and check out Blame's very different but equally inspirational shapes. *RM*

Net result

I just wanted to drop you a line to congratulate you and the team on the new **cm** website. It looks great and I love that you can build walkthrough tutorials directly into the site itself, rather than offering them as PDF downloads. And those *Burning Question* desktops are beautiful – lovin' JAKe's work!

So, congratulations, and keep that good shit coming!

Oliver Davy, Newcastle

We certainly will. As well as the new computermusic.co.uk, our Facebook and Twitter feeds are now getting the attention they deserve, so sign up if you haven't already. *RM*

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NEW RELEASES > COMMENT > INDUSTRY HAPPENINGS

Reason 5 revealed

REX, drums and rock 'n' roll – Propellerhead's Reason gets some amazing additions

> The fifth edition of Reason is imminent, and Propellerhead have given their music production suite a hefty update.

First up, you can record without Record, as Reason now offers live sampling. Every sample player can be used to capture audio simply by attaching a sound source to its sampling input. There's a one-touch recording feature that enables you to quickly capture sounds, although a built-in editor means you can take more control and edit the results if needed. You can also sample on-the-fly while your track is playing.

Another key addition is the Kong Drum Designer. This module has 16 pads and drums, along with nine effects modules, so you can load and tweak sounds with precision. It offers a huge number of options for loops, drum synthesis, sampling and more. The four virtual analogue generators are bass, snare, hi-hat and tom tom, with the three physical modelling generators comprising bass, snare and tom tom. In addition, there's an NN-Nano sampler, which enables you to layer sampled sounds, a Nurse Rex playback engine, and Noise and Tone generators.

The other major update is Dr. Octo Rex. As well as sounding like Spider-Man's arch-nemesis, this upgraded version of the Dr. Rex loop player enables loading and switching between – you guessed it – eight REX loops. This should make arranging far simpler, while for those who want more off-the-wall experimental sounds, it sounds like there'll be plenty of ways for you to mangle your tunes and beats.

The new Kong drum instrument is touted as being intuitive and versatile, offering a huge degree of control

The sequencing system has also been changed to more closely reflect the songwriting process. With Blocks, you can logically and clearly lay out segments of your song – intro, verse, chorus – as individual elements in your arrangement. Swapping between pattern-based and linear arrangements is simple and there are some nice features to play with, such as being able to mute specific tracks in a block.

For an in-depth look at Reason 5, check out our preview feature starting on p83. Reason 5 is available for PC and Mac and costs £300. It ships in late summer, and you can sign up to test the beta right now.

www.propellerheads.se

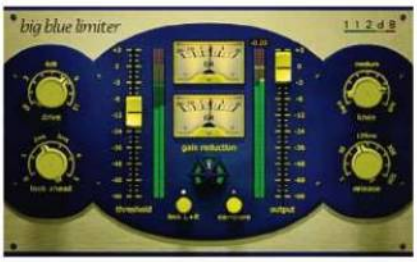
Dive into 112dB's Big Blue series

> Following their hugely impressive Redline range – Redline Monitor (9/10, cm140), Reverb (10/10, cm144), Equalizer (10/10 cm145) and Preamp (9/10 cm149) – the brains at 112dB have now got the blues.

The Big Blue Limiter is a character limiter that utilises analogue tube modelling in its design and so this plug-in aims for a fat, warm, colourful sound. The limiter also features its own preamp, giving you the option to go for overdrive effects, and 112dB reckon that "it adds a little mojo to everything you run through it."

Big Blue Limiter for PC and Mac will be out "soon", with the price to be confirmed.

www.112db.com



If it can live up to 112dB's usual high standards, the Big Blue Limiter will be one to watch, we say

Record 1.5 announced

Propellerhead get vocal about Neptune, Blocks and more

With a whole new way of working with vocal tracks, Neptune looks like being a very welcome addition to the Record toolset

> Propellerhead have put the new features in Record 1.5 on the record, and the latest version of their recording and mixing software promises a host of features for improving your vocal tracks.

The star of the new release is Neptune. It's a flexible pitch adjuster, audio transposer and voice synth, and it certainly fills a gap, since v1 of Record had no such pitch editing functionality. Neptune offers an easy way to correct any out-of-tune notes in your vocal tracks and can transpose too, so if you need to change the key of a song you've already recorded, you can pitchshift the vocal track up or down. Propellerhead are lauding the voice synth as the most creative part of Neptune, enabling you to create harmonies from your vocals in real-time via your MIDI keyboard.

"High-quality processor to correct and shift pitches... or take your vocals into outer space"

Propellerhead

Record also features the Block pattern sequencing mode that's been introduced into Reason 5 (see previous page), ensuring ease of use between the two packages. For more details, see our preview article on p83.

Record 1.5 is available at the end of the summer, or you can sign up for beta testing now. It's a free upgrade for Record 1 users, or can be bought for £235.

www.propellerheads.se

Novation roll out Dicer

New performance controller offers flexibility for digital DJs

> With its integration with Serato Scratch Live, Novation's Dicer is being billed as "the ultimate performance upgrade" for Serato users, but it could be of interest to anyone using CDJs or turntables.

The backlit buttons give instant visual feedback (useful in dingy clubs), along with full control of Serato's looping and cue point functions, enabling on-the-fly mash-ups. Meanwhile, away from Serato, Dicer is a class-compliant MIDI controller that can operate Ableton, Reason, Traktor and more.

Dicer is sold in pairs at £80, and works on Mac and PC via a single USB socket.

www.novationmusic.com

The funky Dicers are designed to fit snugly on your turntable for fast and fluid control of your sounds

Mixdown

Furious backpedalling from our Deputy Editor in this issue's off-the-cuff column

> I've always felt that the computer is a bit like a musical instrument unto itself, with each piece of software – and indeed, each controller device – requiring different 'playing' techniques that need to be learned. This seemed especially apt in the days of keyboard-controlled trackers – once you'd got all the shortcuts under your fingers, you could fly around the app with the ease and grace of a practised musician, building and shaping music almost as fast as it could be conceived.

I had an enlightening experience recently that, while not directly related to computer music, is still worth relating, I feel. Now, a couple of years back I picked up some fancy new bass drum pedals, thinking that they should make it easier for me to improve my drumming, if not actually being a magic bullet leading to instantly better chops. Oddly, some of my techniques slowly got worse, to the point where I abandoned them, instead working on other ways to play the same material. I at first assumed it was just because I didn't practise for hours a day – after all, I didn't want to be the proverbial bad workman who blames his tools.

"I didn't want to be the proverbial bad workman who blames his tools"

More recently, I picked up some entirely different pedals (for reasons that are too mundane to go into) and found that I hadn't lost it at all – it really was the old pedals holding me back! Now they weren't bad ones by any means, but they just didn't work for me. At first I was dismayed that I'd spent so long struggling with the 'wrong' gear, but then I found that the numerous tricks and techniques I'd come up with as workarounds worked even better on the new pedals, and what's more, they were things I'd never have practised otherwise. In the long run, I think it'll have been a beneficial experience.

So what's the moral of the story? Well, my point is that while it might be something of a journey to discover the software or MIDI controller that's right for you, so long as you're doing *something*, you'll be practising your skills and picking up new techniques, which can often be applied to any future gear you pick up. Just don't let the lack of a 'perfect' setup discourage you from making music in the meantime!

cm presents Producer Sessions Live

Meet the stars and make better music with cm's live event

> As well as supporting the huge London Music Show in October (see p54), we're also getting up close and personal at our very own Producer Sessions Live event.

We'll be taking over the state-of-the-art SAE audio engineering school in London on September 25th and 26th to bring you a weekend of gear demos and essential advice to help you get more from your music. The Shoreditch studio's five floors and 20 demo rooms will be crammed with the latest music-making kit and will host a series of intimate expert tutorials.

Freemasons, Danny Byrd, Dave Spoon, London Elektricity and Tommy D will all be sharing production secrets and answering questions in hour-long sessions. Follow **prodsessionlive** on Twitter to be informed of further big-name additions.

The teams from cm and *Future Music* will be there too, providing advice, overseeing tutorials and showing off the latest gear. You can get hands-on with it yourself, and even buy gear from our show sponsors Absolute Music. Other companies with products on show include Focusrite, Ableton, Novation, Time+Space, Spectrasonics, Toontrack, Focal Professional, MOTU, MXL, Numark, Akai, FXpansion, Roland, Cakewalk, Korg, Propellerhead, Universal Audio, PreSonus, Steinberg, Avid, Digidesign and M-Audio.

Entry is £8 per day, and each Producer Session costs £4. Space is limited so get in there early! Full details on the show and ticket ordering can be found at the PSL site.

Producer Sessions Live is going to be unmissable, so don't mess about – get your tickets now!

www.producersessionslive.com

FX at your fingertips

> FreePlayer have promised a whole new approach to guitar effects with their new hardware and software package. The bundle means guitarists can forget about controller pedals, instead using a hardware panel mounted on the guitar, attached to the computer via USB.

The hardware offers 20 control sources, eg, buttons, an XY touchpad and even motion-sensing. For instance, shaking the guitar's neck could be configured to bring in reverb, while the instrument will even respond to the motion of your hands close to the strings. On the software side, you've got Soundbench, an app that hosts VSTs and can also output MIDI (presumably for DAW control). The software is Windows-only at the moment, while the hardware is most easily mounted to Strat- and Les Paul-style guitars, though it will fit on others too. "Two screws, and you're done," say the company.

FreePlayer should be shipping around the start of August. It'll cost €399 but can be pre-ordered right now for €299.

www.freeplayerstore.com

While your guitar gently bleeps – FreePlayer puts control of VST effects right at your fingertips

Damaged

Chris Randall wonders how anyone can concentrate on making music these days

> I was in a restaurant the other day and a woman about my age was there with her two tween-aged children. She was attempting to have a conversation with them, but they were both texting on their cell phones throughout the entire meal. I'm trying to imagine a world in which I could have gotten away with this at their age. This is quite difficult for me, as cell phones didn't come into common usage until I was a young adult. But needless to say, if they had been around, it wouldn't have been allowed.

While this is an amusing occurrence in our modern age, it speaks to a larger problem, and one that affects many musicians. Virtually every time I've been in the studio in the last couple years, the engineer has had a chat window open next to the session, and every time I turn my back, he's chatting away or checking his phone for texts, all the while continually flipping over to a browser to check Facebook or Twitter. Honestly, I've had enough. *Pay attention!*

"Every time I turn my back, he's chatting away or checking his phone for texts... Pay attention!"

I'm writing this column in a program I discovered a couple of months ago called WriteRoom (**www.hogbaysoftware.com**). It's a simple word processor that wouldn't be out of place on an Apple II Plus – green text, black screen. Its most endearing trait, though, is that it blacks out the rest of the screen, including the menu bar. In this manner, you're not constantly informed that some friend has become the Mayor of the local KFC, or that a school acquaintance just took the dog for a walk.

Ableton Live has a similar feature – if you whack F11, you can put it in full-screen mode and hide all those notifications. I wish all our tools had this function because, quite frankly, I have a hard enough time concentra... oh, look, Ashton Kutcher just said something funny on his Twitter feed. Gotta go.

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

Nuendo 5 arrives

Steinberg's high-end post-production app is updated

The latest version of Nuendo offers a wide range of state-of-the-art features

Nuendo 5 has hit the shelves, and post-production professionals will no doubt be excited by the raft of new features available in Steinberg's respected app. Meanwhile, those of us who aren't working on the next Hollywood blockbuster soundtrack should still take note, as it's traditionally been the case that certain new features in Nuendo will filter through into the next release of Cubase...

For instance, one that we really hope makes the leap is Nuendo's new Clip Packages tool. It enables you to organise groups of audio clips as a single Clip Package that can be dropped in at any point of your project, sent to another computer or archived in the MediaBay for later use.

> "These days, efficiency, stability and speed in everyday tasks are absolutely critical"
>
> Timo Wildenhain, Steinberg

The MediaBay itself has been given an overhaul. This file management system now has a more intuitive user interface and, handily, it can index and access tagged sound libraries on external storage devices, making your music more portable.

On the mixing front, Wave Meters provide a rolling waveform in the mixer strips – very cool! Then there's the simple Pitch Driver pitchshifter effect, automated batch export, new video engine and more.

Nuendo 5 for PC and Mac is available now, priced £1531.

www.steinberg.net

cm Special

Learn how to make tracks in the UK's biggest electronic genres with *Make Dance Music*, our brand new cm *Special*.

We've got all the latest and greatest production tricks for dubstep, drum 'n' bass, house and trance. You can get back to the old-school with our fast guide to breakbeats, and create your own custom sounds with our dance music producer's guide to synth patches. The included DVD comes packed with all of the software and sounds you need to make pro-quality tracks in your chosen genre, so don't miss it!

cm *Special 42: Make Dance Music* is out now! Turn to p80 for stockist information.

www.computermusic.co.uk

Trackers & Demoscene

We look at software creator Arguru's legacy, and the future of Psycle, 10 years on

Long-term readers of this column will know how much we admire the work of Juan Antonio Argüelles Rius, also known as Arguru. One of the most prolific music software creators both in and outside of the tracker scene, and an early Buzz machine programmer, Arguru has brought more to the tracker community than anyone we can think of.

It's been just over three years since he sadly passed away in a car crash near Málaga, Spain, but it's testament to the brilliance of Arguru's creations that they live on in various forms today. Noisetrekker spawned relative newcomer Protrekkr, and also formed the foundation of the spectacular Renoise.

> "It's testament to the brilliance of Arguru's creations that they live on in various forms today"

Another of Arguru's creations is the Buzz-inspired modular tracker, Psycle. It's been ten years since the community and developer website Psycledelics (**psycle.pastnotecut.org**) first hosted it. In that decade, a team of developers have taken Psycle from strength to strength. Recently, main developer JAZ has taken a back seat, and with a flagging Qpsycle (Psycle's sister tracker on Linux), the implementation of new features has been slow. The community is still strong, but it will take the resolve of the remaining developers to keep Psycle going for another decade.

DEMO OF THE MONTH

***4kkube* by #Hack.SE**

When it comes to great demos, we're often charmed by a combination of great style, brilliant 3D and effects programming, and sensational music, but just occasionally, we're won over by a ridiculous number of cubes. Check this out, and more demos on your cm DVD.

4kkube – all the cubes you could possibly want...

Can live computer music be made more engaging?

> Perceptions of what a live high-tech music performance can and should be have changed markedly over the past decade or so. In the late 90s, anyone seen with a laptop on stage was considered either bold or stupid – getting a portable system to work rock-solidly was considered a feat in itself – and the sight of a major artist using one was practically newsworthy in itself.

But how times change. Laptops are now much more powerful and reliable, while the software landscape has been completely reshaped by the likes of Ableton Live. In fact, things have changed so much that even rock acts now regularly feature MacBooks in their live rigs, and DJs often carry them in preference to record bags.

> "Getting away from the 'man behind a desk' image is absolutely crucial"

If you want to be a genuine live computer musician – that is, someone who isn't just using a laptop to play the odd backing track, or to DJ with – this presents you with an interesting challenge. Taking a Mac or PC on stage is no longer a novelty or entertaining in itself – if, indeed, it ever was. In fact, it's very much de rigueur, so if you want to become a compelling performer, you're going to have to do more than stand behind a computer and make a few token mouse clicks and key presses.

The problem of power

Monolake are an electronic outfit that originally counted Robert Henke and Gerhard Behles as members. Behles eventually left to concentrate on his work as CEO of Ableton (you may have heard of them), but Henke continues as Monolake and has pondered the issue of live computer music performance at length. If you can spare the time, we strongly recommend that you read his thoughts on the subject on the Monolake website at **bit.ly/au3YOL** and **bit.ly/cdWIIQ**.

Henke believes that, ironically, more powerful technology may have made things more difficult for the live performer. "The more operations that a computer in the bedroom studio was able to carry out, the more complex the musical output could be, and the less possible it was to recreate the results live," he explains.

Henke reckons that one of the key problems is that it's difficult for audiences to work out exactly what laptop musicians are doing, and therefore to evaluate their performance. He believes you should ask yourself: "How can I really perform and interact on stage, and how can I make the audience aware of what goes on, without having them read a long statement, or starting the concert with a ten-minute introduction?"

It's crucial to remember that because this is a live performance, the audience wants to feel that there's a degree of spontaneity and the whole thing isn't just running along on rails.

Speaking to our sister magazine *Future Music* recently, electronica luminary Four Tet (aka Kieran Hebden) revealed: "The live stuff needs to seem a bit on edge for me. If everything goes out of time during a show, it's almost a relief – the audience knows that something is actually going on.

"I never plan a setlist. About half an hour before I start, I'll walk into the venue and try and get the vibes of the room and decide what my first few tracks will be and go from there."

Bomb The Bass's Tim Simenon takes a similar view, telling *Future Music*: "I'm running everything on Ableton, so basically what I've done is deconstructed all the tracks we're playing, including some of the older tracks, and just grabbed bits from them, which I've then turned into clips in the Session view."

Loose change

Obviously, the old maxim that 'if you don't prepare, you're preparing to fail' has a strong ring of truth to it, but keeping things a little loose will make you more engaging in a live context. It might sound obvious, but one of the easiest ways to do this is to actually play more things live, rather than just relying on your studio recordings. UK hip-hop artist dan le sac has expanded his setup to feature drum pads, keyboards and vocals, and he told **cm**: "By

Illustration by Jake

using the drum pads and running loops live, we're showing the audience that things can go wrong – and things do go wrong! If I bring in the wrong loop, it can be horrendous, especially if I bring in the wrong backing vocal. I could just play a backing track and it would be perfect every time, but where would the exhilaration be?"

Where indeed? If the adrenaline is coursing through your veins, the audience will feed off it. If you're just going through the motions, then they'll do likewise...

Harping on

As we mentioned, getting away from the 'man behind a desk' image is absolutely crucial, and it should be said that controller manufacturers are now coming up with more innovative designs with the live performer specifically in mind. Arguably the most impressive example is Eigenlabs' Eigenharp, a hugely expressive instrument (though it should be said, all its sounds are generated in software) that has the potential to give laptop musicians the same kind of visual impact as axe-wielding rockers.

Eigenlabs founder John Lambert told us that the motivation for developing the Eigenharp was "to make playing electronic music more visually entertaining on stage so that the musician wouldn't look like they were twiddling knobs and playing with computers. They'd look like a guitarist does – sexy and fun on-stage. There's also the set-up time, which is reduced to five minutes."

You'll also be aware of open-ended, matrix controllers such as the monome and Livid Instruments' Block – devices that aren't specifically designed to do any one task, but can be programmed to do whatever you want. Their influence has been felt on more affordable controllers, such as Novation's Launchpad and Akai's APC40 and 20, although these latter models are designed primarily for use with Ableton Live.

Robert Henke's solution to the controller problem was simple – he designed his own, the Monodeck, and created patches for it in Max/MSP. However, when considering live computer music performance as a whole, even he seems to have more questions than answers.

"We could come to the conclusion that only simple, rough and direct performances are real performances – forget about complexity and detail and next time we're invited to perform, we grab a drum computer, a cheap keyboard, a microphone and make sure we're really drunk. It might actually work very well. But what to do if this is not what we want musically?"

This is the big conundrum – how do you deliver a live performance that accurately reflects what you've done in the studio, without simply replicating it? There's no one-size-fits-all solution to this problem – we all make music in different ways, after all – but if you want to develop a live act that really works, this is the issue you must address.

In fact, to help you do this, we're already making plans for a **cm** feature detailing the how-tos of taking your music to the stage and delivering an enthralling performance. Just be sure to put your old pals from *Computer Music* magazine on the guest list when you reach the world tour stage, OK? **cm**

Ins & outs

PAC-MAN IS BACK, MAN
Like most of Google's logos, it was only supposed to be up for a day, but after their playable *Pac-Man* design gobbled up a reported five million hours of work time, it's been given a permanent home. You can pop pills and chase ghosts at **www.google.com/pacman**

JOBS CUTS AT APP STORE
Apple's head honcho Steve Jobs has been criticised by an Aussie app developer for his ban on widgety apps that "create their own desktops". The designer, from Groundhog Software, said, "It really is Apple's way or the highway, and that really stinks. Badly. Very badly."

LEVEL UP!
Namco Bandai are creating school textbooks with ongoing storylines and other RPG elements, to get kids hooked on schoolwork. If you want your little 'uns to enjoy this superior education, though, you'll have to pack 'em off to Japan, as it looks like that's the target market for now

HITCHINGS TAKES A HIKE
After 21 issues of diligent service, **cm**'s Production Editor Craig Hitchings has left for pastures new. As well as leaving us to figure out how to work the kettle, we;re wondering whose gong to currect all our speling mistokes now...

TABLET OVERDOSE
Hot on the heels of the limelight-hungry iPad come Dell's five-inch Android-powered Streak and the cheekily named iPed, while Acer and MSI have tablet products of their own slated to hit the shelves soon. Bring on the competition, we say

LOSE THE HORN
As we wrap up this issue of **cm**, the World Cup has just kicked off, but our finely-tuned golden ears are already begging for respite from those damned vuvuzelas. This is one instrument we seriously *don't* want to see recreated in virtual form.

Busting jargon

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

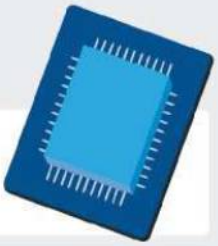
Reverb is short for reverberation. If you're in a large hall and you clap your hands, the first thing you'll hear is the direct, 'dry' sound of your hands striking each other. Next, the sound waves from your clap will travel out (imagine an expanding sphere), then bounce back off the walls – you'll hear a rough 'echo', called the 'early reflections'. These broken up echoes carry on bouncing around the room, with the sound becoming less of a recognisable echo and more of a 'smooshed' drone, called the reverb 'tail'. The sound waves lose energy as they hit physical objects, so the sound gradually gets quieter, eventually fading away to nothing.

Reverb is around us in one form or another practically constantly, whether in a concert hall, living room, or an elevator. Our hearing system 'tunes out' the sound of smaller rooms' reverbs, so we're not always consciously aware of it.

Reverb is used in music production, and similarly, you might not always 'hear' it – but if it was removed, you'd really notice how dry the mix is! A little can go a long way.

When recording real instruments, the natural reverb of the recording space can be captured, but producers have long had access to artificial reverb devices too. Mechanical devices like spring reverbs (still popular in guitar amps) and plate reverb (great on vocals) came first, later followed by digital hardware units. Computer musicians will be more likely to use a reverb effects plug-in, of which there are two types. Algorithmic reverbs use DSP routines to create a virtual space, often with separate controls for early reflections and the tail. Convolution reverbs are different: in simple terms, they use a sample of a reverb tail, usually captured from a real physical space.

Universal Audio's EMT 250 plug-in for the UAD platform emulates the first ever digital reverberation device, the EMT 250



System check

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

4 BLIMEY

The fourth generation of the iPhone has just hit the streets, and even the most ardent Apple-phobe must be secretly covetous of this latest version. Come on, you know you want it!

As well as an attractive new casing, there's a lot of cool stuff going on under the hood. The device is now powered by the Apple A4 processor, as used in the iPad. It has a higher-resolution 960x640 display, and it boasts enhanced motion sensitivity thanks to the new three-axis gyroscope. Camera capabilities have also been upgraded: the new version is capable of recording in full HD, the results of which can be edited with an iPhone version of Apple's iMovie, available on the App Store.

Love it or hate it, we have a feeling the iPhone 4 will be quite a success

Apple also announced the new iPhone OS, now called iOS 4. Key features will be multitasking (hurrah) and folders for organising your zillions of apps.

www.apple.com

LAKE, I LOVE YOU

Apple's iPad and new iPhone might be the hot ticket right now, but Intel are preparing to take the portable PC to exciting new places. For starters, they've announced several new Atom processors, the most exciting of which is a dual-core model for netbooks. They say it's already in production and will be appearing in netbooks near Christmas. The company were also showing off a new netbook platform dubbed Canoe Lake that will be capable of multimedia feats such as 720p video payback on a machine just 14mm thick. The prototype Intel has shown off includes a GMA 3150 chip and 10" display, and it's intended to entice other manufacturers into adopting the platform. That means we should be seeing netbooks based on Canoe Lake this year.

www.intel.com

MISTAKE AND CHIPS

According to bow-tied boffins at the University of Illinois, it might be a good idea to let silicon chips make mistakes. Moore's Law essentially suggests that computer speed will double every 18-24 months. However, as components get smaller, it becomes harder to ensure that they work flawlessly. According to Professor Rakesh Kumar at the University of Illinois, the enormous density of components in modern chips is already starting to give rise to errors and instead of trying to eliminate this, it should be embraced to produce "stochastic processors". These are subject to random errors, with further trickery used to detect when this happens and re-perform the calculation. This could potentially reduce power consumption by up to 30%, without having a significant impact on the workings of the computer.

illinois.edu

Get with the programmers

The software developer at innovative German company Magix shares his thoughts with **cm**

Magix

Sascha Eversmeier

cm Tell us about your background in music and computing...

SE "I once studied EE back in the 90s, but switched to informatics later. In my spare time, I was the bassist for some local alternative rock bands. Nobody else but me wanted to deal with technical stuff in the band so I soldered the cables, and did the recordings and live mixing. When I moved to Berlin in 2000 and got my first 'real' job, my interest in programming music applications grew. I had no real clue about DSP at that time, and I downloaded the VST SDK from Steinberg out of curiosity. It then took me almost a year and two basic plug-ins (THD and Endorphin) until I launched **digitalfishphones.com**. Suddenly, people began to stir it all up. And that felt strange because, for me, it was all just a happy accident."

cm How long have you been working on Magix Vandal?

SE "I did the Revolta synth for Music Maker and Music Studio in 2007. It had a collection of standard studio effects and was based on a versatile DSP platform I built a while back. From time to time, I experimented with these building blocks. In 2008, I thought about creating a small guitar amp. It sounded like an electrical shaver but was indeed the first prototype of the Vandal amp! Nobody at Magix knew about it, but it suddenly matured – I made a UI around it and gave it to the product manager, a good guitar player. Now we had a guitar amp sim and from there, there was no turning back."

"Amp modelling can be a very emotional thing"

cm Why did you decide to take the physical modelling approach?

SE "I've never been a friend of impulse response libraries – it's no wonder that people favour the sound of certain hardware boxes that modulate the reverb tail. In reality, all of this air movement, the slight changes in pressure and temperature... it all affects the echoic structure. This is very subtle, but it's there. Vandal models a cabinet as the sum of discrete components. We have a model of a voice coil, the speaker's cone, a reverb network for the enclosure, as well as a second reverb model for the acoustics around the cabinet. The microphones are more or less the speaker model in reverse. But we also model the interaction between these components. The outcome is something that lives and breathes."

cm Vandal has a developer blog – what's the idea behind this?

SE "Because we felt Vandal needed to mature over time and we couldn't do it without additional feedback, we set up a blog. Building a guitar amp is always a bit hit and miss. We were prepared for that, and we were also pretty relaxed. Amp modelling can be a very emotional thing, at least when you approach it in the way we did, so it perhaps deserved a social approach."

cm What are you working on next?

SE "The coming weeks are full of maintenance activities, mainly for Vandal. Talking about the other Magix plug-ins, I can say that we aim to update them and include new features, but there are no precise plans as yet. Digitalfishphones is dead, at least in terms of freeware plug-ins, and, as I get asked almost every day, I can't say it loud enough: no Universal Binaries! I should wear that on a T-shirt..."

Starr guitars

The Z6S-XPA has enough buttons, knobs and dials to keep the most tech-savvy MIDI guitarist happy

US firm Starr Labs have announced two new additions to their Ztar range of professional MIDI guitars.

Their flagship model is the Z6S-XPA Ztar, a polyphonic instrument that is also the first USB MIDI guitar controller to feature a dedicated Ableton Live control matrix panel. The fretboard is colour-coded and touch sensitive with 32 programmable zones, and there are six velocity-sensing string triggers, which Starr say offer their fastest and most reliable triggering ever. You'll also find six programmable rotary pots and six pressure-/velocity-sensitive touch pads.

There's even more to the Z6S-XPA than we can cover here, and indeed, it might be overkill for some. And that's where Starr Labs' Z5S comes in, with a 'classic' finish and maple body, combined with a 24-fret polyphonic touch-sensitive fingerboard, a four-way programmable joystick, zero-latency string triggers, six mappable user zones. It could be just enough to tempt traditional guitarists to dip their toes into the MIDI waters without setting off a technophobic panic.

"The first MIDI guitar controller to incorporate a dedicated Ableton Live control matrix"

Starr Labs

Prices depend on what options you go for, but you can expect to pay around $3495-$4795 for the Z6S-XPA and $995-$1295 for the Z5S. Both are available now.

www.starrlabs.com

Soundware news

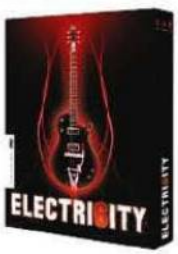
Vengeance have two new sample packs. **Studio Vocals Vol 1** features six singers, 20 construction kits, with 230 files packed into 710MB. **Future House Vol 3** boasts 922MB of sounds for all your electro house, progressive trance and general club banger needs.

www.vengeance-sound.com

For a more eclectic mix, check out Mutekki Media's **Source** (€59). Electro, ambient, DnB, hip-hop and techno are all included in this collection of samples, loops and one-shots.

www.mutekki-media.de

Zero-G's Deep Impact (£89.95) has all sorts of special effects and sci-fi soundscapes, with 650 instruments for out-of-this-world tracks. Sample Logic's **Acoustix** (£69.99) offers 1.6GB of instruments, rhythmic loops and construction kits, all optimised for Ableton Live, while **Electri6ity** (£259) from Vir2 Instruments is a sample-based instrument that recreates eight classic guitars, including the Strat, Tele and Les Paul. Judging by the preview videos, it should be something quite special.



www.timespace.com

Kick back with Sample Magic's **Soundtrack & Chill** (£50 download/£60 DVD). 4.8GB of "trembling textures, Vangelis-soundscapes, sultry keys" and more await, with rhythms, vocals, soundscapes and all you need for life in the slow lane.

www.samplemagic.com

Prime Loops' **XXL Dance FX** (£18) has 400MB of sounds, samples and one-shots for your electro, dubstep and dance tracks. They also have **Bleep Machine** (£10) , a collection of "things that go bweeooooee". Expect pulses, swells and sonic experiments.

www.primeloops.com

Multiverse Studios' **Dark Matter - Experiments in Dubstep** (£245) boasts 500MB of samples, textures, basslines and beats, while Push Button Bang get Caribbean with **Tropical Tech** (£20), which has 800MB of Latin rhythms, samba stomps and other summer sounds.

www.loopmasters.com

News in brief

XILS SYNTH'S A SNIP

Xils Lab's XILS 3 won a 9/10 score back in CM143, and now the virtual synth is available as a special bargain-priced version. XILS 3LE can be snapped up for a paltry $30. It has all the features of the first version of the software (but not the additions of v1.1.0, and you won't be able to update it), so you can create plenty of classic EMS VCS3 synth sounds.

www.xils-lab.com

GO LIVE WITH BLOXPANDER

If you're struggling to recreate your music in a live environment, eaReckon's BloXpander may be the software solution for you. This new VST host has a wide range of features but is said to be designed for quick and easy use in a live setting. Features include 24 channels, control of up to eight plug-ins, MIDI control, touch-screen optimisation and more. Away from the stage, BloXpander can turn a PC into a VST module - potentially handy for expanding your studio setup. BloXpander is out now for PC, priced €69.

www.eareckon.com

JSCO ENJOY THE SILENCE

The JNL-005K isn't your common desktop rodent. As reported in CM152, this crafty mouse from JSCO promises completely click-free, silent operation, while keeping all the tactile feedback you'd expect. The good news is that it's now available in the UK from Scan for £15, with a 'gaming' version for £24, having more buttons and higher resolution.

www.scan.co.uk

CM152 COMPETITION WINNERS

In CM152, we gave you the chance to win one of three NuGen Audio Complete bundles, containing every one of the companies splendid plug-ins. The three lucky winners are Kate Ballard, Kathleen Marsden and Michael Stamps. Well done!

This time around, our compo is all about stonking XILS-lab soft synths, so turn to p95 to find out how you could win both PolyKB and XILS 3!

Aurora Sound Studio is a great app on the iPhone but no doubt even better on the iPad

App watch

New music apps for iPad, iPhone, iPod Touch and Android

> Audiofile Engineering were the developers behind Line 6's MIDI Memo Recorder app, which was previously the only app compatible with the MIDI Mobilizer MIDI interface for iPhone. Now with MIDI Surface, they're making it possible for you to build personalised MIDI control surfaces, so you can operate your software synths and effects from your iPhone and iPod Touch. The four set interfaces – Keyboard, Sliders, Drum Pads and X-Y – are quite customisable. For instance, the Keyboard interface has Channel and Velocity controls and the Sliders offer Channel, Controller and more. You can tweak and save as many variations as you like, and adjust each on the fly.

MIDI Surface is in the iTunes App Store now for £3.49, published via Line 6.

www.audiofile-engineering.com

In last issue's *App Watch*, we looked at the iPhone and iPod Touch version of Aurora Sound Studio from 4pockets. This versatile pattern-based sequencer has a wealth of features for making tracks, clearly inspired by Yamaha's Tenori-On. Hot on its heels comes the iPad version, fully optimised for the iPhone's bigger sibling. Extra features include a full-screen 14-channel mixer, effects rack view, export to WAV/AAC, sample recording, and plenty more. You can still create up to 32 patterns, each with up to 14 layers, giving you plenty of control over your musical tinkerings.

Aurora Sound Studio for iPad is out now, priced £23.99.

We can't wait to drop the nifty NanoStudio into our pockets. The preview videos on YouTube are truly impressive – seek them out and marvel!

www.4pockets.com

Described as "a virtual recording studio for iPhone", the preview videos of NanoStudio certainly make it look – and sound – like being one of the premier iPhone music apps. It offers a synth, drum pads, sampling, sequencing and mastering, and you can add real-time effects to the mix too. You can export as WAV and beam it over to your PC or Mac via Wi-Fi.

NanoStudio should cost £12.99 and it'll be in the iTunes App Store around mid July.

www.blipinteractive.co.uk

Game overture

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

> We highlight the work of many high-profile games composers in this column, but it's also our job to draw your attention to more obscure soundtracks you may have missed. *Machinarium* is an artistic and evocative point-and-click adventure by Czech indie studio Amanita Design. Its unique graphical style, sense of humour and ambitious aesthetic have brought it extensive praise from critics, as well as winning it a significant fanbase.

The player takes the role of a robot by the name of Josef who must negotiate a world full of dysfunctional machines, and it's this unusual universe which is brought to life through the innovative electronica of composer Tomas Dvorak. His electro-acoustic influences are apparent throughout, but it's his deftness of touch and subtlety that really help his music to inject a dose of emotion into the proceedings. The metallic, abstract soundscape he creates gels perfectly with the elegant visuals to create a stunning impact.

"*Machinarium* proves you don't need a huge budget to create a seminal game soundtrack – extreme talent is enough!"

Machinarium proves you don't need a huge budget to create a seminal game soundtrack – extreme talent is enough! Dvorak has worked hard to create the right atmosphere in each scene, and has spoken in interviews about this exhaustive process.

We'd love to hear more scores combining electronics and simple instrumental recordings like this – adding some live instrumentation is something anyone with a good home studio can accomplish, so there's no need to splash out on expensive orchestral sessions for smaller scores.

***Machinarium*'s soundtrack perfectly enhances the atmosphere of the game, and you can check out some of the music for free at bit.ly/8sxHnG**

Drive time

Lorn

The Illinois artist reveals his favourite tools of the trade for building his menacing, mesmeric tracks

NATIVE INSTRUMENTS REAKTOR
"One of the most ambitious applications I've encountered for music production, it has become one of my all-time favourites. While the learning curve is a bit high, the rewards are seemingly endless, with the ability to program and design your own synths/effects and also access a user library that continues to grow with gems that you can't find elsewhere. Essential."

APPLE LOGIC PRO
"Logic has been solid since I first worked with it in version 5, and it continues to improve. The interface is easy to learn and can be altered to fit my ever-evolving workflow. It's fast, sounds great and if the native plug-ins aren't enough, it deals with third-party plug-ins like a champ. In terms of electronic music production on a computer, I wouldn't recommend any other platform."

APPLE SOUNDTRACK PRO
"It has a customisable spectrometer view that shows where my file's frequencies are at. The timestretching capabilities, which allow me to select and stretch any frequencies I want, can't be found in any other software that I know of. It also offers non-destructive editing, which is useful if you're like me and get a bit easy with your 'post' changes."

IK MULTIMEDIA SAMPLETRON
"Simply a monster. With an immense sound library of new and old Mellotron recordings and the added ability to layer, stretch, EQ, gate and effect them, this is one piece of software I can rely on for quality and even inspiration. I don't want to work with a recorded instrument that sounds flat and lifeless. SampleTron features a whole host of instruments with a character all of their own, but will also do whatever I might tell them."

"If you want to kick your sound through the dirtiest gutters but can't afford the tape, try it"

IZOTOPE TRASH
"I use it on drums, synths, basses, whatever. If you want your sound to come through a guitar/bass amp, try it. If you want your sound to be wide, try it. If you want to kick your sound through the dirtiest gutters but can't afford the tape, try it. I have no idea how it was meant to be used, but for me, it's a dirt-maker and a brilliant piece of software."

Lorn's *Nothing Else* is out now on Brainfeeder records
www.brainfeedersite.com / myspace.com/lornnn

COMPUTER MUSIC 10 years back

We travel back in time to see what this magazine was up to in September 2000

> Yes, we really did have 'Bo selecta!' as a headline on CM24's cover, and inside, a six-page feature that revealed how you could become the next Craig David – an irresistible offer even today. Stars of the UK garage scene gave us the lowdown on creating "kickin' beatz and choons". In the case of Neil Pollard, aka Dubphonic, that meant using an Atari ST...

Elsewhere, we chatted to the boffins at Steinberg, before getting hands-on with Cubase VST, and the fifth incarnation of their sequencer impressed us enough to win a mighty 10/10 score. We were most impressed with the 32-bit audio features, although such state-of-the-art advancements would need a top-spec machine to run properly – a Pentium II with 128Mb RAM was recommended.

"We revealed how you could become the next Craig David – an irresistible offer even today"

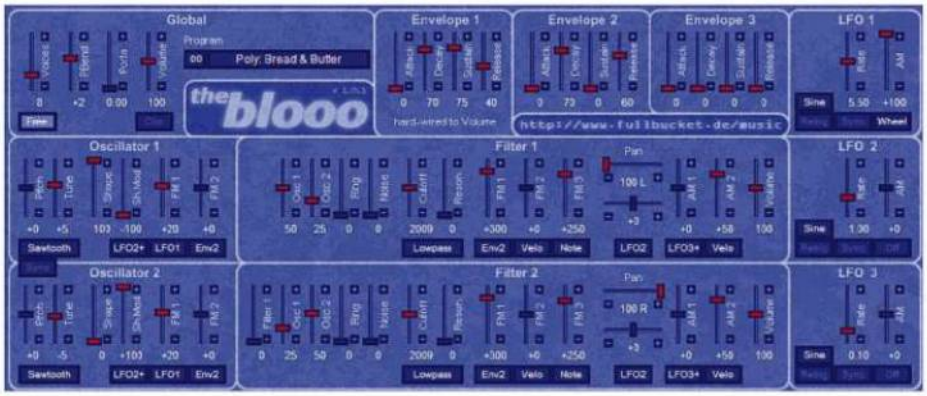
We promised yet further objects of desire in our packed reviews section, and boy did we give it to you: all weighing in with scores of 9/10 were the Digi 001 hardware interface, spectacular GigaStudio 160 sampler and, erm, a 69 quid set of plastic 'multimedia' speakers...

Finally, in our small ads, Jim from Manchester was flogging the first 22 issues of the magazine. Should have stuck with us for another couple of months, Jim – you could've been the next Craig David by now... **cm**

The Cubase design couldn't be much bigger, but all we can focus on is Craig David reaching out at us

the blooo

Fancy a freeware synth that's rammed full of features? Then check out the blooo from Full Bucket Music's Björern Arlt



Developer **Full Bucket Music**
Format **PC VST**
Web **www.fullbucket.de/music**

We haven't seen so many noteworthy freeware instruments recently, so the blooo from newcomer Björern Arlt piqued our interest. The synth is packed with features, including two oscillators with a variety of shapes, white noise generation, two filters, three envelopes and LFOs, ring modulation, frequency modulation, amplitude modulation and hard sync. The synth is currently still in development but it already shows quite a bit of potential, and so we caught up with its creator Björern to find out more about it...

"The concept of VST caused me to create an instrument that incorporates some of the ideas I had regarding DSP algorithms"

So, what inspired you to create the blooo?
"Since I became a synthesiser enthusiast in the early 1980s, I always wanted to build my own synth. This is most probably the reason for my strong interest in digital signal processing (DSP) too. The concept of VST and the fact that VST is supported by almost every one of today's audio applications finally caused me to create an instrument that incorporates some of the ideas I had regarding DSP algorithms – mainly the filters – and the overall synth layout."

When using the synth, is there a way to link the filter cutoff frequencies rather than set them separately?
"Not really. You can set up the filter parameters identically, but I don't think that's what you're after! If this becomes a popular request, I'll think about implementing a filter link parameter."

What other plans do you have for updates for the blooo, and what other software do you plan to develop?
"For the blooo, I'm going to deal with bug fixes for the moment. A fancier user interface and new features will come later! The next thing I'll develop with be a classic synth emulation. Apart from that, I have lots of ideas for some 'blooo siblings' featuring some unusual filter designs and so forth, but that's still a long way off."

Finally, do you have any tips for users of the blooo?
"Always check my website to see if there's a new version of the blooo available! And don't hesitate to contact me if you have any problems with it. There's also a FAQ in the blooo manual with some tips."

Thanks Björern – we look forward to hearing some more of your synth experiments!

Shift work

4 Band Shifter is a Fourier transform-based Open Source PC VST plug-in. It splits the incoming audio signal into four bands, which can then be independently pitchshifted up or down an octave in semitone degrees, with any changes clearly colour-coded so you can view them at a glance. It's possible to control the frequency boundaries of the four bands too.
bitterspring.net/pitchshifter

Ceres stuff

From B.Serrano, the creator of the freeware synth Adonis, comes Ceres, which is a filter that works like a synthesiser. The 'oscillators' are actually external audio sources that are run through the synth's multimode (low-pass, high-pass, band-pass, notch and peak) filter. The effects includes a modulation envelope, two tempo-syncable LFOs, eight-step control and MIDI learn capabilities.
bserrano.free.fr

Pass the Courvoisier

Courvoisier is a rather unusual dynamics processor that uses freeform curves drawn over a histogram of the incoming audio signal in order to determine how it's processed. Some of the cool features of this processor include low harmonic distortion, mid/side processing, and peak, RMS and hybrid level detection options. On top of all that, there's also a mix control for parallel processing.
www.weldroid.net

Freeware Classic

daHornet

Developer **NUSofting**
Format **PC VST, Mac AU and VST**
Web **nusofting.liqihsynth.com**

Based on the vintage Electronic Dream Plant Wasp synth, daHornet used to be a commercial synth until it was set free by its creators NUSofting. The Wasp was an early hybrid hardware synth, which had digital oscillators but analogue filters and envelopes – unusual indeed for 1978. The hardware version is a cult favourite among synth-based bands, and daHornet has become a freeware fave thanks to its warm and squelchy filters, unusual envelopes and authentic analogue sound.

Features-wise, the synth is pretty unspectacular, but it has a few quirks that help set it apart. On the sound-generation front, you've got two oscillators that can be set to sawtooth or pulse mode, one with variable pulse width, and each has an octave switch with a five-octave range.

"daHornet has become a freeware fave thanks to its warm and squelchy filters"

The second oscillator has a detune control, and the LFO (or 'control oscillator' as daHornet calls it) has a pitch knob that controls the LFO-to-pitch modulation level of both oscillators. The LFO can be set to one of five shapes, and can also be used to modulate the filter cutoff. The filter has low-pass, band-pass and high-pass modes, with Q (resonance) control.

The two envelopes are unusual in that each has only three knobs: attack, decay and a sustain knob for the amplitude envelope, and a delay knob for the control (filter) envelope. These two special knobs go into 'repeat' mode when turned down fully, in which they essentially become simple LFOs themselves. The synth also features a noise generator for that old-school gritty sound.

COMPUTER MUSIC

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

€ 185.- £ 153.-
o. code 240169

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

€ 379.- £ 313.-
order code 223229

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

€ 545.- £ 450.-
order code 223060

M-Audio Delta 1010LT
24bit/96kHz recording system
10x ins & outs, 8x AD/DA converters, 2x microphone preamps (dynamic microphones only), S/PDIF, MIDI, Word Clock. Drivers: Win95/98/NT/2000/ME/XP, ASIO2, MacOS. Includes Ableton Live Lite.

€ 145.- £ 120.-
order code 151347

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 cahnnels 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.

€ 169.- £ 140.-
order code 210257

Cakewalk UA-25 EX CW
USB audio interface
2 channels, 24bit/96kHz AD/DA, mic/guitar/line ins, 48V phantom power, USB powered, integrated limiter and analogue compressor, ground lift, headphone out, MIDI I/O, direct monitoring, compatible with Windows (XP/Vista) and Mac OSX 10.3.9 and higher.

€ 185.- £ 153.-
order code 235896

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

€ 225.- £ 186.-
order code 108023

M-Audio ProFire 610
24bit/192kHz FireWire audio interface
2 preamps, integrated DSP mixer, master volume switch, stand alone operation, powered via FireWire bus or external power supply, 2 headphone outs, MIDI I/O, 2 XLR/TRS combo inputs, 8 line outs, 2 line ins, 2 FireWire ports, S/PDIF I/O, 48V phantom power, compatible with Mac and PC, supports ASIO, WDM, MME, DirectX, Core Audio and Core MIDI.

€ 244.- £ 202.-
order code 217030

Tascam US-1641
USB 2.0 audio interface
24bit/96kHz, 8x mic/line ins with phantom power and front level meters, 2x balanced line/instrument ins (front), 4x balanced line ins (rear), 4x line outs, monitor out, S/PDIF I/O (switchable to AES/EBU), MIDI I/O. Compatible with Win XP, Vista 32 and Mac OS X (10.4 or higher), includes Steinberg Cubase LE 4. Dimensions: 19"/1U

€ 269.- £ 222.-
order code 138750

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

€ 339.- £ 280.-
order code 233752

M-Audio Delta 1010
24bit/96kHz recording system
8x analog I/O, 2x digital I/O, 8x AD/DA, S/PDIF, MIDI I/O, 20Hz-22kHz, wordclock, balanced I/O. Compatible with Windows XP (Home/Pro with SP2), ASIO2, Mac OSX. Includes Ableton Live Lite. Dimensions: 19"/1U. Weight: 2.22kg

€ 359.- £ 297.-
order code 137104

Presonus Firestudio Project
FireWire audio interface
24bit/96kHz, 8 XMAX Class A mic preamps, 8 analog mic/line ins, 2 instrument ins, 8 analog line outs, S/PDIF digital I/O, MIDI I/O, balanced send/return, zero latency monitoring with FireControl mixer/router, headphone output, 8 input level meters, includes recording software Presonus Studio One Artist, 19"/1U.

€ 389.- £ 321.-
order code 199689

Digidesign Mbox 2 Bundle
USB MIDI/audio interface
2x analog ins with with phantom power (XLR/jack), 2x analog outs (jack), SPDIF I/O, MIDI I/O, latency-free monitoring, USB powered, includes Pro Tools LE software (Win XP and Mac OS X), 37 DigiRack- & 7 Bomb Factory plug-ins, Pro Tools Ignition Pack. **Bundle includes the t.bone SC450 studio mic and 6m XLR mic cable.**

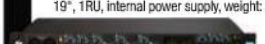
€ 389.- £ 321.-
order code 114106

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/O's.

€ 399.- £ 330.-
order code 207107

Apogee Duet
FireWire audio interface
24bit/96kHz, 2 channels, Firewire 400 I/O, breakout cable with 2x XLR mic ins, 2x 1/4" jack instrument ins, 2x 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.

€ 399.- £ 330.-
order code 122312

Focusrite Saffire PRO 40
24bit/96k FireWire audio interface
20 I/Os, 8 mic preamps, 8 analog I/Os (2 mic/line/instr. combo XLR, 6 mic/line combo XLR), ADAT I/O, 2 S/PDIF I/Os, 2 monitor outs, monitor switch, 2 separate headphone buses, MIDI I/O, zero-latency DSP mixer/router, incl. plugin suite, 19", 1RU, internal power supply, weight: 3kg.

€ 422.- £ 349.-
order code 219725

MOTU Ultralite MKIII Hybrid
FireWire and USB audio interface
24bit/192kHz, 2 mic/instrument inps, 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 mixer, compatible with Windows and Mac, supports WDM, ASIO and Core Audio, incl. AudioDesk software for Mac.

€ 468.- £ 387.-
order code 239141

SSL Duende Mini Musicians Pack
Compact DSP powered SSL processing
Contains Duende Mini + stereo bus compressor, drum strip and vocal strip, up to 16 channels of console-grade SSL EQ and dynamics processing, powerful DSP engine, single FireWire connection, expandable with optional SSL plug-ins for the Duende platform.

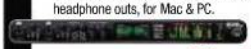
€ 469.- £ 387.-
order code 245121

RME HDSPe RayDAT
PCI Express interface
24bit/192kHz, 72-channel ADAT/AES PCI express card, 4 ADAT I/O's (up to 192kHz via S/MUX4), SPDIF I/O (up to 192kHz) and AES/EBU I/O (up to 192kHz), 2 MIDI I/O's, up to 72 simultaneous I/O channels, compatible with Windows (2000, XP and Vista 64) and Mac OS X (Intel).

€ 569.- £ 470.-
order code 208766

Presonus Firestudio
FireWire audio interface
26 I/O's, 24bit/96kHz, Mac/PC, 8 Class A mic/line inputs, inserts on channels 1 & 2, aux input (stereo jack), 1 stereo main output, 16 ADAT I/O channels, 8 channels @ 96kHz, S/PDIF in/out, MIDI in/out, Wordclock in/out, includes Presonus Studio One Artist recording software.

€ 584.- £ 482.-
order code 109014

MOTU 828 MKIII
19" FireWire audio interface
and 28/16 digital mixer with FX, 24bit / 192kHz, 19"/1RU, 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/O's, 2 XLR main outs, 2 sends, 2 ADAT I/O's, S/PDIF I/O RCA (24bit/96kHz), MIDI I/O, word clock I/O, 2 headphone outs, for Mac & PC.

€ 658.- £ 544.-
order code 205183

RME Fireface UC
USB audio interface
36 channels, 24bit/192kHz AD/DA converter, 48V phantompower, 18x simultaneous I/O, instrument input, 8x analog I/O, ADAT I/O, SPDIF I/O, 2x MIDI I/O, WordClock, intelligent clock control, SyncCheck, SyncAlign, SteadyClock, DIGICheck and TotalMix. Dimensions: 9.5"/1U

€ 859.- £ 710.-
order code 229395

Digidesign Digi 003 Rack+ Factory
24bit/96kHz FireWire interface
2RU, 18 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.

€ 1035.- £ 855.-
order code 219882

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the t.bone Micscreen
Portable absorber/diffusor
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.
order code 209023 — € 93.- £ 77.-

Sennheiser MD421U-2
Dynamic microphone
Cardioid polar pattern, 5 step bass filter, includes clamp.
order code 128331 — € 279.- £ 230.-

Oktava MK012-01 MSP2 Matched Pair
Matched stereo set
2x small diaphragm condenser microphones, cardioid, 20Hz-20kHz, delivered in a wooden box. Finish: Silver. Made in Russia!
order code 165104 — € 279.- £ 230.-
MK012-01 MSP2
Single mic, cardioid
order code 165103 — € 149.- £ 123.-

Rode NT5-MP
Condenser microphone stereo bundle
2 matched small diaphragm condenser microphones, 0.5" gold sputtered capsule, cardioid, 20Hz-20kHz, excellent for drum overheads, acoustic guitar and stereo live recordings. Including plastic case, microphone clips and wind screens.
order code 154595 — € 285.- £ 235.-

Neumann KM 184 Stereo-Set
Small diaphragm condenser mic bundle
2x KM184 condenser microphones with sequential serial numbers, cardioid, 20Hz-20kHz. Includes 2x WNS100 windshield, 2x SG 21/17 stand adapters and wooden box.
Finish: Silver
o. code 153692
Finish: Black
o. code 158648
€ 1077.- £ 890.-

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
order code 197603 — € 55.- £ 45.-

the t.bone SC400
Large diaphragm studio microphone
1" gold membrane, frequency response: 30Hz- 20kHz, impedance: 200ohms, 6dB/100Hz low cut switch (requires phantom power), incl. shockmount and bag, finish: black.
order code 156266 — € 55.- £ 45.-

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.**
order code 203194 — € 93.- £ 77.-
SC450 Stereo-Set, matched stereo pair in case, w/o pop shield.
order code 174363 — € 169.- £ 140.-

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.
order code 208310 — € 138.- £ 114.-

the t.bone SC1100 Set
Studio large diaphragm microphone
polar patterns cardioid, figure-8 & omni, low cut switch and -10dB pad, frequency range: 20Hz to 20kHz, incl. aluminium case and shockmount. **Bundle including the t.bone MS180 pop shield.**
order code 203865 — € 139.- £ 115.-

Rode NT1-A Complete Vocal Recording Solution
Large diaphragm microphone
20Hz-20kHz, 100Ω impedance, 132dB dynamic range, 137dB max SPL. Includes SM6 deluxe shockmount, 6m cable and Peter Freeman ‚Studio Secrets' tutorial DVD.
order code 235937 — € 179.- £ 148.-

sE Electronics sE 2200 A
Large diaphragm condenser mic
Gold plated 1" diaphram, 100Hz switchable high-pass filter, -10dB switchable pad, 20Hz-20KHz, 14.1mV/Pa -37 sensitivity (±1.5dB), 200Ω, 17dB equivalent noise level (A weighted), 125dB max SPL (0.5% THD@1000Hz), requires +48V phantom power (±4V).
order code 182403 — € 185.- £ 153.-

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.**
order code 203198 — € 188.- £ 155.-
SCT800 Stereo-Set, matched stereo pair without pop shield.
order code 174362 — € 377.- £ 311.-

Blue Bluebird
Studio condenser microphone
Transformerless design, requires phantom power (35V min), 138dB max SPL, 20Hz-20KHz, cardioid, includes specially designed shockmount (The Birdcage) and metal mesh pop filter (Bird Nest).
order code 110642 — € 244.- £ 202.-

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.**
order code 223002 — € 285.- £ 235.-

Shure SM 7 B
Studio microphone
Dynamic studio microphone with cardioid polar pattern, 50Hz-20kHz, bass rolloff switch, mid-boost switch, 150?, shielded against broadband interference, fixed stand adapter, XLR connector, includes windscreen.
order code 129929 — € 389.- £ 321.-

EV RE20
Dynamic large diaphragm microphone
RE series, cardioid, switchable HP filter, variable D design, 150Ω, 45Hz-18kHz, includes clip and box, ideal for vocals, brass and bass drum. Length: 217mm. Diameter: 54mm. Weight: 737g
order code 128926 — € 449.- £ 371.-

Neumann TLM 102
Large diaphragm condenser microphone
Cardioid pattern, 20Hz-20kHz, 50Ω impedance, 12dB-A equivalent noise level, 144dB max SPL for THD 0.5%, includes SG2 stand mount swivel. Weight: 260g.
Finish: Nickel
o. code 237768
Finish: Black
o. code 237769
€ 539.- £ 445.-

Neumann TLM 103 Studio Set
Studio microphone
Large diaphragm cardioid microphone, pressure gradient transducer with with one-diaphragm capsule, transformerless circuitry, extremely low noise: 7dBA, high-quality professional equipment for limited budgets, includes shockmount and box. Finish: Silver
order code 174067 — € 933.- £ 771.-

Neumann U87 Ai Set
The studio microphone classic
Variable large diaphragm microphone, pressure-gradient transducer with double membrane capsule, 3 directional characteristics (omni, cardioid, figure-8), switchable low frequency roll-off, switchable 10 dB pre-attenuation, 20Hz-20kHz, 200Ω. Finish: Nickel. **Bundle includes EA87 shockmount.**
order code 169705 — € 2333.- £ 1927.-

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.
order code 191529 — € 37.- £ 31.-

dbx 266 XL
Stereo compressor/limiter/gate
Patented OverEasy technology (attack & release times), XLR I/O, -10/+4db switch, stereo link, dbx sound.
order code 131808 — € 135.- £ 112.-
dbx 166 XL
2-channel compressor/limiter/gate, stereo or dual mono, OverEasy or hard knee mode, PeakStop limiting.
order code 131035 — € 205.- £ 169.-

FMR Audio RNC 1773
Really nice compressor
Stereo compressor with two modes: ‚Normal' for effective compression and ‚Super Nice' for transparent compression. Controls: threshold, ratio, attack, release and gain. Switches: bypass & Super Nice.
order code 179985 — € 169.- £ 140.-
RNLA 7239 Really nice levelling amplifier
10Hz-100kHz 0.5dB @ 0dBu, clip point: +22.5dBu @ 3% THD.
order code 190166 — € 205.- £ 169.-

Presonus Digimax D8
8-channel microphone preamp
24bit/48 kHz digital output, 2 instrument inputs (1/4" TRS), 8 microphone inputs (XLR), 8 XMAX Class-A microphone preamps, pad switch (per channel), 48V phantom power, 8 analog direct outs, optical ADAT output, word clock input (BNC), 19", 1U.
order code 216155 — € 325.- £ 268.-

Focusrite OctoPre MkII
8-channel mic preamp with A/D
Integrated 8-channel 24bit/96kHz digital output, -10dB pads, 5-LED input metering and direct output on each channel, internal clocking and external via BNC, 8 inputs (2 mic/line/ instrument combo XLR, 6 mic/line combo XLR), 8 outputss jack, 2 ADAT outputs (dual LightPipe), sync-to-wordclock input, JetPLL Jitter-elimination, 19", 1U, weight: 3,6 kg.
order code 236376 — € 377.- £ 311.-

SPL GoldMike 9844
2-channel valve preamp
Discrete Class A solid state, 48V phantom power, phase reverse, pad function, flair presence enhancement, very clear and warm sound. Dimensions: 19"/2U
order code 123370 — € 425.- £ 351.-

Mindprint Envoice MKII Digital Edition
Valve microphone preamp
Mic/line preamp, semi-parametric bass & treble, fully parametric mid, EQ, includes DI-MOD USB digital interface with USB. Dimensions: 19"/1U
order code 182221 — € 469.- £ 387.-

Avalon U5 Mono
Instrument DI preamp
Pure Class A circuit, low noise, +30dB variable gain, 6 tone presets (EQ), high frequency filter, speaker level input, signal LED, balanced mic & line outputs. Dimensions: 9.5"/2U
order code 156661 — € 509.- £ 420.-

Universal Audio Solo 610
Mono tube mic preamp
The all-tube SOLO/610 provides the silky vintage warmth of the original UA 610 console, gain, level, and impedance selection for maximum tonal variety, 48V phantom power, phase reverse, thru and mic/line level output, rugged construction steel chassis, weight: 4kg.
order code 190335 — € 679.- £ 561.-

Universal Audio 710 Twin-Fifty Bundle
1-channel mic/line/DI preamp
Dual path 310V class A valve & transimpedance solid state preamp, +70dB gain, 48V phantom power, -15dB pad, phase invert, 75Hz low cut filter. Bundle includes UAD-2 Solo PCIe DSP card, VST and AU support, LiveTrack™ low-latency live monitoring/recording mode, Mix Essentials II (1176SE Limiting Amplifier Emulation, RealVerb Pro, CS-1 Channel Strip, Pultec EQP-1A EQ Emulation).
order code 244200 — € 679.- £ 561.-

Behringer ADA8000
8-channel AD/DA converter
8x mic preamps with phantom power, 24bit AD/DA, 44.1 & 48kHz, Wordclock or ADAT sync, ADAT I/O, ADAT in can be routed to line outs, mic and line in/outs are routed to ADAT out, excellent expansion for DDX3216 or any interface/mixer with ADAT I/O.
order code 164573 — € 185.- £ 153.-

Lexicon MX200
Stereo FX processor
2 independent processors, 24bit converter, VST plug-in architecture with USB interface, MIDI interface, tap delay, legendary Lexicon algorythms: halls, chambers, plates, delays, chorus, flanger, tremolo, rotary, etc. dbx dynamic algorythm, 2 simultaneous FX, analog and digital ins and outs, internal power supply. Dimensions: 19"/1U
order code 180403 — € 185.- £ 153.-

tc Helicon VoiceTone Create
Vocal FX unit
99 music style based FX combinations, 5 ‚favourite' user presets, XLR mic level I/O in stereo or mono, clean studio quality mic preamp with phantom power, 2x XLR outs (for mono or stereo operation), tap tempo function.
order code 117131 — € 149.- £ 123.-

tc Helicon Harmony-G
Compact vocal processor
Harmony arrangement algorithm listens to guitar and voice to follow your music, 6 reverb/delay combinations for vocal and guitar in, 10 presets each with A/B location, selectable harmony voicing, XLR mic in with 48V phantom, line Out stereo balanced XLR, guitar in and pass-thru for seperate amp, guitar tuner, incl. external power supply.
order code 205731 — € 149.- £ 123.-

tc electronic Voice Live 2
Vocal multieffect pedal
Up to 8 voices or 4 doubled harmonies, reverb, tap delay, megaphon and distortion, compressor, De-esser and EQ, MIDI or MP3, LCD display, XLR, line in, aux in, headphone output, S/PDIF I/O coax, backup and audio streaming, dimensions: 35 x 7,6 x 21,6cm, weight: 2,3kg.
order code 225557 — € 755.- £ 624.-

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AKG K-430
Dynamic headphones
For iPod, MP3 and MD players, closed, rated impedance: 32Ω, max SPL: 125dB, frequency response: 12-28.000Hz, stereo mini-jack (3.5mm), 3D-axis folding mechanism, volume control, cable length: 1m, weight excluding cable: 110g, includes bag and jack adapter.
Finish: black
order code 221422
Finish: white
order code 247526
€ 44.- £ 36.-

Sennheiser HD25 BE
Dynamic DJ headphones
Impedance 70Ω, SPL max. 120dB, frequency response: 16Hz - 22kHz (-3dB), closed system. Includes 150cm cable with 3,5mm mini jack and adaptor für 6,3mm jack. Weight: 140g.
order code 249403
€ 139.- £ 115.-
Sennheiser HD 212 pro
32Ω, 12Hz-19kHz.
order code 161045
€ 37.- £ 31.-

AKG K271 MKII
Closed dynamic studio headphones
Circumaural design, 55Ω, max. input power 200mW, 16Hz - 28kHz,sensitivity 104dB/V, self-adjusting headband and auto-shut-off feature, cable lenght 3m, incl. 5m coiled cable and 1 pair velvet pads, weight: 240g, incl. gold plated 1/8" to 1/4" screw-on adapter.
order code 206851
€ 145.- £ 120.-
5m extension cable
Stereo jack 6,3mm.
order code 153216
€ 6.50 £ 5.40

Beyerdynamic DT-770 Pro
Dynamic studio headphone
Closed diffuse-field system, bass reflex technology for improved bass response, 250Ω, 96dB/SPL, 5Hz-30kHz, circumaural, includes 3m single-sided cable. Weight: 270g
order code 106864
€ 145.- £ 120.-
DT990 Pro, open, 250Ω, 96dB/mW, cable with 1/4" stereo jack.
order code 106865
€ 145.- £ 120.-

AKG K 701
High-end reference headphones
Revolutionary flat wire voice coil technology, dynamic, open back, 62Ω impedance, 105dBefficiency, 10Hz-39.8kHz, 200mW max input power, hard gold plated 1/4" jack plug, 3m cable. Weight: 235g (not including cable).
order code 185476
€ 199.- £ 164.-

ESI nEar04 Classic
Active 4" studio monitors
Magnetically shielded, bi-amped, 20W bass + 20W treble, balanced/unbalanced ¼" jack inputs. Dimensions: 20.6 x 13.6 x 14.9cm. **Pair price!**
order code 232799
€ 95.- £ 78.-

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!**
order code 207239
€ 129.- £ 107.-

Yamaha HS50M
Active 2-way studio monitor
70W bi-amped bass reflex system, 5" woofer, 3/4" tweeter, 55Hz-20kHz, XLR & TRS ins, adjustable input level, mid EQ, room control, high trim, switchable low cut, fully magnetically shielded. **Unit price!**
order code 186461
€ 135.- £ 112.-

KRK RP5 Rokit G2 SE
Active studio monitor
75W, 5" + 1" speaker, frequency response: 53Hz - 20kHz, magnetically shielded, dimensions HWD: 27,6 x 18,5 x 25cm, weight: 6,3kg. **Unit price!**
order code 240101
€ 139.- £ 115.-

KRK RP5 Rokit G2
Active studio monitor
75W, 5" + 1" speaker, frequency response: 53Hz - 20kHz, magnetically shielded, dimensions HWD: 27,6 x 18,5 x 25cm, weight: 6,3kg. Unit price!
order code 213024
€ 139.- £ 115.-
KRK RP8 Rokit G2
8" / 1", 140W.
order code 213090
€ 235.- £ 194.-

ESI nEar08 Classic
Active 8" studio bi-amp monitors
2-way bookshelf monitors, magnetic shielded, LF amplifier power: 70W, HF amplifier power: 70W, frequency response: 40Hz - 24kHz, 1 balanced input XLR, 1 balanced/unbalanced input TRS, dimensions HWD: 35,8 x 25,5 x 32,2cm, weight: 10kg/unit. **Pair price!**
order code 222139
€ 215.- £ 178.-

Mackie MR8
Active nearfield monitor
8" woofer (100W), 1" tweeter (50W), frequency response: 40Hz - 20kHz, max. SPL per pair: 116 dB SPL @ 1m, XLR, jack (6,3mm) unbalanced and RCA, magnetically shielded, dimensions HWD: 40,6 x 27,6 x 34,6cm, weight: 12,5kg. **Unit price!**
order code 207242
€ 222.- £ 183.-

Genelec 8020BPM
Active 2-way studio monitor
Power switch, 66Hz-20kHz (±2.5dB), 105dB SPL peak @ 1m, 95dB SPL @ 1m, 105mm (4") high efficiency bass driver, 19mm (3/4") metal dome tweeter with Directivity Control Waveguide, 3kHz crossover, magnetically shielded, aluminium cabinet, includes wall bracket. Power per channel: 20W (bass), 20W (treble). Dimensions: 22.6 x 15.1 x 14.2mm. Weight: 3.7kg. **Unit price!**
o. code 235038
€ 279.- £ 230.-

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.
order code 193268
€ 355.- £ 293.-

Adam A7 Special Edition
Active nearfield studio monitor
Finish: black piano lacquer, 6,5" Rohacell / kevlar sandwich woofer, A.R.T. tweeter, frequency range 46Hz to 35kHz, 100W (sin), 150W (rms), XLR and RCA input, dimensions: 18 x 33 x 28cm, weight: 8kg. **Unit price.**
order code 241073
€ 377.- £ 311.-

Yamaha HS80M stand bundle
Active 2-way studio monitor package
120W bi-amped bass reflex speaker, 8" woofer, 1" tweeter, 42Hz-20kHz, XLR & jack input, mid EQ, room control, high trim, switchable low cut, magnetically shielded. **Bundle includes 2x HS80M and 1 pair of Millenium BS-500 nearfield stands.**
o. code 227555
€ 469.- £ 387.-

Genelec 7050 BPM
Subwoofer
8" subwoofer, 100dB SPL @ 1m (short term RMS), 70W, 5 input channels + LFE, 25-85Hz (LFE 85/120Hz) ±3dB. Dimensions: 41 x 35 x 31.9cm. Weight: 18kg
order code 183560
€ 744.- £ 615.-

Focal Twin6 BE
Active 3-way studio monitor system
Tri-amped, 2x150W BASH / 100W Class AB, 2x 6.5" woofer, Focal beryllium dome tweeter, 40Hz-40KHz ±2dB, LF & HF contour controls, speaker reverse switch (left/right). Weight: 14kg. Unit price!
order code 117183
€ 1190.- £ 983.-

Event Opal
Active nearfield monitor
Frequency response: 35Hz - 22kHz, crossover frequency: 1600Hz, acoustic output - SPL @ 1m: peak (80Hz - 20kHz) 114dB, signal input: combo XLR, ¼" TRS (bal/unbal), low frequency transducer neodymium 7.1" 270W, high frequency transducer Neodymium 1" 100W, dimensions WHD: 29,5 x 45 x 27,3cm, weight: 21,2kg. **Unit price!**
order code 234475
€ 1322.- £ 1092.-

Adam S3X-V B-Stock
Active monitor near- and midfield
Bass reflex speaker, 9" woofer (228mm HexaCone), 4.5" midrange driver (116mm HexaCone), X-ART tweeter, frequency response: 32Hz - 50kHz, woofer: 250W/350W, midrange: 250W/350W, tweeter 50W/100W, balanced XLR input, AES/EBU + SPDIF input upgrade available, dimensions HWD: 48,5 x 28,1 x 29,5cm, weight: 15,4kg, **unit price. B-Stock with slightly uses of trace on body, full warranty!**
o. code 243475
€ 1489.- £ 1230.-

Behringer DDM 4000
32bit digital DJ mixer
Beat-synchronized sampler, 4 multi-FX sections, 2 patented BPM counters, digital crossfader and MIDI, 4 phono/line stereo channels, 2 microphone inputs with gain, EQ, talk function and FX, 4 stereo channels with gain, programmable parametric 3-band EQ with kill function, fader curve control and flexible crossfader.
o. code 206918
€ 299.- £ 247.-

Pioneer DJM 400
Professional DJ mixer
2 channels, mic/aux switch (to select 2x mic inputs or 1x stereo line input), fader start, crossfader curve adjustment, talkover (-20dB), peak level meter.
order code 191081
€ 438.- £ 362.-

Allen & Heath XONE:42
4-channel DJ mixer
2 turntable ins (RCA phono RIAA), 2 line ins, X-FX send, 3-band EQ, 6dB total-kill EQ on all channels, internal switch-mode PSU, 2 headphone outs (1/4" and 3.5mm), VCA crossfader with curve control, VCF filter with independent I/O, resonance & frequency controls, USB 1.1 port (stereo I/O), XLR mic in with 2-band EQ and level control, finish: black
o. code 231622
€ 649.- £ 536.-

Pioneer DJM-700
Professional 4-channel DJ club mixer
Crossfader assignment, fader start, 3-band EQ (-26dB to +6dB), talk over (-20dB), peak level meter, rotary potis for master output. Dimensions: 32 x 38.1 x 10.8cm (WxHxD). Weight: 7.5kg
Finish: Black
order code 118996
€ 818.- £ 676.-
Finish: Silver
order code 119965
€ 838.- £ 692.-

Allen & Heath XONE DX
DJ controller and mixer
4 channels with effects, 2 dual layer deck simulators, 20-channel USB 2.0 soundcard, 24bit/96kHz audio system, 168 individual MIDI messages available, ITCH incl. FX, looping and time-stretching, RIAA/phono inputs for external decks, mix outputs on RCA and balanced XLR, built-in hardware MIDI interface, high quality faders, weight: 6kg.
order code 238350
€ 1085.- £ 896.-

Swissonic CDMP 1
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.
order code 221521
€ 139.- £ 115.-

Denon DN-HC4500
DJ-Media interface/controller
Incl. Reflex LE from PCDJ® for PC and Mac, 24bit DA converter, 44,1/48/96kHz sample rate, ASIO/OSX audio support, high quality pitch shifting and tempo shifting, fully automated digital DJ mixer, various band filters, supports multiple screens, MIDI control over panel elements.
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€ 419.- £ 346.-

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).
o. code 139321
€ 589.- £ 487.-
suitable flightcase
order code 206436
€ 93.- £ 77.-

Pioneer CDJ-900
Professional single CD player
Compatible with MP3, AAC, WAV, AIFF and Tonium Pacemaker Data, 24bit/48kHz sound card as well as HID and MIDI control by USB, Wolfson DAC processor, quantized beat loop, slip mode, quick return scratch, advanced auto beat loop, plays audio from CD, CD-R, CD-RW or USB, frequency range: 4Hz - 20kHz, includes Rekordbox music database management software.
order code 238584
€ 1133.- £ 936.-

Pioneer CDJ-2000
Professional multiformat single CD player
Plays Audio CD, CD-R, CD-RW, USB, SD, DVD-R, DVD-RW, USB sources and SD cards, includes Rekordbox software, quantized beat loop, compatible with MP3, AAC, WAV, AIFF and Tonium Pacemaker data, 24bit/48kHz soundcard, HID and MIDI controllable from USB, frequency range: 4Hz - 20kHz, dim.: 32 x 40,6 x 10,7cm, weight 3.9kg.
order code 238585
€ 1633.- £ 1349.-

Numark DMC2
DJ controller
Fader buttons, auto mix button, high-speed HID USB 2.0 interface, pitch fader, scratch jog wheels, synchronisation button, instant cue-point triggering, tactile illuminated rubber buttons, wide range of looping options. Dimensions: 19"/3U
order code 114628
€ 155.- £ 128.-

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.
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€ 268.- £ 221.-

Native Instruments Traktor Scratch Duo
Professional DJ system
Control digital music files using turntables or CD decks, up to 2 decks simultaneously, controllable by CD player and MIDI controller, USB 2.0 audio interface, bus powered, 4x high-gain outputs, 4x inputs with phono preamps, 8x LEDs, 2x vinyls and 2x CDs.
order code 227391
€ 325.- £ 268.-

Rane Serato Scratch Live
Scratch control interface
Complete bundle containing USB interface, 2 CDs and 2x timecode vinyls, 4x 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/PC.
order code 171073
€ 499.- £ 412.-

Vestax VCI-300
DJ MIDI controller
24bit, 4-channel soundcard (2x I/O), 1 stereo input, 1 mikrophone input, 2 stereo outputs (master/monitor), USB-connection (bus powered), 1 mikrophone input, 2 AUX-inputs, 1 headphone output, 2 master outs (cinch), dimensions WHD: 41 x 2,8 x 27,5cm, weight: 3,2kg, incl. Itch Software, power supply optional.
order code 212112
€ 709.- £ 586.-

Make a track for FREE!

Create a thumping dance track for absolutely nowt using only the software on the cover DVD and our expert step-by-step guide

cm DVD

ON THE DVD

A mixdown of the track, the Reaper project, samples, patches and more are all on the DVD

> Music production used to be an expensive hobby, but not any more. Using little more than a standard home computer, it's now possible to create music of a level of quality and complexity that would have been unthinkable outside a professional facility just a few years ago. While lots of commercial music software is undeniably expensive, there are plenty of full-featured alternatives out there that won't cost you a penny.

For example, the free audio editor Audacity has become hugely popular thanks to its open source architecture, modest system requirements and small installation footprint. Without complex copy protection systems to get in the way, it's easy to install the software on any machine and quickly get to work.

The near-endless array of free AU, VST and RTAS plug-ins available on the internet (and our DVD) are just as convenient, and cover almost every effect/instrument base conceivable, from advanced dynamics processor and convolution reverbs, to FM and virtual analogue synths, glitch effects and so much more. If you're searching for inspiration at no expense, there really are thousands of exciting music-making tools awaiting your attention online.

Free software solutions

All of this would be pretty meaningless if the software itself wasn't up to scratch, and while, admittedly, there are many sub-standard freebies out there, lots of freeware is of absolutely stunning quality, developed by dedicated programmers who simply love to design music software and give it away for free, or seasoned commercial developers looking to promote their payware products.

You could easily spend months trawling the net and separating the wheat from the plug-in chaff, but here at **cm**, we make it our mission to keep up with the best freeware on the scene at any given time, and are thus fully qualified to recommend the finest freebies known to man.

Yes indeed, ladies and gentlemen, with the right combination of free software installed, you really can make professional-sounding music on your Mac and PC. In this guide, we'll walk you through the creation of a pumping dance track using nothing but freeware plug-ins, the free-at-first-then-inexpensive DAW Reaper, plus a selection of **cm** samples and plug-ins from the **cm** Studio. You'll find everything you need on the DVD, so without further ado, let's get started.

The free plug-ins we're using to make our track

Camel Audio
CamelCrusher
PC VST Mac AU/VST
This handy multi-effect includes distortion, filtering and compression, and is ideal for full-on signal mangling or simply fattening up your sounds.
Web www.camelaudio.com

Ohm Force
Frohmage
PC VST Mac AU/VST
A creamy low-pass filter, Frohmage includes distortion with two routing schemes and delay on each band for generating phasing effects.
Web www.ohmforce.com

George Yohng
W1 Limiter
PC VST Mac AU/(PPC) VST
This is a very simple limiter that, according to its maker, delivers identical output to Waves' classic L1 limiter. How crafty!
Web www.yohng.com

Togu Audio Line
TAL-BitCrusher
PC VST Mac AU/VST
Get dirty with this filthy lo-fi effect! It will smash your sound with bit-depth and sample rate reduction, noise and low-/high-shelf EQ.
Web kunz.corrupt.ch

Green Oak
Crystal
PC VST Mac AU/VST
An incredible synth with tons to offer, including subtractive, granular and frequency modulation synthesis, multistage envelopes and lots more.
Web www.greenoak.com

Togu Audio Line
TAL-Elek7ro
PC VST Mac AU/VST
This is a brutal virtual analogue synth that makes all manner of devastating sounds, thanks to its frequency and pulse width modulation capabilities.
Web kunz.corrupt.ch

KResearch
KR-Delay CM
PC VST Mac AU/VST
This handy dual-line feedback delay includes multimode filters and can be switched between Link, Stereo and Ping-Pong modes.
Web www.kresearch.com

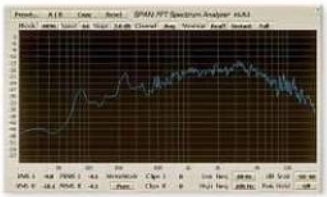
Togu Audio Line
TAL-U-No-62
PC VST Mac AU/VST
Based on classic Roland Juno hardware, the TAL-U-No-62 offers vintage-style analogue emulation and will rock you with its chunky, retro sounds.
Web kunz.corrupt.ch

KResearch
KR-Reverb CM
PC VST Mac AU/VST
A lightweight algorithmic reverb with separate early and late reflection stages, high- and low-frequency damping, and adjustable listener position.
Web www.kresearch.com

u-he
ZebraCM
PC VST Mac AU/VST
ZebraCM has flexible modulation, built-in effects, 19 filter types with distortion and vowel effects, customisable LFO shapes, unison detune and much, much more.
Web www.u-he.com

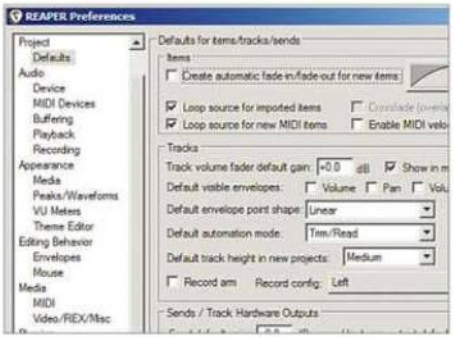
LinPlug
AlphaCM
PC VST Mac AU/VST
This simple virtual analogue synth packs plenty of features into its compact interface, including amplitude and ring modulation, and a modulation matrix.
Web www.linplug.com

Voxengo
SPAN
PC VST Mac AU/VST
A sophisticated spectral analyser plug-in, SPAN is one of the best signal visualisation tools around, providing vital assistance when trying to get the perfect mixdown.
Web www.voxengo.com

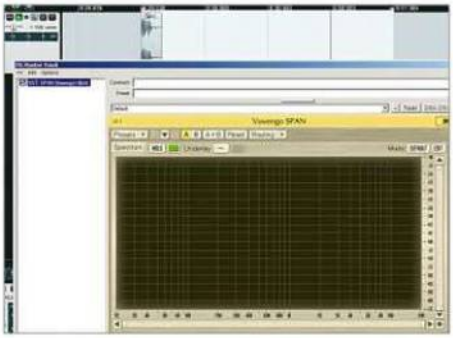


> Step by step

Programming a punchy kick drum

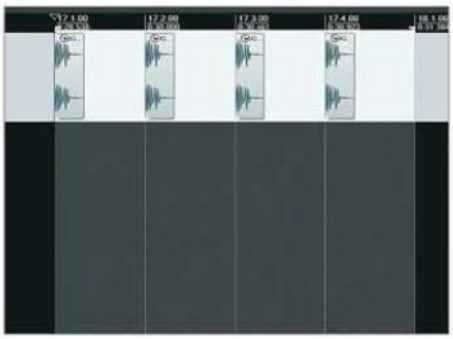


1 > We'll start with the kick drum. Copy the **Tutorial Files»Make a Track for Free»Samples** folder from the **cm** DVD onto your hard drive. This contains all the samples used in our track. Launch Reaper and press Ctrl (PC)/Cmd (Mac)+P to bring up the **Preferences** menu. In the **Projects»Defaults** menu, deselect **Create automatic fade-in/fade-out for new items**. Click **OK** to close this window.

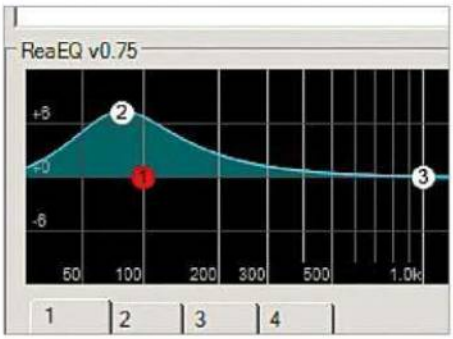


2 > Set the project tempo to 130bpm. In most forms of house music, the kick drum is the very foundation of the track, so it's essential to get it sounding just right. The first order of business is to drag our sample – **Kick-14.wav** – onto an audio track and place Voxengo SPAN on the Master channel.

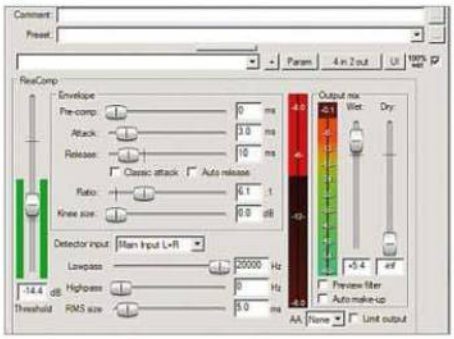
3 > We can make SPAN's display more appropriate for the task at hand by adjusting its settings. Click the **Edit** button and change the **Block Size** to 4096. There are larger block sizes but they make the display update more slowly. Set the **AVG Time** to 422. This gives a faster-moving display at a higher resolution.



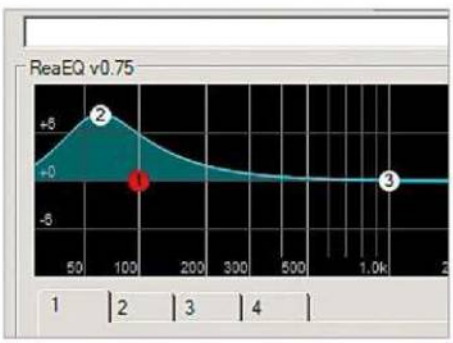
4 > Close the Edit window and return to the audio track in Reaper. Hold **Ctrl/Cmd** and drag the kick sample to create three copies. Put one kick on every beat of the bar, as shown. This kick sounds pretty hard and mid-heavy. Let's boost the low end to balance it up.



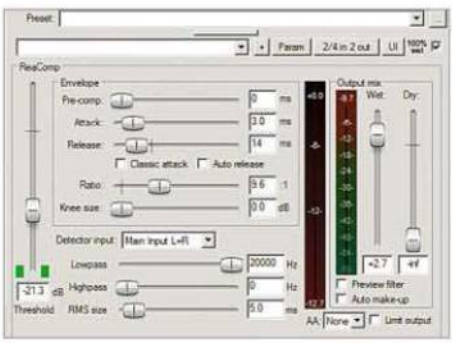
5 > Thanks to SPAN, we can see that the kick peaks at around 70Hz and 100Hz. Open up the kick track's FX section by clicking the **FX** button on the track, and add ReaEQ. Boost at 80Hz by 7.4dB with a **Bandwidth** of 2. To make the kick louder, we'll add a compressor after the EQ.



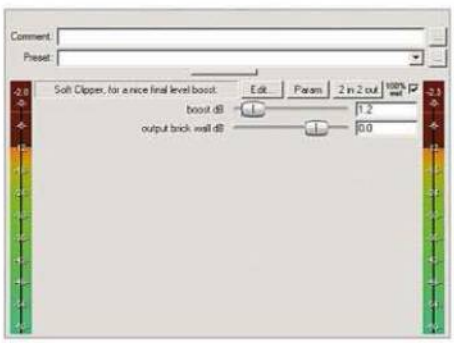
6 > Add ReaComp after the EQ, and turn the **Threshold** down to -14.4dB. Set the **Ratio** to 6:1, the **Release** time to 10ms, and the **Wet** level to +5.4dB. This boosts the volume of the kick and makes it a little bit more present. The sound still isn't quite there, though. You can only process a sound so much before it falls apart, and we're close to reaching the limits of what can be achieved with this one.



7 > So where do we go from here? We double our existing kick drum up with another one! Add a new audio track and drag **Kick-26.wav** onto it. Copy it so that it plays on every beat of the bar. This kick peaks in the 70Hz region, so boost the low end with another ReaEQ plug-in set to a **Frequency** of 61Hz and 8.4dB gain, and a **Bandwidth** of 2.

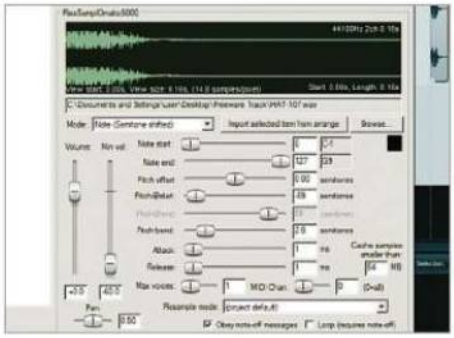


8 > To compress this kick, use ReaComp with the same settings as the first kick's compressor, except for a **Wet** level of +2.7dB. A useful technique when layering sounds like this is to compress or distort them slightly together. Create a new track, move it above the other two and use Reaper's folder icon to create a group. The kick tracks will automatically be routed through this bus.



9 > Bring up the FX menu for the new track and locate the **Schwa/soft_clipper** effect in the JS section. There are tons of plug-ins in here, so you may find the filter list search box in the bottom left-hand corner useful. Set the **boost dB** slider to 1.2. This has a fairly subtle effect, but also lops off any extreme peaks, meaning that any dynamics processors we might use later won't pump too much.

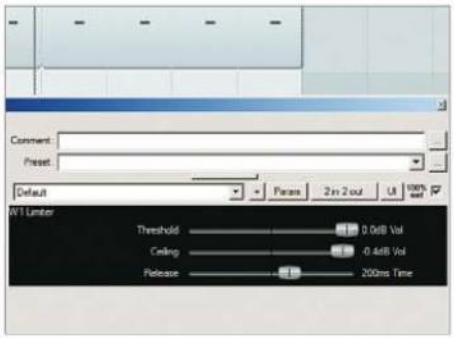
Drum hits and loops



1 > Next we need a hi-hat on the off-beat for that classic house feel. Create a new track and use the FX menu to add a ReaSamplOmatic5000 instrument. Despite its elaborate moniker, this is actually quite a simple sampler. Start by dragging **HAT-107.wav** onto the blank waveform display.

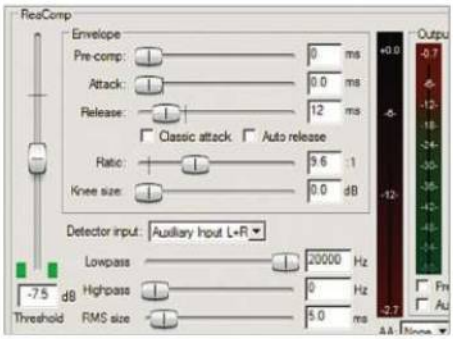
2 > We don't want to hear the whole of this sound, so highlight the start of the sample to just play the first 0.05 seconds, as we have here. Next, create a new MIDI item on the track and sequence the hi-hat to play on the off beats.

3 > To accompany the kick and hi-hat, we're going to use a finger snap sample on our track. Before we do that, though, copy out the kick and hi-hat pattern so the sequence plays for two bars. Now create a new audio track and drag **Finger Snap.wav** onto the fourth beat.

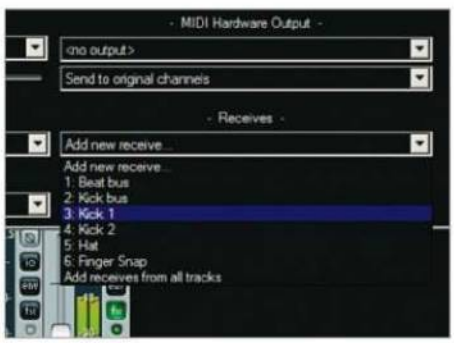


4 > We've already shown how a bus can be used to glue sounds together. To make our single hits sound more like a solid, cohesive beat, create another track and use the folder icon to route the kick bus, hi-hat and finger snap tracks to it. On this track, add a **soft_clipper** with 3.7dB boost, and a **W1 Limiter** with -0.4dB **Ceiling** and 200ms **Release** time. Name this track Hit Bus.

5 > This two-bar beat is pretty simple, but it creates a basic foundation for the beat, and the drum loops we're going to add will fill out the frequency content and rhythm. Add another track and drag **CrushedBeat.wav** onto it. This beat is already at 130bpm, conveniently enough, but it still needs a bit of work to fit with the drums we've got running already.

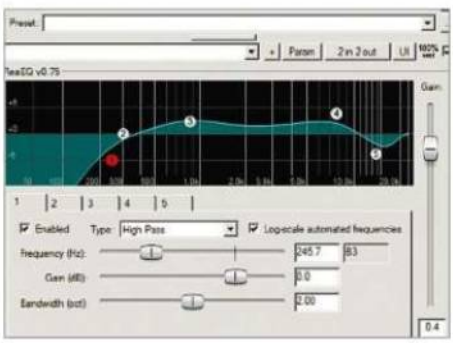


6 > The next step is to insert ReaComp onto the **CrushedBeat.wav** track. We're going to use sidechain compression on this beat so that its volume level ducks when the kick plays. Copy the **Threshold**, **Ratio** and **Release** settings shown here, and set the **Detector input** to **Auxiliary Input L+R**, so that we can use an external source to trigger the compression.



7 > Now we need to set up the input to the compressor. Click the **IO** button on the **CrushedBeat.wav** track and, in the **Receives** section, click where it says **Add new receive...**. A list of tracks will appear. Select **Kick 1**. We've now selected the correct track, but by default it's routed to the break track's main input rather than the sidechain input.

8 > Where you see **Audio 1/2»1/2**, click the second **1/2** and select **(New Channels on Receiving Track)»3/4**. This will route the kick's output to the compressor's sidechain input. On playback, you should now hear the break drop in volume (duck) every time the kick plays, and see the CrushedBreak track's ReaComp input level pulsing along with the kick.



9 > The break could use some EQ to help it sit better with the kick drum. Add ReaEQ after the ReaComp and copy the curve shown here. This includes a high-pass filter at 245.7Hz, 3dB and 4.6dB boosts at 863.4Hz and 7773.6Hz (both at a bandwidth of 2), and a -4.6dB cut at 13782.5Hz with a 1.65 bandwidth.

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Urs Heckmann - Audio Software

*while you're at it, check out the award winning Zebra, Uhbik, Filterscape and More Feedback Machine too. Same developer, same website, same fun factor.

A Reaper love

Our DAW of choice for this tutorial is Cockos' superb Reaper, which can be trialled for 30 days for free. If you continue to use the software after this period, though, you're obliged to register it, otherwise the software will pop up a reminder every time you launch it.

With many software developers today resorting to increasingly convoluted piracy protection schemes, Reaper's honour-based system is refreshing, and so we asked Cockos president Justin Frankel why he chose this approach.

"What we do is simple – provide software that people can evaluate, let them evaluate it fully, give them every reason to purchase a licence, and give no reason to bother with pirating it. Pretty much every aspect of the software and business benefits from the model. Users are happy, rarely feeling as though they've been taken advantage of.

"People purchase licences because they use the software, not because they needed one feature. From an engineering perspective, it means we can relax on developing anti-piracy measures – which often compromise the quality and stability of the underlying software – and focus on features."

Reaper is updated much more often that most DAWs. Why is this?

"The advantage of updating often is that we can fix bugs more quickly. It's completely normal for software to have bugs – anyone who thinks otherwise is delusional. Software of this kind just gets far too complex to be error-free. What we try to do is make it so that if you have a problem that's our fault, we can get you an update that fixes it soon. People using certain other software packages often have to live with severe bugs for months or years, working out rules to avoid them."

What do you like and dislike about Reaper's more expensive rivals?

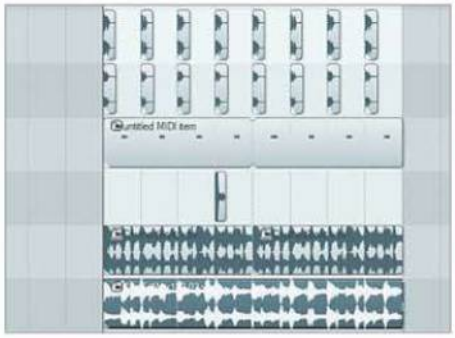
"I haven't used them in years, other than for testing. I do like how starting up Pro Tools can take long enough to run and get coffee – in the course of testing ReWire slave fixes, I'll have a few pots of coffee in the course of a couple of hours!"

Do you have any tips to share with Reaper users?

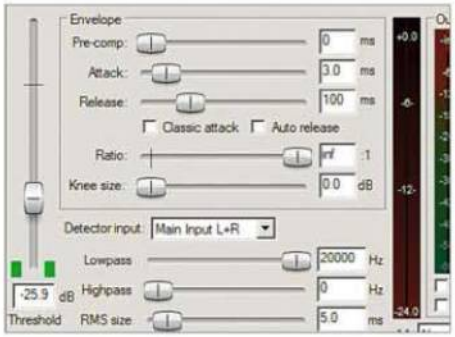
"Firstly, If you want to do something and don't know how, right-click near something that relates to it. Secondly, the people on our forums (www.reaper.fm/forum.php) are super nice and extremely helpful."

You can find out more about Reaper and download the latest version at www.reaper.fm.

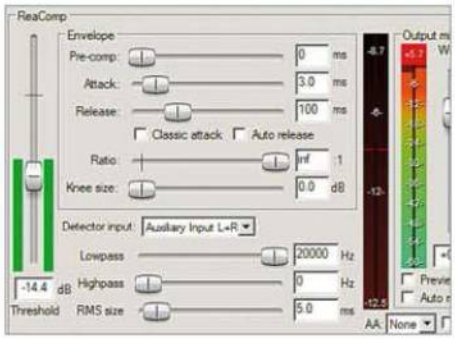
> Step by step: Polishing off the drums



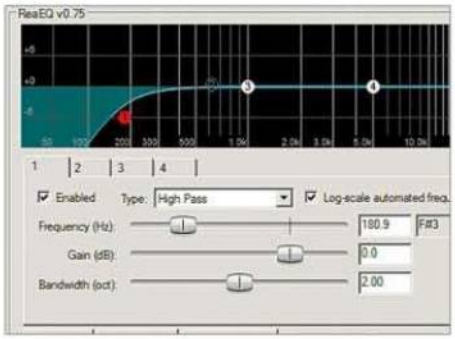
1 > To really get a party vibe going, we're going to add some carnival beats to the mix. Drag **CA_FullMix130-03.wav** onto a new track. This beat sounds great on its own, but it's not going to work in the context of our mix without a little help.



2 > Start by adding ReaComp to the track – we're going to use it like a limiter. Turn the **Ratio** up to Inf:1 (infinite), and set the **Threshold** to -25.9dB. This completely squashes the sound, but we can afford to sacrifice the dynamics of this beat because the other drum elements already provide the punch. Turn the **Wet** level up to +15.7.

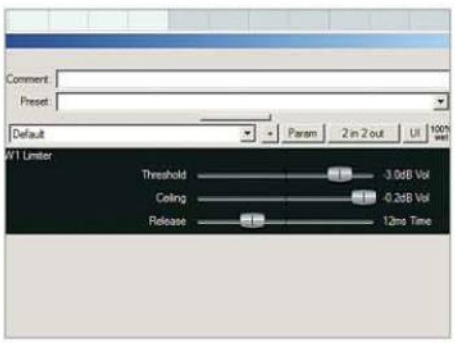


3 > As with the break, we're going to sidechain compress this beat so that the volume level ducks when the kick plays. Add another ReaComp after the existing one, and set the **Ratio** to Inf:1 and the **Threshold** to -14.4dB. Set the **Detector Input**, and as we did with the break, use the **IO** panel to route the kick drum to this channel's 3/4 input.



4 > Using our two ReaComp effects, we've squashed and boosted the beat, then punched holes in it to let the kick through. The next thing to do is roll off some of the beat's low-end frequencies using ReaEQ, to prevent it clashing with the kick drum. Set the first band to **High-pass** mode and the **Frequency** to 180.9Hz. For the final touch, add Reaper's **soft_clipper** effect and set the **Boost dB** to 1.

5 > So far we have our Hit Bus and its constituent parts, and two tracks worth of loops. Create a new track to which we can route all of these parts – note that the Kick 2, Finger Snap and Carnival beat tracks' folder modes are all set to **Track is Last Track in Folder**.



6 > To give our drums a final boost, add a **soft_clipper** with 5.5dB **Boost** and an **Output** brick wall of -0.2dB, and a **W1 Limiter** set to a -3dB **Threshold**, -0.2dB **Ceiling** and 12ms **Release**. This gives our beats a really pumping sound – you can check out the **Just the Beats.RPP** project on the **cm** DVD to make sure you're on the right track.

> Step by step

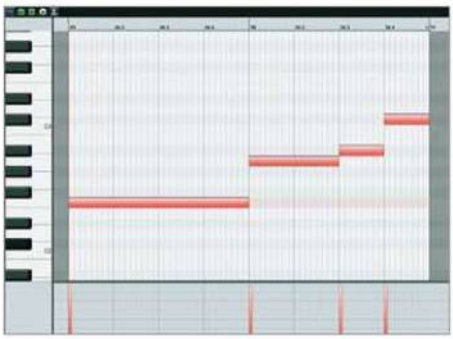
Building a bassline

1 > Now that we've got some drums, we need a bassline to really get our track rocking. To make one, we're going to use the TAL-Elek7ro synth. Load the synth and turn **Oscillator 3** down. Set **Oscillator 1**'s waveshape to **Pulse** and turn off its **Sync** mode. We're going to use pulse width modulation to create a rumbling bass tone.

2 > Set **LFO1**'s destination to PW1, which tells it that we want to modulate **Oscillator 1**'s pulse width. Set the **Rate** to around 10 o'clock and the **Intensity** to around 1 o'clock. This will result in a full and rather nasty-sounding synth lead. Play it further down the keyboard, though, and you'll find a brutal, hard-edged bass.

3 > We can tone the bass down using TAL-Elek7ro's filter. Set both the **Cutoff** and **Reso**nance to 9 o'clock, and the **Key** (keytrack) knob to 12 o'clock, which tells the filter cutoff to follow the note played. Turn the **Volume** up to around 11 o'clock. These synth patches won't sound perfect unless you get the settings exactly right, so feel free to reference yours against our **Elek7roReese.fxp** patch on the disc.

4 > We want this sound to be ducked by the kick as well, so add a ReaComp with a **Threshold** of -12.7, **Ratio** of 81.3 and **Release** of 26ms. As before, set the **Detector** input mode to **Auxiliary** and route the kick to the 3/4 input. For the final touch, add Ohm Force's Frohmage filter with the settings shown used here, to chill the sound out a bit.



5 > Copy the MIDI part we've programmed here. This gives us a rich sub-bass that plays along with the beat, but to fill out the mix, we need even more synth action. Right-click the track and select **Duplicate Selected Track**. Delete all the plug-ins on the new track and add ZebraCM instead.

6 > ZebraCM is capable of kicking out a fair few voices, which makes it perfect for creating big, wide synth tones. Turn the top envelope's **Sustain** knob to full, turn the filter **Cutoff** to max and set the **Drive** to 39. Set both oscillators' **Voice** modes to Quad, with **Oscillator 1**'s **Detune** set to -26 and **Oscillator 2**'s to 43.50.

7 > Using the **Tune** knobs, raise the pitch of **Oscillator 1** by 12 semitones and **Oscillator 2** by 24 semitones. Activate **ModFX1** by double-clicking its block at the bottom left-hand corner of the interface and copy the settings we've used here. If you need to check you've got the right sound, consult the **ZebraCMUnison.fxp** patch on the DVD.

8 > Add TAL-BitCrusher, setting the **Bitdepth** to 12 and the **Samplerate** to /7. **Noise** and **Low Shelf** should be at 9 o'clock, with everything else set at 1 o'clock. Also, add a ReaComp with a kick drum as the sidechain input, at a **Threshold** of -14.9dB and a **Ratio** of 14.8:1. Glue these two bass components together by routing them to a shared bus with a **soft_clipper** set to 1.9dB on it.

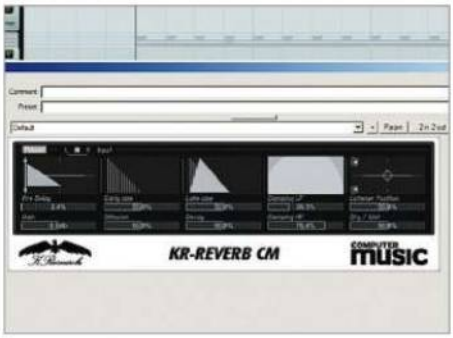
POWER TIP

>Duplication for variation

When making dance music, things can get boring and repetitive if you're not careful. An easy way around this is to introduce variations in your sounds, rather than simply repeating the same riffs. Reaper has a handy feature that enables you to quickly create a variation on an existing part. Simply right-click a track and select **Duplicate Selected Tracks**. An identical copy of the track will then be created. Simply tweak a few parameters or add some effects and you've got a new sound to keep your tune interesting.

FREE! FREE! Free! FREE!

> Step by step: Dirty lead synths



1 > For a tearing modern dance track, you need big lead sounds, but you don't need expensive synths to make them – many classic dance noises can be made with the simplest of plug-ins. Let's start with a grinding lead. Create a new track and load TAL-Elek7ro onto it. Turn **Osc2** fully up and **Osc3** right down in the mixer.

2 > Turn **Osc1**'s **Sync** off and set its shape to a pulse waveform. Turn **Osc2**'s **Semi** knob all the way down and set its **Fine** knob to between 12 and 1 o'clock. So far, so pedestrian, but set **Osc2**'s **FM** knob to 12 o'clock and hear the magic happen – the sound is transformed from something tame into a nasty, nasty lead.

3 > We can make the sound even harder. As well as ReaEQ and distortion from CamelCrusher, we've got sidechain compression and KR-Reverb CM working to create a pumping, Benny Benassi-style lead sound. To see the effect chain in full, right-click the effects rack, select **Add FX Chain** and load **DirtyLead.RfxChain**.

> Step by step: The vocal synth lead

1 > Our next sound is a dubstep-style vocal synth lead. The character of this sound comes from the processing. Select the **z_init** patch from AlphaCM's list of presets. Set both oscillators' **Bal**ance knobs to A, **Oscillator 1**'s A waveform to a 16" Square1 shape, and **Oscillator 2**'s A waveform to a 32" Square1 shape.

2 > Next we need to set up the filter. Copy the settings shown here, which gives us an opening low-pass filter effect with a fair amount of resonance. At this point, it's a bit old-skool speed garage, but we're not done yet...

3 > The secret ingredient is TAL-BitCrusher, with a severe Samplerate setting of /29. This introduces a heavy dose of aliasing, giving the sound a gritty vocal quality. It's also a good idea to add compression and sidechain compression – load up **VocalLead.RfxChain** to see the chain with ReaComp plug-ins in place.

> Step by step: The wobble lead

1 > Our third and final lead sound's most prominent characteristic is its wobbly LFO-modulated filter cutoff. To create this sound, load ZebraCM, turn the **Vol** knob on Oscillator 2 down to 0 and set Oscillator 1 to **Single Voice** mode. Tune it up by 12.00 semitones, and set the **Sustain** level of **Envelope 1** to maximum.

2 > This gives us a basic sawtooth sound that's ripe for filtering. To cut a long story short, copy the Filter and LFO2 settings shown here. At these settings, LFO2 is set to a 16th-note triangle wave and is modulating the Filter Cutoff. The Filter is set to **OldDrive** mode, with the **Drive** turned all the way up.

3 > This sounds great on its own, but we need to fit it in with the rest of our mix, so compression, sidechain compression and EQ are used to help it sit better. CamelCrusher is also used to rough the sound up, which helps it stand out. To see how these plug-ins work together, load up **WobbleLead.RfxChain**.

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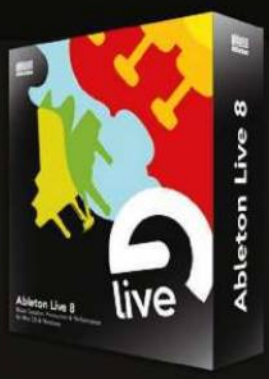

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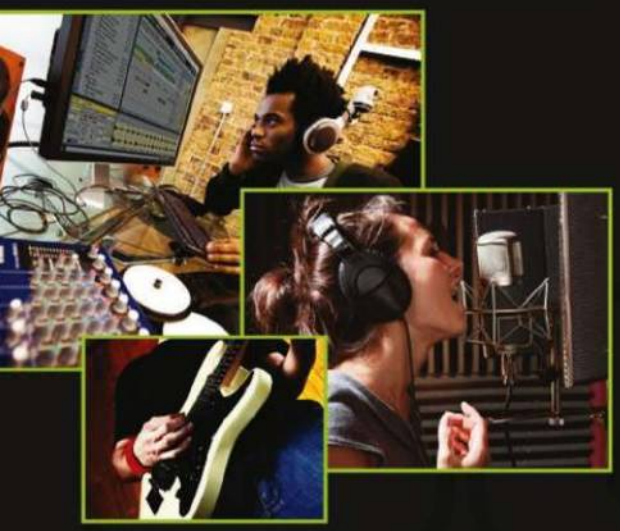

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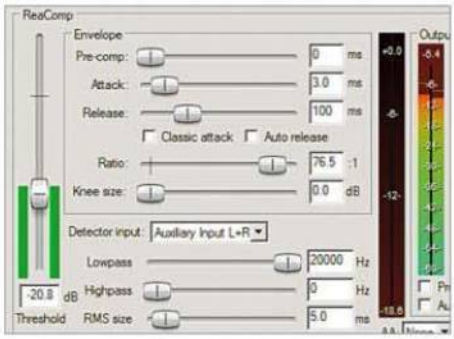
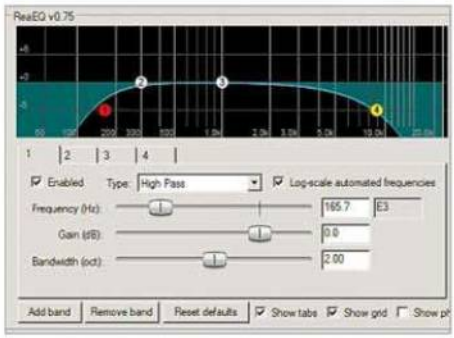
> Step by step Creating a processed delay FX send





1 > For our incidental and spot sound effects, we're going to use a combination of sampled and original material, most of which will be sent through an auxiliary delay chain. Setting up send effects is easy in Reaper. Just create a new track, name it **Send1** and add your effect to it – in this case, KR-Delay CM. Copy the settings used here and set the **Dry/Wet** level to 100% wet.

2 > In order to prevent the delay from clogging up the mix, we can add some compression and EQ. Start by adding a ReaComp with its sidechain input routed to – yes! – the kick drum channel. This should have a **Threshold** of -20.8dB and a **Ratio** of 76.5:1, and will make the delayed signal duck when the kick plays, creating a very tasty rhythmic pumping effect.

3 > Next, add ReaEQ and set band 1 as a high-pass filter at 165.7Hz. This gets rid of any low-end sounds that could interfere with the bassline. Set band 4 as a low-pass filter at 8961.7Hz, preventing the high frequencies from making the mix sound messy and harsh. To route a track to this channel, click the **IO** button on the track, choose **Add New Send**, and then select the **Send1** channel.

Free sounds abound

If you're looking to get your hands on samples for free, there are plenty of websites to investigate. Among the best is www.freesound.org, a community site where users can upload and tag their own Creative Commons-licensed sounds. Registered users can freely search and download samples as they see fit, making it a very useful resource when you're after a specific sound.

Some commercial sample library companies offer freebie samples online. Loopmasters (www.loopmasters.com), for instance, provide registered users with a free 1GB sample pack. In addition, Producer Loops (www.producerloops.com) offer a 300MB sample pack for anyone who signs up to their newsletter. Goldbaby (www.goldbaby.co.nz) also provide some excellent free sample packs, including superb classic drum machine one-shots.

Blogs can also be a useful source of free sounds and information on where to get them. Rekkerd.org offers up-to-date news on both free and commercial sound libraries, and you can get info on remix competitions and their associated sample packs at www.remixcomps.com.

Last but not least, be sure to check out *Computer Music*'s sister site MusicRadar, which offers plenty of free sample downloads (www.musicradar.com/sampleradar).

> Step by step Synthesising original sound effects

1 > One of the simplest yet most useful sound effects you can synthesise yourself is the white noise sweep. Create a new track and load ZebraCM onto it. Lower the **Vol** knobs of both oscillators completely, and turn the **Volume** knob in the **Noise** panel all the way up. This gives us pure white noise when we play a note.

2 > The Noise section has its own built-in high- and low-pass filters, but we're going to use ZebraCM's main Filter section instead, so we can add resonance, making the sound stand out more. Set the **Env2** and **Cutoff** levels in the Filter section to 0, and turn the **Res**onance up to 22.50. Automate the Filter **Cutoff** to create a sweeping noise effect.

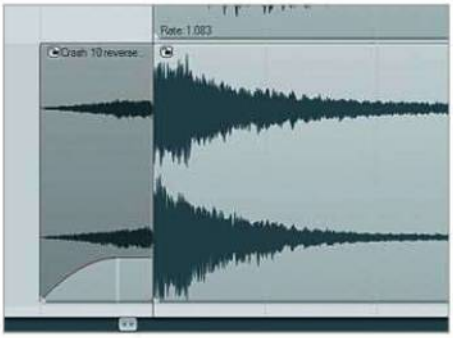
3 > Another cool but easy-to-make sound effect is the pitch riser. You can use any virtual analogue synth with a self-resonating filter for this one, and we're going to be calling on the retro-flavoured TAL-U-No 62. Turn off the oscillators with the three buttons – we're going to use the filter itself to make this sound.

4 > Copy the filter section parameters shown here. The high resonance causes the filter to self-oscillate, creating a pitched tone that can be controlled by modulating the cutoff level. After the TAL-U-No-62 synth, insert a CamelCrusher effect to dirty up the tone – just listen to that crazy aliasing as the pitch rises! Both of these sounds should be routed to the delay send.

> Step by step

Adding incidentals, pads and more

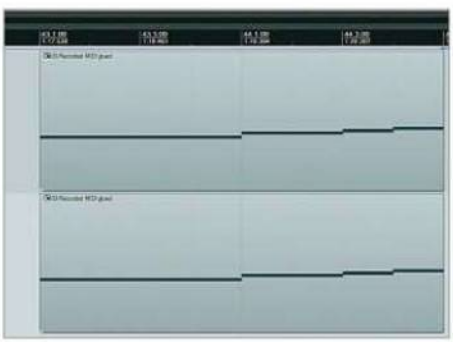
1 > We've got all the main elements of our track together, so now it's time to add those little incidental sounds that help us create an interesting arrangement around the existing parts. Start by dragging the **Horn02**, **Rewind05**, **Rewind07** and **Horn04** samples onto an audio track. Route this track to the send channel we set up on the previous page.



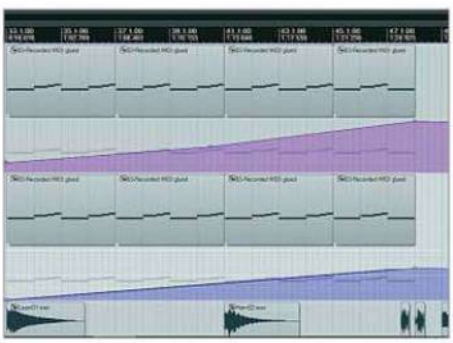
2 > Add another new track and drag **Crash 10.wav** onto it. Putting a short, reversed crash before a regular crash can sound great, so make a copy of the cymbal, then right-click it and select **Reverse Items As New Take.** Right-click the new take and select **Take»Crop to Active Take**. Now shorten the reversed crash clip, apply a fade-in and drop the volume, then place it before the crash.

3 > To create a rhythmic pad sound, we turn to Green Oak Crystal, specifically the **Dream of Jungle** preset. Yep, we're using an unedited preset, but we've made enough original sounds for this track to alleviate any shame we might be feeling! Add a ReaComp set to sidechain mode triggered by the kick drum after the synth, and sequence a simple fifth chord to play this sound.

4 > So far, we don't have any vocals, so let's throw a couple into the mix to make the tune more memorable. Drag **I Murder DJs.wav** onto a new track and move the start and end points to the start and end of the word "murder". Next, drag **G'wan Go Sit Down.wav** onto the same track and move the start and end points around the word "g'wan".



5 > We need an instrument to play the bass tune during the breakdown to introduce the listener to it and keep the energy level of the track up, but we don't want to introduce the actual bass elements until the drop. To achieve this we, copy the bass part's MIDI onto two new tracks. We're going to play this with variations using our existing instruments.



6 > On the first track, start by loading up **BreakdownSynth1.RfxChain**, and on the second, load **BreakdownSynth2.RfxChain**. Opening up both **Filter Cutoffs** on the instruments and effects creates an energy-building vibe. On the first track, automate the **Cutoff** on the Frohmage effect, and on the second track, automate the **Cutoff** on the ZebraCM synth. Now it's time to create an arrangement.

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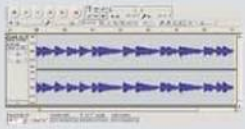

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The arrangement

1 Our track starts off very simply with just a kick drum and rhythmic pad sound playing. The sidechain compression on the pad gives the mix a full, pumping feel already, getting us off to a good start.

2 After eight bars, the hi-hats and finger snap sounds are introduced to flesh out the rhythm a little. The break and carnival beats are kept back so that we have something to build up to.

3 The white noise and pitch-riser synth effects are used to transition between the intro and the first breakdown. Without these sounds, the movement between sections would sound abrupt and unnatural.

4 The breakdown introduces the alternative version of the bassline, which doesn't actually have much low end. It doesn't have too much high-end either, but the low-pass filters gradually open up to reveal more of the sound.

5 The vocals, airhorn and deck spinback samples that pepper the breakdown increase in intensity as the drop approaches, and they're all sent through the delay channel.

6 The delay send level is automated to get louder and then cut out just before the drop, creating a big wash of sound that cuts out for a second before the beat and bass drop. This gives the drop more impact.

7 At the drop, the track is at its most intense – all the beats, bass noises and leads are playing at once. With this many sounds going off at the same time, the EQ, dynamics processing and sidechain compression we applied really pay off.

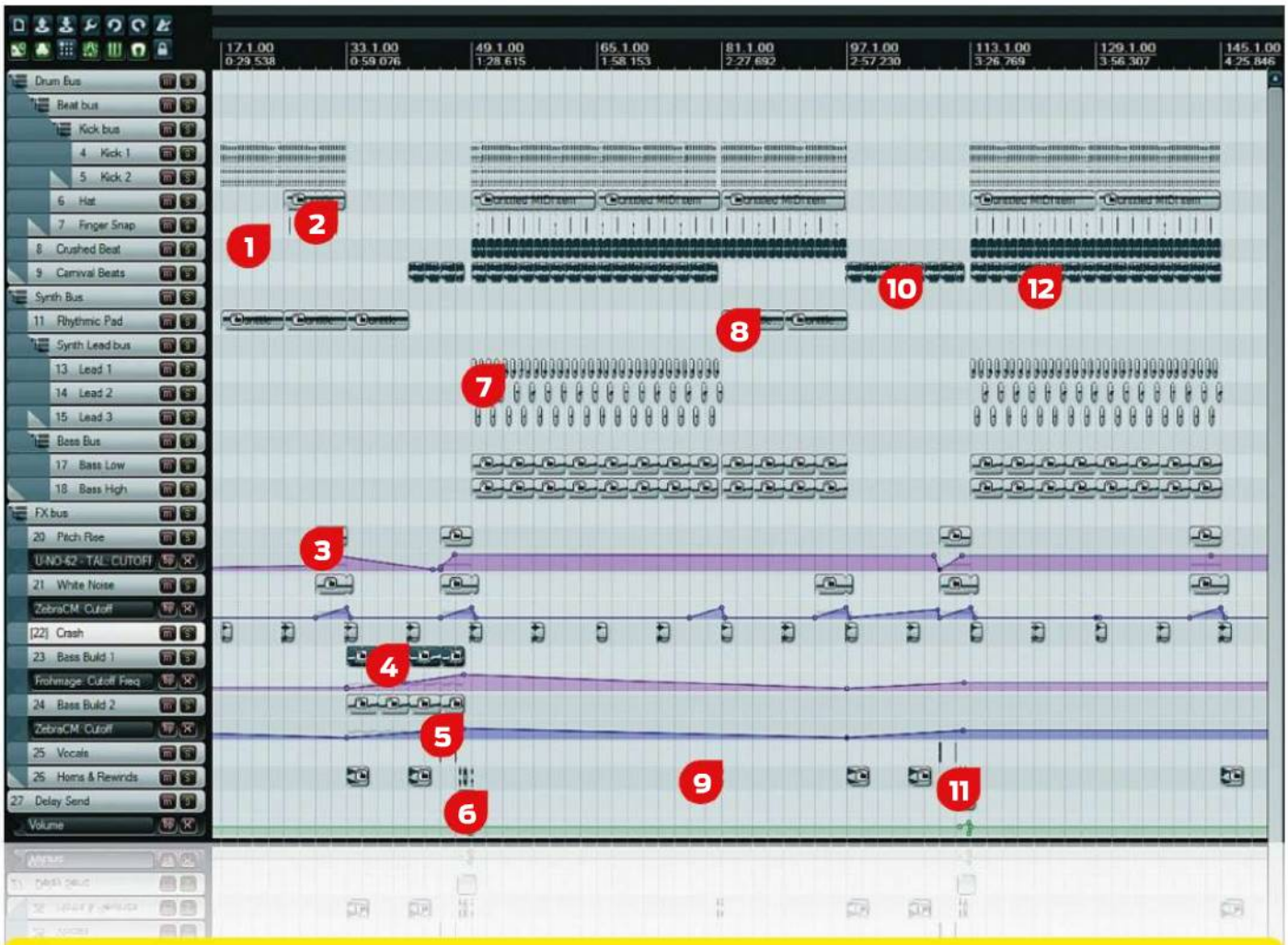
8 After 32 bars of roll-out, the insistent groove is becoming a tad repetitive– it's time for a change. The lead noises disappear, to be replaced by the rhythmic pad from the intro. We also lose the carnival drums at this point.

9 Some spinback effects are used to ease the transition between the section with all the lead sounds and the point where they're replaced by the rhythmic pad.

10 The bassline is totally absent during the second breakdown, but the carnival drums, which were absent from the previous section, return. This gives us a bit of a break from the full-on bass and beats assault and gives the listener a chance to chill out before the second drop.

11 Aside from the lack of bassline, the build-up to the second drop happens just like the first, complete with swelling delay send.

12 The second drop is identical to the first, and rolls out for 32 more bars before the track ends with another white noise/pitch-riser combo, followed by one final cymbal crash.



Mixing and mastering

The mixdown for this track wasn't a particularly long or involved process because the majority of the work was done during the compositional stage. When you're trying to get the biggest, loudest mix possible, it really helps to make sure each element is powerful enough while you're creating it. You need to ensure that all these full-on sounds aren't conflicting, though, which is achieved through sensible composing and arranging, and also by using effects like EQ and sidechain compression to focus the sound in particular frequency and time spaces.

It helps to route certain types of sounds through busses too. This isn't just because it helps to make things easier when it comes to balancing, but also because we can easily maximise the volume of these busses by running them through a limiter. Clipping can also help in achieving loudness, so long as you don't overdo it – try a clipper before the limiter, just to lop off extreme peaks that might otherwise make the limiter 'pump' too noticeably.

We used another clipper/limiter combo on the master bus. Once happy with the mix, we pushed the master as hard as possible without creating noticeable distortion or dulling the impact of the beat. With a decent level reached, we exported the track as a 24-bit WAV file that we can dither down to 16-bit for burning to CD or MP3 for distributing online. **cm**

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Full software

SYNAPSE AUDIO JUNGLIST (PC)

This classic PC VST synth is perfect for making phat basses and a whole lot more besides - see the tutorial over the page for your guide to getting going with it.

System requirements
PC **VST host**
Web **www.synapse-audio.com**

It packs a powerful bass punch, but Junglist also offers superb for leads, pads and more

ELYSIA NIVEAU (PC/MAC)

This simple filter effect will bring the balance back to your sounds with its straightforward interface and great sound.

System requirements
PC **RTAS or VST host**
Mac **AU, RTAS or VST host**
Web **www.elysia.com**

Don't be put off by its simple looks - elysia niveau offers an effective, fast and easy way of balancing the sound and changing the character of your tracks

FULL BUCKET MUSIC THE BLOOO (PC)

This synth from newcomers Full Bucket Music features some interesting features such as ring modulation, frequency modulation and amplitude modulation, and is covered in more detail in the Freeware News section on page 18.

System requirements
PC **VST host**
Web **www.fullbucket.de/music**

EXTRAS On your **cm** DVD, you'll also find all the freeware used in our *Make A Track For Free* feature - turn to p26 for info on these extras!

Demo software

Get started with our **BEGINNERS' GUIDES**

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

COCKOS REAPER (PC/MAC)

This ace DAW is no system hog, but it's still got tons of cool capabilities to match its more established rivals. This trial version won't expire, but you should register it if you use it for more than 30 days.

System requirements

PC **Windows 98 or later**

Mac **OS X 10.4 or later**

Web **www.reaper.fm**

ICED AUDIO AUDIOFINDER (MAC)

Organise your samples with this handy audio management tool, which includes dozens of cool features, including the ability to add metadata to any sound, built-in sample editing, pitch analysis tools and preview with pitch control. This trial version will lose features if you continue to use it without registering it.

System requirements

Mac **OS X 10.5**

Web **www.icedaudio.com**

LOOMER SEQUENT (PC/MAC)

Sequent is a modular effects unit with a built-in sequencer that's equally at home on stage or in the studio. This demo version won't load patches, times out after each 30-minute session and interrupts the output with silence every 30 seconds.

System requirements

PC **Intel x86 CPU, Windows XP/Vista/7, RTAS/VST host**

Mac **1GHz CPU, 512MB RAM, OS X 10.4.2, AU/RTAS/VST host**

Web **www.loomer.co.uk**

Iced Audio's AudioFinder offers an easy way to keep track of all your samples and sounds

NUGEN AUDIO MONOFILTER 4 (PC/MAC)

Designed for getting your bass sounds sounding firm and tight, Monofilter 4 adds definition to your mix and helps alleviate any phase issues. This demo version will expire after 30 days.

System requirements

PC **1.4GHz CPU, 512MB RAM, Windows XP or later, VST host**

Mac **1.4GHz CPU, 512MB RAM, Mac OS X 10.4 or later, AU or VST host**

Web **nugenaudio.com**

U&I SOFTWARE METASYNTH (MAC)

A visual sound design suite, MetaSynth enables you to 'paint' sound, create abstract effects and sequence your creations together. This demo version is identical to the full version, apart from the fact that it won't allow you to save your masterpieces.

System requirements

Mac **OS X 10.4 or later**

Web **www.uisoftware.com**

XFER NERVE (PC/MAC)

Created by dance music producers for dance music producers, Nerve is a powerful drum machine with exciting features such as an internal step sequencer and pre-calculated DSP effects. This demo version doesn't feature the full sound library, and it's also save-disabled and limited to 20-minute sessions.

System requirements

PC **512MB RAM, Windows XP/Vista/7, VST host**

Mac **512MB RAM, OS X 10.4, AU/VST host**

Web **www.xferrecords.com**

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!

Synapse Audio Junglist PC

ON THE DVD
FULL SOFTWARE
Junglist is in the **Full Software** folder

Synapse Audio and **cm** have teamed up to bring you the full original version of this classic trail-blazing synth. Welcome to the Junglist...

> A classic PC VST synth, Synapse Audio's Junglist was one of the first virtual analogues that made it possible to get big, bad sounds in software. With ahead-of-its-time features – such as a choice of multiple complex oscillator shapes, frequency and ring modulation, dedicated pitch envelopes, chorus and EQ effects, and tons of separate saturation stages – Junglist opened up serious sound-design potential for its users and became a firm favourite with many.

Junglist would've set you back $69, and in fact it's no longer available to buy. Here at **cm**, we're not ones to forget a great synth, so in conjunction with Synapse Audio, we bring you Junglist, complete in its original form. Junglist is a dab hand at creating big, bad bass sounds, but that's by no means the whole story – the abundance of rich oscillator waveforms, flexible programming capabilities and built-in chorus mean it's possible to get everything from lush pads to expressive leads.

In this tutorial, we'll show you how to install the synth, take you on a whistle-stop tour of all the major features and offer some hints and tips on how to get the most from the software.

If you're hungry for more information, check out the help file in the **Junglist** folder.

www.synapse-audio.com

> Step by step
Installing and getting started with Junglist

1 > Installing Junglist is simple. Open the **Software/PC Software/Full Software** folder on the DVD and drag the **Synapse Junglist** folder into your shared VST folder. You can check your DAW's VST folder preferences if you're not sure where it's located.

2 > Next, open your DAW and load up Junglist on a MIDI track. Let's start by trying some of the presets. The name of the current preset is displayed in the Patch Management section of the interface. You can click this to bring up a list of all the presets, or use the up and down arrows to cycle through them.

3 > Once you've had your fill of Junglist's presets, let's try making a sound from scratch ourselves. Click the preset list and scroll to the bottom. Select **Init Program**. This will give us an initialised patch that we can play with. By default, this patch uses a single sine oscillator.

4 > This 'test tone'-style patch can be used to make deep sub-basses and mellow lead sounds, but Junglist is capable of a lot more than that. To select another waveshape for the first oscillator, you can either click the waveshape to bring up a list of available shapes, or cycle through them with the up and down arrows.

5 > Select oscillator shape 20, which is basically a sawtooth wave. Junglist has three different voice modes. Currently, the sound is being played with a single voice. You can also select **Dual Voice** and **Unison** modes from the **Global Settings** panel at the bottom right hand of the interface. Selecting **Dual Voice** mode makes the sound wider and adds more chorus, and Unison makes it much thicker.

6 > Return to **Single Voice** mode. Now let's activate the second oscillator. Click on its waveforms display and choose shape 24. Using two oscillators, it's possible to get more complex sounds. However, Junglist enables you to do more than play two different waveforms at once.

7 > Set both oscillators to the sine (01) shape. We can use the **RM/FM** (ring modulation/frequency modulation) knob in the first oscillator panel to make these two oscillators sound a lot more interesting. First, set the **Coarse** tune of Oscillator 1 to just before three o'clock, as we have here.

8 > This plays an interval, but by activating the **RM/FM** knob, we can have Oscillator 1 modulate Oscillator 2. Turn the **RM/FM** knob up to its maximum. This will give you a nice, thick, almost organ-like tone. Using FM in this manner, it's possible to create a wide variety of different timbres.

POWER TIP

>Make it snappy

One of Junglist's coolest features is the percussion envelope mode, which can be activated by clicking the **Perc Env** button in the **Global Settings** panel. This makes the synth's amplitude, filter and pitch envelopes play back much quicker, and is ideal for creating punchier sounds, especially for percussion. So, you could activate the percussion envelope mode and set up quick amplitude and pitch down envelopes to create a punchy kick drum sound. Add some saturation and you can create filthy percussive bass sounds that will really work your speakers.

> Step by step
Installing and getting started with Junglist (continued)

9 > Each oscillator also has a **Sat** knob, which can be tuned up to saturate the sound. Turn up the **Sat** knob in the **Osc 1** panel and you'll hear how the sound becomes more square wave-like. Turn the **Sat** knobs on both oscillators up to their maximum level, and also turn up the **Coarse** level on **Osc 1**.

10 > This gives us a signal that's really harmonically rich. Let's use Junglist's built-in filter to turn this into something with a little more funk. Activate the **LFO»Filt** button to the right of the oscillator's waveforms. Set the **Cutoff** knob in the **Filter** section to 12 o'clock. Now set the **Rate** and **Amt** (Amount) knobs in the **LFO/Glide** panel to 1 and 5 o'clock respectively.

11 > Now when you play a note, you'll hear the filter cutoff sweep rhythmically. Turn up the **Reso**nance knob to make the filter movement more pronounced. This will make the output clip and you'll hear some unpleasant distortion. To remedy this, turn down the **Level** knob in the **Master** section.

12 > Now we've got rid of that unpleasant distortion, let's add some tasty, intentional distortion. In the **Bass FX** panel, set the **Amt**, **Sat**uration and **Freq**uency knobs to 5, 9 and 12 o'clock respectively. The Frequency knob controls the central frequency that the distortion occurs at, and sweeping it up results in a more intense effect.

13 > Turn the **Amt** knob back down. There's also a non-bass-specific distortion control in the **Master** section. Turning up the **Dist**ortion knob here will saturate the entire frequency range. The **Low** and **High** knobs in this section act as basic filters – handy for performing simple filtering on the sound if you're already using the main filter to do something more interesting.

14 > Turn the **Dist**ortion down. Let's have a look at the **Chorus** section next. Activate the chorus effect by turning up the **Amt** knob in the **Chorus** panel. Turn up the **Delay** knob to 12 o'clock, and set the **Rate** to 3 o'clock. You will hear the sound become stereo. You can increase the stereo movement by turning up the **Mod**ulation knob.

15 > You can make the stereo spread richer by turning up the **Spread** knob, which modifies the delay times of each channel. The **Low** and **High** knobs act as filters on the delayed signals, and the **Feedbk** (Feedback) knob sets the amount of signal fed back into the delay loop, making the effect even more apparent.

16 > Turn the **Amt** knob in the **Chorus** section down. Junglist features two dedicated pitch envelopes, which are simple but great for adding punch to sounds. In the **Pitch Dn** envelope panel, turn the **Amt** knob up to full and set the **Decay** knob to 9 o'clock. This will give you a quick pitchbend down at the start of each note.

17 > If you're after yet more pitch modulation, you can activate the **LFO»Osc** button under the **LFO»Filt** button. This tells Junglist to modulate the pitch of both oscillators with the LFO, and is ideal for creating those wobbly bass noises so common in old-school DnB.

>Royalty-free, pro-quality sounds! PC MAC

2001 cm samples

cm DVD
ON THE DVD
SAMPLES
Your exclusive sounds are in the **Samples** folder

Cut loose and celebrate the carnival season with these dance samples inspired by the likes of Foamo, DJ Zinc and Major Lazer

Groove Criminals

6 Bass multisamples
107 Beats
89 Drum hits
13 FX
78 Loops
2 Synth multisamples

The beats were made using a combination of hardware and software drum machines, including a JoMoX Xbase09 and Native Instruments' Battery. They're Soca-inspired, with a lot electronic elements added to spice things up.

The bass and synth sounds and loops were created with a mixture of analogue hardware and software, including a Moog Little Phatty and Dave Smith Mopho. These synths were stacked and layered to fill out the sound.
www.groovecriminals.co.uk

Cyclick

210 Bass loops
4 Bass multisamples
320 Beats
3 Drum kits
74 FX
148 Synth loops
4 Synth multisamples

These samples include four tempo-based construction kits, and everything included has been run through an analogue signal chain for EQ and dynamics processing. Kit involved in the creation of these samples includes the Novation BassStation, Moogerfoofer MF102 Ring Modulator and ART ProVLA valve compressor.

Alex Blanco

74 Bass loops
300 Percussion hits
206 Rhythmic loops
3 Synth multisamples
100 Vocal loops
112 Vocal slices

The rhythmic loops selection of heavy-hitting drum loops takes its influences from ragga, reggaeton, breakbeat, house and all things basement, and is complemented by a folder of nasty basslines and three multisampled synths, including a genuine Roland Alpha Juno 2 for that old crusty hoover sound. Some crazy cut-up vocals round things off in fine style.
www.myspace.com/djalexblanco

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 **Blame**

A UK dance music stalwart, Blame's style has been evolving since his days as a hardcore anthem maker. Preparing to launch his debut album, which features an array of big-name vocal contributions, Blame invited us into his studio to see how he made the DnB version of *On My Own*, featuring Ruff Sqwad.

Web **www.myspace.com/blamethemusic**

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, CMU154/August/10, Bath BA1 2BW. Don't forget to include your full name and postal address!

cm STUDIO

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

APPLICATIONS

XT Software energyXT2.5 Core cm Edition (PC/Mac/Linux)
VST host and sequencer with modular routing

Outsim SynthMaker CM (PC)
Create your own VST synths and effects

INSTRUMENTS

PowerFX Hütkins CM (PC)
Sample-based electronica synth

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

FabFilter One 2.01 (PC)
Beautiful-sounding single-oscillator synth

Kotkas Paax 3 CM (PC)
Feature-packed soft sampler

Odo Synths Unknown 64 CM (PC)
C64 SID chip-emulating VSTi

Krakli CMorg (PC)
Vintage organ instrument

AlgoMusic ElectraBass Rack CM (PC)
Easy-to-use bass synth that's packed with presets

Humanoid Sound Systems Scanned Synth CM (PC)
Create abstract noises and haunting instruments

Muon CM-101 (PC)
Analogue-style VST synth

Muon SR-202 (PC)
16-pad VST drum machine

Muon CM-303 (PC)
Emulation of the classic Roland TB-303 synth

Muon DS-404 (PC)
Powerful 16-part multitimbral VST sampler

LinPlug CM-505 (PC/Mac)
Analogue drum synthesis made easy

Big Tick RhinoCM (PC)
Amazing hybrid synth with cool FM capabilities

EFFECTS

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

KResearch KR-Reverb cm Edition (PC/Mac)
Easy-to-use, algorithmic reverb effect

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

Blue Cat Audio FreqAnalyst CM (PC/Mac)
Sophisticated stereo spectral analyser

NuGen Audio Stereoizer CM (PC/Mac)
Useful mixing tool for control over your stereo spread

Sugar Bytes Artillery2 cm Edition (PC)
Multi-FX with internal sequencer

Image-Line CM Vocoder (PC)
Special cm version of FL Studio's FL Vocoder

Aixcoustic Creations Electri-Q CM (PC)
Sweet-sounding and flexible equalisation

Martin Eastwood Audio CompressiveCM (PC/Mac)
Compressor/limiter with sidechain input

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

Betabugz Audio Vascillator (PC)
Semi-modular feedback delay multi-effect

Image-Line CM WaveShaper (PC)
Flexible wave distortion effect

PSP Springverb (PC)
Authentic VST spring reverb effect

SimulAnalog Guitar Suite CM (PC)
Plug-ins modelled on classic guitar effects and amps

Ohm Force Ohmygod! (PC/Mac)
Crazy resonant/comb VST filter

Camel Audio CMFuzz (PC)
Quick and dirty distortion

Intelligent Devices MegaDelayMassCM (PC/Mac)
Sound design-orientated delay module

Sanford Phaser-CM (PC)
Phaser effect with advanced modulation abilities

Martin Eastwood Audio Duet (PC)
Easy-to-use double tracker

Add fantastic phaser effects to your tracks with Sanford Phaser-CM

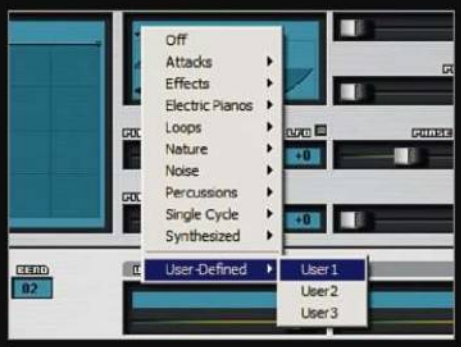
Additive synthesis with RhinoCM

Following last month's introduction to RhinoCM, we take a look at the synth's additive synthesis features

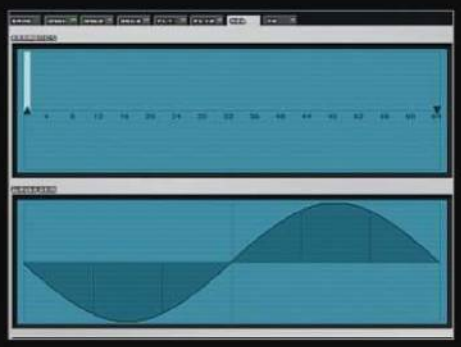
PC MAC

cm DVD
ON THE DVD
FULL SOFTWARE
RhinoCM is ready and waiting for you in the **CM Studio** folder

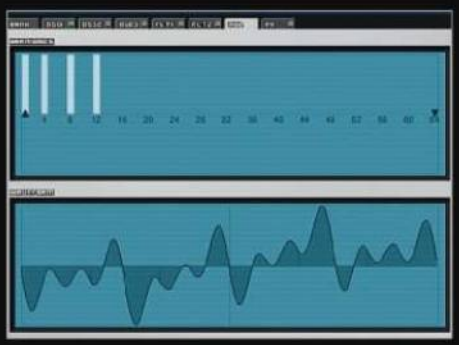
1 > Last month we introduced you to RhinoCM, a **cm**-exclusive frequency modulation-based synth with powerful sound-design capabilities. This month we'll look at the synth's additive synthesis features. Start by loading the synth in your DAW and selecting an empty preset from the Bank panel.



2 > Select the **Osc1** tab and the information screen for Oscillator 1 will appear. In the **Oscillator Shape** panel, click where it says **Sine** and a menu will pop up. Select **User-Defined»User 1**. This slot is currently empty – before it will make any sound, we need to create a waveform.

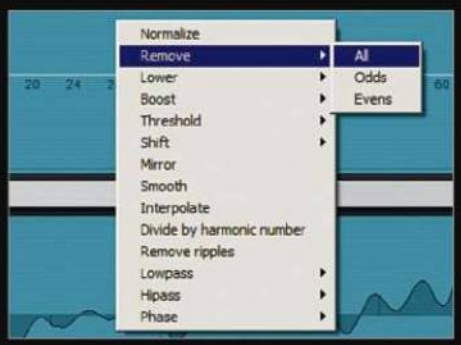


3 > Select the **Add** tab at the top of the interface – this is RhinoCM's additive synthesis engine. We can create our own wave using the Harmonics panel. Turn up the fundamental by clicking the first column at the top. The Waveform display below will reflect this change – you'll see a simple sine waveform appear.

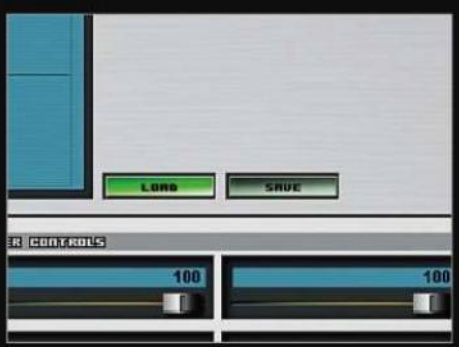


4 > Add more harmonics by dragging above the 4, 8 and 12 harmonics and you'll see the waveform contort into this wobbly shape. On playback, you'll notice that we've created an organ-like sound. This is no coincidence – the drawbars on Hammond organs work like simplistic versions of this additive engine.

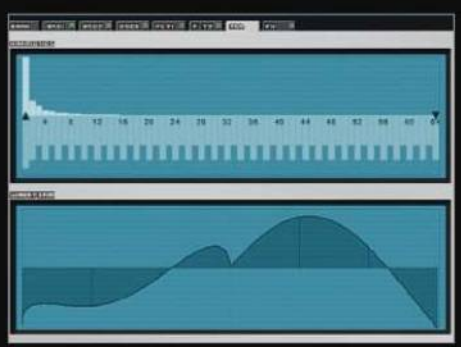
5 > RhinoCM is rather more sophisticated than a Hammond organ, of course! As well as adding harmonics over a wide range, we can apply a variety of processes to our sound. Right-click the **Harmonics** display and select **Smooth**. RhinoCM will attempt to interpolate the gaps between the harmonics to give a smoother sound.



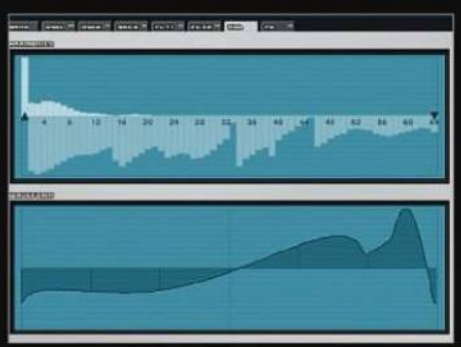
6 > There are plenty of functions of this kind to try out – you won't break it by experimenting, so go nuts! In a worst-case scenario, reset the harmonics by selecting **Remove»All**. Only the area between the two draggable arrows is affected by these processes, which enables you to apply them to a specific frequency range.



7 > RhinoCM has three different user waveforms, one for each oscillator, and it's possible to save and load each one using the **Save** and **Load** buttons to the right of the Waveform display. Click the **Load** button and you'll see a list of preset waveshapes to pick from. This can save you a lot of time!



8 > Load up the **tx-3.add** waveform. You'll notice in the Harmonics panel that there are a bunch of darker coloured lines below the harmonics themselves. These represent the phase of each harmonic, which you can drag to adjust. Drag the phase control below the fundamental to see how it affects the waveform.



9 > There are several other functions that can only be applied using the Waveforms display. Try dragging up/down and left/right on this window to warp the wave, and right-click to access another set of processes. Happy tweaking!

Reader music

Our team of expert producers and studio engineers check out the latest tracks submitted by **cm** readers

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READER MUSIC
Do you agree with our comments? Go to the **Reader Music** folder and have a listen to all four tracks yourself

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

MIDIBYTE
Phenomenon

Artist Martin Strömstedt
Contact www.myspace.com/midibyte

> This track was chosen for its low-frequency showcase. There's more to it than just that but the low end is so quaking that it stands out above all else. It's tight, contained and heavy, with no unruly elements and no odd frequencies causing the havoc that often happens down there. Put it on big speakers, turn it up, listen and learn.

Essentially a four-on-the-floor electro house tune, it's littered with interesting themes and humorous elements that bring a balanced levity to the beat's intensity. The drop to the middle is another of those moments, as is the low-passed mid-section that breaks into a hugely uplifting synth melody.

It's not all roses though. Martin's used a plug-in or process to add width to a few synth sounds which are causing a left/right phase problem – listen to the track in mono and the body of the big synths disappears altogether. It's not the end of the world these days, but remember that FM radio still resorts to mono summing in areas of poor reception, especially in cars, and the most popular DAB radio at the moment, the Pure Evoke, is currently mono only. More relevantly, some clubs also have mono sound systems. Still, this is great nonetheless.

What the artist says:

"This was created with the intention of making you lose self-control and hit the person next to you with a sweet elbow-of-death in the face. Set the volume to max, turn the lights off and hit the strobe button... you're ready."

Equipment used **Home-made PC, M-Audio Audiophile 24/96, FL Studio 9 with plug-ins such as Sylenth1, Vanguard and GT_44s, with internal FL plug-ins like 3xOSC and Sytrus**

SMILEPLANT
Pussyfoot

Artist Petri Oksanen
Contact www.soundcloud.com/smileplant

> And here's another lesson in low end from Scandinavia – there must be something in the water because they sure know their bass frequencies! There are a lot of similarities between this track and Midibyte's – style and tempo in particular, as well as the sonics. This track isn't so musical and is much more relentless, with the pounding bass coming entirely from the kick drum, although there's a beautiful envelope to the 'after-tone' as it rises up.

The bass is of the common-or-garden slow filter-opening type that you hear everywhere. There are some excellent heavily-reverbed background noises to give a huge depth and size to the track, and some good sidechaining work on a few of the synth sounds. The thumping kick sound dominates all, though, and there's an almost subliminal cowbell-esque front to it that's fine until you notice it, and then you can't take your ears off it. It begins to sound like Petri's accidentally left the click track running!

As a club track, it's a perfect balance of bright, edgy sounds and killer low end, but away from the club, it becomes tedious (as do most club mixes when you're straight). On the plus side, he's got his mono compatibility spot on.

What the artist says:

"The *Pussyfoot* can be heard and understood in many ways. There's a bit of sneakiness combined with angry frustration, but every aspect of the track carries the theme that a planted smile (pun intended) could be the back door leading toward a bright escape."

Equipment used **Acer desktop PC, Korg Nano keyboard, Korg Nano studio controller, Reason 4**

SOUNDCLOUD

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.

What's wrong with my mix?

Producer, writer and musician John Reynolds gives us his professional opinion on this month's featured reader demo

Producer John Reynolds

John's production CV reads like a who's who of Irish music: Andrea Corr, Sinead O'Connor, Shane MacGowan, The Dubliners, Damien Dempsey... and let's not forget U2, of course. They're all there, and he's just finished a film soundtrack about Irish music that encompasses all of them and more.

STEALTH BOPPER
Dirty Bomb

Artist Derek Mason
Contact www.myspace.com/stealthbopper

> With an intro that coincidentally sounds quite like the Midibyte track, this tune carries on with a similar tonal quality for its economically short sub-two-minute duration. This track is what you'd call 'quirky', with no particular stylistic affiliation, and with whimsical synth motifs all over it. There are some great rasping synth tones and contrasting filtered ones, along with plenty of melodies and counter melodies, plus a final rallentando to end. It's more interesting in a cerebral context than an emotional one, leaving you feeling nothing much apart from agitation, even though it's good to listen to.

Taking a leaf from Midibyte's book, a bit of bottom end might help emotionally. It's all very lightweight, and though the eighth-note kick pattern is too busy for fatness, there could be more weight to the basslines. Also, the frenetic arrangement wears you down after a couple of listens and you're yearning for a chilled-out section, and some space between the interweaving synth lines. Despite the interesting listen, there's a sigh of relief when the end arrives.

What the artist says:

"This was an experiment with Unknown 64 CM by Odo, which inspired and dominates the piece. The aim was to keep it urgent and rough-edged, as befitting the concept, although there are some 'poppy' motifs. The clicking rhythm, absence of a drumbeat and the short duration were designed to maintain the tension."

Equipment used **Toshiba laptop, Edirol UA-25, Alesis M1 Active Mk2 monitors, Ableton Live 8, Unknown 64 CM, Arturia Moog Modular**

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!

PINUP SAINTS
Helluva

Artist RaRa
Contact www.reverbnation.com/pinupsaints

> It's a classic formula – producer boy and singer girl doing synth pop/rock. It's economical, focused and balanced, and that's why it very often works. This song from Canadians Wynn (vocals) and RaRa (production) has got great energy, with an immediate impression of bursting at the seams from the richness and edginess of the distorted tones. The song isn't bad either.

After a moment that sounds like someone building a shed, the song kicks in with the first verse and you're knocked sideways by the power of the vocal. The verse builds through two sections to the chorus, where it drops down for the first half before coming in on full power with the second. There's a tag to the chorus that takes us back to the verse and this is the least appealing part of the song – it's not doing much and it doesn't give us a break from the vocal, which means we can't get a second hit off it when it comes back with the verse.

A short verse follows and leads into another chorus with the same drop as the first, which for me is a bit of a disappointment. I'd like to have been hit with something as unpredictable as the full-on first verse. Still, it's a good chorus and we get back into less readable territory with a middle eight and a synth solo. A synth solo that doesn't make me cringe? There's a first! The track goes out on chant choruses and a superb ad lib vocal.

The song is dominated by the excellent vocal performance and its dirty sound. The distorted tone works through most of it, and there's a low-end boom in the verse that could be solved with a bit of roll-off. The 'wall of synths' backs up the vocal well and the tight, punchy drums stop it from being a rock wig-out. The one sound that's truly rotten is the bass, which sounds like a pluck bass patch straight out of an 80s synth.

RaRa has done a great job on the production, making a commercial pop song into something that sounds edgy and interesting. The mix is full and well balanced, and although the clarity and separation aren't great, the overall impact of the sonic mush is.

What the artist says:

" I started with the basic beat in Reason – drums, loop, synth line, bass. I wrote about a hot chick on Facebook and recorded Wynn on a Neumann U87. She wanted distortion on her vocals while she sang, and I finished production with Logic 9."

Equipment used **Apple Mac Pro, MOTU 828, Focusrite Platinum TrakMaster Pro mic pre-amp, vintage Neumann U87, KRK Rokit 8s, M-Audio Axiom 61, Reason 4, Logic Studio 9, Nomad Factory Integral Studio bundle, PSP oldTimer, Vintage Warmer and Xenon, TAL-Reverb II, U-No and BassLine, Antares Auto-Tune EVO, iZotope Ozone 4**

cm Producer Masterclass

BLAME

After almost two decades at the forefront of the dance music scene, Conrad Shafie – AKA Blame – reveals the production techniques that keep him on the cutting edge

The art of reinvention

> Blame, also know as Conrad Shafie, is a true veteran of the UK dance music scene, and has consistently created innovative dance music for the best part of the last 20 years. From the raw hardcore rave of *Music Takes You* through to the time-signature experimentation of *360° Clic* and his current vocal anthems such as *Because of You*, Blame has regularly reinvented his sound.

He's now moving in on the mainstream with a string of high-profile remixes, such as Steve Angello & Laidback Luke featuring Robin S's *Show Me Love* and David Guetta's *One Love*. Then there's a debut album, *The Music*, featuring collaborations with a host of vocalists, including Jocelyn Brown, Jenna G, Dynamite MC and Ruff Sqwad.

Culture of Blame

Computer Music caught up with Conrad to find out about the various production techniques he's accrued over his career. But first, how did he get into making music in the first place?

"I had always been interested in how music was pieced together and I was always listening to old hip-hop and electro tracks, trying to make out what elements were used, how they got the drum sounds," he reveals. " I was at college and one of the my friends, Tony [also known as Justice, of Blame & Justice and Icons fame], had work experience at a local recording studio, the 33 Arts Centre,
which was basically a community centre. I went down there and it blew my mind. I saw how tracks were recorded one at a time and layered up and I was hooked.

"I saved up money and every week I was going back to the studio. That was how *Music Takes You* came about – I had a collection of breakbeats and hip-hop tracks and rave stabs which I'd sample and piece together. Seal had also just released *The Beginning*, and when I heard it on telly I thought, 'That'd go really well in a track,' so I went down to the local Our Price and bought a cassette single to sample!"

Despite the less-than-ideal sample source, *Music Takes You* got signed to the then fledgling Moving Shadow label and was a huge success. Eventually, though, the constraints of working at the 33 Arts Centre became too much for Conrad. "Basically, the local nutters from Luton would be in there just walking into the middle of a session screaming!" he says.

"Although you got good studio time at a cheaper rate, it wasn't the most creative place. The engineer, Simon Donahue [who later released tracks on Blame's 720° label as Odyssey], left to set up a studio in his garage where I worked for years doing the Moving Shadow and early Good Looking Records stuff. Eventually, though, I felt that as I wasn't pushing the buttons, I wasn't exploring all the possibilities. I was explaining what I wanted and it was being done, but I never knew if there was more that you could do.

"I started picking up my own gear. I bought myself an E-mu sampler, and I bought Logic Micro, I think it was called, on an old Windows 3.1 system – you had about 16 MIDI tracks and no audio! I started really getting into things and buying stuff like

> "I felt that as I wasn't pushing the buttons, I wasn't exploring all the possibilities"

old Roland vocoders. Tracks like *Overhead Projections*, which was the first track with a vocoded breakbeat on it, were a result of trying to push the limitations."

Facing the future

Although working with his own hardware enabled Conrad to be more experimental with his music making, the reliance on large amounts of kit began to become a nuisance.

"By 2000, all the kit was really starting to do my nut in. I had patchbays and wires all over the place, things were crackling, audio interfaces weren't as great as they are now, DAT tapes could glitch once you finished them through a disc... Everyone was moving over to software and you could make a track in there, bounce it and that's your track.

"I started selling all my gear and getting more and more powerful computers. I kind of enjoyed it for a time, but then I realised that while everything was nice and clinical and precise, it had lost a little bit of the warmth and the special something that analogue gave me, so I started picking up bits and bobs again. Mainly synths, old stuff like the Roland Alpha Juno.

"I've got my eyes on a couple more now – I'm just running out of space to have all these keyboards! There weren't that many analogue rack units back then, and everything had a keyboard attached to it."

Analogue issues

The renewed dependence on analogue audio also introduced another issue. "The problem was you would have all these analogue synths running through MIDI, and they'd be sounding great live, but as soon as you start bouncing it into the computer, you're back to square one again. I had to really focus on getting a great sound into my system, which is where the nice Neve preamps and the Prism Sound audio interface come in.

"You want to hear exactly what the analogue gear is doing. That's the thing when people are A/B'ing with analogue and digital – it's all well and good, but your interface and how you come into the system are so important, otherwise you may as well stick to your soft synths. That was a massive thing – you've got to kind of invest in that to get that sound, but it's well worth it.

"I'd like to get a Moog Voyager next, as well as some more old Roland kit, plus compressors and EQ. I was looking at getting a tape machine the other day but I don't know if the missus would be happy with bits of 70s gear that take up a whole room in the house!"

In this walkthrough on the following pages, Conrad takes us through the creation of his track *On My Own*, which was created with a combination of sampled beats, hardware and virtual synths, along with vocal contributions from Alex Mills and Tinchy Stryder. Make sure you check out the exclusive video on this issue's **cm** DVD to hear his top tips for yourself.

After nearly two decades of innovation, Conrad is still evolving his sound

Selected kit list

- Apple Mac G5
- Logic Pro 7
- Spectrasonics Trilian
- Spectrasonics Stylus
- Sony Oxford Dynamics
- Abbey Road TG 12413
- MOTU Symphonic Instrument
- Waves Diamond Bundle
- PowerCore FireWire
- Prism Sound Orpheus
- Slate Pro Audio Dragon
- Neve 5012 preamp
- DSI Prophet '08
- DSI Mopho
- Roland Alpha Juno II
- Korg Triton Extreme
- Korg microKORG
- Yamaha 02R
- Dynaudio BM6As
- Alesis Monitor One MkII
- SE Electronics Gemini 2

> Step by step Making *On My Own*

1 > The first element of the track is a breakbeat that Conrad has created using cut-up and pitched-up classic breaks, rides and percussion. This is bounced as a beat, and then chopped up and played back via Logic's EXS24 sampler. Logic's ChannelEQ is used to high-pass the breakbeat and boost the high end slightly.

2 > To give the beat the solid, punchy kick that modern DnB demands, Conrad turns to his trusty collection of kick drum samples. "I just picked my favourite kick from my EXS files, which kind of worked with the break already!" he admits. This kick has a hi-hat on it, which is tamed with a little high-end EQ.

3 > With the break and the kick in place, a snare is required. Many of Blame's single-hit drums are taken from the Stylus RMX library, and once a suitable one is located, it's layered up with the break. The snare is a little dull-sounding and is EQed slightly to bring out the top end.

4 > To add energy to the track, a shaker loop is added. "I've got a few loops that I've made over the years – if they've really worked in a track, I bounced them, and sometimes when I'm working on a new track they'll slot in perfectly," Conrad explains. The shaker loops used here don't play over the snare, which stops the snare from sounding too brittle.

5 > Because the shaker part is so bright, the snare sounds dull by comparison, so to brighten it up a little, a quiet cymbal crash is played over each one. The crash is compressed with the sidechain input from the snare channel, which ducks its volume when the snare plays. "It's quite subtle but it keeps everything in check," says Conrad.

6 > Another crash sound is added to the project, which plays at the start of each 16-bar section. The drum sounds are all then routed to a bus where a Sony Oxford Dynamics compressor with fast attack and release times is used to tame the signal's peaks slightly.

7 > The sub-bass in the track comes courtesy of Logic's ES2 synth. "I like to get a lot of my basses from analogue gear like the Prophet and the Alpha Juno, but this time the ES2 sat in nicely," Conrad reveals. Distortion is added to the pure sine tone in order to add a bit of character to the sound.

8 > Next is a synth brass chord sequence recorded from the DSI Prophet '08 hardware synth. The left and right voices are detuned slightly for a wide, old-school chorus-style effect. This is sampled via the Prism Sound Orpheus audio interface, then resampled via the Slate Pro Audio Dragon analogue dynamics processor for a tape saturation-style effect. Logic's Tape Delay effect is applied using bus 1.

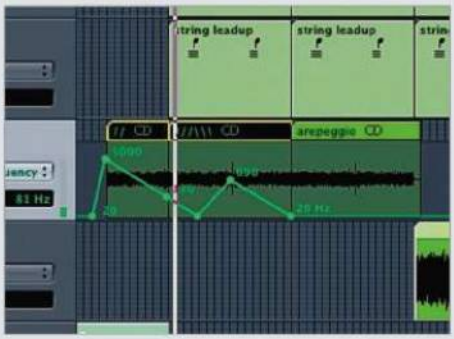
9 > Reverb, courtesy of TC Electronics ClassicVerb, is added on bus 2. A bright reverb setting has been used to fit the sound in the mix and give it some space. Finally, TC Electronic's Character enhancer is applied to excite the high end and compress the sound slightly.

10> To fill the track out a little, Conrad goes back to his ravey roots with a microKORG part. This detuned saw sound backs up the existing brass riff, and is run via the Slate Pro Audio Dragon to the Prism Sound Orpheus. In Logic, the bottom end is high-passed with ChannelEQ, and Character is used again to add crunchy brightness and fizzle to the top end.

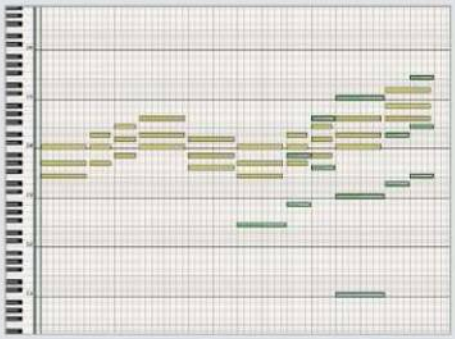
11> With all these rave noises going off, Conrad feels that everything is a little synthetic-sounding and decides to add something more organic to the mix. A horn sound from the Korg Triton is used to offset the riff and give the track more character. This sound has too much fizzy top, which is tamed with ChannelEQ.

12> Next, Conrad breaks out one of his trademark sounds – a high-string sample. "I just can't help it!" he admits. "If in doubt, put a high-string in. Whenever you take them out, you always feel like you're missing it!" The sound is a sample of an ARP synth played back on one note via the EXS24 sampler.

13> For a more realistic string sound, MOTU Symphonic Instrument is brought into play. The Violins 1 run-up patch is used to add some authentic-sounding string runs, which help accentuate the horns and give the track more of an organic sound.

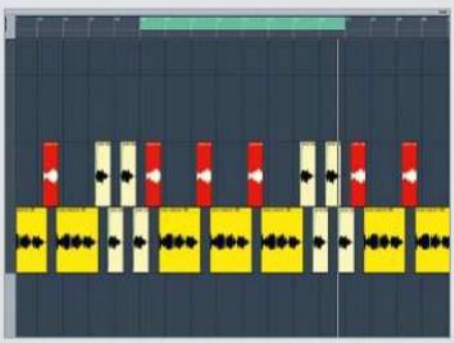


14> Enough 'real' instruments – it's time for more synth fun with an arpeggiated lead from the Prophet. A high-pass filter effect is used to bring this sound in gradually via filter cutoff frequency automation. "For these kind of things, I just use Logic's Low Cut and High Cut because you don't need a load of settings to get involved with," Conrad tells us.

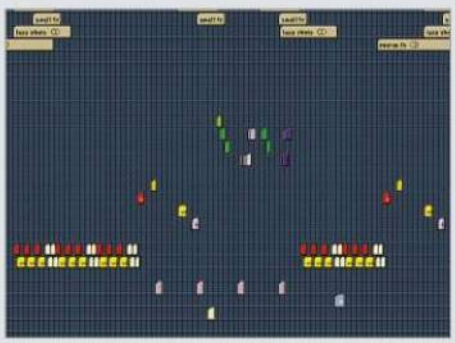


15> To create an epic intro, Conrad expands on the track's classical theme with a big string part, also played with MOTU Symphonic Instrument. A warm pad sound follows the chords to warm up the sound and add a little bit of extra weight and depth.

16> To complement the intro, strings and pad ES2 fill out the low-end using the Dirty Drone Bass patch. "It's just an analogue sounding drone. I went through all my analogue synths, but nothing worked as well as the ES2 on this part – it adds a nice, warm richness to the bottom end, without being overly bassy."



17> The final elements to be added are the vocals from the original 130bpm version. These are cut up and timestretched as audio, then re-triggered with the rest of the track to create a new vocal line. Then they're de-essed, EQ'ed, run through Waves Doubler for stereo width, EQ'ed again and limited with an Abbey Road TG 12413 Limiter, which gives a warm, crunchy vibe.



18> As well as the female vocal part sung by Alex Mills, the original version features rapping by Tinchy Stryder. "The original track was 130bpm, and this version is 175bpm. It was quite hard to get it sounding right, so I chopped the vocals up a bit and replayed them into a new pattern," says Conrad. Where necessary, the vocals are put on a different audio track to be processed individually. **cm**

FROM THE MAKERS OF musicradar.com Guitarist Total Guitar GuitarTechniques Computer Music FutureMusic RHYTHM

The London Music Show is the UK's biggest and most inspirational event for anyone with a passion for making or playing music. All abilities. All genres.

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If you've ever wanted to see cm brought to life right before your eyes, then you'd better clear some space in your diary for the London Music Show 2010, taking place on October 8-10 at ExCeL London.

Formerly known as the London International Music Show, LMS is now run by Future Publishing, the makers of *Computer Music* and many other leading magazines for musicians.

As well as a list of music industry exhibitors longer than your arm, the show will play host to the fully interactive Sound and Recording Technology Zone, in association with *Computer Music* and *Future Music*. We're planning a collection of events that are going to be utterly unmissable for anyone producing music on their PC or Mac, and you can look forward to masterclasses and tutorials on all aspects of high-tech music making. Topics will include mixing, effects, soft synths, making it in the industry, mastering, digital DJing and much more.

Needless to say, the **cm** team will be in full attendance, as will a galaxy of star producers and musicians, so if nothing else, it'll be a pleasure just to hang out at LMS. And as a teaser, we can reveal that Grammy-winner Steve Levine and producer-to-the-stars Tommy D have already signed up to dispense their hit-making know-how!

Opening times are 10am-5pm on Friday and Sunday, and 10am-6pm on Saturday. We'll be bringing you further details in the magazine next month, but keep an eye on our Facebook page (**www.facebook.com/computer.music.mag**) and Twitter feed (**twitter.com/computermusicuk**) for updates as they happen. For more info on the show and full ticket details, head on over to **www.londonmusicshow.com. cm**

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Touch of genius

With its intuitive touch-screen design, Apple's amazing iPad offers a clean slate for musicians looking for a whole new way of creating tracks

The Apple iPad is an object of desire, controversy and not a little hype. Love it or hate it, though, it's hard to deny the sales figures. So many sold in the first month that, at the time of writing, they're still not available on *Computer Music*'s home turf. Naturally, though, that hasn't stopped us from getting our covetous paws on one, in order to provide you with an in-depth look at exactly what it offers. Over the following six pages, we're going to get hands-on with some of what we consider to be the best music production apps available for it.

Though the iPad may at first blush seem to be aimed squarely at the consumer, it has plenty to offer the forward-thinking musician as well. We've heard all the arguments about its limitations – precious few inputs and outputs, no built-in USB port, relatively low CPU power. Nevertheless, software developers are an intrepid bunch, and they've jumped in with a host of tools, both free and commercial, designed to transform the iPad into a serious music-making tool. For starters, there's a rapidly increasing number of software synthesisers, drum machines and sample-based instruments, all designed to take advantage of the iPad's multi-touch screen. Then there's a range of fully kitted out sequencers, complete with onboard sounds. Perhaps most impressive of all, there are even a couple of serious multitrack recording studios on offer.

Of course, we know you can do all that with any basic laptop computer. However, the format, intuitive touchscreen and non-existent ambient noise of the iPad make it an enticing, 'immediate' and supremely mobile candidate for compositional creativity. Take Korg's remarkable iElectribe, for example. It's a spot-on recreation of the company's popular hardware beatbox, that fits the iPad like a glove. And perhaps best of all, it costs just over a tenner. That's a pretty impressive deal, if you ask us!

In this, **cm**'s first ever iPad tutorial, we'll show you around iElectribe and a few of its fellow music apps. If you've already taken delivery of Apple's new toy, follow our step-by-step walkthroughs and enjoy. If not, read on anyway – we might just convince you to splash out on an iPad of your own...

> Step by step
Making beats with Korg's iElectribe

1 > Korg's iElectribe is a must-have for any iPad musician, so if you haven't bought it yet, we recommend you do so. Fire it up and tap the orange display to call up the pattern browser. Scroll down until you see the **Init** patterns. These are practically empty, consisting of only a kick drum on every downbeat.

2 > With the pattern running, notice that the **Synth 1** button is lit up green, and also that there are four illuminated buttons in your pattern row at the bottom. Touch buttons **7**, **8** and **15**. They'll light up and you'll hear your kick drum playing those steps as the pattern cycles. Now let's beef up the bass a little. In the Amp section in the middle-right of the GUI, bring the **Low Boost** knob up a touch.

3 > Touch the **Synth 2** button to select it. The sound will be triggered when you do – it's a classic 808-style snare sound. As you can see, all of your pattern steps are now white – that's because there are no snares programmed for this pattern. Touch steps **5**, **13** and **16** to give your pattern a backbeat with a pickup beat just before it cycles back to the beginning. Easy and effective.

POWER TIP

>Instrumental applications

When iElectribe was first released, it lacked a method by which its patterns could be exported as audio. Though this has since been rectified, that initial omission drives home the fact that some apps are meant as independent musical instruments, rather than all-in-one devices. At this early stage, many instruments require you to run a line out from the iPad to your recording device – assuming that the iPad itself isn't your recorder. This limitation can take a bit of getting used to. Thankfully, Korg saw the light quickly and, as you'll see on the following pages, there are a few developers who have come up with alternative solutions.

4 > iElectribe really comes alive when you start messing about with the parameters in real time. Select **Synth 4** and add in some busy hits by dragging your finger across sections of the pattern buttons. When you have a frenetic pattern, have a play with the **Pitch** knob in the Oscillator section. Drag it across its entire range to hear the effect on the sound and then bring it back to around **048**.

5 > Our **Synth 4** sound ranges from sine kicks to electronic bleeps, and we can automate some of that motion. At the middle-left is a standard set of transport controls. Tap the **Record** button to engage iElectribe's **Motion** recording. Now use your finger to swing the **Oscillator Pitch** knob from where it's sitting to around **79** and wiggle it about in between. Your actions will be written into the pattern.

6 > Tap the **Record** button to disengage it. Now let's add some closed hi-hats. Touch the **HH Closed** button and write a busy pattern into the sequence. Select the **HH Open** sound and write some hits into the steps where there were no closed hats sounding. Now we've got a pretty good electronic beat going, so let's add a few more sounds to spice it up before moving on to the effects section.

7 > Tap the **Clap Snare** button to select it and add a couple of clap hits on steps **5**, **11** and **15**. Those clap sounds can get stale pretty quickly, so let's add some interest with iElectribe's Motion sequencing. With your pattern playing, move the Oscillator's **Mod Depth** knob. Quickly swing it from nine o'clock to about two o'clock and then back to the middle. When you like what you hear, record it!

8 > Let's save our handiwork. Tap the **Write** button and the browser will appear. Touch the patch slot into which you'd like to save the pattern. You'll be met with a pop-up asking you to confirm and offering some options. Choose **Write & Edit Info**. An info box will appear, where you can edit the pattern's name and author, and add any comments using the iPad's keyboard. Do so and touch **Save**.

9 > Let's fire up our pattern again. We're really quite pleased with this – the sound is far more malleable than that of a sample-based beatbox, and there's still so much more we can do! For example, the effects processor. It's simple and the options are rather limited, but you can do a lot with it by recording some real-time tweaks. Click on the **FX Send** button – everything will light up.

10 > Swipe your finger across all the instrument buttons and pattern steps to deactivate the effects sends for those sounds and steps. Select **HH Closed** and tap the first five buttons in your pattern. Now look to the Effect section. **FX Edit 1** and **FX Edit 2** are turned all the way down. Turn them up to around 10 o'clock and you should hear a metallic echo. That's because **Short Delay** is selected.

11 > Use the big **Effect** knob to select a different effect. Try **Grain Shifter**. Tap the **Synth 4** button to send the Synth 4 sound through the effects as well. Touch steps **10**, **11**, **12**, **13** and **14** of your pattern to send them to the effect also. Now have a play with the **FX Edit 1** knob. This controls the speed of the **Grain Shifter** effect and can make some crazy sounds! Try **FX Edit 2** next – this controls the effect balance.

12 > Click **Record** and record some real-time spins of those knobs. You should now have a truly diabolical sound, and if you want even more destruction, give the **Tube Gain** knob a bit of a nudge. As you'd expect, this will impart a bit of high-frequency roll-off and not-so-subtle distortion to your pattern.

13 > You probably know how to change the pattern's tempo, but to change the length, use the Settings. Tap the **Settings** button to adjust such things as the built-in swing, knob operation and pattern length. Change the **Length** to **2** – it now plays the pattern we made, followed by another bar of the basic kick pattern. You can multiply the basic pattern length of 16 steps by a maximum of four. Set it back to one bar.

14 > If you want to save an audio version of your pattern, a recent update makes it possible to export it to your computer via iTunes. Tap the **Settings** button. An **Export** option appears at the top and you can bounce a copy of the pattern or record a real-time performance. After that, sync your iPad, to export the audio file to iTunes.

Tapping the 'Phone

The list of music apps for iPad is growing by the day. However, it's still early days, and there are plenty of tools we desktop musicians take for granted that have yet to be wrapped in iPad finery. Fortunately, though, there's a massive array of compatible apps already available for the iPad's smaller siblings, the iPod touch and iPhone.

One of the biggest surprises of recent months on this front came from Propellerhead, who have released a 100% complete version of their groundbreaking 1997 Mac/PC application ReBirth for the iPhone. As much as we like the idea of carrying a fistful of drum machines and 303s around in our shirt pockets, we have to say that it's even cooler on the iPad, thanks to the increase in size of all those rather fiddly controls. Then there's the fact that it'll only set you back just shy of £4!

Also unmissable is Jasuto, the modular synth masterpiece that's already seen life in desktop and smartphone incarnations.

Portable recording duties can be handled by GigBaby or StudioMini XL, both of which function as familiar four-track portastudios, providing quick and easy options for mobile sampling or basic tracking.

iPhone apps like GigBaby were clearly designed for a smaller screen, but they'll run on your iPad nonetheless

These are just some of the offerings you can find at the App Store. As they were designed for the smaller screen of the iPhone, they initially pop up in a tiny window in the middle of the iPad screen. A tap of the 2x button in the lower corner pixel-doubles them to the larger format, if not a higher resolution. Still, a bit of squinting is a small price to pay for such power at your fingertips!

Many iPhone apps have been beefed up and given new life as actual iPad apps. Try the superb Ellatron, a portable Mellotron with a set of tape banks, both vintage and new. There's also the fantastic bleep!BOX, a sequencer/synth/drum machine that ranks among the most addictive apps we've tried.

We have no doubt that more of our favourite iPhone apps will be ported over to iPad in due course, but for now, the pixel-doubling solution is perfectly workable.

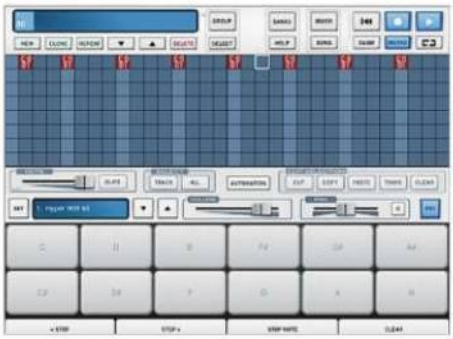
> Step by step
Creating tracks with iSequence

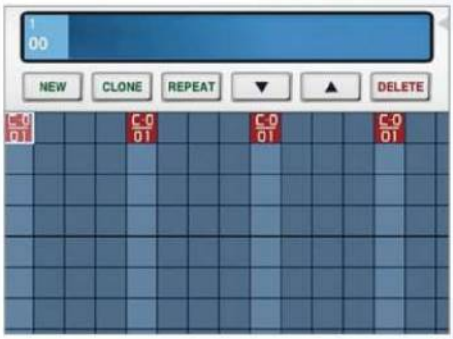
1 > If you're looking for a complete sequencing workstation for your iPad, you won't find better than BeepStreet's iSequence. Featuring an eight-track sequencer, a full complement of drum kits and synth patches, and a mixer with built-in effects, this inexpensive app is a winner. There's even automation. When you start it up, you'll see a familiar-looking pattern grid.

2 > As you can see, we've got a keyboard at the bottom, with the pattern grid occupying the upper section. Time is displayed from left to right, while the eight tracks are represented vertically. Note the **Set** button and display below the pattern grid. Touch the Set button to bring up a selection of preset sounds. Tapping the up and down arrows switches between banks.

3 > Select the sound **Hyper 909 kit** and then touch the **Set** button. You'll see a dozen drum pad-like buttons where your keyboard used to be. Use these to audition the kit. Touching a pad will insert that pad's note value into any selected pattern step. That's because we're in Record mode – note the highlighted **Rec** button just above the pads on the right-hand side. Touch it to drop out of Record mode.

4 > With the newly-assigned step still selected, tap the **Cut** button in the **Edit Selection** section just above the **Rec** button you just deactivated. This will clear the note you just put in, as we want to record our track in real time. Touch the **Metro** button at the top right to engage the built-in metronome. Now click the **Play** button. You'll see a yellow indicator of the pattern position moving to the click track.



5 > Now let's record a 4/4 kick drum into the track. Click the **Record** button in the transport section (not the **Rec** button we deactivated a moment ago). Click **Play** to engage the transport. Practise playing the C pad in time to the metronome. When you're confident that you can nail it, click that **Rec** button and record your performance. When you're done, stop playback.

6 > We got our hits pretty much right on, but we hesitated on the very first beat, missing a step. If you've done the same, select the bum note by touching it. Now tap the **Cut** button in the Edit Selection section. Next, with **Rec** still activated (but the transport stopped), touch the square in the pattern where the note should have gone, then tap the C drum pad.

POWER TIP

>Add 'em up!

Beep Street have packed a lot of power into iSequence, and we were thrilled to get eight tracks of sequencing pumping away. However, eight tracks might seem, well, a tad feeble to the desktop musician accustomed to dozens or even hundreds of tracks. Luckily, there is a way to (sort of) get around the limitation. Unlike a lot of sequencers, iSequence doesn't limit an individual track to producing a single sound. In fact, you can set different instruments to play on every single beat of a track if you like, creating something akin to wavesequencing. This is only slightly marred by the fact that it takes multiple tracks to play a chord.

7 > You should now have a perfect four-to-the-floor kick drum sequence. Let's liven it up with a few closed hi-hats. That's pad G. You can record them live or add them one at a time. When you've got a pattern you like, move on to snares. For these, use the track just below the one we've been using. You don't need to reset the sound – just tap the appropriate squares on track 2 and enter the E pad.

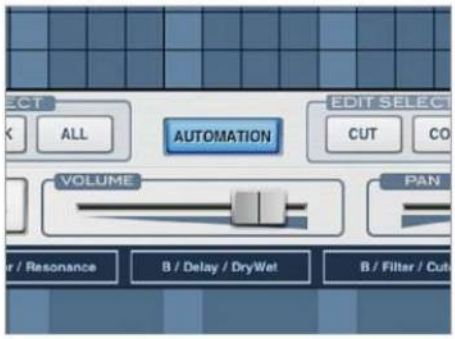
8 > We're using another track for the snares because we want to process the sound with iSequence's built-in effects. Click the **Mixer** button to bring up the mixer. Our snares are on track 2. Touch the **Send** button below the fader. Note that the display above it should read **A**. You should also hear some echo and filtering. The effects are divided into A and B sections and shown to the right.

9 > While you're on the mixer page, look at the effects in the A effects section. On top is a delay. Just below it is Filter A, squeezing the frequencies with a resonant, high-pass model. Touch the **On** button to deactivate it. Just above the track faders are a handful of knobs for controlling master volume, applying shuffle and adjusting the tempo. Nudge the **Shuffle** knob and set the BPM to **115**.

10 > Tap **Mixer** to return to the sequencer page. Touch the first square of track 3. Now let's set up a new instrument. Use the up arrow to select our second voice. The instrument display will read **2: <- Set me**. Press **Set**, then select and set the patch **SQR Bass**. Enter notes on every other step to create an eighth-note pattern. Ours is in F♯ minor. Use the bar above the keyboard to scroll across.

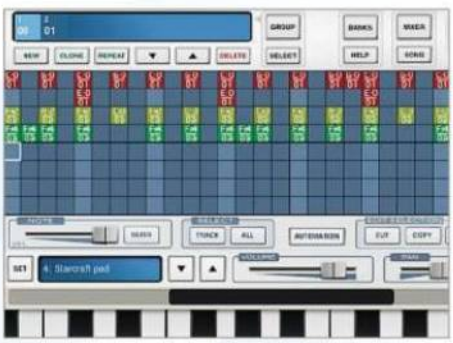
11 > Return to the mixer page and use track 3's **Send** function to send this new track through the delay. You might also need to bring the level of the new track down a little. Back in the sequencer, set a third patch for use on track 4 – try **Osc Bass**. Create a repetitive pattern of 16th- and eighth-notes in the new track. Stay on the root note of your song's key.

12 > Go back to the mixer. Reduce the level of the new track and this time send it through the B effects. Once again, we're dealing with a delay and a filter. You can change filter modes, but the high-pass filter sounds good. Push Filter B's **Cutoff** to around two o'clock and crank the **Resonance** up to nearly three o'clock.



13 > Let's set this section's delay up a little differently to that of Delay A. Tap the **L** button for 3D Delay B so that it's set to **4**. Push the **Feedback** to the three o'clock position. Now it's time for a bit of automation, so touch the **Mixer** button to return to your sequence. Press the **Automation** button – this brings up a standard automation pane where we can automate the effects.

14 > We're going to automate the **Cutoff** and **Resonance** for Filter B. Touch the **B/Filter/Cutoff** tab and use your finger to draw an automation curve that looks like a big smile. You may have to return to the **Mixer** page and tap Filter B's **Cutoff** knob to set it all into action. That's the way automation should be written – with your fingers! Touch the **B/Filter/Resonance** tab to animate the resonance.



15 > Extending your pattern is easy – simply touch the **Clone** button above the pattern grid. This creates a new sequence that apes the first. Tap into track 5 and set a new instrument. Try the **Starcraft** pad patch. Note that your patterns are alternating as they play. Tap the **Automation** button to bring up the virtual keyboard.

16 > Making sure the **Rec** button isn't lit, practise playing your pad with the other sequences. Then arm the record function and record a slow, simple progression in the key of the song. If you want to enter notes in non-real-time, toggle between patterns using the display in the top-left corner. To play chords, you'll have to add each note on adjacent tracks. We've stuck to single notes.

17 > Have a play with the **Repeat** function and the up/down arrows at the top to create arrangements with your patterns. When you've got something you really like, save it by tapping the **Song** button. You can also export HSQ, WAV and MIDI files in the same way. Exported data is sent over Wi-Fi to your computer via a URL that pops up when you're finished.

Complete control

It's not that long ago that desktop engineers first came face to face with Frontier Design's Tranzport, a classy wireless remote transport control that worked with just about every DAW on the market. Recently, wireless remote capabilities have come to the iPhone, and now to the iPad. While the iPhone variants were given just enough screen real estate to perform some basic transport tasks or allow access to a spare handful of MIDI controls, the iPad expands upon the possibilities.

Where the iPhone put your transport controls at your fingertips – literally – the iPad's larger screen can provide transport controls and a full complement of mixer functions to boot. Apps such as Saitara's AC-7 Pro Control provide all the luxury of an expensive, expansive controller, such as Mackie Control, in a much more portable, affordable package. In fact, that one comes in at under $10 and will work with Logic, Digital Performer and Pro Tools.

A cross-platform alternative is provided by Monotone Records' TrixMix 2, which, while not looking quite as slick as the AC-7, nevertheless provides control over a variety of DAWs for Mac, Windows and even Linux computers. The company's website offers downloads of the wireless receiver software for all three platforms, as well as many templates for both Reason and Live.

AC-7: Remote DAW transport and mixer control, all in a wireless device that can be used to read comics too!

With that fantastic multi-touch screen, you might well be thinking that the iPad could make a reasonable substitute for JazzMutant's costly Lemur control surface. To be honest, you wouldn't be far off the mark, and TouchOSC from Hexler might just get you there. This is an iPad app for the control freak in all of us. Using the Open Sound Control protocol, this little wonder enables you to build your own custom controllers that can be used to control OSC-enabled devices over a Wi-Fi connection. It should be noted that you'll need something like the donation-ware OSCulator to connect it all up to your DAW, but nonetheles, this is a dream come true for the sort of musician who whiles away the hours building Max/MSP or Reaktor patches.

> Step by step Basic recording in StudioTrack

1 > It's hard to believe that the iPad can act as a complete recording studio, yet StudioTrack from Sonoma Wire Works offers eight tracks and effects in a familiar portastudio-style interface. It costs more than the average iPad app, but you get a lot for your money, and you can use a bit of trickery to get it interacting with some of your other apps. Fire it up and the first thing you'll see is the Song browser.

2 > You can use the Song browser to preview, copy and delete existing songs, and create new ones. To make a song, touch the **+** button, then tap the song icon that appears. As you can see, it's a straightforward arrangement. In landscape mode, you can view all of your tracks, but you won't be able to see all of their functions. You'll have to flip to portrait mode for that.

3 > Start by touching the metronome icon at the top-right corner. This will bring up the tempo controls, along with a collection of basic drum patterns. Note that tap tempo is also supported. Slide the switch at the top-right corner to activate the metronome and swipe your finger across the drum pattern names to select one. Choose **4/4 JM Rock A**, then touch the metronome button again to exit.

4 > Before you record, note that there's no way to alter the input level of the iPad's built-in microphone. The only way to adjust the incoming signal is to move the iPad further away from the source. Try to keep your levels from activating the red clipping indicator on your armed track. Now grab an instrument! We set the iPad on a music stand next to a piano and tracked some rudimentary noodlings.

5 > Now it's time to start tracking. Switch to portrait mode, so you can see all of your individual track controls. By default, a new song's first track is already armed for recording. Activate recording with the red slider at the lower-left corner and navigate through the song using the scrub wheel. Recording is stopped by sliding the red slider back to its original position or touching the **Play** button.

6 > Once you have a track you like, tap the **+** symbol in the lower section of the track display to add another. It'll be armed for recording. You can disarm it and practise or jump right in. Record an accompanying part that complements the first track. We've added two more piano tracks and killed the metronome. Try some creative panning to separate your tracks a little and adjust the levels.

> Step by step Importing audio into StudioTrack with Reforge

1 > StudioTrack uses **AudioPaste** and **AudioCopy** functions to move sounds between apps. We've made a rhythm track with an iPad app called bleep!BOX and have exported it to our desktop computer (Audio on the DVD: **BleepBeat.wav**). Here we're using an app called Reforge to bring our file in via Wi-Fi.

2 > We've trimmed the excess from our file and bounced the results to a new file called **BleepEdit**. Bring this into StudioTrack by touching the **Song Tools** icon. Tap **AudioCopy** in the pop-up. Press **Copy Audio** and you'll see a selection of compatible apps on your iPad (and in the App Store). Select **StudioTrack**.

3 > StudioTrack will launch. Open your song, press the **Mix Tools** icon and select **AudioPaste**. Under **Paste To**, choose to add a new track and paste at the start. We only pasted once as it makes a nice intro. StudioTrack labelled our track as track 7, as we made three abortive tracks in between track 3 and now!

> Step by step Adding effects in StudioTrack

1 > You may have already discovered that every track has a dedicated **Reverb** send. The Master section has a corresponding **Reverb Return**. We've got our Reverb Return cranked up to about two o'clock. Play your track and try turning up the Reverb send on one of your tracks.

2 > The reverb may be light on parameters, but StudioTrack also offers other, more powerful effects. Tap the **FX** button at the top of one of the tracks and the FX Tray appears. There are four and they're applied by dragging them into the designated area. Drag in a **4-band EQ**.

3 > Double-tapping the effect opens its editor. Dragging one of the four nodes up or down changes the gain of its frequency, which is determined by its horizontal position. If you choose **Compressor** or **1-Band EQ**, you could have two effects in the FX Tray. Export tracks or the mix via **Mix Tools**.

The old 'in and out'

As we mentioned, the iPad comes up short in terms of getting signals in and out of the device. All you get is a single four-conductor minijack that can be used with headphones or a headphone/mic combination, such as the one made by Apple themselves. For this tutorial, we experimented with various options to get sound into the device. Obviously the built-in mic is a consideration and it sounds decent enough to be used as a scratch pad. However, if you need to get a quality signal into your iPad, you're going to need some sort of adapter.

We found that the A/V cable supplied with our digital camcorder worked well – it has the four-conductor minijack at one end and a trio of RCA jacks on the other. The white and yellow plugs correspond with the line outputs, while the red carries the signal into the device. These colour codes might vary depending on the cable you use. As well as that, we were able to dig up three female RCA-to-male phono adapters. These were fitted onto the A/V cable's RCA plugs and enabled us to patch into our hardware patchbay, thereby facilitating use of our studio monitors, mixer and, most importantly, our microphone and instrument preamps.

This worked pretty well, though it has to be said that plugging the adapter into the iPad didn't defeat the built-in microphone in any of the apps we tried. However, it did provide a signal with enough power to all but obliterate that of the iPad's mic. A word of caution is necessary, though: The iPad's minijack input doesn't expect a signal as strong as that which was pumped out by our preamp, even at quite low levels, so you'll need to take care not to overload it.

Want to get a signal into your iPad? You might already have one of these handy A/V adapter cables lying around

There has been quite a bit of speculation about using Apple's Camera Connection Kit as a means of utilising simple USB-1 class-compliant audio interfaces. At the time of writing, we can't confirm success, though there has been some chatter from people claiming to have successfully called some USB microphones into play with a few apps. StudioTrack was not said to be one of them, however.

Another option may be available by the time you read this. IK Multimedia have iRig in the works, which plugs into the minijack of an iPhone or iPad. There's a choice of software on offer, and though it's aimed at guitarists, it should work with any line-level signal as well. We're certainly looking forward to checking that one out. cm

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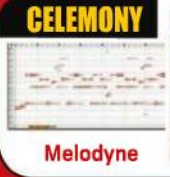

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Integrate vintage synths and outboard gear into your setup with our comprehensive guide to choosing, buying and getting creative with retro hardware

> The evolution of the digital audio workstation (DAW) has revolutionised the way most of us compose and record music. As computers – and the software they run – become more powerful, the need for hardware sound generators and processors has diminished to the point where many composers and producers today work within totally self-contained digital environments, with a level of flexibility, fidelity and, of course, portability that would have been inconceivable in the past.

And yet hardware still has a place in many home and professional studios. Whether it's familiarity, that hands-on feel or certain unique characteristics of the sound, while many specific types of hardware have fallen out of favour with (samplers, for example), there are some that have maintained or gone on to develop a certain 'classic' status, and that many of us choose to integrate into our setups, often at the expense of space and practicality.

There comes a point for many computer musicians when they ask themselves whether a piece of audio hardware – often an analogue or virtual analogue synthesiser, or a piece of high-end outboard, such as an EQ or compressor – might add something to their software-based setup. The choice of whether or not to go down this route is rarely a straightforward one, though. While a nice new analogue synth might offer a fantastic sound, as well as providing an alternative way to interact with your music – and possibly taking some of the heat off your computer's processor – working with a piece of external hardware often requires a careful rethink of your usual recording methods and workflow.

In this feature we'll be looking at the various reasons why you might consider integrating certain choice pieces of hardware into your computer-based setup, showing you how to connect everything together, and discussing how the addition of such gear might affect the way in which you work.

The pros and cons of hardware

The most obvious considerations when weighing up whether or not to integrate hardware into your setup will be price, practicality and the possibility that it may need fixing or replacing at some point.

The price issue can be offset by the fact that a lot of hardware retains its second-hand value quite well. If you buy carefully, you might even make money on some of it when it comes to selling it later.

The practicality of hardware comes down mainly to its size and weight. While a 1U compressor won't be a difficult thing to accommodate, a large workstation or vintage analogue synth will require serious space and could even be an issue when it comes to moving into a new house.

Break it down

Reliability is another thing to consider. While there are synths and EQs from the 70s that still work perfectly, some instruments and effects tend to suffer from common ailments and may be difficult to obtain parts for. This might be a reason why you'd choose a modern Moog Voyager over a 1970s Minimoog, for example.

Luckily, there's a lot of useful information readily available on the internet, as well as many specialist firms who repair and source parts for rarer instruments. However, it's always best to be careful with your equipment – use surge-protected power supplies, dust covers where appropriate, and don't leave things switched on day and night.

Also, if you intend to use your hardware for live gigs, or in a busy studio environment where it's likely to receive heavy, daily usage, getting your gear serviced regularly is generally a good idea.

Sound argument

While analogue modelling enables us to create hugely convincing emulations of analogue outboard processors and synths, there's a certain musicality in sounds generated by analogue circuitry that can be difficult to achieve any other way. We generally attribute these qualities to the non-linear characteristics that analogue circuitry imparts on audio signals.

While many (us included) are sceptical over just how much these differences matter, or if they're even noticeable in a full mix, some consider them central to their sound or production style.

Somewhat more divisive is whether VA (virtual analogue) hardware synths really offer any audible advantages over their software equivalents. Traditionally, with VAs having their own dedicated DSP architecture, synth models could be run with less corner cutting. They'd generally be sample-processed, rather than block-processed, meaning that they recalculated many of the synth's parameters and its audio output sample by sample, rather than in blocks. This ensured higher control rates, resulting in smoother movements as sounds phased and fluctuated. They could also often run more accurate filter algorithms, as DSP chips are very efficient at that type of processing.

Today, with home computers being as powerful as they are, these differences are negligible. In fact, some soft synths now offer control rates at double sample rate, so any perceived audio characteristics from hardware VAs are likely to be down to the digital-to-analogue converters they use and the characteristics programmed into the software they run. There are very few things that can't be done natively (without the involvement of dedicated hardware DSP) to a very high standard these days.

Go with the flow

Your decision to use a piece of hardware will often come down to how it affects your workflow. For some, having a hands-on synth to program sounds, write melodies and improvise on is a source of inspiration and a way to break up the writing process. For others, having to switch between a computer and a hardware synth is just a huge inconvenience.

Outboard effects processors should always be carefully weighed up in terms of workflow. While a high-quality compressor may provide a slightly superior sound, the trouble of recording things through it in an otherwise native setup may leave it gathering dust once the novelty has worn off.

With the money and effort you might spend maintaining and servicing an original Minimoog (above), you might as well go for a Moog Voyager (right) instead!

Buying advice

Tube/valve gear is typically the most sought after when working in an otherwise entirely software environment, primarily for the natural harmonic distortion – sometimes referred to as 'warmth' or 'character' – that it can bring to a recording.

Common valve processors include EQs, compressors and preamps, which give you a simple channel through which you can run audio in order to achieve variable degrees of subtle soft clipping or distortion.

Valve gear ranges from the relatively affordable, such as the TL Audio Fatman – which gives you a preamp and compressor designed for warming up digital recordings – up to the very expensive, such as the Fairchild 670 compressor, which might set you back more than £20,000.

Empirical Labs' Distressor uses a combination of analogue circuitry and digital processing to emulate a range of classic compressor and limiter behaviours, and has become very popular with recording engineers. While a unit like this would be overkill for most home studios – especially as you need to buy a pair to run them in stereo – being able to dial up the sound of a Urei 1176 limiter whenever you need it might be invaluable to a rock producer.

The effect of recording to analogue tape is also sometimes desirable for adding warmth and a sense of physicality to an audio signal. While there are high-priced processors dedicated entirely to emulating this effect, you could always pick up a second-hand reel-to-reel tape recorder instead. Two-track Revox and Tandberg tape recorders can often be found going cheaply on sites such as eBay, or in second-hand shops.

Making connections

Once you've grabbed that Moog Voyager or Prophet 08 off eBay at a bargain price, your first question may well be, "How do I connect it to my Mac or PC?"

To sequence and record a hardware synth with a computer, you need two things: the synth has to be told what notes to play by the computer, and the computer needs to be able to record the audio coming out of the synth.

Most commonly, a computer tells a hardware synth what notes to play via a MIDI output port. This is a five-pin DIN socket featured on many audio interfaces. If yours doesn't have one, you'll need to buy an external MIDI interface, connected to your Mac or PC via USB. There'll be at least one MIDI In socket – into which you can plug a synth or MIDI keyboard in order to input note or control data – and at least one MIDI Out socket, which enables the computer to tell the synth what to do.

Once you've configured the MIDI interface in your DAW software, you should have the option to send MIDI tracks from it to your external MIDI hardware. A single MIDI input or output can send and receive note data over 16 MIDI channels.

Which MIDI channel your hardware synth responds to is usually configured on the synth itself. A multitimbral synth will respond to several MIDI channels simultaneously. If you want to use multiple MIDI synths, you can daisy-chain them together via their MIDI ports. The MIDI signal is sent into the MIDI In of the first synth, then out of the MIDI Thru and into the MIDI In of the second synth, and so on. Or you can use a MIDI Thru box, which gives you a number of MIDI Out ports, all carrying the same signal. Alternatively, your MIDI interface may have more than one MIDI Out port, which will increase the number of MIDI channels you have available.

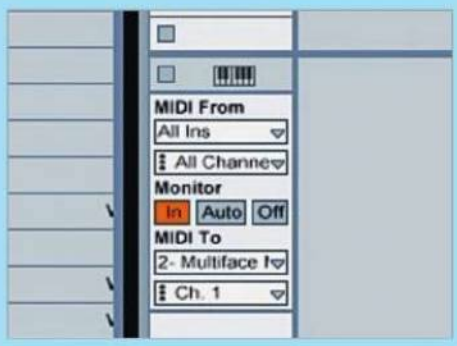
If the hardware synth you're connecting sends and receives MIDI controller data (CC), you may want to record knob/fader/wheel changes along with your note data. To do this, you'll need to connect the MIDI Out of the synth to the MIDI In of your soundcard.

The next step is getting the audio from your external synth back into your computer and into your DAW software, where it can be mixed and processed. To do this, simply connect the audio outputs on your synth to the inputs on your audio interface.

> Step by step Sequencing and recording an external synth

1 > First you need to make sure your MIDI interface is enabled to work with your DAW. In Ableton Live, go to **Options»Preferences»MIDI Sync** and ensure **Track** is **On** for both your MIDI interface's **Input** and **Output** section in the **MIDI Ports** settings. In any other DAW, look for a 'MIDI settings' options/preferences page of some sort.

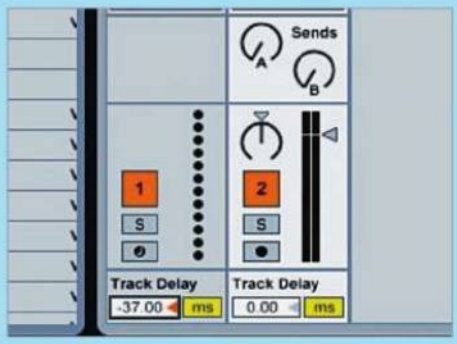
2 > We need to make sure our audio interface can receive audio from the synth and send it back into our DAW. Look for an 'Audio settings' page in your DAW's options/preferences. In Live, select the **Audio** section in the **Preferences** window and, ensuring your interface is selected for **Driver Type**, go to **Input Config** and activate the relevant inputs.



3 > We're going to use a MIDI track in Live to control our external synth. Create a new MIDI track. Leave the **MIDI From** menu set to **All Ins**. In **MIDI To**, we need to make sure we select our MIDI interface and a MIDI channel that our synth will respond on. Other DAWs will offer the same routing options somewhere on the track itself or in its 'inspector' panel.

4 > Our external synth is going to be heard through an audio track in our DAW, via the input on our audio interface. Create a new Audio track and in **Audio From**, select **Ext. In**. Underneath this setting, ensure you've selected the audio interface inputs to which your synth is connected. In other DAWs, create an audio track and set it to receive the relevant audio interface inputs.

5 > To hear our external synth as it's played or triggered by the MIDI track in our arrangement, simply set the Audio track to **Monitor In**. We can now treat this as if it were any other audio channel and process it accordingly. To record a synth part, switch **Monitor** to **Auto** and activate the record arm button at the bottom of the channel strip.



6 > One problem with having the synth coming back into the audio interface is that it'll cause a bit of signal lag. We can compensate for this using the **Track Delay** controls found at the bottom of each track. This is usually best set on the MIDI track, where we can pull the timing back so that MIDI events are triggered early, bringing the external audio back into sync.

Using hardware with your software

For every external synth or synth track you use in a recording, you'll typically need two channels in your DAW – a MIDI channel, which tells the synth what notes to play, and an audio channel, on which the audio generated by the synth is fed back via your audio interface into your DAW environment.

The first problem you might notice is that this loop creates a delay between a note being triggered and the sound it generates making its way through the audio interface, with whatever latency its buffer incurs, into the DAW. This can be kept to a minimum by setting your interface's sample buffer as low as possible, but it can also be fine-tuned manually using your DAW's track delay/offset setting.

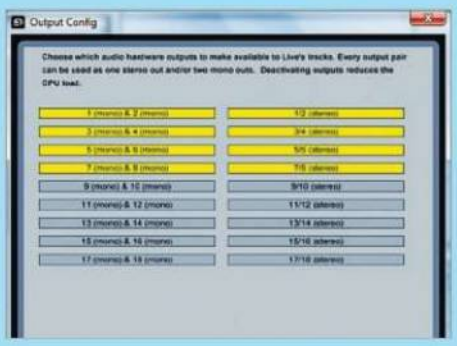
This parameter is usually set independently for each track in your project. Using it, you can shift the MIDI output of your synth track back in time by a few milliseconds, so that the audio returning from the synth lands in your DAW at the exact time it's supposed to.

Working out how many milliseconds you should be compensating is done by ear. A good technique is to record a percussive sound from your external synth onto an audio track, edit the part so that it plays back tightly, and trigger it, looped, from your DAW on every downbeat. Then, create a MIDI track to sequence the same sound from the synth and feed it back into your DAW. Hard-pan one track left and the other right. The brain is good at identifying tiny delays in the stereo field, so when the tracks sound centred, they're in sync.

If you plan to record your external synths as audio clips fairly quickly (as opposed to keeping them 'live' until final mixdown), this won't be such an issue, because audio can be easily edited and synced very precisely to the beat.

> "The brain is good at identifying delays, so when the tracks sound centred, they're in sync"

> Step by step Connecting and using outboard effects processors



1 > An outboard effects unit will need to be set up in a loop, so we can send audio to it from our DAW, then bring it back in. You'll need an audio interface with multiple inputs and outputs. In Live, go to **Options»Preferences»Audio** and ensure you've got all of your audio inputs and outputs enabled. Connect the unit's inputs to a pair of your interface's outputs, and its outputs to the interface's inputs.

2 > We're going to use a **Send/Return** track to feed audio to our external hardware – this will enable us to send multiple tracks, at various levels, through it. Create a **Return** track and in the **Audio To** menu, select your audio interface. Underneath that, select the physical outputs that are connected to your outboard unit's audio input.

3 > When we turn the **Send** dial up on any of our audio tracks, the signal is sent via our audio interface into our outboard unit. If you want the sound from your outboard effect mixed with the original track, leave everything as it is. If you only want to hear the processed signal from a given track, set it to **Audio To Sends Only**.

4 > To bring the externally processed signal back into your DAW, create an audio track for it. On this track, select **Ext. In** from the **Audio From** menu. Now select the audio inputs to which your outboard gear's outputs are connected and choose **Monitor In**. To record tracks through your outboard, just arm the audio track, hit record and play back your arrangement.

5 > If you want to connect an outboard processor to the master channel – to compress the entire mix, say – simply select the connected audio outputs in the **Master Out** menu. (Incidentally, just as with synths, you may need to use your track **Delay** settings to keep all your external and internal signals in sync.)

6 > To feed your processed master output back into Live, create a new audio track, select your audio interface in **Audio From** and the relevant inputs below that. As before, activate **Monitor In** and set the **Audio To** to your main stereo outputs.

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Rendering and recording

Another hardware integration issue might rear its head if your DAW doesn't offer real-time (on-line) rendering. If offline rendering is your only option, your final mix won't include the signals coming in from any external MIDI hardware. The most obvious way around this is to manually record your complete mix back onto a stereo audio track in real time, but that may not be hugely convenient.

A better solution is to record any external synth tracks and/or outboard processing into your DAW as audio, where it can then be manipulated and included in your offline render along with all your other audio and plug-ins. You might choose to do this right at the end of the recording process, so as to be able to edit your synth patch on a whim, or you may elect to record your synth lines as audio as soon as they're written, thereby freeing up the instrument to provide further parts if required.

Another consideration is the length of the recordings you plan to make. If a synth line simply repeats a short section throughout a track, you can take a short recording from it and loop it or copy and paste it where needed.

Producer Joel Zimmerman, AKA Deadmau5, uses plenty of hardware synth lines in his tracks, usually with a high degree of dynamics manipulation, tweaking the filter or envelope settings on his synth parts, live, to create epic builds and drops. As such, we would imagine he records his synth parts as audio, one by one, for the full duration of each track, in order to gain complete hands-on control of how each part evolves throughout the mix.

In by the outboard

There may be situations, however, in which offline rendering of your finished track might not be the best solution. For example, if you've bought an outboard compressor, enhancer or EQ to run your mixes through, you'd need to send the audio from your Mac or PC into said outboard, then feed it back into your computer to record your final, processed mix onto a spare stereo audio track. This track will need to be muted or sent straight to your main stereo outputs – avoiding the master buss – to avoid creating a feedback loop.

Outboard effects can also be set up to work on send/return loops. For example, a hardware reverb unit could be connected to the stereo inputs and outputs of your audio interface, and the signal from an auxiliary channel in your DAW fed to it. The returning signal from the reverb is then fed back into a spare audio channel in your DAW, with monitoring activated.

If you start building up a collection of multiple hardware synths and outboard processors, you may end up needing quite a few audio inputs and outputs. An interface with eight analogue inputs and eight analogue outputs is a good choice for the primarily software-based studio, where you need the flexibility to work with a few pieces of hardware from time to time. However, if it suits your workflow, you could also stick with an audio interface with less ins and outs, recording your hardware instruments and outboard gear, one by one, as you go. **cm**

Choosing an audio interface

A basic audio interface will typically offer a pair of stereo analogue inputs and outputs. Along with a MIDI interface, this is enough to work with a single hardware synth, or two hardware synths each providing monophonic signals – one fed into the left input and the other fed into the right.

When working with multiple external synths, or multitimbral synths that provide multiple analogue outputs for separate mixing, your requirement for audio inputs goes up. A soundcard with eight analogue inputs will enable you to connect four stereo synth channels to your computer, or eight mono channels, or a combination of the two. Another option when using multiple synths or synth outputs is to buy a small mixer, mix the lot all down to a stereo pair and route that back into a stereo input pair on your audio interface.

When working with an outboard effects processor, in addition to your main stereo monitoring outputs, you'll need extra outputs to route signals out of your computer and into your effects processor. This means you'll need an interface with at least four outputs. And, of course, you'll also need at least one pair of inputs to get the outboard signal back into your computer.

Aside from the number of inputs and outputs an audio interface provides, the quality of its digital-to-analogue and analogue-to-digital converters will be an important consideration. Good-quality converters typically have a steady digital clock and a natural-sounding roll-off in the high frequencies. This enables them to accurately capture the detail and character that you'll want to preserve from your hardware, as well as sending a high-quality signal to your monitors and whatever outboard processing you may want to use.

Some outboard effects and audio interfaces offer digital inputs and outputs. This avoids having to convert the signal from digital to analogue and back as it leaves and re-enters the computer, which can potentially degrade the audio quality. Bear in mind, however, that in some cases, the sound of a hardware unit's converters is actually considered part of its character.

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Trance formers

We take another look at Renoise 2.5, investigating its powerful tremolo and trance gate effects

ON THE DVD

The Renoise project files referenced are in the **Tutorial Files** folder

> Oscillating the volume on your synths and pads can add character to your sounds, so we're going to look at how to add tremolo and a trance gate. VSTs often have inadequate tremolo/trance gate effects and occasionally none at all. However, it's possible to create a powerful one yourself using only the built-in DSP effects in Renoise.

When using samples in Renoise, a great way to set up a tremolo effect is to enable the Volume curve tick box in the Instrument Editor and either draw in a suitable volume curve or choose an LFO type. It's not very powerful for trance gate effects, though, and these curves also affect only sampled instruments and not VSTs. One way to circumvent the problem of not having sampled instruments is to use Renoise's Render Plug-in to Instrument function, which lets you choose the range of notes rendered, the steps between each, and their duration.

While this is all well and good, when you're scrolling through a few dozen sound presets or tweaking the odd parameter, you won't want to have to render out your VST instrument to samples each time you want to hear the final result with tremolo. Enter the might of Renoise's DSPs, coupled with their routing – using them we can set up a fully functional tremolo or trance gate effect. It takes minimal effort, the control you get is superb and it also works with sampled and VST instruments alike.

We'll use ZebraCM and the Electronic Garden presets pack, but any synth or sample with a long decay will do. The files for this tutorial, plus ZebraCM and the preset pack, are in the **Totally Trackers** folder on this month's **cm** DVD.

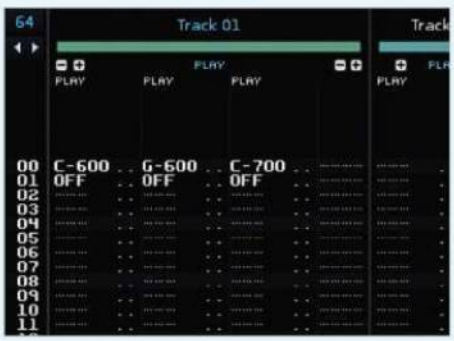
>Step by step: Creating a trance gate effect using Renoise 2.5

1 > Select **ZebraCM** under **Instrument Settings** and choose the preset **SYN Luminous Garden**. Set the **BPM** to 120 and record a three-note chord on track one at positions 0, 6, 32 and 38. Enter **Note Offs** directly after each chord to allow the sound to begin its decay phase.

2 > Under **Track DSPs**, add an **LFO Modulation** device and a **Gainer**. Now choose **Gainer** and **Gain** as the **Destinations** on the LFO. Increase the **Frequency** on the LFO to around 1.5 LPC, and the **Amplitude** to 100%. On playback, you'll notice how the attack of the notes often undesirably coincides with a quiet spot on the tremolo. (Continue or load **CM_trackers_tutorial_27a**)

3 > Now you need to set up a sine curve that begins and ends high. On the LFO, choose a **Custom** graph and change the type from **Linear** to **Curve**. Draw in a curve like the one shown above, clicking to add nodes and double-clicking to delete them. If your sound is distorted, simply lower the volume on the box at the end of the DSP chain. (Continue or load **CM_trackers_tutorial_27b**)

4 > Add a **Velocity** device and then choose **LFO Device** and **Reset** as the destinations. Now on playback, the LFO is restarted every time any note is triggered, so we always hear the attack of the sound. Control the depth of the tremolo with the **Offset** slider on the LFO. (Continue or load **CM_trackers_tutorial_27c**)



5 > Now to prepare a trance sound. Begin by removing the second and fourth chords. Raise the **BPM** to 150 and choose **PAD Hanging Gardens** as the preset. You may want to alter the notes of the remaining two chords for a more trancey sound. Raise the volume back up if needed on the volume box. (Continue or load **CM_trackers_tutorial_27d**)

6 > Finally, to create the trance gate, you need to change the LFO graph type from **Curve** to **Points** and draw in nodes to look like the screenshot above. Set the **Frequency** to 4.0 LPC so that it's in sync with the music. Now listen to the result and simply adjust the **Offset** on the LFO to suit your taste. (Continue or load **CM_trackers_tutorial_27e**)**cm**

easy guide to...

Major scales

In the fourth instalment in our series, we show you the 12 major scales and reveal why they really are the keys to making music

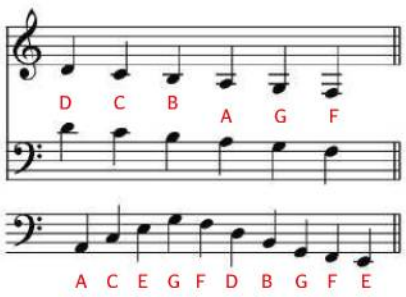
> This month we're going to show you the 12 major scales (we'll skip C major as it's just the white notes). In Fig 1 you can see two columns of scales – flat ones to the left and sharp ones to the right. To be clear, once your ears have adjusted to one scale being higher or lower than another, they sound exactly the same because they're all based on the same set of intervals – a whole tone between each pair of notes in the scale, except degrees three to four and seven to eight, which are only a semitone apart. (Technically, there isn't an eighth note of the scale – it's just the first note played an octave higher.)

Sliding scales

So if we've left C major out, why do there still appear to be 12 scales? Compare the last scale in each list (G♭ and F♯) and you'll see that they contain the same notes, just spelled differently. Well, you will if you stare at them long enough!

Staff notation special – a new clef

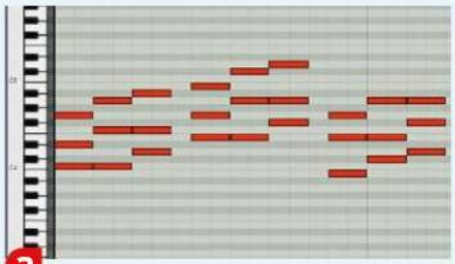
To be a fluent notator, you'll need to be familiar with at least two clefs. Basses and certain other instruments such as cellos, trombones and bassoons principally use the bass clef. Essentially, this is notation for any instrument that mainly operates below middle C. There's a certain elegant symmetry about it – the first ledger line below the treble clef is identical to the pitch of the first ledger line above the bass clef as they're both middle C.

The bass clef itself is supposed to be a stylised letter F, so the line it circles around is the F below middle C. The first part of the musical illustration here shows identical notes notated in both treble and bass clef, and the lower line demonstrates the musical mnemonic 'All Cows Eat Grass', plus a few more bass clef notes.

Oh no! Just when you thought it was safe to go back into the water, another clef rears its head

1	2	3	4	5	6	7	8
F	G	A	B♭	C	D	E	F
B♭	C	D	E♭	F	G	A	B♭
E♭	F	G	A♭	B♭	C	D	E♭
A♭	B♭	C	D♭	E♭	F	G	A♭
D♭	E♭	F	G♭	A♭	B♭	C	D♭
G♭	A♭	B♭	C♭	D♭	E♭	F	G♭

1	2	3	4	5	6	7	8
G	A	B	C	D	E	F♯	G
D	E	F♯	G	A	B	C♯	D
A	B	C♯	D	E	F♯	G♯	A
E	F♯	G♯	A	B	C♯	D♯	E
B	C♯	D♯	E	F♯	G♯	A♯	B
F♯	G♯	A♯	B	C♯	D♯	E♯	F♯

1



2

1: All major scales in common use (apart from C). Despite the fact that they all have a different combination of notes, they all have the same set of intervals, so a tune that works in one will be equally good in another
2: Re-voicing a transposed chord sequence so you end up in almost the same register, with the same timbre

But why do we need 12 scales, then? There are several answers to this question, the flippant one being, because they're there.

Many styles of music tell their story through the effect of changing key and this has been true from before the time of Bach, up to bebop and beyond. The more scales or keys in which you're fluent, the more understanding – and therefore freedom – you have in this area. If you only know one scale, you're limited to the down and dirty method of randomly transposing something and seeing if it works. (If this works for you, fine, but then why are you reading this page?)

If you're a songwriter, you may offer your compositions to a singer who has a different vocal range to the one you wrote the song for, so you'll have to transpose up or down if you want to avoid a strangulated rendition. By the way, beware of singers who say things like, "E♭ is a good key for my voice," as they really probably know even less about music theory than you do! Transpose the song up or down by semitones until you find the best compromise.

A similar case could be made for different keys suiting different instruments. For instance, brass players tend to find mildly flat keys easier, while we know that guitarists tend to think in sharp keys.

Chromatic shifts

Let's stay with the first serious answer: changing key. Even if you write the kind of piece that's more groove based and tends to hang around the same basic riffs without having a chord sequence as such, you can easily add a new dimension to your track by shifting the same music to a different key from time to time. The cliché shift is up a semitone, which has been very well used – even worn out – in the pop field over the last century.

> "The more scales or keys in which you're fluent, the more understanding – and therefore freedom – you have"

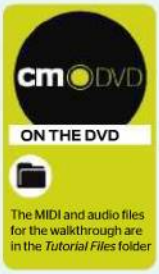
Still, maybe it's time to recycle the idea and see if it does it for you. Of course, you can simply effect the change of key by dragging the pitch up by a semitone, either if you're using MIDI or, increasingly nowadays, by pitchshifting audio via Live or most other DAWs, but it could certainly help you to understand the change if you knew what notes were involved.

Semitones are not the only interval, of course, so experiment with transposing by two, three or more semitones.

Pitch perfect

Whether you're changing the fundamental key of a piece for aesthetic reasons or to accommodate a vocalist, you need to be alert to relatively subtle processes that might need to be going on in the background. For example, if you shift the pitch considerably, you might want to re-voice your chords (given the current state of technology, this primarily applies to MIDI arrangements, but watch this space). If you have a perfectly nice-sounding chord progression that becomes a bit thin or shrill when transposed up, you may want to invert the chords by transposing the top voice or two down an octave. This is illustrated in **Fig 2** with the simple progression Cm F B♭ (top notes G, A and B♭). Suppose you transpose it up by four semitones, giving chords Em A D, then the new top line (notes B C♯ and D) can cheerfully go down an octave, restoring the overall pitch (and therefore timbre) of the chord part pretty much to where it was before the transposition. **cm**

Integral serialism (part 2)



In part two of his guide to this rigorous compositional process, rachMiel reveals how to create compelling music within such formal structures

rachMiel

rachMiel has spent the better part of a decade studying composition in America and Germany. A recovering atonalist, his musical influences range from Frank Zappa, Karlheinz Stockhausen and North Indian classical drumming to 60s pop, horror movie soundtracks, avant electronica and, above all, silence.

> Welcome to part two of this two-part series on integral serialism. In part one I introduced you to serialism (using rows of 12 numbers to generate various musical parameters of a piece: pitch, duration and so on), explained what makes integral serialism 'integral' (its generative 12-tone rows determine not some but all of the piece's musical parameters), and led you through the creation of a piano-reduction prototype of a short example piece I wrote to demonstrate integral serial composition (see step 2 on the next page). In this final part, I'll talk some more about the heady psychocerebral joys of serialism and take my integral-serial example from its current prototype to a fully fledged finished piece.

Of cages and meaning

Serialism is a highly formalised type of music – its content is determined in large part by strict underlying formal structures. As is the case with all formalised creations, the interplay of form and content is a key issue with serial music.

> "Beware of falling so deeply in love with your magnificent formal structures that it blinds (deafens) you to the real beauty"

When it comes to form/content, I always defer to this quote from an ancient Japanese treatise on aesthetics: "Form is a cage in which to trap meaning." That is, form should serve meaning/content, not the other way around.

When you're creating an intricately structured entity, one can become enamoured of the structure itself (form) and give short shrift to the entity it serves (content). Put enough time and energy into building a gilded filigree cage and you run the risk of caring more about the cage than about the birds who dwell in it. Such is the danger for integral serialism, to my knowledge the pinnacle of rigorous structural composition in the history of music.

It takes a good deal of time to create the theoretical building blocks of an integral serial piece: the prime (generative) row, the matrix of row variants associated with the prime (typically 48: 12 transpositions of the prime, retrograde, inverse and inverse retrograde), and a detailed plan for how to apply these row variants to all the micro- and macro-level parameters of the composition: pitch, duration, dynamics, timbre, tempo, form and so on.

Back in my *Studententage* at the Freiburger Musikhochschule, towards the end of the reign of serialism, I would often visit fellow student composers whose attic garrets would be wallpapered from floor to ceiling with complex charts, diagrams and numeric matrixes, all of which served as the theoretical underpinning of a single 10-minute composition.

Don't forget the music!

Alas, all too often the cage (formal wallpaper) became as – or even more – important to the composer than the meaning (the music itself). The result? Fabulously rich formal structures giving birth to disappointingly flat pieces of music. Chances are that's not where you want to go with your serialistic efforts. You want, above all, to create compelling music, yes? So take my advice (the fruit of bitter experience) and beware of falling so deeply in love with your magnificent formal structures that it blinds (deafens) you to the real beauty you're after – that of organised sound.

Ten must-listen (integral) serial pieces

For those of you who want to deepen your knowledge (and enjoyment!) of serial music, I've compiled a list of ten pieces any self-respecting serialism aficionado should come to know and love.

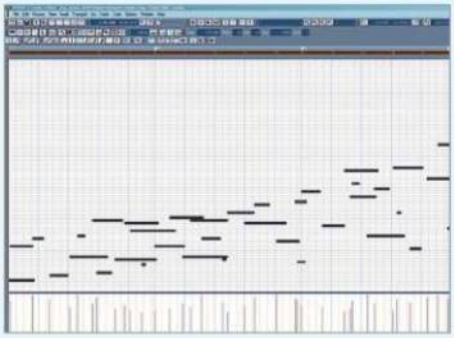
I'll start with pieces from the Second Viennese School, the trio of composers who, at the beginning of the 20th century, gave birth to atonality, 12-tone-ality and eventually serialism: Schoenberg's fantastical *Pierrot Lunaire* for voice and five instruments (not strictly serial, but it sets the stage for what's to come), Berg's wonderfully expressive *Lyric Suite* for string quartet, and Webern's exquisite *Variations for Orchestra* (opus 30).

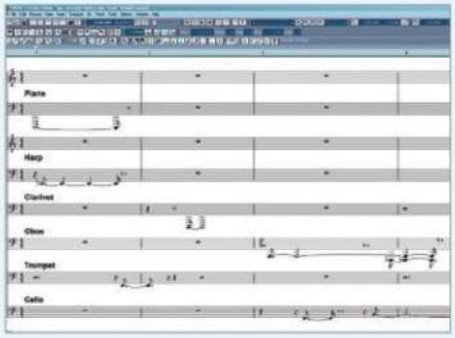
Onto the post-WWII Europeans. Begin with Messiaen's seminal *Quatre Études de Rythme* for piano (a bit dry, but worth the effort). Move on to Boulez's very colourful *Marteau Sans Maître* for six instruments. Then take a deep breath and sit for a good long while at the foot of the master, Karlheinz Stockhausen. Listen (hard!) to his trio of integral serial masterpieces: *Klavierstücke* for piano, *Kontra-Punkte* for ten instruments, and *Kontakte* for electronic sounds.

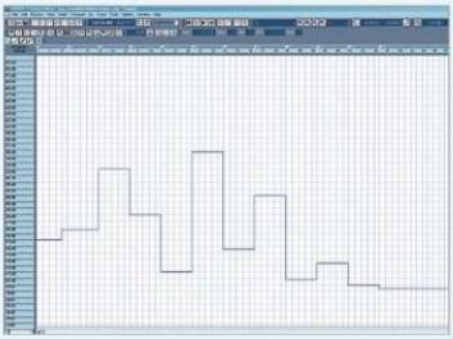
Complete your journey with two serial pieces that are more noteworthy for their expressive beauty than their underlying serial engineering. The first is Nono's moving *Il Canto Sospeso* for voices and orchestra, and the second is Stravinsky's brilliantly quirky *Agon* for orchestra.

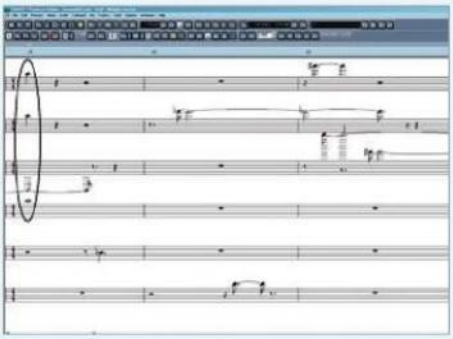
>Step by step Integral serialism

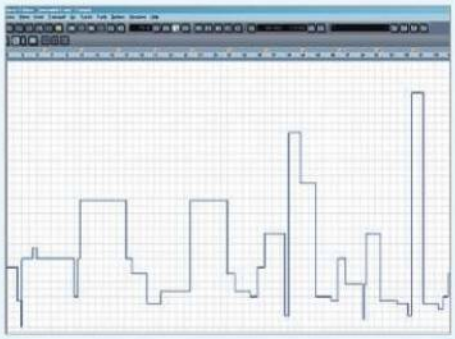
1 > Here is the row – in its prime, retrograde (ie, reversed), inverse and inverse retrograde forms – I used to generate the integral-serial piece for this article. (Audio on the DVD: **rows.wav**; MIDI: **rows.mid**) It's an all-interval row, containing every interval from 1 (one semitone) to 11 (11 semitones). To see this, arrange the prime row's pitches in ascending order from C2 to F♯7.



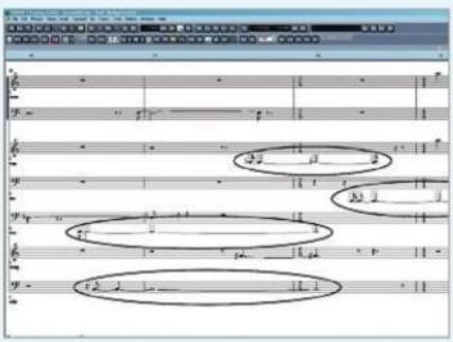
2 > And here (in piano-roll view) is the piano reduction of the beginning of the piece, which is where I ended the first part of this article last issue. (Audio: **piano.wav**; MIDI: **piano.mid**) At this point in the process, the following parameters have been serialised: the pitch, timing (starting point), duration and volume of each note, as well as the central pitch of each of the piece's 12 sections.

3 > I chose to arrange the piano reduction for a 'classic' serial chamber ensemble: piano, harp, clarinet, oboe, (muted) trumpet and cello. The order in which the instruments play is serialised. But since there are only six instruments, I had to cheat, and so piano corresponds to 1 and 7, harp to 2 and 8, clarinet to 3 and 9, and so on. (Audio: **ensemble1.wav**; MIDI: **ensemble1.mid**)

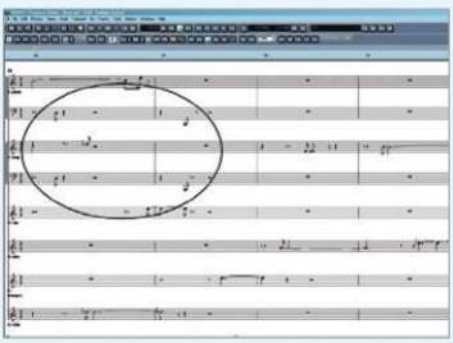


4 > For my final act of serialisation I applied row r7 (see part one) to tempos, assigning a different BPM to each of the 12 sections: 178, 200, 320, 229, 114, 355, 160, 267, 100, 133, 89, 80. (Audio: **ensemble2.wav**; MIDI: **ensemble2.mid**) At this point, the piece is a specimen of close to 100% pure integral serialism. It sounds a bit chilly and academic, and needs some heating up.

5 > In terms of musicality, now begins the key phase of the process – turning an utterly 'perfect' system of organised sound into compelling music. Think of it as uncovering the expressive form hidden in the strictly serialised structure. I began by doubling/tripling the first note of each of the 12 sections for dramatic emphasis and tweaking the volume throughout. (Audio: **ensemble3.wav**; MIDI: **ensemble3.mid**)



6 > When musicalising a strict formal structure, you should feel free to take whatever structure-thwarting liberties you deem appropriate. You are, after all, writing a piece of music, not a doctoral dissertation. Trust your ears! In this variant, I tweaked the tempo to slow down poignant passages and speed up frenetic ones. (Audio: **ensemble4.wav**; MIDI: **ensemble4.mid**)



7 > Serialism is, for my money, the most abstract of all musical styles. I often think of serial composition, particularly this final phase of musicalisation, as sculpting pure sonic energy. In this variant, I tweaked the note durations – lengthening some, shortening others – to enhance the flow of abstract musical energy. (Audio: **ensemble5.wav**; MIDI: **ensemble5.mid**)

8 > For this final variant, I homed in on a few places that I felt flagged a bit and added a smattering of sonic events to keep things tooling along. Then I mixed and mastered, EQing a bit for brightness, using some multiband compression for some punch and a faint wash of reverb for a bit of spaciousness. I hope you enjoy the fruit of my integral-serial labours! (Audio: **final.wav**; MIDI: **final.mid**)

9 > To summarise the results of the musicalisation phase of the compositional process (steps 5-8), in which I nudged the 'perfect' version of the piece to its final state of musicality, I've prepared a set of 12 pairs of before/after sections (Audio: **before-after.wav**) Note that most of the changes are quite subtle, leaving the original structures audibly intact. **cm**

Quiet collisions

Our resident sound expert reveals his love of noodles, and how they can help you create inspirational tracks

ON THE DVD

All of Scot's patches and samples can be found in the **Tutorial Files** folder

> I was recently taken to task on an online forum for referring to an improvisational jam I'd done as a 'noodle'. It seems that the term 'noodle' is used by a certain breed of musician to describe a composition wherein the music and sound are self-generated by a complex synthesiser patch.

In my day, we sometimes called such things 'generative music' and more often 'ambient music'. Nowadays, the term 'ambient' is applied to an entirely different type of music that scarcely resembles the initial recordings that kick-started the genre. It was, go figure, one Brian Peter George St John le Baptiste de la Salle Eno that popularised the term with his groundbreaking album *Discreet Music*, and its follow-up, *Music For Airports (Ambient 1)*.

Both of these albums make use of generative music systems to produce the work at hand. Like the 'noodle', such a system would consist of various components stuck together in a way that sacrifices some control on the part of the artist. For instance, there might be three different tape loops running simultaneously, each with a different length of tape spooled up. This means that different bits on one tape would not line up in any rhythmic way with different bits on another. This element of chance adds interest for both the listener and the artist.

I've always been fascinated by such systems and have called upon them many times when designing synthesiser patches or musical passages. No matter what you call them, such systems can be a wellspring of inspiration, and software synthesisers make them especially easy to cobble together, as you'll see!

>Step by step Creating an ambient sound generator

1 > We'll use a combination of modular synthesis and sampling to make our ambient sound generator. To start, let's create some samples. I'm going to call up FL Studio and make a simple 4/4 pattern using a guitar Soundfont. I've used only a few notes in the key of F♯ minor. The tempo is set to 52bpm. Render it out to a WAV file and put it in a folder for later.

2 > Next, create another WAV file. This time, use a slightly different sound and nudge the tempo up to 65bpm. Stick to notes in the key of F♯ minor so they'll have some harmonic relationship with the other loop. However, this time use an odd number of steps. Whip up a few more loops at varying tempos and with some other sounds.

3 > Now we have some loops, fire up your synth. I'm using KarmaFX Modular, since it supports samples. You can use any similarly outfitted modular you like. Load up an instance of KarmaFX Synth and find the patch called **EmptyEffect.fxb** on this month's **cm** DVD. This is a simple polyphonic output signal path with a delay module already in place.

4 > Start your patch by adding a **Sampler** module. Right-click on the background and choose the **Sampler** from the **Add Module»Generator** menu. Click the **Load Sample** button and find your first guitar sample (or use mine, called **GuitarLoop.wav**). Click on the **Loop** function and select **Forward**, so our loop plays indefinitely once triggered.

5 > We're going to need a couple of Mixer modules. Unfortunately, KarmaFX Synth doesn't have a multichannel mixer, so we'll have to mix our mixers. Right-click to add a trio of Mixer modules from the **Amplifier** category. Now right-click on **Amplifier1**'s title bar to select **Amplifier4** as the **Input**. This will be the mixer into which we route our other two mixers.

6 > Right-click on **Amplifier4**'s title bar to select **Amplifier3** and **Amplifier2** as the inputs to **Amplifier4**. Now right-click on the title bar for **Amplifier2** and select **Generator1** as the **Input**. Play a low key from your MIDI controller to set the sampler into action. Since the sample is looped and there's no modulation applied to the level, it'll play indefinitely.

DEVELOPER ALERT

INTERMORPHIC

These guys are generative music developers and were involved with Eno's beloved Koan generative music system. Today, they create inspirational generative software for desktop computers and smartphones – we gave their Noatikl software high marks when it was released. Check out **www.intermorphic.com**

RECOMMENDED LISTENING

BRIAN ENO, *MUSIC FOR AIRPORTS*

This classic experimental album employs out-of-sync tape loops, synthesisers and sparse, looped vocals. These pieces set the stage for new age music, though Eno's works would never sit comfortably in that genre.

STEVE REICH, *EARLY WORKS*

These early tape compositions involve playing back tapes on multiple decks, slightly out of sync with one another. This creates an ever-changing soundscape from only a few spoken phrases. Hypnotic.

PRO TIPS

DAMN THE PROJECT TEMPO

When creating a system of this sort, it's important to choose instruments and modulation sources that can be freed from the host's tempo. Many instruments will default to a state of sync to the project's tempo, locking everything into a solid, predictable rhythm, so do yourself a favour and shut that sync off.

INCONSISTENT ECHOES

Instruments aren't the only plug-ins that shackle themselves to the host's tempo – lots of effects do it as well. In fact, some don't even offer an alternative. Yet using a separate delay line with a unique and non-synchronised delay time on each component of your patch will add another layer or two of unpredictability. Again, dismiss the sync function. Use your ears to set the delay time instead.

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 Cosmonaughts.

7 > Because we're using such sizable modules, we might need to collapse a few when we aren't using them. Do this by double-clicking on a module's title bar. Let's add a second **Sampler** module. Load up your second sample (or use **GuitarLoop2.wav**) and set it to loop forward. We'll throw in a bit of synthesis, so add an **SVF Filter** to the patch.

8 > Right-click on the Filter module's title bar to set our **Sampler (Generator2)** as the **Input**. Now right-click on the title bar for **Amplifier2** and select **Filter1** as the **Input**. Hit a key on your MIDI controller to trigger both samplers. Let's change the Filter Mode to **Highpass** so the bass frequencies are filtered out. Set **Cutoff** to 33. Shove the **Resonance** up to 12 o'clock.

9 > I think a little modulation is in order. Add an **LFO** module and select the **Random16** waveform. Right-click on the Filter's **Cutoff** knob and select your new **Modulator** as the **Input**. Set the LFO's **Rate** to 22. Set the **Amount** to 86 and push the **Fade** and **Phase** up to 12 o'clock. There'll be some semi-random modulation of the second sample's frequency.

10 > Let's add another **LFO**. This time, use a **Sine** wave. Right-click on the first LFO's **Rate** knob and assign **Modulator2** as the **Input**. Set the new LFO's **Rate** to around 7, and the **Amount** to 46. Push the **Fade** and **Phase** knobs to about half way. Your second loop should now be quite electronic in nature, and none of its action is synchronised to the first loop.

11 > Let's add a third **Sampler**, this time with a sustained string sound looping along. Run it through a **Moog Filter** and route the **Moog Filter** into **Amplifier3**. Set this Filter's **Cutoff** to 24 and push the **Resonance** up to 53. Add another **LFO** and assign it to the Moog Filter's **Cutoff**. Set the **Rate** very low and select a **Saw** waveshape. Crank the **Amount** way up.

12 > Add another **Sampler**, this time with a keyboard loop (**Keys.wav**). Route it through a **Formant Filter** and modulate at least one of the **Vowel** knobs with a **Step Modulator** set to an odd number of steps, and the **Tempo** set to 1/1. The new filter should be routed through **Amplifier3**. Now adjust levels, tweak parameters and relax while the synth does the work! **cm**

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Hands-on with REASON 5 & RECORD 1.5

We go in-depth with a pair of Propellerhead betas in this exclusive preview of the year's biggest music software releases thus far

> A new version of Reason always causes a stir. It doesn't happen often, but when it does, Propellerhead always up their game significantly with stable, well-conceived new features and workflows. So imagine our excitement when we came into our offices and studios one late-May morning to discover that Reason 5 and Record 1.5 were all but imminent!

While downloading the beta versions of both, we eagerly scoured the beta test notes for clues as to the new goodies we could expect to find. What we found out, unsurprisingly, was surprising. Major DAW updates from all companies are typically kept hush-hush, but we usually get at least a few breadcrumbs prior to any official announcement. Not with Propellerhead, though. Speculation is constantly rife, the forums are forever buzzing and everyone seems to think they have some kind of insight or even inside information as to what's coming next. But among the sophisticated intelligence community of developers, Propellerhead are perhaps the most impenetrable.

We'd tip them to beat the CIA when it comes to keeping operations under wraps. How do they do it in an age in which information is fired around the world within seconds, secrets are seemingly left on trains or sent in the post by government departments, and even Apple employees are leaving hardware prototypes in bars? Gawd knows, but done it they have, and now the covers have been pulled off the latest incarnations of Propellerhead's symbiotic sequencing double-act, Reason 5 and Record 1.5. On the strength of what we've seen of them so far, we're very, very impressed indeed – and we've seen a lot.

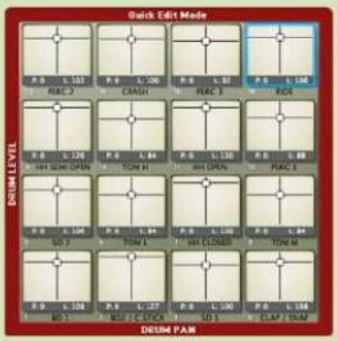
Beta testing

We've scrutinised every new element of both beta versions, generally with the previous version open on an adjacent machine for comparison. Before we get into the meat of this preview, it should be repeated and stressed that all we've seen at the time of writing are the beta versions, so anything and everything here is potentially subject to change.

Past experience tells us that, in all likelihood, in terms of features, the final build will be essentially the same. Past experience also tells us that Propellerhead betas beat finished versions of many other apps hands-down in terms of stability, and these are no exception.

Ultimately, it all looks set to be another great leap forward for Reason users in particular, and a significant improvement to the much younger Record. There are also plenty of new features that we think will make Reason/Record sceptics look again at this awesome and unique sequencing and production system.

Kong's modules offer a huge number of controls, enabling you to get the exact sound you need



Press the Q button to enter the Quick Edit mode, where you can simultaneously tweak the parameters for all your pads

Kong Drum Designer

For us, the stand-out addition for Reason 5 is the samplin', synthesisin' drum machine, Kong. Visually, it's not unlike the drum pad MIDI controllers made by a company whose four-letter name shares three letters with Kong. Conceptually, it's in the vein of Akai's classic MPC range, but as you'd expect from Propellerhead, it boasts a sizeable raft of functionality and features that you won't find anywhere else.

The action centres on Kong's 16 drum pads, each of which can be triggered on-screen via the mouse, or by a controller. Each pad is a fully independent drum module in its own right, meaning that Kong can be thought of as a modular drum kit design system, and anybody who's used the Thor synth, introduced in Reason 4, will be instantly at home with the drop-down module menus on each pad, reminiscent as they are of Thor's oscillator and filter modules.

So what are the actual modules on offer? Each drum pad can use as its sound source the NN-Nano sampler (a stripped-back but still highly editable and powerful addition to Reason's NN sampler range), the Nurse Rex player (a similarly streamlined version of Dr. Rex), or a selection of more specialised drum modules. These include physically-modelled kicks, toms and snares, and synthesised kicks, toms, snares and hi-hats. Each module offers an array of controls for shaping the sound, resulting in a huge sonic range, easily matching the quality of many of the other drum synths on the market.

After the sound source module, each pad features two effects busses, each offering an impressive array of effects processors designed with drums very much in mind: Compressor, Filter, Overdrive/Resonator, Parametric EQ, Rattler, Ring Modulator, Room Reverb, Tape Echo and Transient Shaper.

Unbeatable drums

We love these new effects. They sound so good, we can imagine many users looking no further than them for all of their drum processing. If you do decide to bring Reason's many other effects units into play, though, the rear panel of Kong has separate gate controls and audio outputs for each pad, while to the left of the pads is a control section, giving details on the currently selected pad, and offering a range of general controls. The Q button in each section launches the powerful Quick Edit Mode. This pops up a window in which parameters can be viewed and adjusted for all pads simultaneously. It's quite ingenious, easy to use and hugely effective when it comes to designing beats on the fly.

Once you have your beat, the master output section caters for a bus effects module and a master effects section. The latter could be used to host, say, a compressor to pull your drums together, while the former is ideal for adding reverb or applying some parallel processing.

We can't overstate how impressed we are with Kong so far – this really is going to change the way we all make drum tracks in Reason.

Old-school sampling

In what can only be described as a huge landmark in Reason history, the application now incorporates sampling and audio editing. And both are so intuitive that we'd sampled, edited and placed our first sound in less than three minutes, without the help of the manual.

All sample playback instruments in Reason 5 become full-on samplers – NN19, NN-XT, ReDrum, Dr. Rex and so on. Simply assign an input in the audio routing section, check your levels, start recording and hit Stop when you're done. Reason automatically places the recording in a menu, in which you can either click Edit to begin editing right away, or double-click Later.

The Wave Editor window keeps things simple, offering essential functions like Crop, Normalize, Reverse and Fade at the push of a button – it's no WaveLab at this stage, clearly, but it's quick and easy to use. And, of course, the direct integration into Reason brings great benefits. One of our favourites is back-and-forth looping, which tells the sample to play forwards to the end marker, then double back once, or continue in an endless back-and-forth loop. Also known as ping-pong looping, this was an interesting feature of the old Roland S760 sampler, cited as one of its main selling points by devoted user Roni Size.

Settings like reverse, sample start/end point adjustment and the ping-pong loop modes are retained in the samples even if they're used in a device other than the one that recorded them, offering loads of creative options.

The 'Octo' in the name is the giveaway to Dr. Octo Rex's main new feature: the ability to load up to eight loops in one player

Blocks

Blocks can be thought of as an extra layer in the sequencer. It's semi-independent of the main sequencer and the idea is that you create each distinct section of your track – verse, chorus, bridge and so on – in Blocks mode. With that done, back in the main sequencer you simply lay out your blocks, end to end, using the Blocks sequencer lane.

Blocks can be copied, shortened, lengthened and moved around just like any other clip in the sequencer, and changes to the contents of one block will apply to all instances of it, so, for example, you can adjust all your choruses together. To extend the playback of a block, you don't have to copy/paste it – just drag the edge to repeat it for as far into the track as you like.

Building blocks

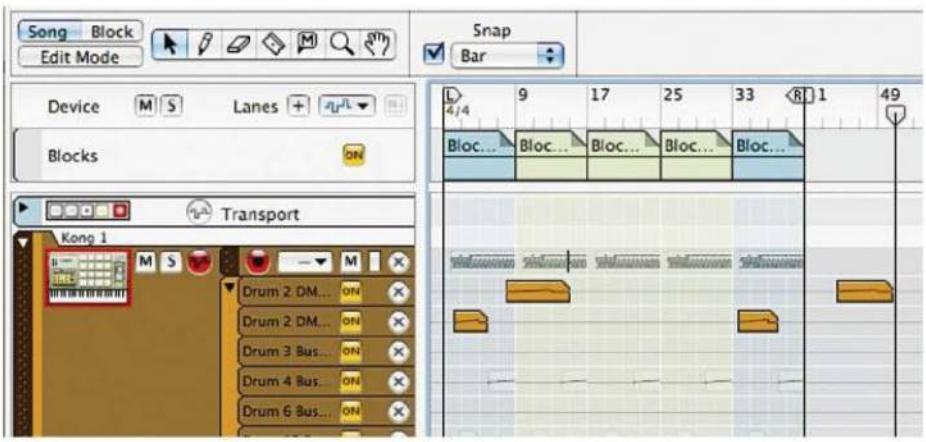
Up to 32 blocks can exist in a project, which is more than you're likely to need. You can build blocks from scratch or highlight a section of arrangement and cut and paste it into a new block. The block is then available for sequencing.

As well as being a great way to lay out a track, Blocks is an amazing remixing tool. Any time you come up with a variation on a section of a remix, say that you want to repeat elsewhere, just turn it into a block and place it on the Blocks lane. And speaking of variations, when you look inside a block, the events within it appear faded out in the main arrangement, so you can instantly tell that you're looking at a block but still easily see what's going on inside it.

Whenever you want to override any part of the contents of a block (for example, to vary the drums a little between verse 1 and verse 2), simply record or manually place your replacement material in the block at the desired position. Reason will use this overlaid clip until it ends, at which point it will resume playing the faded block information that comes after. Finally, when you're ready to commit to your arrangement, you can simply 'explode' the block data into the main sequencer.

Blocks is very much a creative tool, and it's already completely revolutionised our Reason sequencing workflow. Comparisons are bound to be drawn with Ableton Live's Session and Arrange pages, and Cubase's Play Order Track, but that wouldn't be particularly fair. This is the fastest and most creative new approach to sequencing that we've seen in a long time.

It's so intuitive and well thought out that there's no DAW we'd now rather sequence a track in more than Reason 5 or Record 1.5, which has also acquired the Blocks system.



Blocks is Reason and Record's new sequencing system, and as with many innovative ideas, what seems complex at first is anything but once you actually have a go with it... Then you'll wonder how you ever worked without it!

Dr. Octo Rex

Another new instrument for Reason 5 is Dr. Octo Rex. This is an expansion on the original Dr. Rex player, and stands as one of those great little Propellerhead ideas that you don't realise you need until you try it.

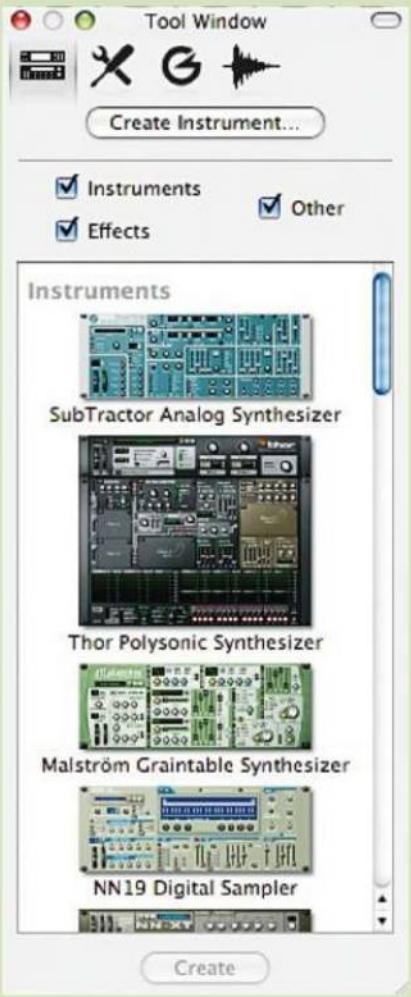
Dr. Rex has been dropped, but the new Dr. Octo Rex is completely backwards compatible, so any projects that use Dr. Rex will open seamlessly in the latest version.

What's new, then? First and foremost, you can now load up to eight loops into one player. This offers some very interesting sequencing opportunities as it enables you to simultaneously run many variations of the same loop. Each of these can be triggered at the push of a button and thus sequenced as a set on the same track, rather than having to run multiple Rex players in sequence, or manually rearranging note data. Think of it as like pattern triggering in ReDrum and you'll be pretty much on the mark.

There's so much more to it than just that, though. For a start, whether using the Octo features or not, Slice Edit mode now enables you to apply a whole range of controls to each slice using a visual graph. So, you could draw a decay or pitch control slope running from maximum to minimum and back, over the course of the loop.

You can even reverse individual slices and automate the controls for each, opening up awesome potential when it comes to variations and arrangement edits. It's a great system, and even those parameters that were already available are given a new lease of life by the ability to draw in controller modulation.

Overall, Dr. Octo Rex is looking like a fine upgrade to one of Reason's most treasured devices.



The Tool window now boasts some high-res symbols next to each tab, instead of the text that was in the previous version

The transport bar now offers a tap tempo button, a bright Blocks button and a more sophisticated look in general

The audio input and output level meters in Reason 5 give instant information on your incoming and outgoing signals

Interface overhaul

Reason's appearance has remained pretty consistent over the last decade, but as it approaches its tenth birthday, Propellerhead have chosen to give it something of a visual makeover. Nothing has changed enough to disorientate anyone – it's more a matter of the odd nip here and tuck there.

For example, the little magnet icon with waves emanating from it that represented the Snap function has been replaced by the word 'Snap'. It's such a simple tweak that even seasoned users might not notice the change right away. New or occasional users, however, will undoubtedly find it more intuitive.

Interestingly, the main exception to this seems to be the floating Tool window, which now uses symbols instead of text to title each tab. Thankfully, these symbols have taken on the same high-res look that the rest of Reason has inherited from Record, and each is completely clear and obvious at a glance, even to new users. So obvious, in fact, that like many aspects of the modified GUI, we probably wouldn't have noticed if we hadn't been so taken with the pleasing design and scale of the symbols.

Some of the device interfaces have also been subtly enhanced, with slightly darker colours, more 'mature' and clearer fonts, and extra delineating borders between sections. These are all very subtle differences, but they undoubtedly give an enhanced sense of sturdiness, modernity and clarity to Reason 5.

Modes of transport

The transport bar now sports a more streamlined, contemporary look. It's not just window dressing either, as the transport now also features a tap tempo button, as well as a large, inviting button labelled Blocks, which is simply an on/off switch for the fabulous Blocks mode described on the previous page.

Also new are the audio input and output level meters, giving you an instant and constant visual reference to your incoming and outgoing signals. And lying on the other side of the new-look vertical DSP usage meter is a handy indicator that lets you know when Reason is loading samples or running background calculations, reassuring you that all's well if it stops responding for any length of time. As Reason users already know, crashes aren't a regular occurrence with Propellerhead's software, but this innovative feature is welcome all the same.

The Loop and ReGroove mixer buttons have both been upsized and made easier to spot too. Even after a few minutes of composition, you'll appreciate the difference.

Meanwhile, in the arrange/sequencing window, the tool selection buttons have been moved from the top of the sequencing pane to the top of the device list on the left.

In summary, we'd say that all of the GUI and interface updates that we've noticed so far have been positive. They give a fresh new feel to established features, serve as a great backdrop to new ones, and generally give the unmistakable air of a DAW that's continuing to mature nicely.

Reason-able Record-ing

When Record was released last year, it finally gave Reason users the ability to record their own audio tracks without switching to a completely separate application, making it hugely appealing to those who wanted to use vocals or real instruments on their tracks.

Now, of course, Reason enables direct recording into its sampling devices. This is still nowhere near as powerful an audio-handling system as Record's, but if all you want to do is lay down the odd vocal line, Reason now gives you a great – and quick – way of doing it. If you're on a budget and just can't afford to splash out on Record, that's going to make you one very happy Reason 5 user.

Does this leave Record looking like a bit of a white elephant, though? We certainly don't think so. Apart from its full linear recording and editing functionality, there's the astounding new Neptune device (more on that on the next page) and that incredible SSL-modelled mixer, which makes it worth the investment all on its own. We know many producers who produce terrific tracks using the basic Reason mixer, of course, but there's no getting away from the fact that Record's mighty virtual desk sounds absolutely stunning and offers far more in terms of power features.

Thanks to Neptune's easy-to-use pitch adjustment and correction, plus its powerful voice synthesiser, Record users will have a whole new way of working with their vocal tracks in version 1.5 of the software

Neptune and RPG-8 together at last (in sweet harmony, no doubt)

Thinking outside the box

Neptune may well have been designed with vocals primarily in mind – and it deals with them extremely well – but there's nothing stopping you from using it on any audio source you like. It'll take a lot of hard experimentation to find out exactly what works and what doesn't, but we tried out drum loops, music loops, riffs and numerous other sources.

With a little careful tweaking, you can get truly incredible results, and as with every other aspect of this glorious production environment, the high level of self-integration makes it ridiculously easy and rewarding to experiment with.

In this respect, skilled keyboard players will have an absolute riot, as you can literally play the tune you want for your vocal in real time, with the keyboard's modulation wheel set up to glide smoothly between the original signal and the voice synth. If you're using Record and Reason in combined mode, once you've used the synth functions to generate your vocal harmonies and tunes, you can then use the sample editor to chop out sections and drop them into Kong or one of Reason's other sample playback devices. In fact, a number of the vocal samples in this month's Carnival Rave collection were created using exactly this technique.

Neptune perfectly encapsulates the approach that Propellerhead seem to have taken with these updates – the new features are designed to encourage experimentation by giving new options and ways of working, making it all very easy and fast to use.

Neptune Pitch Adjuster

While Reason makes the full version leap from 4 to 5, Record is receiving a more modest but no less notable 'point five' update. Chief among its new goodies is one particular and outstanding inclusion. Step forward, Neptune!

Those familiar with Propellerhead's witty naming policy won't be surprised to learn that this is an Auto-Tune-esque pitch tuner. At its most basic, it's designed to analyse the incoming audio signal, assess its tuning and make corrections as required. You have control over two carefully calibrated parameters to determine how natural or unnatural this sounds, and you'll be amazed at how powerful this simple setup turns out to be. There's also a Live mode, enabling real-time pitch correction and manipulation.

For those Moon-dwellers wondering why you'd ever want an unnatural-sounding vocal, listen to just about every single R&B track released in the last two years, Cher's biggest hit of the last 15 years or Victoria Beckham's most famous Number 2 chart placing. Neptune delivers this ubiquitous effect with style and aplomb, and it'll be something of a revelation to anybody who's only ever made music using Reason or Record.

Just as Record's superlative timestretching won over many established remixers with its ease of use and the sheer quality of the results, we can imagine Neptune doing exactly the same for R&B producers, simply because it makes auto-tuning so easy and does it so well. And given the number of Reason users working in other genres, we wouldn't be at all surprised to hear a tide of tracks featuring very obvious Neptune-processed vocals in the months after Record's release.

Planet of sound

It's not just pitch correction on offer, either – creative pitchshifting is also eminently possible. If you want to tweak the tuning of a sound or loop, audition a part in a different key, generate a doubling or harmonising version of a clip, or give a hi-hat or bongo loop a bit more shine and edge by raising its pitch without damaging its length or timing, you can. Neptune makes all this possible via two simple controls for dialling in adjustments in cents and semitones.

Arguably Neptune's most impressive feature, though, is its voice synthesiser function. With this, you can 'play' the incoming vocal (or other sound) using a MIDI keyboard. From just a single vocal track, you can create a harmonised chord vocal, just by pressing the appropriate keys. You then simply set the balance between the voice synth and the processed vocal with a pair of sliders that can, of course, be automated and controlled live.

Even after talking about it as a voice synth, because (in the beta at least) it sits with the effects processors in the device list, rather than the instruments, it's easy to forget that Neptune is actually a proper instrument, albeit one that requires a carrier signal. As such, it can be wired up to Reason's excellent RPG-8 Arpeggiator.

Whether you know the actual key of your vocal or not, you can create a musical arpeggio with the RPG-8, then send the signal to Neptune to generate amazing rhythmic vocal parts, playing riffs at high speed in styles that it wouldn't ever occur to you to program, much less occur to a singer to perform. The possibilities really are mind-boggling.

And there's more...

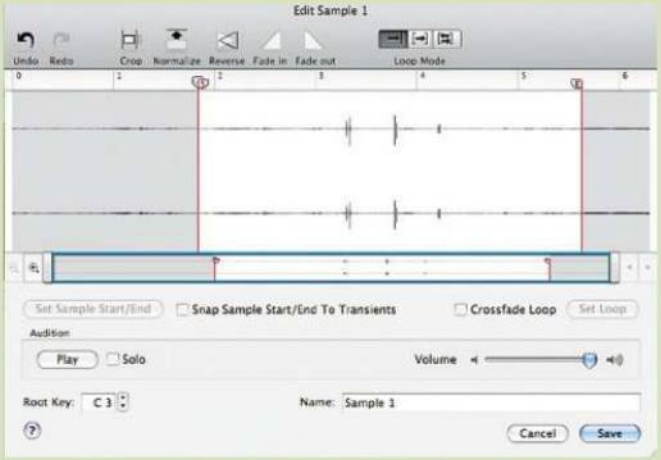
There are numerous minor additions and tweaks that serve to enhance the overall experience. In Reason, for instance, the Input Focus (formerly MIDI Focus) and Play Focus options have been brought out of the Advanced MIDI part of the interface. In case you're unfamiliar, these relate to MIDI Clock Sync mode, enabling you to specify how the program handles incoming MIDI and MIDI sync data when multiple songs are open.

Other great features worth mentioning include the one-touch copy function in the audio editor, before any destructive editing is applied, and the fantastic floating piano keyboard, also brought over from Record. The latter is a pop-up graphical music keyboard that can be played using your computer's QWERTY keyboard (with handy octave switching buttons on the keyboard itself), or by clicking on it with the mouse.

Then there are the numerous features in Kong and Dr. Octo Rex that we simply haven't the space to get into in depth, such as Kong's ability to handle REX loops in new and inventive ways in both NN-Nano and Nurse REX.

Brand new for Record 1.5 is the Manual Rec Mode, which gives better control over record enabling and monitoring, helping to protect against the inadvertent overwriting of your recordings.

Reason 5's pop-up piano keyboard has been brought over from Record, and you can play it using your QWERTY keyboard or by clicking it with the mouse



The Wave Editor gives you the chance to tweak your samples in Reason, and while it's simple, it does offer staple functions such as Crop, Fade and Normalize

Best of both worlds

Since this is the first version of Reason post-Record, and considering that the two are designed to work as one integrated system, you'd expect Record 1.0 to have had a certain amount of influence on Reason 5, which it has.

The most significant feature to make its way from Record to Reason is the Big Meter, in all its VU, PPM and Peak metering glory. This is part of the audio routing section at the top of the rack and constitutes a professionally spec'd stereo meter, available to any input or output channel at the push of button. Previously, Reason would let you know when you were in the red, but it was very hard to get a real idea as to what your levels were doing. Of course, this is particularly critical when recording, as a clipped recording will never be anything but a clipped recording, so it's not a huge surprise to see this informative display copied over from Record for the introduction of audio recording to Reason.

There are also a couple of very big new workflow features to look forward to. For Record only is the Scale Tempo function for audio. As with everything Propellerhead, this is as simple and straightforward as you could ask for. You can now timestretch an audio clip without affecting its pitch by Alt-dragging it to the desired length, or manually entering the target length or tempo you want it to play back at in the Tool window. It's about time and, needless to say, it's infinitely more convenient than Record's awkward prior take on timestretching.

Lock 'em up

We think the stand-out new shared feature is the ability to lock a MIDI controller to a specific Reason/Record device. This enables you to set up your usual master controller keyboard for playing the currently selected instrument, and also to link another keyboard, drum pad or other controller to a particular instance of Kong, for example. The new implementation challenges even the simplicity of Ableton Live's hardware setup process, and we've been dusting off a stack of old controllers in anticipation of it.

So that's the state of play with Reason 5 and Record 1.5 as they currently stand. There are numerous other minor tweaks and updates that we don't have the space to get into here, of course, and we must stress again that all of this is in reference to the beta versions, so the final specs are entirely subject to change at any point before the launch of both new versions.

Things can only get beta

Even at this stage, though, we can't wait to fire up Reason 5 and Record 1.5 in anger on some real-world projects, and we must confess to not particularly relishing the thought of going back to Reason 4 and Record 1.0, having tasted the future. The new features offer such huge leaps forward in workflow and creativity, and so much scope for fun, that it'll take months of playing with them before we even begin to take them for granted. And like we said earlier, despite these being beta versions, everything's been running rock-solid and stable for us.

Propellerhead Reason 5 and Record 1.5 should be out towards the end of summer, and we'll be bringing you our official verdicts on both in the **cm** reviews of the final release versions just as soon as they're done. Unless something very strange indeed happens, we'd expect a few awards to be involved... **cm**

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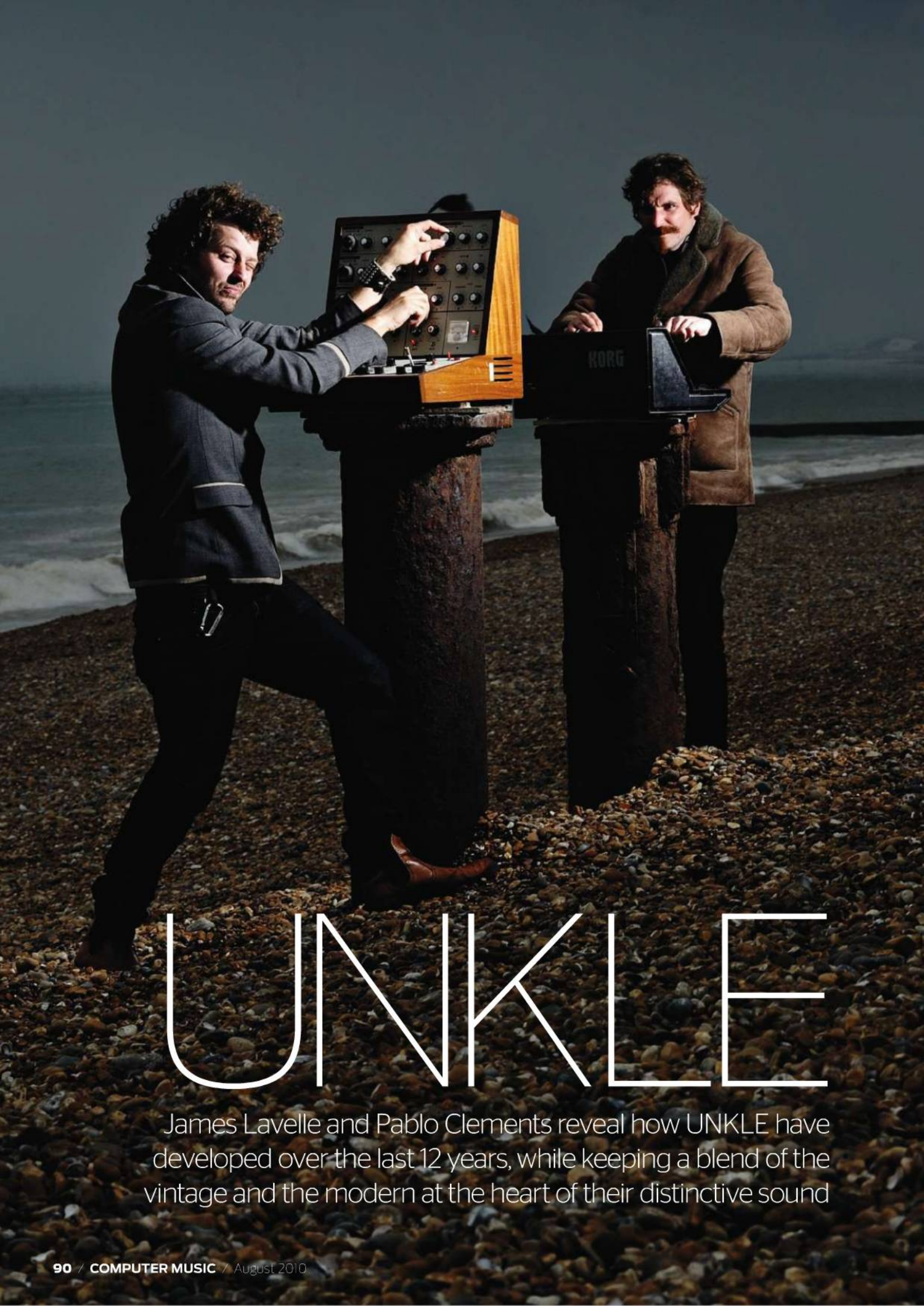

UNKLE

James Lavelle and Pablo Clements reveal how UNKLE have developed over the last 12 years, while keeping a blend of the vintage and the modern at the heart of their distinctive sound

> Some of you may be shocked to learn that it's actually been 12 years since UNKLE's acclaimed debut album, *Psyence Fiction*. Back in 1998, UNKLE was made up of James Lavelle, head honcho of the hugely influential trip-hop label Mo' Wax, along with Mo' Wax's most famous signing, DJ Shadow, plus stellar mates such as Radiohead's Thom Yorke, Mike D from the Beastie Boys and Metallica's Jason Newsted. Tony Blair's New Labour had recently rolled into power with a promise to clean up politics, Simon Cowell was just a music business executive best known for signing Robson And Jerome, and Facebook's Mark Zuckerberg was 14 years old.

How things have changed. These days, the trip-hop tag no longer guarantees you street cred. Mo' Wax has been put on hold. Shadow signed a big-money deal with Universal. Hell, Jason Newsted's not even in Metallica any more. UNKLE, meanwhile, have grown from a two-man studio side project into a fully fledged, six-piece touring band that's more than capable of facing the world without the assistance of a celebrity musical guest list. In fact, the most notable name on the band's latest album, *Where Did The Night Fall*, is Mark Lanegan, gravel-voiced former vocalist with American rockers Screaming Trees. It's a far cry from the glitzy line-up of cameos on 2003's *Never, Never, Land*, which featured Eno, Jarvis Cocker, 3D from Massive Attack, Queens Of The Stone Age's Josh Homme and The Stone Roses' Ian Brown.

The only constant throughout those 12 years – indeed, the only constant since UNKLE were formed in 1994 – is Lavelle himself, and *Computer Music* managed to track him down to a south London rehearsal studio where the band were getting ready for a mini-tour that would take them from Saint Petersburg to Camden.

After 12 years, UNKLE have evolved from a two-man studio team into a full touring band

The UNKLE evolution

"UNKLE might have started out as a bit of fun on the side, but it's now my day job – I'm in a band!" Lavelle says with a grin. "Does that mean I now call myself a musician instead of a producer? Ha ha! Not a chance. Me, a musician? I can't play a thing! My job in UNKLE is the same as it always has been – I'm an overseer. When everyone else is getting caught up in the fine details of a loop or a string sound – and they have to do that to make UNKLE work – I'm standing at the back of the room, trying to imagine how the whole thing is going to fit together."

Lavelle's regular musical collaborators – the second and third members of UNKLE, and the men who regularly get caught up in the fine details of those drum loops and string sounds – are Pablo Clements and James Griffith. Both are based in Brighton, where UNKLE have one of their two studios.

"We've also got a place in London," explains Lavelle, "but as soon as we get more than three or four people in there, it feels claustrophobic. The place in Brighton is a proper, old-fashioned studio. There's a big live room [run by Mike Pelanconi of Drumdrops samples] and enough wall space for Pablo's collection of vintage gear."

Where Did The Night Fall's scuzzy, off-kilter squelches and bleeps are testament to Pablo's penchant for all things analogue, be it an EMS, an MS20 or a scratchy, sampled Afro Beat album, but Lavelle reckons it's the way UNKLE butt that old-fashioned technology up against modern software that really creates the band's sound. "It's ironic, isn't it, that programs like Pro Tools and Logic make the whole process of working with vintage sound a lot easier. Me and Pablo were in the studio the other day and we realised that we were doing things in a couple of hours that a decade ago would have taken us days or even weeks.

"We can use all our vintage synths, knackered old outboard and weird samples when we're demoing, but it's Pro Tools and Logic that give you the freedom to mess about with the sounds that you've created. You can chop things up as much as you want, listen back immediately, collage all your pieces together. I think of UNKLE as sitting somewhere in that grey area between old-fashioned analogue nastiness and cutting-edge computer technology!"

As Lavelle admits, he tends to take a back seat in the studio, leaving all the serious programming and knob-twiddling to Clements and Griffith. Clements and Lavelle have actually known each other for 15 years – Clements was a member of Psychonauts, who were signed to Mo' Wax back in the 90s – and the duo initially bonded over a shared love of vinyl.

"It's what we all did back in the Mo' Wax days," says Clements, a couple of weeks after the meeting with Lavelle. With UNKLE's mini-tour complete, he was hard at work in Brighton, putting the studio back together.

"When I first started making music, it was all about collecting obscure records, sampling them and making new records out of those samples. But it was a mammoth task. When I was cutting up loops on the old Akai MPC60, I would start on a Sunday and I literally wouldn't finish until about Wednesday or Thursday.

"Now I've got a whole load of stuff loaded into Ableton – all my favourite old vinyl loops, little bits of percussion from sound effects records, everything – and it's all there at my fingertips. And the beauty of Ableton is that you can fire things in at the click of a mouse. Just the other

From studio to stage

"In the studio, UNKLE try to mix old analogue gear with modern technology," explains Pablo Clements. "But on stage, we try to mix a live band – real instruments – with modern technology."

"All our tracks tend to be sonically dense, so the first job is trimming them down, finding out what we can play on stage and what will work. Once you've worked out what the band can physically play – without needing 15 guitarists on stage! – you can start looking at what can go on to Logic. We actually have two iMacs running Logic at the back of the stage. In effect, they're both doing exactly the same job, but there's a switcher program that swaps between the two if one crashes.

"To be honest, there's not a huge amount running on Logic. It's mainly the strings and vocals from any of the guest vocalists who aren't there on stage with us – we usually have them on a video screen. The computers also send a MIDI signal to the MPC, which I have with me on stage. That just has a selection of loops and percussion extras that we use to beef up the drums.

"To save having banks of analogue keyboards up on stage with us, we supply all the synth sounds via the brilliant Muse Receptor. All the analogue stuff on the album is loaded into the Receptor using the Kontakt sampler and that's all fed to four keyboards. Can you imagine trying to tour with the MS20 and EMS? God knows how bands managed it in the early days!"

Kit list

Apple Mac G4
Apple iMac
TEAC 24-track mixing desk
Event Opal monitors
Apple Logic Pro
Avid Pro Tools
Ableton Live 7
Waves plug-ins
Abbey Road plug-ins
Sugar Bytes Thesys
Five12 Numerology
FXpansion Guru
IK Multimedia AmpliTube
FXpansion DCAM Synth Squad
EMS VCS 3
Oberheim Four Voice
Roland Jupiter 4
Korg MS20
Akai MPC60
Electro-Harmonix Memory Man

Discography

ALBUMS
Psyence Fiction **(1998)**
Never, Never, Land **(2003)**
Self Defence: Never, Never, Land Reconstructed And Bonus Beats **(2006)**
War Stories **(2007)**
More Stories **(2008)**
End Titles... Stories For Film **(2008)**
End Titles... Redux **(2008)**
Where Did The Night Fall **(2010)**

SINGLES AND EPs
The Time Has Come EP **(1994)**
Berry Meditation **(1996)**
Rock On **(1996)**
Ape Shall Never Kill Ape **(ft. Nigo) (1997)**
Last Orgy 3 **(1998)**
Guns Blazing **(ft. Kool G Rap) (1998)**
Rabbit In Your Headlights **(ft. Thom Yorke) (1998)**
Be There **(ft. Ian Brown) (1999)**
Cocaine & Camcorders **(Promo only) (2001)**
Narco Tourist **(with Slam) (2002)**
Eye For An Eye **(2003)**
In A State **(2003)**
Reign **(ft. Ian Brown) (2004)**
Nights Temper EP **(2007)**
Burn My Shadow **(ft. Ian Astbury) (2007)**
Hold My Hand **(2007)**
Restless **(2008)**
Remix Stories Vol. 1 **(2008)**
Remix Stories Vol. 2 **(2009)**
Heavy Drug (Surrender Sounds Mix) **(2009)**
Heavy Drug Remixes **(2009)**

day, we were playing around with a track we're doing for the new *Twilight* soundtrack. We'd got one Velvet Underground-style loop at about 125bpm and an Afro Beat loop running around 86bpm and I just thought, 'I wonder what they sound like together.'

"As it happened, they sounded pretty awful, but the beauty of Ableton is that the Warp facility more or less allows you to throw all sorts of beats and samples together in real time. It's totally bonkers, but it will very often send you on a path that you wouldn't have even dreamed of. That's where software and modern gear really comes into its own. Imagine trying to do that on an old Akai 950 or MPC60 – it would test your sanity! I know, because I did it several times."

Logical process

While Ableton provided the simple building blocks for many of the tracks on *When Did The Night Fall*, most of the composing is done with Logic. "I know a lot of people use Ableton for its sequencing capabilities too, but I guess I'm too much of a Logic fan to give up now. I'm not knocking Ableton at all – in 10 years' time, if they carry on at this rate of development, that program is going to be unbeatable. It's already developing its own sound and style and you've got a whole new generation of producers who are drawn to that type of programming. But I grew up with Logic. I'm confident with it in the studio, and the last thing you want when you're recording an album is trying to get your head round a new bit of software."

It sounds like UNKLE recording sessions are already complicated enough. Although Logic forms the heart of the set-up, the band prefer to use Pro Tools for any multitrack recording, such as drums, which then gets bounced over to Logic for Clements to work on. He then bounces the whole track back out to Pro Tools when it's time to mix down.

"We always mix in a Neve room and I just think Pro Tools works better in that environment," he explains. "Yes, I know, I make life awkward for myself, but that's just the way things have evolved. What I ought to do is properly learn my way around Pro Tools and we wouldn't have any problems. We always do drums on Pro Tools anyway, because the drum track flexing facility is the best out there.

"I suppose it's things like the EXS24 sampler that have kept me on Logic. I know it inside out and I like working on it. Sampling is still a huge part of what UNKLE do, so having to put a new sampler in the middle of your set-up seems like a pretty big deal to me. I have ventured on to other sampling platforms, things like FXpansion Guru. I know that's not a sampler as such, but I tend to use it like one. What's really great about it is that it really reminds me of the MPC. The way it swings a beat is fantastic."

Facing the future

Clements is clearly a dyed-in-the-wool vintage fan – you can tell by the way he gets all dewy-eyed when he talks about his EMS and his vast collection of obscure 70s disco records – but he's not one of those analogue heads who's afraid of modern technology.

"I look at software the same way I look at a Korg MS20 – it's there to do a job. When I pick up a vintage keyboard or a bit of crackly old outboard gear, I'll just start messing around with it and see what happens. It's the same with software. There's so much of it out there that you'd never actually get any music made if you tried to learn every aspect of every program.

"I like software that works a bit like old analogue gear – stuff that you can more or less pull out of the box and get stuck into. Let's take AmpliTube. What a wonderful piece of kit! I'm not kidding, I've stuck everything through there – guitars, vocals, drums, samples, keyboards... Sometimes I even stick things back through it a second time, I love the sound of it so much!

"Then you've got stuff like the Waves plug-ins – you just can't go wrong with them – and the Abbey Road plug-ins. When it gets to the

Sampling insanity

"My relationship with samplers has been... er, 'insane' is probably the best word to describe it," laughs Pablo Clements. "When I first got my Akai MPC60, I would lock myself away for days, cutting up beats to the nth degree. Then I got Logic and discovered the EXS24. At first you think, 'Well, this makes chopping up beats easier. That means I'll spend less time doing it.' No! What I did was discover all the other things you could do with the EXS – especially when you combine it with ReCycle. At one point, I realised I wasn't just ReCycling loops – I was ReCycling the whole tune! Absolute madness.

"Ableton has thankfully broken some of those bad habits. With Ableton, you don't need to go into so much detail because it allows you to do everything on the fly. Having said that, I did learn an awful lot about sampling during those crazy years. Like not sampling kick drums on the downbeat – that's something I picked up from DJ Shadow. He pointed out that if you sample from before the downbeat, you can place that sample on the quarter-beat before you need it. That allows you to fade a bit of 'air' into the actual kick. When you're cutting and pasting different sources, you can end up with a very gappy loop. If you insert a bit of 'air' into those gaps, it smoothes things out, makes it sound more human."

mixing stage, they really do sound very special. I'm also a fan of the SoundToys EchoBoy and, of course, some of the obvious plug-in synths such as Arturia's Minimoog. When they first started bringing out software versions of old synths, I was a bit sceptical, but the Minimoog changed my mind. Let's be honest here: it sounds brilliant.

"I suppose my favourite plug-ins are the cross-genre toys like Sugar Bytes Thesys and KVR's Numerology. These are just amazing things to have in the studio. I mean, with one press of a button, you've got control over all your old MIDI gear. You've got these two very different worlds talking to each other, which is exactly what UNKLE is all about."

If Clements has one complaint about modern technology, it's that it can be *too* perfect – he misses the element of chaos. "If I turn on my EMS, I honestly have no idea if it's going to work or what it's going to do. If I turn on the Jupiter 4, the bottom C is way out of tune with the top C. If you stand three identical CS20s next to each other, they will all sound completely different.

"That's what I love about that old analogue gear – I love the way it fights with itself. I love the way it struggles. That becomes part of the beauty. There's no way I'll ever replace those machines – they're part of my DNA!

"But what I think you'll find happening over the next few years or so is that software is going to get better at replicating those little foibles. We're going to hear some really, really incredible sounds. Look at the DCAM Synth Squad. For a start, they're not sample-based, but the best thing is that they have somehow – God knows how! – managed to make the filter break up like the real thing. When you push it too hard, it sounds almost analogue."

UNKLE's *Where Did The Night Fall* is out now on Surrender All records. **cm**
www.unkle.com

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Win the superb XILS 3 and PolyKB synths!

COMPUTER music

> competition

XILS-lab might be a relatively new company but they've quickly become favourites with the **cm** team thanks to their superb XILS 3 and PolyKB soft synths. We like 'em so much that we've teamed up with XILS-lab and their UK distributors Smart Distribution to give you a chance to win one of three prize bundles, each containing XILS 3 (£129), PolyKB (£129) and a USB eLicenser dongle to run them with.

XILS 3 takes the classic EMS VCS3 semimodular synth as its inspiration, but goes beyond mere imitation. It wowed us in **cm**143, picking up a 9/10 score and a Performance award. Like the original, it's got three oscillators, a self-oscillating filter, trapezoid envelopes, ring modulation, spring reverb and more. Of course, there's a VCS3-alike modulation matrix, here with more than 450 connections. There's even a 128-step sequencer!

As for PolyKB, simply turn to p98 to read the full **cm** review.

HOW TO ENTER

To enter, simply send a text to **87474** containing the keyword **XILS**, followed by a space, then **A**, **B** or **C**, then another space, and then **your email address**. Alternatively, fill in the online form at **www.futurecompetitions.com/cm154** to enter the competition. Entries must be received between June 30 2010 and August 4 2010, and only UK residents aged 18+ may enter.

The question

PolyKB features...

A. Morphable oscillator waveforms
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From the makers of COMPUTER MUSIC

cm/reviews

The latest computer music gear tested and rated!

98_ XILS-LAB POLYKB

This virtual analogue recreation of an incredibly rare French synth boasts some truly unusual features

100_ LINE 6 POD FARM 2 PLATINUM

An ambitious guitar amp modelling software with all the cabs and effects a virtual guitarist could possibly need

103_ SOFTUBE VALLEY PEOPLE DYNA-MITE

Enjoy a blast from the past as this VCA dynamics unit from the 80s returns in software emulation form

This month

98___ XILS-lab PolyKB
100___ Line 6 POD Farm 2 Platinum
102___ UAD Precision Enhancer Hz
103___ Softube Dyna-Mite
104___ BBE Stomp Ware
105___ BBE Sonic Sweet
106___ MP MMultiband Harmonizer
107___ MP MMultiBand Transient
108___ Loomer Sequent
110___ MOTU Ethno 2
112___ Iced Audio AudioFinder 5
113___ Synchro Arts VocALign Project 3
114___ Mini Reviews
118___ cm Recommends

Our promise

We bring you honest, unbiased appraisals of the latest computer music products. Our experts apply the same stringent testing methods to all gear, no matter how much hype or expectation surrounds it.

What the ratings mean

1-4_ A seriously flawed product that should be avoided

5___ This product's problems outweigh its merits

6___ A decent product that's only held back by a few flaws

7___ Solid. Well worth considering

8___ Very good. A well-conceived and well-executed product

9___ Excellent. First-rate and among the best you can buy

10__ Exceptional. It just doesn't get any better than this!

Computer Music Innovation Award — Awarded to products that challenge existing ideas and do something entirely new

Computer Music Performance Award — A product has to really impress us with its functionality and features to win this one

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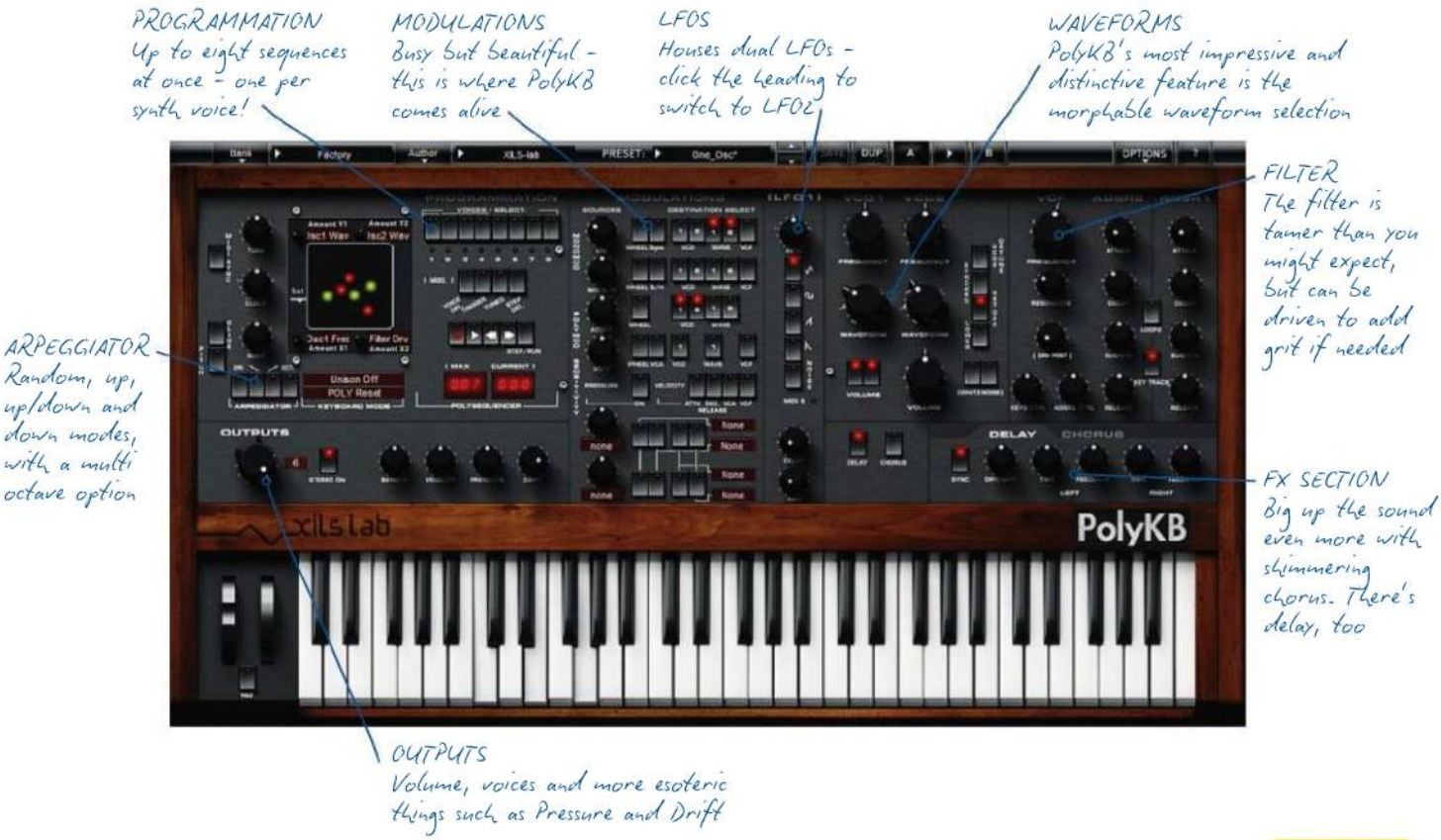
Computer Music Editor's Choice Award — In the opinion of our editor, the best product reviewed in the magazine this month



XILS-lab PolyKB £129

PC MAC

COMPUTER MUSIC PERFORMANCE Award

cm DVD
ON THE DVD
Hear PolyKB doing what it does best with our audio demos

A forgotten synth rarity is resurrected in virtual analogue form by the white-coated DSP scientists at XILS-lab

System requirements

PC 2GHz CPU, 1GB RAM, Windows XP/Vista/7, VST/RTAS host

Mac 2GHz CPU, 1GB RAM, OS X 10.3.9, VST/AU/RTAS host

> You've got to ask yourself why you'd want a software recreation of a rare early 80s French synth, of which only 30 were ever made. It's not like you'll hear it on many famous tracks, it won't be associated with any particular genre and nor is it likely to push your sound into the future. So what is it about the RSF PolyKobol that made XILS-lab go down the long and tortuous road of recreating it? Well, it's all in those oscillators, the special properties of which we'll explain in due course...

On the pulse

PolyKB's whopping 1400-pixel-wide GUI makes it too wide to fit on some displays (there is a 1200-pixel-wide option, though). However, the fact that it puts almost all of its controls on display at once does make it easier to work with.

Feature-wise, PolyKB offers plenty of classic subtractive synthesis elements. You get dual oscillators, one resonant filter, two LFOs (only one is visible at a time) with five (combinable) waveforms, and envelopes for filter and amplitude (they can control other things too). There's no PWM knob, though, and that's because PolyKB goes one better than simple pulse width modulation. The RSF PolyKobol had a feature that's extremely rare on analogue synths: instead of offering a discrete selection of waveforms, it had knobs to morph between them in a continuous fashion, and so PolyKB has a Waveform knob for each oscillator. Sweeping it from minimum to maximum gives triangle, saw, double saw, square and 'pulse' (a narrow pulse-width square), smoothly transitioning from one to the next as you turn the dial.

The sounds produced by tweaking the waveform knobs are marvellous – opening up the filter and churning through the waveforms provides huge analogue PWM-esque warmth, the likes of which we've rarely heard on soft synths. But as we said, this goes beyond mere PWM. Recreating this distinctive feature in software without aliasing was a huge issue for XILS-lab – so much so that they've documented the challenges involved on their website.

A few extra options are available for the second oscillator. As well as great-sounding hard sync to the first oscillator, there are options to disable keyboard tracking (ie, the oscillator

"There's a terrific three-mode chorus that's utterly lush"

always plays the same pitch) and to enable a low-frequency mode, turning it into an LFO.

The filter is a surprise as it's more reserved than you might expect, and when ramping up the resonance, it self-oscillates with more of a sine wave tone than some of the brasher analogue filters around, which turns out to be great for deep sub-bass. There's only one filter type – 4-pole low-pass – but there is a Drive option (pre- or post-filter) if you feel it's not quite rough and tough enough for your needs.

Mod-elation

The morphable oscillators respond nicely to modulation of the Waveform parameter, and PolyKB's modulation system strikes a good balance between flexibility and ease of use. Featuring 37 buttons and five knobs, it might look scary, but it's laid out logically, with rows for LFO, noise/sample-and-hold, ADSR2, VCO2 and aftertouch modulation sources. Each row offers up to five (combinable) buttons for the common destinations – pitch and waveform for VCOs and filter cutoff. There's a knob per row to take care of the modulation amount for that source.

Unlike the original unit, PolyKB also has a user-definable modulation section that can assign two sources to up to four destinations, including many that aren't accessible via the standard modulation controls.

There's an impressive sequencer too – see the *Programmation for the nation* boxout. Other niceties include up to six-voice unison (you can have up to 16 voices overall), a stereo mode, adjustable pitch 'drift', glide, looping for envelopes and more. As well as a delay (which lacks filters, sadly), there's a terrific three-mode chorus that sounds utterly lush and can really bring a new dimension to the sound.

On the downside, we discovered a few quirks. The VCO2 Detune and Key Track (for envelopes) buttons did nothing in the version we tried (1.0.0), and the pink noise option was missing. Bug-wise, the second user mod slot needed a bit of button-mashing for changes to be registered, and occasionally we experienced stuck MIDI notes. The boffins at XILS-lab assure us that these issues will be addressed in the imminent v1.0.1 update, so you might want to wait for that before taking the plunge, or simply try the demo and see how you get on with it.

So what of the overall sound? Good analogue synths are associated with a tone that's at once bright, bold and deep, and PolyKB has all of these attributes. While the anti-aliasing measures have ensured a smooth top end, PolyKB's low-end response is also highly impressive, giving some of the warmest and deepest sub-bass we've heard from software. We'd be shocked if you weren't impressed by the smooth frequency response of this plug-in.

With high voice/unison counts, CPU usage can be intense, but that's the case with all the 'next gen' synths we've seen recently, such as u-he ACE and FXpansion DCAM: Synth Squad.

PolyKB's central area offers plenty of modulation options to keep your sound evolving and moving

PolyKO

So should you buy PolyKB? You could justify your purchase due to it being an opportunity to get your hands on a practically unobtainable synth. Alternatively, consider that you'd be getting some of the best modelled oscillators software has to offer. But ultimately, we think you should bear in mind what it can bring to your studio: pure music-making joy. This synth is a pleasure to use and even if you don't use its sweet sounds in every tune, you'll still have a fantastic time programming them. **cm**

Contact sales@smart-distribution.co.uk
Web www.xils-lab.com

The quirkily-titled Programmation area offers multiple sequencing processes

Programmation for the nation

The original PolyKobol's multitimbral sequencer looked great on paper, but was said to be rather unstable in use. PolyKB instead presents its own sequencer design, offering up to 128 steps with velocity control. Press the record button beside the sequencer window and every note you press will be recorded as a step. The sequencer is polyphonic, so you can have up to eight sequences going at once, with each voice represented as a different colour in the miniature piano roll. It can take a few minutes to get your head around, but it's a very powerful tool and adds value to PolyKB. Oh, and the sequencer pitch/velocity works as a modulation source in the Modulations section.

The same area also houses two non-sequencing options, the first of which is Stereo. It enables you to position 'LEDs' and microphones in a 2D space, with each LED being a synth voice, leading to some impressive stereo effects. The Mod section is a similar LED-per-voice affair, but this time you get to assign two synth parameters per axis, so you can splay the pitch of the voices out, or give them different filter cutoff values. This sort of per-voice trickery could potentially be hard to use, but the implementation here is intuitive, and when used in conjunction with the voice-triggering options and polyphonic sequencer, it can give some exciting, lively patches.

Alternatively

Arturia CS-80V2
N/A >> N/A >> £160
Not as well modelled as the PolyKB, but similar in sound and approach

XILS-lab XILS 3
cm143 >> 9/10 >> £129
Another XILS triumph, this time modelling the classic EMS VCS3

Verdict

For
- Unusual morphable oscillators
- Outstanding sound quality
- Per-voice stereo/modulation settings
- Easy but flexible modulation system
- Tasty chorus

Against
- Only one filter mode
- Some quirks at present
- Can be CPU-heavy with a lot of voices

Offering superb virtual analogue synthesis with a twist, PolyKB is a terrific instrument with bags of character and charm

9/10

Line 6 PC MAC

Pod Farm 2 Platinum $299

COMPUTER MUSIC PERFORMANCE Award

cmDVD ON THE DVD
Hear our audio demos and read the manual

An overhauled plug-in from the pioneers of digital amp modelling, but with such tough competition around, are Line 6 still first in line?

System requirements

PC Pentium IV 1.4GHz, 1GB RAM, 1GB drive space, Windows XP/Vista/7 (32-/64-bit), VST/RTAS host, iLok or compatible Line 6 hardware

Mac G5 Dual 1.8GHz or Intel CPU, 1GB RAM, 1GB drive space, OS X 10.4.6, AU/VST/RTAS, iLok or compatible Line 6 hardware

> Pod Farm launched a couple of years back as a replacement for Line 6's GearBox software. There are two versions - Pod Farm 2, which has 87 amps, cabs, stompboxes and studio effects, and Pod Farm 2 Platinum, which has a whopping 255. Both cater for guitar and bass players, and work in exactly the same way. It's a download-only product that requires either an iLok dongle or compatible Line 6 hardware such as a TonePort or Pod Studio. Of note is that the iLok version does not work as a standalone program, unlike most competing products.

Down on the Farm

We tested Pod Farm 2 Platinum with an iLok, and once installed, you can either load up the full plug-in with its 'virtual room' of gear, or select from the list of 'Elements' plug-ins. The latter each offer a category of modules from the main plug-in (for example, amps, distortion, filters and so on) with a stripped down interface, to use like any other insert effect in your DAW.

The interface of the main plug-in is ergonomically neat, with two main sections. The upper can contain a carousel of amps, preamps, cabs and effects (the Gear View); the chosen amp with virtual knobs for editing; the two-channel output mixer; a presets browser; MIDI/automation assignments setup; or the excellent tuner. You can tab easily through these views using the buttons beside the Line 6 logo.

The lower section shows the signal path of the modelled components you've selected. You can click on each component to enable/disable it, and edit its parameters in the upper section.

Apart from the two main sections, there's a drop-down menu for presets, a noise gate, and level pots for both input and output. There are around 40 cab configurations available too.

No tone unturned

Pod Farm 2's strengths are wide-ranging, which is perhaps not surprising given the enormous quantity of gear that's been (unofficially) modelled, including amps from Fender, Vox, Marshall and Orange, and effects from Electro-Harmonix, MXR and Ibanez. All the usual suspects are here - see the manuals on your **cm** DVD for full details.

The blues/rock tones are gritty and fairly

"The choruses are some of the best we've heard in software, with lots of high-end sparkle"

realistic, as with many current amp sim plug-ins. Some presets are on the noisy side, with an undesirable yet authentic hiss like many real amps – luckily, the noise gate is efficient and takes care of the worst of it. The more saturated tones were still good but less convincing, and we preferred Amplitube 3 for this.

Of particular note are the modulation effects – the choruses are some of the best we've heard in software, with lots of high-end sparkle. While Guitar Rig 4 might be your first choice for way-out processing setups, Pod Farm 2 does 'workhorse' effects superbly.

Clean as a whistle

Clean tones are mostly very usable, and if that's your thing, it's a big selling point because most amp sims we've tried have their strengths in blues, rock and metal sounds. Pod Farm has just one dedicated EQ module, but EQ is always available from the various preamps, which include models of studio favourites like API and Neve pre/EQ setups – there's even an LA-2A. All of these audibly enhance your signal. The bass amps should not be overlooked either, and we particularly enjoyed the Amp 360, which gave a rich tone reminiscent of its Ampeg inspiration.

The list of presets is vast and mostly named after well-known songs and gear. We found that most needed tweaking for dynamics, EQ and level – some presets are calibrated lower than others, as Line 6 point out in the manual.

New for Pod Farm 2 is MIDI control support, and we put this to the test with Line 6's own FBV Express MkII foot controller (reviewed on p115), although any standard MIDI controller will work. Setup possibilities are fairly detailed, with global controls like preset switching, tap tempo and so on available, as well as parameters of individual modules within a specific preset. You can also use MIDI to move between entries in a Setlist, these being a new feature for v2 that allow you to create a 'playlist' of presets, for instance, representing your band's set list.

Line 6 have been peddling quality digital amp simulations for over a decade now, but these days there's some stiff competition. We're pleased to report that Pod Farm 2 holds up well and even betters some rivals in certain aspects.

As an upgrade, it's disappointing that there aren't actually any new or improved modules here, so for those using v1, the decision to upgrade will depend on whether you see the value in features like Elements and the improved routing. On its own merits, though, Pod Farm 2 is a highly versatile plug-in with much to offer. **cm**

Contact Line 6 UK, +44 1327 302700
Web www.line6.com
Info Pod Farm 2 standard, $99

The Delays Element plug-in, here showing the Multi-Head Delay

When one tone just isn't enough, reach for Pod Farm's Dual Tone button

Dualling axes

Pod Farm 2's Dual Tone feature allows your signal to be split into two and then processed independently in parallel, using up to 20 components in each chain. An A/B/Y switchbox routes your signal into 'Tone A' or 'Tone B', or both simultaneously. This mimics some high-end live rigs and gives potential for unusual hybrid sounds and fatter-sounding bespoke patches. The screen above shows the mixer view, with a channel for both paths of the split signal, and the dual signal path configured to play a blend of beefy rock tone and 'guitar synth'.

The Dual Tone feature also has practical benefits, particularly if using Pod Farm 2 live. For example, if you have a 'dry' sound on Tone A and a delay-soaked setup on Tone B, when you switch from B back to A, the delay will decay naturally because you aren't muting the output, just redirecting the input. It's also worth noting that as of v2, you can have as many effects as will fit in each chain, and in any position (pre- or post-amp), which certainly opens a few sonic doors.

Something to beware of is that switching between single and dual tones currently causes a jump in volume to maximum if your volume happens to be at zero to start with, which Line 6 cite as a known issue.

Alternatively

NI Guitar Rig 4 Pro
cm147 >> 8/10 >> €179
Strong on effects, with huge cab miking choice via Control Room

IK Multimedia Amplitube 3
cm151 >> 9/10 >> €318
Huge range of amps and pedals and great cab miking system

Verdict

For
- Covers all the tonal bases adeptly
- Huge range of amps, cabs and effects
- Particularly adept at clean sounds
- Pod Farm Elements are most welcome
- Helpful, detailed GUI design

Against
- Some presets relatively noisy
- No standalone mode with iLok version
- No new models for v2

Not quite the update it could have been, but Pod Farm 2 remains a strong contender in the amp sim arena

8/10

Universal Audio PC MAC

Precision Enhancer Hz $199

cm DVD
ON THE DVD
Take a listen to some artificially enhanced audio clips and then peruse the UAD manual

It's not all about hardware emulations over at UA, with the Precision range now boasting a bespoke bass enhancer

> The headline plug-in for the 5.6 update to the UAD DSP platform is clearly the Manley Massive Passive, which scored 8/10 in last issue's review. However, UA also slipped in this low-frequency enhancer, which might have escaped the attention of some, especially since it's easy to mistake it for its treble-enhancing older sibling, the Precision Enhancer kHz.

Precision Enhancer Hz (PEHz) introduces low-frequency harmonics, enhancing the bass fundamental and making the low end more audible, particularly on smaller speakers. The underlying concept is pretty straightforward and combines a low-pass filter with a selection of material-tailored modes. The filter offers four slopes (6, 12, 24 and 36dB per octave) and is freely adjustable from 16Hz to 320Hz. As for the modes, they give you five flavours (see boxout).

Beyond this, PEHz includes a processing level control (0% to 100%) with a blue 'effect' meter to indicate the enhancement strength. You'll also find solo options for both the filter and effect sections (so you can listen in on their behaviour) and a simple level trim and meter on the output. The Effect parameter isn't a dry/wet mix control but instead drives the signal into the enhancer effect stage, so the degree of processing will be dictated by this and the incoming signal level.

Bass in the place

Taking our lead from the modes' intended uses, we tried PEHz on electric bass (modes A and B), synth bass (mode C) and kick drum (mode D). This was very enlightening, and the solo options allowed us to easily discern the differences.

The cutoff point and slope influence things greatly. For example, in mode A, with a cutoff around 120Hz, electric bass gains bottom-end weight. But shift it up to 300Hz and the lower mids are far more dominant, although the low frequencies are still enhanced. Mode B is more restrained, even with a high cutoff point. Using mode C with synth bass produces more aggressive results than the first two modes, and sweeping the frequency control at high slope settings gives the impression that the effect is applied in a band-pass manner. Finally, mode D on kick drums produces excellent results so long as you keep the cutoff low – push it much higher than 150Hz and you'll notice the upper harmonics. The All mode also works great with kicks, sounding like mode A with more edge.

We tried PEHz on other sounds, such as acoustic guitar, piano and sub-mixes, including stereo drums. The more complex the sound, the more we opted for subtle enhancement, and there were times (eg, with acoustic guitar) when we couldn't improve things. PEHz can struggle with complex sustained sounds and success lies in choosing the right mode and dialling in the cutoff frequency. We were happier processing individual sounds, although we did have success bolstering low frequencies in a stereo mix.

Precision Enhancer Hz is a good effort and is the sort of processor you think you don't need... until you really need it! It's also DSP-friendly, giving 38 mono instances on a UAD-2 Solo, but UAD-1 owners might be irked that – unlike the rest of the Precision range – it's UAD-2-only. **cm**

Contact Source Distribution, 020 8962 5080
Web www.uaudio.com

À la mode

To get the most out of Precision Enhancer Hz, you need to set the mode appropriately. The first two settings are aimed squarely at bass guitar: mode A adds low-end emphasis for acoustic and electric bass, while mode B is even more specific and is designed to help bring out DI/electric bass in the mix.

The three other modes all apply some compression to the harmonics signal, changing its timbre and increasing its level. Mode C is said to be fit for synth bass, bus processing or full mixes, while mode D has a short decay that's intended to make it suitable for kick drums and percussion. Finally, the All mode has a similar frequency curve to mode A, but produces a much stronger, more audible effect.

In use, we were surprised at how well the modes fit their intended purposes. Modes A and B give predominantly second and third harmonics, while in modes C and D, higher harmonics were also present.

System requirements

PC 256MB RAM, Windows XP/Vista (32-/64-bit), VST/RTAS host, UAD-2 card

Mac 256 MB RAM, OS X 10.4.x, VST/AU/RTAS host, UAD-2 card

Alternatively

Waves MaxxBass
N/A >> N/A >> $200
An oldie but a goodie, this bass enhancer is still worth a go

Voxengo LF Max Punch
cm136 >> 8/10 >> $70
Flexible and affordable low-end enhancer

Verdict

For Useful instrument-focused modes
Simple solution for improved bass
DSP-efficient
Very helpful solo options

Against Can sound artificial at times
Doesn't work in every situation
No UAD-1 version

A solid, straightforward bass enhancer with Universal Audio's usual attention to detail and slick sound quality

8/10

Softube PC MAC

Valley People Dyna-mite £215

cm DVD ON THE DVD

Hear Dyna-mite blowing up big time in our audio demos and then read the manual

A highly explosive 1980s VCA dynamics unit is recreated in an easier to handle software form, but is it enough to blow us away?

> Valley People produced some classic processors in the 70s and 80s, such as Kepex gates, Maxi-Q EQ and the Dyna-mite limiter/expander. The latter made use of Valley's patented transistor array VCA design, and now Softube have given it the full plug-in emulation treatment. As well as a lookalike fascia, there's a display panel replicating the mode descriptions from the original's manual.

At first glance, it looks like a pretty simple processor with limiting, expansion and gating (all externally sidechainable). However, the numerous combinable options mean there are over 18 operating modes. Options include peak or average detection modes, pre-emphasised sidechain and a Range knob for adjusting the maximum amount of gain reduction, from 60dB down to 0dB. On the original unit, this only worked on the gate/expander, but in the Softube version, you can use it with the limiter too.

Dyna-mite includes VCA gain coupling (automatic makeup gain) when in limiting mode, and a form of program-dependent release (see the boxout below) that works in conjunction with the manual release control (50ms to 5s). Attack times aren't continuously variable but are determined by the detector setting. In average mode, the time can be anything between about 1 and 15ms, while in peak mode, it's a mere 50 microseconds. Gain ratios are 'infinity' for the limiter, 1:2 for the expander and 1:20 for the gate. By combining settings, a few unusual effects can be had, such as so-called negative limiting.

Blowin' up the radio

As a limiter, Dyna-mite is anything but transparent, and this mode is where it excels. We found it best suited to adding pop and snap, particularly to snares, congas and kicks. The detection mode does affect how this sounds, but there's no getting around the fact that this is a limiter and although the averaging mode is less fierce, that distinctive snap is always there.

Unsurprisingly, it's also great for adding a fattening attack to picked electric guitar and bass, and it shares some common ground with dbx's 160, although we feel the dbx is more subtle. The pre-emphasis/de-ess mode is quite broad and high frequencies can sound 'clamped', which isn't particularly desirable for vocals, but it works excellently for smoothing out cymbals in drum kit overheads.

The gate and expander work well, with the latter adding good level-dependent expansion. It's certainly not the fastest software-based gate we've used, but the release stage has a pleasing curve, and the external sidechaining is useful.

Finally, Dyna-mite's negative limiter results in 20dB output level reduction for each 1dB over the threshold. It's a bit of a curiosity and fiddly to set up, but it can add a distinctive 'pop'.

Dyna-mite is a very application-specific processor, and it works best for pop and rock styles. Anyone who liked the original hardware will be glad of this superb plug-in recreation, and we're sure it'll pick up some new fans too. **cm**

Contact Adam UK, +44 1992 525 670
Web www.softube.com

Tech it to the next level

In addition to Valley People's own transistor array VCA design, Dyna-mite included two further bits of novel technology: linear integration detection and anticipatory release computation. The first of these comes into play with the average detector mode, and it's basically a modified detector signal that allows some degree of transient overshoot. The resultant attack is less sudden than the peak detector, and it results in attack times varying from 1 to 15ms, depending on the material. Anticipatory release computation (ARC) alleviates the issues of using fast release times and the resultant wave-following behaviour that can create a very distorted and unpleasant pumping. ARC introduces a correction factor to the release circuit, reducing this effect and improving listenability, even with hard limiting. You'll find you can select shorter release times, and therefore retain higher average levels.

System requirements

PC PIII CPU, 512MB RAM, Windows XP/Vista/7, VST/RTAS host, iLok

Mac G4/G5/Intel CPU, 512MB RAM, OS X 10.4, VST/AU/RTAS host, iLok

Alternatively

Universal Audio VCA VU
cm127 >> 8/10 >> $149
Another classic old-school VCA compressor emulated

Blue Cat Audio Dynamics 3
cm141 >> 8/10 >> €119
Not an emulation, but very flexible and capable of snappy tones

Verdict

For
- Superbly snappy limiting
- Useful mode menu inclusion
- Flexible external sidechaining
- Unusual negative limiting is possible

Against
- Esoteric design
- High limiting ratio reduces flexibility
- Hard to get excited about the expander

It's not an all-purpose dynamics unit by any means, but Dyna-mite excels in those situations where you need crack and snap

8/10

BBE Sound Stomp Ware £110 PC MAC

cmDVD ON THE DVD

Hear grungy Stomp Ware tones with our audio demos

Renowned hardware manufacturers BBE team up with Nomad Factory to bring us an octet of guitar pedals

> Guitar stompboxes have always been the punks of the effects world. After all, subtlety is usually the last thing on a guitarist's mind – when you put the pedal to the metal, you want the audience to know about it!

Here we have plug-in emulations of eight hardware BBE pedal effects, many of which are themselves inspired by vintage stompboxes of the 60s and 70s. They come as discrete plug-ins, with no all-in-one pedalboard view, so to change the order, it's a case of dragging inserts around in your DAW – easier in some hosts than others. You'll typically run these pedals in front of amp sim software such as AmpliTube or Guitar Rig.

The Green Screamer is presumably an Ibanez Tube Screamer imitation, giving an overdriven valve tone. The depth, warmth and body isn't so far off the real thing and it's far more convenient. The transistor-based Free Fuzz is a Big Muff/Fuzz Face-alike, but in truth, it's more fizz than fuzz and not as unruly as it should be.

Mind Bender is a modulation effect with simple Speed and Depth knobs, and a switch to flip between chorus and vibrato modes. It adds a rich creaminess to any sound but is best used in moderation unless you want a sound that's straight out of the 80s – like cornflour, just a touch is all you need to thicken.

Opto Stomp is an opto-compressor based on soft-knee units from the 60s. It's the most subtle of the lot but once you know how to set it and can hear that it's giving a constant 'in-your-face' level to your solos or vocals, it's not one you'll forget. An invaluable back-room boy that's great because of its transparency.

Sonic Stomp is a pedal version of BBE's Sonic Maximiser hardware. It's got two knobs: Lo Contour adds fat low harmonics, Process lends excitement to the treble. Treat it as an EQ with bells on and you'll find it's perfect for bringing out the best in a sound.

Back to the more extreme: Soul Vibe is a vintage phaser-type pedal for sweeping rotary effects. It has a lovely, dense tone to it, though we'd prefer it if the Speed knob had a greater range, so that we could set it to go slower.

COMPUTER MUSIC PERFORMANCE Award

Twice the fun

Two-Timer is a stereo delay pedal that does what it says. The long delays are warm, resulting in a rich effect akin to tape delays of old. The other stereo effect is Tremor, a syncable tremolo effect with panning and volume modulation.

All modulation and delay effects can be tempo-synced, and all the plug-ins will work on stereo signals when inserted on a stereo track, though you won't hear any stereo tricks like filter panning in the Soul Vibe, for instance.

This is a set of guitar pedals in a very literal sense. The way you interact with them, the way they behave and the results from them are all much like the real thing, with that extreme, dirty quality that makes pedals so endearing. Given the power of software, though, it almost seems a waste that the designs aren't taken further, but then again, that might flummox guitarists. **cm**

Contact Et Cetera, +44 1706 285650
Web www.bbesound.com

Mix 'n' match

In the real world, you can come across all sorts of signal level incompatibilities when trying to use guitar pedals for non-guitar sound sources. In software, though, it takes a second to throw on an insert and hear the results, and so anything you fancy can be subjected to the rudeness of these snazzy stompboxes.

The key is in mixing and matching the pedals in a similar way to how a guitarist would build their sound. For example, the Green Screamer adds balls and 'bite'. Team this up with the Sonic Stomp to add some really fat low end and rich harmonic overtones. Chain that to the Opto Stomp and the compression puts the sound right up close and personal. Throw on the Two-Timer at the end of the line for some atmospheric delay and you have an authentic dirty lead setup that can be applied to a synth or even a vocal for extreme effects.

System requirements

PC Intel P3 CPU, 512MB RAM, Windows XP/Vista/7 (32-/64-bit), VST/RTAS host

Mac Intel/G4 CPU, 512MB RAM, OS X 10.4, VST/AU/RTAS host

Alternatively

Audiffex Pedals
N/A >> N/A >> $99
A set of 36 pedal effects for a reasonable price

Line 6 Pod Farm 2
cm154 >> 8/10 >> $299
The Elements plug-ins offer quick access to all modules in Pod Farm

Verdict

For
- Wide range of sounds
- Impolite, authentic sounds with attitude
- Pedal family complement each other
- It's not just for guitars!

Against
- No virtual pedalboard
- Soul Vibe could go slower
- Most effects aren't truly stereo
- Free Fuzz sounds a bit feeble

As with real guitar pedals, BBE's bundle o' boxes is simple yet effective, with plenty of rude 'tude (dude)

8/10

BBE Sound Sonic Sweet £110 PC MAC

ON THE DVD

Get an earful of sonic sweetness with our audio demos

Another collaboration with Nomad Factory, here focusing on the kind of 'black box' enhancers that made BBE's name

> Sonic Sweet is a collection of three plug-ins designed to make your mixes clearer and louder, and it follows in the 'enhancer' tradition of BBE's famous Sonic Maximiser hardware range, including an emulation of their mysterious processing. All three plug-ins are designed to be used as channel inserts.

The Sonic Maximizer was BBE's flagship device back in the 80s. "We're not sure what it's doing... but we like it!" was a common reaction. It wasn't as excessive as the alternative, the Aphex Aural Exciter, which could make things overly fizzy. BBE's box brought a clarity to the top end and fatness to the bottom, and today there are a range of hardware Sonic Maximizers to choose from. The company have long maintained that the devices "correct" phase shift and distortion, while skeptics claim that the process is in fact much less esoteric. But whatever they do, the Sonic Maximizer D82 plug-in emulates it.

Artificially enhanced

You get three controls: Lo Contour, which enhances unspecified bass frequencies; Process, for doing the same to the treble; and an Output knob. Simple but effective. Essentially, it works like a fancy tone control or a variable 'loudness' button, but there's no doubting that it does something pleasing to both individual sounds and whole mixes. There's a danger of overdoing it and losing all your mid-range content, though – the controls go up to ten, but you'll probably live to regret straying anywhere above four! In the audio example on the DVD, the Lo Contour was at 2.7 and the Process at 1.3 and that's already quite extreme.

The Harmonic Maximizer H82 is perhaps BBE's more direct answer to the Aphex Aural Exciter, although there's no BBE hardware equivalent. It's a bass enhancer, synthesising bass harmonics, and a high-frequency exciter. The idea is you tune it in and add harmonics to the desired range. Even more so than the D82, this is dangerous in the wrong hands and easily overdone. It's ideal for livening up poor recordings but is often too much for other uses.

Like the H82, the Loudness Maximizer L82 has no hardware counterpart. It's a multiband limiter with fixed bands and two controls: Sensitivity (ie, threshold) and Release, plus an output level. There's no gain reduction meter to let you know how hard you're pushing it and, despite it being multiband, we experienced a fair degree of pumping from the kick drum at a low push. Multiband dynamics units are only really broadly useful when you can adjust the bands and know what you're doing.

Overall, there are better alternative individual plug-ins out there. The H82 isn't something you'll use on every mix and the L82 is a bit of a lemon. The D82, however, is great for adding thump and sparkle – if you get the pack mainly for this one, you shouldn't be disappointed. Just tread carefully with the 'enhancements' and remember to compare to commercial mixes while you're at it, so you don't overdo it. **cm**

Contact Et Cetera, 01706 285650
Web www.bbesound.com

Stand by for exciter!

Exciters have been around since the 70s and were all over the place by the 80s, when every new record had to be brighter than the last one to the point where some of the releases were almost unlistenable due to the ear-searing presence and treble. Just remember how kick drums sometimes ended up as little 'blips'!

Whereas a high-frequency EQ boost simply turns up harmonics that are there to begin with, exciters generate sympathetic orders of harmonics that aren't already present. As a result, they can sound edgy and unnatural, even with small amounts of excitement. But of course, highly unnatural sounds are very much a part of music production, so exciters can certainly work their magic in a mix. Focusing on the very high end of the frequency range to add 'air' is usually the most successful route, while generating extra bass harmonics can add perceived weight and thump.

System requirements

PC Intel P3, Windows XP/Vista/7 (32-/64-bit), VST/RTAS host

Mac Intel/G4 CPU, OS X 10.3.9, VST/AU/RTAS host

Alternatively

iZotope Alloy
cm146 >> 8/10 >> $249
Has a multiband harmonic exciter plus transient module and de-esser.

UA Precision Enhancer kHz
cm127 >> 8/10 >> $149
The Precision range includes this treble enhancer, a bass enhancer (see p102) and loudness maximiser

Verdict

For H82 good for low-end additions
Excellent clarity and weight from D82
Can give extreme effects, if necessary

Against L82 has audible side effects
No gain reduction meters on the L82
Slightly crunchy treble with H82
Can be dangerous in the wrong hands!

The L82 we can live without and the H82 is limited in scope. The D82 is a winner, though, with its time-proven processing

6/10

MeldaProduction PC MAC

COMPUTER MUSIC VALUE Award

COMPUTER MUSIC INNOVATION Award

cmDVD ON THE DVD

Hear effected audio clips, read the manual and use the demo

MMultiBandHarmonizer €35

Multiband processing and flexible pitchshifting collide in this feature-packed plug-in. Is sweet harmony only a click away?

> MMultiBandHarmonizer is just one of the latest crop of plug-ins from Prague-based MeldaProduction. It's a 120-voice harmony generator that can operate on up to six separate bands of monophonic or polyphonic material. One important point is that the 'harmonies' are in fixed intervals and do not intelligently adapt to the musical key (by switching between major and minor thirds, and so on), making this a pitchshifter rather than a true harmoniser.

The plug-in is neatly laid out, with the adjustable band crossover points and levels shown in the top panel, as well as per-band and master level meters. Clicking on a band brings up its available parameters in the Sound Settings and Harmony panels.

In Sound Settings, you can pick from Granular, Adaptive Granular and Vocoder modes for each band. The Granular modes are suited to monophonic or rhythmic material where maintaining transient response is a priority – we had great fun processing breakbeats while adjusting the Grain Size in real time. There's a Strumming parameter that staggers the timing of each harmonised part to approximate the effect of a guitarist striking a chord, and this is also good for stutter-style effects (although it can't be synced to your host's tempo, sadly).

The Vocoder mode comes in low-, mid- and high-quality flavours for polyphonic and vocal sources. It has sliders for Keep Phase (to prevent unintentional stereo widening) and Sharpness, which can increase or diminish level differences between louder and quieter frequencies – useful for bringing out breathiness, for example.

The Harmony panel is where you select harmonies on the five-octave virtual keyboard, and you can have a different one for each band. There are buttons for common chords across up to three octaves, including 9th, 11th and 13th variations. Disappointingly, you can't play harmonies in by MIDI, but MeldaProduction assure us that this will be added in an update.

Going global

The Global Pitch control panel is where you can set the overall pitch of the effected signal, with two additional parameters for the Vocoder modes: Keep Formants, which we set to 100% for more realistic vocal processing, and Formant Shifting, which is useful for creatively abusing signals. There's up to 4x oversampling too, which makes a surprisingly profound difference.

Sound-wise, the results of producing chords from a single sung line weren't comparable to getting a good vocalist to multitrack each layer in turn. However, for adding an octave below or a fifth above, for example, the plug-in performs well enough, especially if the wet signal isn't turned up too much and you wisely set the bands' crossovers – we found the 400Hz-1kHz range the best area to process to avoid Mickey Mouse-esque pitchshifting artifacts. For material such as synth lines, pad layers or guitar licks, we found MMH to be a great tool for thickening up sounds, adding harmonic content or giving subtly modulating effects.

Overall, it's not an essential buy, and those looking for a natural-sounding vocal harmony tool would be better off investing elsewhere, but MMH is capable of generating some interesting parts and adding depth to your productions. **cm**

Contact info@meldaproduction.com
Web www.meldaproduction.com
Info Creative Bundle, €150

System requirements

PC Intel/AMD CPU, Windows XP/Vista/7 (32-/64-bit), VST host

Mac Intel CPU, OS X, AU/VST host

Alternatively

Antares Harmony EFX
N/A >> N/A >> $129
Built on the company's Auto-Tune algorithms, this trumps MMBH for realistic vocal harmonies

zplane.development vielklang
cm114 >> 8/10 >> $219
Selects the most natural-sounding harmonies for you and plays back up to four synthesised voices

Verdict

For
- Easy learning curve
- Very reasonable price
- Great for thickening up synth sounds
- Good for glitch-style drum processing
- Advanced modulation section

Against
- Not that realistic on vocals
- Harmonies not triggerable by MIDI
- Not enough general purpose presets
- No intelligent diatonic harmonisation

Great for glitchy granular effects and generating additional harmonic content, though vocals aren't this plug-in's forte

7/10

Parameter power

For ardent tweakheads, there are four modulators. Clicking one brings up a separate window, where you can configure an enormous range of LFO shapes – you can even define your own, use a step sequencer and blend waveforms to create new ones. LFO sync and envelope following options are also here.

As well as that, the main GUI has four Multiparameter (ie, 'macro') sliders that can be configured to control several parameters at once. You'll also find eight preset slots labelled A-H for fast and easy comparisons, and even the ability to morph between the first four slots.

MeldaProduction are currently working on an update that will include 'smart learn' for the Modulators and Multiparameters – in other words, enable it, move parameters and the plug-in will remember each one and by how much you moved them (ie, to set the operating range). Bring it on, we say!

MeldaProduction PC MAC

MMultibandTransient €40

ON THE DVD

Hear our audio demos, read the manual and use the demo yourself

Yet more multiband madness, this time in the form of MeldaProduction's transient manipulation plug-in

> Like the plug-in reviewed opposite, MMultibandTransient (MMT) makes use of an underlying multiband engine. As with other transient processors, it's designed for boosting or reducing the attack and sustain portions of sounds. Thus, each band includes attack, sustain and gain controls, and these are complemented by global input/output gain and wet/dry mix.

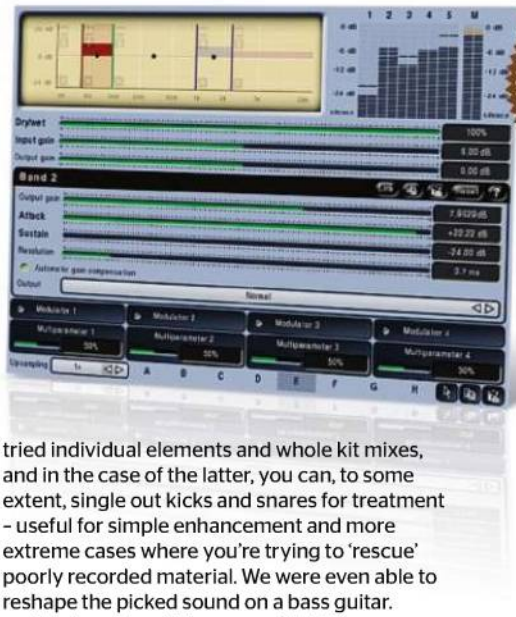
But that's where the similarity with your typical transient processor ends, because MMT is blessed with an array of features worthy of the finest creative and mastering plug-ins. First up, each band has selectable window resolution (0 to 200ms), automatic gain compensation and three monitoring options (normal, difference and transient). You've then got four upsampling options (up to 4x), eight parameter memories (with morphing between the first four) and a flexible display with per-band signal metering.

Further settings include high-quality upsampling (using steeper linear phase filters at the expense of added latency), window rescaling, modulator and automation resolution (five settings), channel processing modes (stereo, mono, surround and so on), three crossover options (analogue, linear phase and hybrid) and MIDI CC assignments.

MMT's most complex aspect is its modulation section, including everything from simple LFOs to complex multiparameter combinations and inverse modulations with custom oscillator shapes. This raft of heavyweight modulation options worked well for MMultibandHarmonizer, but we feel that it's somewhat over-engineered and superfluous for a transient processor.

Designer transients

The benefit of having a multiband transient effect is that you can concentrate its processing on specific frequencies within a signal. As ever, the obvious candidate for transient trickery is drums and we achieved everything from subtle enhancement to abrupt 'clipped' sounds. We



COMPUTER MUSIC VALUE Award

tried individual elements and whole kit mixes, and in the case of the latter, you can, to some extent, single out kicks and snares for treatment – useful for simple enhancement and more extreme cases where you're trying to 'rescue' poorly recorded material. We were even able to reshape the picked sound on a bass guitar.

We also delved into some of MMT's more complex settings, including crossover styles and upsampling. We found the linear phase crossover very CPU hungry, and combined with the maximum upsampling settings, we began to hit problems. Luckily, you don't really need to use any of these features to enjoy good results, although they could be handy for mastering. We also found using multiparameter modulators hit the CPU hard, but Melda say that they're working on improving this particular aspect.

All told, MMultibandTransient is a flexible and affordable plug-in with some nice touches, and if you steer clear of the more CPU-sapping aspects, it's also pretty useful. **cm**

Contact info@meldaproduction.com
Web www.meldaproduction.com
Info MMasteringBundle, €399

Band aid

The multiband engine at the core of MMT is like that of a typical multiband compressor or limiter. You can use up to six bands, move crossover points, adjust the width of the bands, change per-band levels (+/- 24dB) and link all parameters for easy global adjustments. The big difference is you're shaping the transient behaviour of each band, rather than compression settings.

While attack and sustain controls are on the lower part of the interface, most other settings are changed in the display graphic. Here you can solo, mute and bypass bands, as well as selecting them, which brings up their settings in the panel below. This is incredibly helpful, enabling you to solo in on specific areas, adjust band limits and bypass to compare the results. There are also band-specific options to monitor only the transients or the difference between dry and wet signals, which you can even leave permanently engaged for creative uses.

System requirements

PC Intel/AMD CPU, Windows XP/Vista/7 (32-/64-bit), VST host

Mac OS X 10.5, VST/AU host

Alternatively

Voxengo TransGainer
N/A >> N/A >> $80
Well-featured plug-in using Voxengo's oversampling engine

SoniqWare MT-1
cm145 > 8/10 > £144
Another multiband transient manipulation plug-in

Verdict

For
Easy multiband interface
Very good value for money
Useful solo, mute and bypass options
Clever transient and difference options
Should appeal to tweakers

Against
Modulation section is overkill
Some settings result in a high CPU hit

MeldaProduction have made a potentially overwhelming effect relatively easy to wield, with some good results to be had

8/10

Loomer Sequent £58 PC MAC

cmDVD ON THE DVD

Get an earful of Sequent at work, read the manual and try the demo

With seven effects driven by 22 step sequencers, can this crafty plug-in exceed the sum of its parts?

> It's easy to overlook Sequent at first glance. As the prominent vertical bars of the interface suggest, it offers step sequencing, while the array of knobs down the left govern further parameters. What's not immediately apparent, though, is that it's semi-modular.

The two filter units, distortion, delay, looper, gate and pan modules can be wired up in pretty much any way you choose (although you can't create feedback loops) using a small routing panel at the top of the interface. Each effect sounds great on its own, but they're even better in combination. The values of various controls of each module are tied to individual step sequencers, tempo-synced to your DAW.

Start with the Initial patch, for example, and drop one of the Filter modules into the signal path – you do this by connecting it to the input node and one of the two output nodes. The signal is stereo throughout, with the two output nodes used to create a mix according to the position of the crossfade knob, which is useful for wet/dry combinations, as well as parallel processing.

With a module selected and enabled, the central step-sequencing area comes into play. The Filter modules, for instance, have two sets of bars: one for adjusting cutoff frequency and the other for resonance. You can also dial in fewer steps and alter the duration Sequent spends on each, as well as enabling random step selection and a random variation value.

Demented slicing

What you can and can't sequence depends on the module. The beat-shifting Looper is the most well-specified, featuring sequencers for nine of its parameters. However, the Delay module comes close, enabling to you adjust feedback and delay time, as well as the send amount. The Gate is also comprehensive, offering both slew and depth in addition to the on/off trigger value. The results can be fantastic, from the simple

COMPUTER MUSIC PERFORMANCE Award

space dub sounds you get from a combination of filter and delay, through to digital granularity as small chunks of audio fly from the Looper into the analogue-style distortion. Sequent is capable of both subtle, rhythmic modulation and full-on electronic entropy. There's also a Pattern mode, for switching between up to 12 completely different setups via MIDI.

There are some problems, though. We don't like how you can't discern which modules are active from the routing window, and we'd like a more intuitive way of disconnecting cables. Currently, you click on the output and an input is removed, which works fine until you've got multiple destinations to contend with. It's also not possible to control individual steps of a sequence with MIDI, to set the values using faders or knobs on a controller. We'd also like to see presets for individual sequencers.

Overall, though, Sequent is a winner, and any niggles can be excused for the first release of what is a great-sounding and easy-to-use bit of creative software. **cm**

Contact support@loomer.co.uk
Web www.loomer.co.uk

System requirements

PC 1GHz (with SSE), 512MB RAM, XP, Vista or above

Mac Intel (with SSE) or PPC 1GHz, 512MB RAM, OS X 10.4 or later

Alternatively

Audio Damage Automaton
cm133 >> 8/10 >> $49
The wackiest of AD's glitchy, sequencable effects

Sugar Bytes Effectrix
cm126 >> 8/10 >> $129
Perhaps the easiest effects sequencer around

Verdict

For Several lovely-sounding effects
Superb parameter sequencing
Great MIDI mapping system
Handy pattern triggering via MIDI
Over 50 effective presets

Against No remote sequencer control
The routing UI needs some refinement
No individual sequence presets

Inspiring, fun and with a fine sound, Sequent is a fine effort from Loomer

8/10

Loop the loop

The Looper effect is arguably what gives Sequent its character. It has nine sequencable parameters, the basic one being the row of Trigger toggles. Whenever the sequencer encounters an 'on' cell, the audio is sliced and repeated, with the other eight parameter sequencers determining exactly what happens during the repetition.

Parameters include length, sample offset and pitch, and the number of times a slice can repeat within its own timed slot. You can also reverse a slice, set a pitch decay (the pitch will rise or fall with each repeat) and lock its repetition to the overall tempo. With subtle use, it's like a rhythmic delay, and gentle shifts in pitch also work well for pulsing pads and tonal delays. At extremes, it's instant IDM, spitting out frenetic drills and buzzes. Add the random variation/step selection and the Looper becomes an ever evolving beat machine from hell – or heaven, depending on your musical predilection.

Yellow River Sound
GU ZHENG

Rediscover the hidden treasure!

Gu Zheng is one of the most beautiful, traditional Chinese instruments with a history of more than 2000 years. The modern Gu Zheng is a Chinese plucked zither equipped with 21 strings and movable bridges. Basic playing styles include plucking at the right porti on and pressing at the left portion to produce pitch ornamentations as well as tremolo. Yellow River Sound´s Gu Zheng is produced by Zhang Jian (China Conservatory of Music) & Ma Jing (ADSH) in cooperation with Best Service. For the first time, a Chinese instrument was sampled with great care by local Chinese music producers, who have a natural understanding of their culture and a sole passion to express the true quality of Chinese instruments.

1.6GB sample library, multi samples on every single velocity layer • Most detailed articulations never available before, up to 5 velocity layers, 3 different tempos of bend up/down etc. • Sampled from a famous, custom design Gu Zheng • Recorded at the China Conservatory of Music using Direct Stream Digital Technology and 5 microphone positions • 24bit / 44.1kHz sample playback • One shot single notes on most layers, emulate the real performance.
MIDI files and audio phrases included.

Virtual Instrument incl. Player £ 109,-

ENGINE – more than your regular Sample-Player!

ENGINE is based on the high-end sampler Independence Pro and offers all performance-features of a contemporary sample engine. ENGINE was developed by Best Service in cooperation with Yellow Tools

CINEMATIQUE INSTRUMENTS

Best Service. Cinematique Instruments sets a focus on weird, odd and rare instruments which adds a subtle and individual character to your music production.

The library contains wonderful string instruments such as an autoharp, a 36 string instrument with a series of chord bars, a kantele, a traditional plucked 5-string instrument of the zitherfamily native to Finland, a wooden celtic nylon harp or a bowed psaltery, an instrument of the zither family such as a kind of a wooden soundbox with unstopped strings over it. Beyond a nice collection of percussion sounds Cinematique Instruments features also strange and rare keyboard instruments such as the low-price, garbage Super-Sound EK-470 e-piano, the charming organ with its electric fan which blows air across reeds or the organic and warm Zeitter & Winkelmann Piano.

But there are also special sound packs called Glass, Metallic Objects, Experimental Box and Downbeat Box. These sound packs are an amazing source of individual und inspriring textures, pads, mallets and percussions instruments. Cinematique Instruments nearly recorded everything they could get their hands on. They beat and knocked doors and sideboards of a metallic kitchen with timpani mallets, brushes, sticks, fingers and fists, they tapped with fingers and timpani mallets against lids, rubbed around the glass rim and they assembled instruments from unique sounds such as station-announcements, trains, paper crumpling, acoustic and electronic noise, station hum, underground-railway noise, pneumatic doors, crown cap shaking, glitches, noise, hiss, hum and other weirdness.

Cinematique Instruments´ goal and ultimate ambition is to inspire everyone by using its highly playable and unique instruments providing a lot of opportunities for your music production.

Virtual Instrument incl. Player £ 175,-
Bundle Gu Zheng & Cinematique Instruments £ 219,-

design: aicher-design.de

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ON THE DVD

Enjoy a plethora of Ethno 2 audio demos on your cm DVD

MOTU PC MAC

Ethno Instrument 2 £299

This world/ethnic ROMpler has grown to almost three times its original size, but does bigger really mean better?

> MOTU launched the original Ethno ROMpler in 2006 as a plug-in/standalone combination that proved a very convenient way of accessing a variety of exotic sounds. Some of that material came from previously released sample titles and this remains the case, but Ethno now offers 21GB of content spread across three DVDs, as opposed to the original's 8GB.

The Ethno GUI is still conveniently contained in one window, and its mildly eccentric design remains a matter of taste. One instance of Ethno will now play as many parts as your system can handle, so 'scenes' consisting of many layers of instruments can be rapidly configured within the plug-in. Typing in the browser window will quickly locate material – a handy new feature.

As with v1, the sounds fall into two basic categories: Instruments, this time offering 875 playable multisampled patches; and Loops and Phrases, totalling 7600. The instruments are African, Asian, European (including Spanish, Eastern and Celtic), Caribbean and Australian in origin, and there are vocal performances from each region as well. Delving quickly into the library, West African balafons, 'tango accordions' (bandoneon, surely – it certainly sounds like one!), Arabic ouds and Celtic harps, for example, gave convincing results. There are a good number of new instruments, such as larger African drums, Polynesian percussion, more Balkan voices and a gaggle of gongs. Then there are the new tuning features – see the boxout.

While a greater number of sample layers (velocity, round robin and so on) doesn't always translate into better sound quality, realism and usefulness, we do feel that some instruments in the collection would benefit from a more detailed, layered sample set. And the violins are unconvincing, as multisamples often are.

In our opinion, Ethno's strength is still its Loops and Phrases library. Of relevance to this is the new timestretching algorithm which, although not perfect (Spanish guitar phrases, for example, didn't pitch up that well), worked nicely on things such as voices.

Hall around the world

The convolution reverb helps bring much of Ethno's material to life and it's now easier on the CPU. Even so, patches that use it can still be quite CPU-intensive, and while presenting no problem to our MacBook Pro, some caused a dual 1.8GHz G5 running Logic Pro to stall noticeably. Also new on the processing front is an analogue-style EQ and eight new filter types.

Despite the limitations of some of the multisampled instruments, Ethno Instrument 2 won us over with the sheer variety of loops and phrases, and the rapidity with which it's possible to combine them into a rich-sounding mix. **cm**

Contact Music Track, +44 1767 313447
Web www.motu.com
Info Upgrade from Ethno 1, £140

Temper, temper

One new feature of Ethno 2 is that many instruments offer authentic, non-tempered tuning or Western chromatic. For example, the ngoni, a funky six-stringed harp from Mali and neighbouring countries, is tuned to a kind of pentatonic scale, but not quite an equal-tempered one. Using Ethno, we could bring this into line using an altered, tempered version that sat better in a track that also had typical pianos and guitars. However, when more exposed, playing with just percussion in its traditional setting, the naturally tuned ngoni could be used for greater authenticity.

There's a menu of non-Western scales, containing up to 24 tones, that you can map to your chosen instrument. Ethno accepts files in a format called Scala, which is an established standard. Scala tunings are simple text files than can be dragged and dropped into the tuning menu, and you can create your own as well.

System requirements

PC P4 1GHz CPU, 1GB RAM, Windows XP/Vista/7, VST/RTAS host for plug-in use

Mac G4 1GHz CPU, 1GB RAM, OS X 10.4.11, AU/VST/RTAS host for plug-in use

Alternatively

East West Quantum Leap Ra
N/A >> N/A >> €340
A well-known library that's strong on Middle Eastern instruments

Best Service Ethno World 4
cm135 >> 9/10 >> €389
A comprehensive collection with some good stringed instruments

Verdict

For
- Huge library of world loops
- Mostly excellent sound quality
- New tuning system
- Unlimited parts in one instance

Against
- GUI not so intuitive
- Some multisamples lack realism
- Convolution reverb quite a CPU drain

While the multisampled patches can be hit and miss, Ethno 2's splendid selection of loops is highly desirable

8/10

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Iced Audio MAC
AudioFinder 5 $69

ON THE DVD

Read the manual and try out the demo version – it's all on your cm DVD

This audio organiser for Mac has quite a reputation to live up to. Is it still the top dog, or is it simply long in the tooth?

> AudioFinder is an audio file organiser that supports a range of audio formats, including WAV, AIFF, REX, MP3 and FLAC. It features a file browser, audio preview (with a virtual keyboard and MIDI control), basic sample editing, batch processing/renaming and much more – see the manual on the cm DVD to get a fuller idea.

Version 5 introduces yet more features, but the most important is undoubtedly the metadata database. Previously, it was possible to organise your sounds into basic 'playlists' for easy access and organisation. Now Iced Audio have added extensive labelling options in the form of metadata – see the boxout for details.

Processing power

Once you've selected a file, you have access to basic audio editor processes such as gain, normalisation, 'mono-ise', etc. Pitch Analyser is a particularly valuable feature, analysing the file and presenting the results as coloured bars on a frequency scale, with the red bar representing the fundamental frequency. Once you've got your samples tagged up with their fundamental pitch, you can then find a kick to suit the key of your bassline, and so on. AudioFinder also supports AU/VST plug-ins, so you can preview your file through an effect (only one at a time, mind), and commit to your choice by rendering to a new file – it's all very fast and intuitive.

A most useful feature of AudioFinder is its Sample Extractor, which is used to extract multiple samples from a single audio file. It splits the files automatically, using a volume threshold to dictate where the files are split and a new sample is created. There are also fade in and out options, and you can set a maximum on the number of samples to create, to give the extractor further guidance. It's especially useful for extracting samples from old-school sample libraries that came on audio CDs, or pulling out the useful parts of field recordings. We also had some success splitting up the hits in drum loops.

The Power Rename feature will be of prime interest to those who create their own samples from scratch, and indeed, professional sample library creators. Features include find/replace of filenames (eg, find "bassdrum" and replace it with "Kick_Drum") and the addition of a prefix/postfix, and it can even automatically add the detected pitch and MIDI note number, which is highly useful for making multisampled patches.

Add in neat touches like the BPM detector, micro-harmonic sound comparison (to compare frequency distribution of two files), visual waveform preview, drag-and-drop of selected audio sections into your DAW, batch processing and renaming, Mac Finder integration and free updates for life, and it seems crazy not to pick up AudioFinder.

AudioFinder really is a boon for anyone who works with samples and a must-have for professional producers. The more you dig into it, the more you appreciate what it can do, and unless you don't actually use samples at all, we can't think of a single reason not to buy it. cm

Contact software@icedaudio.com
Web www.icedaudio.com

System requirements

Mac OS X 10.5

Alternatively

HairerSoft Amadeus Pro
N/A >> N/A >> $40
Batch processing, sample conversion, etc, but limited search

Audacity
N/A >> N/A >> £Free
Has many processing options and VST/AU support, but no searching

Verdict

For
- Incredibly versatile
- Free updates for life
- Key and BPM detection
- Powerful batch renaming
- Useful metadata system
- Comprehensive search functions

Against
- Doesn't run within your DAW

It's not the sexiest bit of music software, but when it comes to getting a grip on your samples, nothing beats AudioFinder

10/10

Search you later, metadata

With AudioFinder's new metadata functionality, each audio file has fields for Creator, BPM, Beats, Time Sig, Key, Library, Genre, Category, Rating, Tags and Notes. All of the fields are then searchable.

Tags is very useful as it can hold any words you like: for example, an electro synth stab could be tagged "electro synth bass stab noisy sharp attack". It would then appear in the results when searching for any of those terms in the Tags field. The Notes field is similarly freeform, but more suited to detailed, miscellaneous information. For example, for a kick drum, you could add "that weighty kick I sampled from the B-side of a Deadmau5 track".

It's true that similar metadata searching already exists within OS X's Spotlight search feature, and indeed, Spotlight metadata can also be searched within AudioFinder. But with Spotlight, once you find your sample, that's your lot, whereas with AudioFinder, you could be just getting started.

Synchro Arts PC MAC
VocALign Project 3 £234

cm DVD
ON THE DVD
Hear VocALigned vocals and thumb your way through the manual

Ever wondered why the timing on some vocal arrangements is so incredibly tight? Read on to discover the secret...

> Originally developed for film audio post-production work, VocALign has been in circulation as a plug-in and standalone program for about 15 years now, and it revolutionised the way dubbed dialogue is aligned to the original recorded speech. It freed the actor from trying hard to lip-sync, enabling them to focus on expression, safe in the knowledge that VocALign would tighten words to the action afterwards. Application in the music world was clear: double tracks, backing vocals and harmonies could be aligned to the lead vocal to create a very tight group, clearing up those annoying flutters from multiple 'ess' sounds, for example. Now, with VocALign Project 3, it's also available in VST3 format, for use with Cubase and Nuendo.

What VocALign actually does is a simple trick that, as any audio professional will tell you, it is very adept at, and it can save hours – if not days – of tedious manual work. The old-school alternative is to either do take after take until the vocal timing is tight, or to laboriously edit the backing vocal tracks, cutting up words and stretching single consonants into time with the lead, or more likely a lot of both.

VocALign takes two audio signals: the guide, which in most cases is the lead vocal, and the dub, which is the backing vocal or harmony that you want to lock to it. It analyses the energy profiles over time of both signals and stretches and compresses the dub track to precisely follow the profile of the guide. You can refine the start and end points of the section you want to align to avoid it getting confused by extraneous noises/words and audition the results before committing to a fresh 'VocALigned' track.

Magic bullet

It performs the alignment process in seconds and the results are astonishingly good. Compare this to the hours it can take to edit parts into line by hand – even then, the results are often a tad out of focus! If time is money, you would recoup your investment in a matter of weeks. VocALign doesn't always get it right, and you occasionally have to do a bit of refinement either to the length of the target section or the content of what you're aligning, but it happily manages four- or even eight-bar phrases in one go. The process of aligning multiple backing vocals is simply a matter of keeping the lead vocal guide track intact and feeding each dub track for that section one by one.

COMPUTER MUSIC PERFORMANCE Award

Vocals aren't the only thing it works on. Anything that's doubled and needs to be aligned is a candidate, such as guitars, strings and more. And it's also ripe for abuse too, aligning completely different audio signals with every possibility of happy accidents amid the chaos.

To sum up, VocALign may seem like an expensive one-trick pony, but what a trick it is! If you're a rap producer and crave punchy Dre doubles, or if you're big on vocal arrangements and want the power and focus of a tight vocal section, here's the perfect solution. **cm**

Contact +44 (0) 1372 811934
Web www.synchroarts.co.uk
Info VocALign Pro 4, £422

System requirements

PC Windows XP/Vista, VST3/RTAS host, iLok

Mac OS X 10.4, AU/VST3/RTAS host, iLok

Alternatively

Celemony Melodyne editor
cm148 >> 9/10 >> £319
This multipurpose software can adjust vocal timing, albeit manually

Serato Pitch 'n Time
N/A >> N/A >> $799
Pro Tools only and, like Melodyne, it requires manual labour

VST3 for all

So how exactly does VocALign work in Cubase? As we said, VocALign needs two signals to work its magic: the guide signal, which provides the template to which the second dub signal is aligned. To achieve this, a VocALign instance is inserted on the dub channel. From the guide channel, an auxiliary send is routed to VocALign's VST3-enabled sidechain input. You'd then play the section to be aligned with the Capture Audio button engaged. When the transport is stopped, the two waveforms will appear in their respective windows and after hitting Edit, a visual representation of the alignment is traced over the guide. Play the section again to hear the resultant aligned track instead of the original.

If needs be, you can refine the section to be aligned using the start and end arrows. Once you're happy, you can bounce the aligned dub signal onto a fresh track using Cubase's mixdown functions.

Verdict

For Extraordinarily tight alignment
A huge time saver
Much better results than manual editing

Against It's a very specialist plug-in
Can be fiddly on complex arrangements

Do you want perfectly aligned vocals? Then get VocALign! It's that simple

9/10

cm mini reviews

A rapid-fire round-up of sample libraries, ROMplers and more

Propellerhead
ReBirth £3.99

Format iPhone, iPod Touch
Contact via website
Web www.propellerheads.se

There are two ways to view Propellerhead's port of the seminal ReBirth to iPhone and iPod touch. The first is as a new music production benchmark for the App Store, being in *every* way the same application that exploded onto Mac and PC in 1997. The second is as a lazily built, rather ill-fitting fingermare that experienced hands will frequently find frustrating and casual users won't have the patience for.

Both are right, if we're honest. The interface scales smoothly but not exactly pleasantly – it's bitmapped rather than vector-based, resulting in blurry text and ugly, fuzzy knobs at high zoom settings. And no concessions have been made in terms of making it 'fit' the iPhone – it's literally the Mac/PC version shrunk to fit a smaller screen.

But ultimately, and considering the price, none of that really spoils the party. This *is* ReBirth – two 303s, an 808, a 909, the Pattern Controlled Filter, the compressor, the delay, the step sequencing, the song mode... There are even five user mods included with the software (the mighty PBE among them), while you also have the ability to share your projects online.

Equally importantly, ReBirth is simply an awesome nostalgia trip that revives the undefinable magic of the early days of serious computer music. Essential.

9/10

Takashi Mizuhiki
DXi FM synthesizer £1.19

Format iPhone/iPod Touch/iPad app (requires OS 3)
Contact dxisupport@me.com
Web web.me.com/tmizuhiki/DXie

Yamaha's interpretation of Frequency Modulation synthesis needs no introduction. It's a sound splattered across many 80s synth classics, and recreated by various soft synths. DXi brings FM to your phone, but it's closer to the DX27 than the legendary DX7. There are four operators rather than six and polyphony is reduced from 16 to three, from what we can tell. DXi also offers a neat 16-step sequencer and an effective XY performance pad, to mix operators and patterns in real time.

Sound editing is primitive. You can flick between eight algorithms and edit a four-stage amplitude envelope for each operator, but you can't listen to frequency and feedback changes as you make them – you need to press Audition again for these to be heard. While DXi does sound good, and you can recreate many classic sounds, it lacks versatility for the experimentalists, and completeness for the purists, sort of defeating the point of it being a synth and not a ROMpler.

5/10

SoniVox
Eighty Eight £129

Format PC/Mac, VST/AU/RTAS/standalone
Contact Time+Space, 01837 55200
Web www.timespace.com

Eighty Eight is a ROMpler built around a Steinway Concert Grand. Rather than sticking purely to acoustic piano, about a third of the 12GB sample set is taken up by additional sounds, including acoustic bass, various pads and a number of solo instruments, such as acoustic guitars, woodwind and horns. This comes as 52 piano presets, 35 piano/pad textures and 15 three-part performance combis with split key ranges. Onboard features include four-band EQ, reverb and output limiter, as well as overall pan, level, transposition and tuning. You also get pedal and release level for the piano, and global velocity response.

The 'detail' of the sound is handled solely via patch selection, and patches range from high-end (16 velocity layers and release samples) to RAM-efficient (four layers, no release). In use, this gives Eighty Eight a workhorse feel, and we were somewhat reminded of Clavinova keyboards. Even so, the piano sounds fine, and those RAM-efficient patches could come in handy. It's not at all bad, but we weren't blown away.

7/10

Line 6
FBV Express Mk.II £99

Format PC/Mac, USB 1.1
Contact Line 6 UK, 01327 302700
Web www.line6.com

The original FBV Express was a floor unit for controlling Line 6 hardware such as PODs and modelling amps. The Mk.II also performs these duties (with all but the earliest Line 6 units) but is of greater interest to **cm** readers due to its USB port and ability to control not only Line 6 software products such as Pod Farm, but also third-party DAWs and plug-ins via standard MIDI control. This is facilitated with the freely downloadable FBV control software, making it pretty versatile, at least on paper.

The unit is a compact 25.4 x 33 x 11.4cm. It has a metal chassis, four chunky footswitches and a wah-style rocker pedal. All are assignable. No external power supply is required as the FBV gets power from the USB bus when connected to a computer, or a standard RJ-45 cable for Line 6 hardware.

Once installed, we had no problems setting up the FBV control software with Ableton Live to control Pod Farm 2 as a plug-in, as per the manual. It proved easy to do basic stuff like change patches and volume levels. The pedal can control wah or volume (or indeed, the CCs of your choice), and you step on the pedal to switch between the two.

The simple GUI of the software makes it easy to assign pedals to DAW functions. With Reason/Record, it was straightforward to get the pedals controlling transport, mixer faders and effect levels – potentially useful for hands-free recording. Using the FBV with Logic Pro 8 proved less straightforward, although this was simply down to the way Logic works.

Some users reported glitches after a few months with the original FBV Express Mk.I, even though many others found it rugged enough for prolonged stage use. Line 6 seem to have ironed out these bugs with the Mk.II, though, and if it proves to be as durable as it is versatile, it should see you right for many a gig.

8/10

Korg
iElectribe £5.99

Format iPad app
Contact via website
Web www.korg.co.uk

When Korg announced iElectribe on April Fools' Day, it was easy to mistake it for a cruel joke. Surely a £5.99 app couldn't transform the iPad into a fully featured groovebox? However, true to Korg's promises, iElectribe takes the original hardware Electribe ER-1's classic step sequencer format as its inspiration, allowing patterns to be constructed from four real-time synthesis parts and separate sample-based open and closed hi-hats, cymbals and clap/snare parts. Together, they provide plenty of options for creating loops and song arrangements.

Although iElectribe has 64 presets and 32 templates to get you started, it's easy to begin creating a new track from scratch, either by entering hits in step time or by recording parts in real time and allowing the app to quantise them for you. Most of the parameters can be automated using the Motion Sequencing feature, from pitch, pan and level all the way through to modulation, decay and low-end boost. It's a very intuitive system that makes it easy to get great results.

The central section of the neat interface allows a master effect to be chosen from eight options, including two delays, a reverb, a chorus/flanger, a low-pass filter, a grain shifter, a "talking modulator" and a bit-crusher with sample rate reduction. The effects all sound good enough to be useful, though only one can be applied at a time. Next to the master volume control, you'll also find a knob for a (slightly digital-sounding) tube gain effect, which is always available. Unlike the master effect parameters, this distortion can't be automated.

In its present form, iElectribe's main weakness is its inability to sync to an external clock signal. A hardware Electribe would quite happily do this, but the iPad platform means that iElectribe can't really play with other equipment. Forthcoming iPad accessories will hopefully offer a solution to this problem, but for now, you'll have to bounce your patterns to WAV files if you want to be able to use them in your DAW.

Despite this minor inconvenience, iElectribe is an intuitive, great-sounding groovebox app that ably demonstrates the iPad's latent music-making potential. Most of all, it's simply gratifying and fun.

9/10

Soundware round-up

Loopmasters DOWNLOAD

Bop – Minimal Drum & Bass £25

Contact info@loopmasters.com
Web www.loopmasters.com
Format Acidized WAV, REX2, Reason ReFill, Live, Apple Loops, Halion, Kontakt, EXS, SFZ, Stylus RMX, Live Presets, NN-XT

Hailing from Russia, Bop is an ice-cool producer focused on minimal and all its branches. Turning his attention to DnB, the result is a sparse but tight collection of samples. There are 216 loops and 480 WAV samples and 'cool' is definitely the word that comes to mind – atmospheric pads, glitch loops and 'tech chords' accompany the usual one-shots and loops. Bop has done a great job of combining textbook DnB samples with creative 'sound-designed' hits that still feel at home in the genre.

9/10

Sounds/To/Sample DOWNLOAD

Glitch and Twist Vocals £15

Contact via website
Web www.soundstosample.com
Format WAV

Using standard vocal samples can sometimes sound cheesy, plunging your track into by-the-book banality. Sounds/To/Sample are clearly aware of this and so have created some very unique content here, covering vocoded phrases, all glitched up and processed to bits. Think Boys Noize-style Speak & Spell outpourings crossed with Claude VonStroke pops and splurts and you're almost there. There are over 150 samples, at 125 or 128bpm, and all are perfect for the club. We wish the sounds were labelled by key, too, but nevertheless, this is a cool, creative pack at a decent price.

8/10

Vengeance DOWNLOAD

Essential House vol.3 £65

Contact via website
Web www.vengeance-sound.com
Format WAV

Reviewing a Vengeance sample pack is like a blurry trip down memory lane. Whether it's because their sounds are used so much in commercial tracks or simply because they're so 'production ready', each sample and loop sounds like part of a tune you know and love. Essential House vol.3 packs in over 2400 samples, loops (at 128bpm) and multisampled kits. Kicks, snares, percussion, claps, FX, basses, synths and more are all catered for – just about everything you need for a full track.

The Special Sounds folder is full of what sound like chops and samples from famous tracks, warped and effected almost beyond recognition – something you'll either love or raise an eyebrow at! Either way, if you can't find anything useable in this bundle to fill out your club tracks, you might want to stick to your day job. To paraphrase a famous producer, "Everyone uses Vengeance samples – why do you think every house track is 128bpm?"

9/10

Prime Loops DOWNLOAD

Dubstep Nation £30

Contact via website
Web www.primeloops.com
Format WAV, Apple Loops, Acid Loops, FL Studio, Reason ReFill, Ableton Live Pack, Garageband, Roland Fantom-X, MC-909, MV-8000, MV-8800, Stylus RMX

Dubstep Nation should be a one-stop shop for fans of the genre, with over 200 loops, in excess of 200 one-shots and more than 130 sampler patches. And it kind of is, with the Dubstep Breaks folder being particularly fine. It's full of weighty, hard-hitting, sub-heavy loops that will give you more than a head start, though with only 55, we would have liked a few more to choose from. The one-shots and wobbly bass loops are tamer, though still good and authentic. Overall, it's all usable enough and, for the price, it just about hits the mark.

7/10

Producer Loops DOWNLOAD

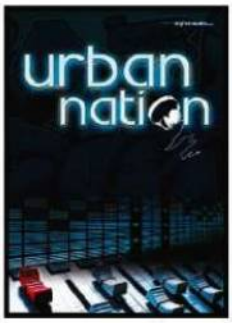
Drum & Bass Tip Trixxx Vol 2 £13

Contact Producer Loops, 0845 0943077
Web www.producerloops.com
Format ACID Loops, WAV, Apple Loops, MIDI, Reason ReFill, REX2

This pack offers up drum and synth samples, with over 550 loops and about 300 one-shots. The Break Loops and Drum Loops samples are the main event here, sounding like the intro to a Pendulum track. Some are more retro, with a warped, cut-up feel. Usefully, there are also kick-and-snare-only loops. The one-shots are a little disappointing, with many of the kicks and snares being quite similar, while the synths section relies heavily on hard-edged sounds and grinding distortion. It's not a must-have, but you get plenty of solid bang for your buck.

8/10

Big Fish Audio
Urban Nation £65



Contact Time+Space, 01837 55200
Web www.timespace.com
Format Acid, WAV, Apple Loops, REX, RMX

Here we have 25 construction kits aimed at the pop/R&B producer. The tempo range is broad (75 to 118bpm) and the content totals 1532 loops and hits – about 3GB in Apple Loops format. All kits include not only full instrument loops, but also individual drum stems and hits, and typically have three musical sections. These are clearly labelled by chord type, which certainly helps if working in a particular key.

Sonically, Urban Nation inhabits the more tonal end of the spectrum, so at times feels more soulful than some urban kits. The sounds are strong and perfectly suited to commercial production.

9/10

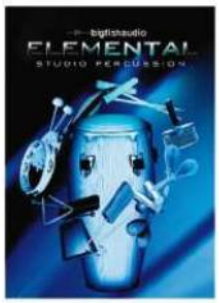
Bela D
Diva Revamp £149

Contact Time+Space, 01837 55200
Web www.timespace.com
Format Kontakt 2 & 3, WAV

Diva Revamp marks a shift to Kontakt format and an amalgamation of three previous Bela D 'Diva' products. The result is 2.3GB spread over a multitude of instruments, often with keyswitched articulations. Sounds include syllables and sustained, marcato and staccato vowels. Typically, these are unlooped, and some phrases include transitions or sung intervals. The use of two separate vocalists allows instrument combining for richer sounds, while their Kontakt script means you can introduce note-by-note envelope variations. Our only gripe is that it should all really be in Kontakt 4 format too.

9/10

Big Fish Audio
Elemental Studio Percussion £65



Contact Time+Space, 01837 55200
Web www.timespace.com
Format Acid, WAV, Apple Loops, REX, RMX

18 commonplace percussion instruments are featured here, including congas, bongos, agogo, shekere and cabassa. Across eight tempo-specific loop folders, the set includes 4/4, 3/4 and 5/4 time signatures, and ranges from 80 to 240bpm. You also get a folder of one-shots. It sounds like it's all sourced from the same instrument set, and sometimes the playing is a little too loose for our liking. Plus there are some glaring omissions, such as no tambourine loops at 120bpm. By contrast, congas are well covered and well played (56 loops at 140bpm). Overall, not quite what it could have been.

6/10

Drumdrops DOWNLOAD
Drumdrops in Ska £35

Contact info@loopmasters.com
Web www.loopmasters.com
Format WAV, REX2, Acid, Apple Loops

This well-known drum loops series moves into rudeboy territory. It includes 86 variations across 11 tempos (from 117 to 132bpm) in both dry and effected form (so 172 loops in total). Use of analogue recording tape, ska-savvy drummers and vintage kits means that, stylistically and sonically, it's right on the money and you'll find some tidy skankin' fills. Even so, beat variation is limited, and you won't find any intros or single hits. For this reason, it's fine for adding a ska flavour to existing tracks, but not much good for making actual ska music, and there's no multitrack version, as there is for some other Drumdrops titles.

7/10

Puremagnetik DOWNLOAD
TrapKit $12

Contact info@puremagnetik.com
Web www.puremagnetik.com
Format Live 8.1.1, Kontakt 3.5, Logic 8

TrapKit features most of a 60s Ludwig kit (kick, tom and floor tom), combined with a DDrum snare, Zildjian hats and ride, and Sabian crash. Recorded in a reflective live room with typical kit mics (KM84, C451, SM57, Coles 4038, and so on), the sound captures the nature of the original kit well, and with multiple round robin hits, it's suitably varied. It's definitely a big step up from Purple Kit, Puremagnetik's previous sampled acoustic pack. However, we do feel the sound lacks punch, particularly the snare. In addition to custom interfaces for Kontakt and Live users, there are also four presets, including a rather cool processed kit called 'zapped'. All in all, this is not bad at all given the low, low price.

8/10

Hollow Sun DOWNLOAD
Novachord $80

Contact steve@hollowsun.com
Web www.hollowsun.com
Format Kontakt 3, EXS24, Reason ReFill

This pack samples a fully refurbished Novachord instrument from around 1940. Famous for its creepy pads, the original was designed by organ supremo Laurens Hammond. It's basically a 72-note polyphonic subtractive synthesiser, but of course, it's rammed full of valves rather than transistors. Through painstaking sampling and editing, Hollow Sun have produced over 130 patches that capture the essence of the original. The sounds are at times reminiscent of string machines and sometimes of 60s organs like Farfisas, and they're at their most distinctive when using the Novachord's own electromagnetic vibrato. Terrific stuff! Note that the Kontakt version is $120.

9/10

cm/recommends

The best new gear from the last three issues...

Acoustica £69

Mixcraft 5

Rating 9/10
Reviewed cm151
Contact Et Cetera, 01706 285650
Web www.acoustica.com

What is it? An entry-level DAW for Windows, Mixcraft is ideal for PC users who secretly covet the Mac's GarageBand app. We liked previous versions of Mixcraft, but we reckon it's come of age with v5. New features include automation, send tracks, video tracks, a mixer, a notation editor and new plug-ins such as AAS's great Lounge Lizard Session electric piano.
Verdict "A lot of solid and sensible tweaks have made Mixcraft one to seriously consider, and it represents great value for money."

SoundToys $495

SoundToys V4

Rating 10/10
Reviewed cm152
Contact via website
Web www.soundtoys.com

What is it? A 'self-titled' bundle of superb quality effects from SoundToys. Alongside the established modulation and delay effects are two newcomers: Decapitator, a sublime analogue saturation emulation with five 'flavours' modelled on different hardware; and PanMan, a novel autopanner with some unusual features that make it stand out from the crowd.
Verdict "If you've toyed with the idea of picking up this terrific bundle, then now's the perfect time to take the plunge."

Slate Digital £255

Trigger Platinum

Rating 10/10
Reviewed cm153
Contact sales@studioxchange.co.uk
Web www.slatedigital.com

What is it? The debut plug-in from Slate Digital, Trigger is the ultimate drum replacer, in our opinion. Dialling in settings is a doddle, and the superb built-in kit sounds come from Steven Slate's renowned drum packs. The killer feature, though, is Leakage Suppression, which greatly reduces cross-talk, allowing for extraordinarily accurate triggering, even with faint ghost notes.
Verdict "Trigger is the new gold standard in drum replacement software. It's easy to use, triggers like a dream, and sounds terrific."

What we've been using this month

Ronan Macdonald
Editor

Last issue's *See the music* feature really caught my eye, and now I can't keep my hands off the amazing Photosounder. It's a sound designer's dream and makes a potentially brain-melting concept really easy to grasp.

Lee du-Caine
Deputy Editor

I've been fingering, blowing, stroking and tonguing my way to synth lead ecstasy with the ace Eigenlabs Eigenharp Pico. Its ultra-sensitive keys, touch strip and breath pipe afford me a new level of intimacy with my virtual instruments.

Tim Cant
Multimedia Editor

I assumed that an alien drum robot would be a benevolent being, but Goldbaby's totally hair-raising When Alien Drum Robots Attack soundpack has given me a chilling vision of the future. It does sound wicked, though.

PRIME LOOPS

WE'RE IN THE MIX

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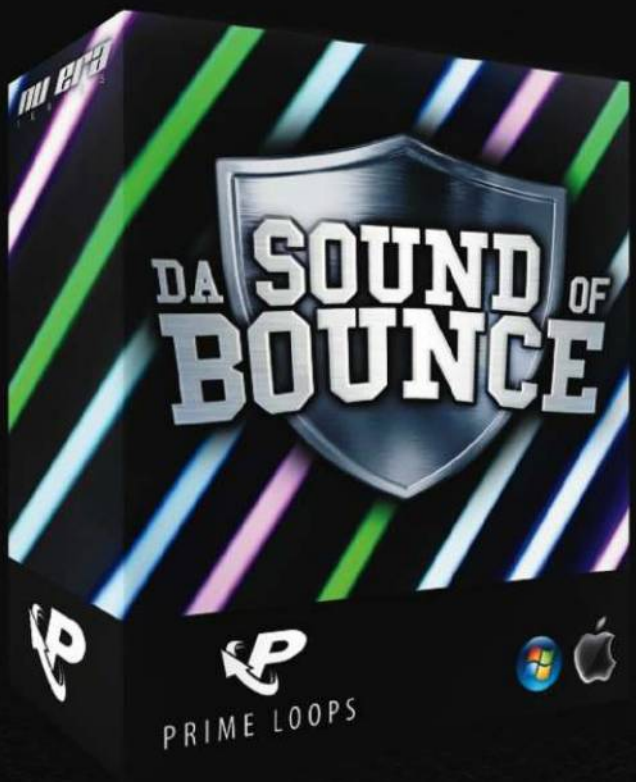

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Back issues

Your chance to grab any issues of *Computer Music* that you may have missed over the last six months

Issue 153 July 2010

- Big Tick Audio RhinoCM and 2167 ambient samples on the DVD
- Ambient masterclass
- Rhythm and stealth (videogame music)
- See the music (a visual look at sound design)
- Producer Masterclass: Jayce Lewis
- Xfer Records Nerve, FXpansion BFD Eco, UAD FATSO, Magix Vandal and more reviewed

Issue 152 June 2010

- Time+Space UVI Soundstation and 2045 dark dub samples on the DVD
- The beginners' guide to mixing
- Tricks with time
- ...And the kitchen sink (foley sound)
- Producer Masterclass: Bonobo
- Vengeance-Sound VPS: Metrum, SoundToys V4, DMG Audio Equality and more reviewed

Issue 151 May 2010

- Martin Eastwood Audio Duet and 2,007 urban rock/electronica samples on the DVD
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- Emulating effects
- Sounds of sci-fi II
- Producer Masterclass: dan le sac
- IK AmpliTube 3, Avid Eleven Rack, Image-Line Harmless, D16 Syntorus and more reviewed

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- Unrestricted Axes
- The Low-End Theory
- Producer Masterclass: Super8 & Tab
- NI Traktor Kontrol X1, Audio Damage Tattoo, Steinberg CI2 and more reviewed

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- Nomad Factory MFX-Rack and 2043 Ultimate Sample Toolkit samples on the DVD
- The beginners' guide to audio and sampling
- The Max factor (Max for Live)
- Mid/side mastering
- Producer Masterclass: Foamo
- Magix Samplitude 11 Pro, u-he ACE, Progress Audio Kinisis and more reviewed

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)
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- Producer Masterclass: Subscape
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Q&A

Pondering your next upgrade? Having problems with your inputs and outputs? Or do you just really want to know how your favourite artist gets that certain sound? Send your questions to cmhelp@futurenet.co.uk

A bit confused

COMPUTER MUSIC QUESTION OF THE MONTH

Question **I was wondering if you could you do a piece on 64-bit computing, as I have many questions that I'm having a hard time finding answers for. For example, Pro Tools says it can run on Windows 7 64-bit even though it will actually run at 32-bit. Does this mean 64-bit plug-ins running in Pro Tools will be forced to run at 32-bit? Is all 32-bit software compatible with a 64-bit OS? I hear Waves is not yet compatible with 64-bit, so does that mean it won't work on a 64-bit OS, or will it just not take advantage of the extra power? Windows 7 has a 'Run at 32-bit' option – how does that work for plug-ins? Is it possible to have a 32/64-bit dual-boot? Are Macs 64-bit? And is 64-bit that much more powerful for audio?**

Francisco Cueto

Pro Tools M-Powered isn't yet a 64-bit application, but it will run on 64-bit Windows Vista systems nonetheless

Answer The 64-bit question is on the mind of many a desktop musician these days. With both Windows 7 and OS X Snow Leopard capable of powering along at 64 bits, it's only a matter of time before we're looking back at 32-bit systems and wondering how we ever made do. However, it has to be said that most DAW users still feel perfectly comfortable in the safe environs of 32-bit. After all, when it comes to computers, the old adage "if it ain't broke, don't fix it" has some merit. If you're happy with your 32-bit system, there's no shame in holding off on that upgrade until you absolutely need it.

That said, there are some pretty convincing arguments for making the jump. The first and most important is that a 64-bit system can address staggering amounts of RAM. For example, a 32-bit Windows 7 system will baulk at any amount over 4GB, and even under that your applications won't be able to access all of it (there's a 2GB limit for executables in 32-bit environments, though there are some workarounds for the more tech savvy out there).

The same box running Windows 7 at 64-bit will allow applications to access many times that amount of memory. This is an important factor for music producers using lots of samples, particularly in light of the fact that sample providers are wallowing in this newfound freedom and releasing increasingly memory-intensive products.

The good news is that many developers have moved up the ladder and now offer 64-bit versions of their applications and plug-ins. If you need to mix and match hosts and plug-ins running at different bit depths, you can call upon something like jBridge which, according to the developer, enables you to run 32-bit plug-ins in a 64-bit host and vice versa. It costs €14.99 and you can get the demo from **jstuff.wordpress.com/jbridge**.

Digidesign haven't yet made the leap with Pro Tools (64-bit OSes aren't supported for HD or LE systems at this time), but you should note that Pro Tools M-Powered will run on a 64-bit Vista system, assuming the appropriate drivers are installed from M-Audio's website. People are running the 32-bit Pro Tools on 64-bit systems but, as you suspect, they can't make use of more than a couple of gigabytes of RAM.

Waves have stated that they're working diligently to bring 64-bit compatibility to their entire plug-in line but have yet to commit to a timeline for this.

We'd advise you to decide what software you want to use and then decide what computer would be best suited to run it. It's pretty obvious that if you want to use multiple instances of ROMplers with massive sample collections,

COMPUTER MUSIC QUESTION OF THE MONTH

The Sample Boutique Loopmasters WWW.LOOPMASTERS.COM

The writer of our *Question of the Month* will receive their choice of two Artist Series sample libraries courtesy of Loopmasters. www.loopmasters.com

The Triton Studio and Tascam US-122L will work fine with Logic Pro 8 – it just needs everything to be correctly connected together

you might feel inclined to embrace the future. If, however, Pro Tools and Waves are important tools in your studio, you may be better off hanging in there until the respective developers pull the trigger.

Logical solution

Question **I finally got into computers last year, and the main reason was for my music. I've got a Triton Studio and a Yamaha Motif, and my DAW is Logic Pro 8. I've got a number of great soft synths and my library is getting bigger, but I don't know how to get Logic to recognise the sounds from my hardware.**

I've got a Tascam US-122L with left and right inputs. At the moment my Triton just acts as a MIDI controller. This must be simple but how do I connect cables from the individual outputs on my Triton into the inputs on my soundcard? Or is this an environment issue as well?

Kevin Whereat

Answer You just need to run a pair of instrument cables from the main audio outputs of your Triton Studio or Motif to the jacks marked Line In L and Line In R on your Tascam. Make sure the topside switch is set to the Mic/Line position. Because your US-122L has only the single pair of inputs, you won't be able to plug both of your keyboards into it at the same time without the aid of a mixer. For now, you'll just have to swap them as needed.

As for recording the audio, just follow our step-by-step walkthrough *Recording external synths in Logic* on the right of this page.

Moving to MIDI

Question **I have a pretty new iMac, use Logic 9 and have an Alesis iO/2 audio interface with my studio speakers hooked up to it. Just under a year ago I bought a Korg R3 so I could get some experience with hardware synths, but I have yet to get it working with – and recording into – Logic.**

Ideally, I would like to use the MIDI In and Out rather than the USB. Currently I have the MIDI In to the MIDI Out from the R3 to the interface and vice versa (all standard) and have the audio outs (left and right) going from the R3 into the Line In of the interface.

I get sound through my studio speakers when I play the R3 and I believe I can record it as audio, but the MIDI just isn't happening. Saying that, it won't let me use it to trigger MIDI notes in my soft synth either.

Andrew Spiers

Answer It sounds to us like you simply don't have the appropriate MIDI port or channel assigned. Can you see the Alesis among Logic's available MIDI ports? You can hear the Korg

"Many developers have moved up the ladder and now offer 64-bit versions of their applications and plug-ins"

> Step by step

Recording external synths in Logic

1 > We'll assume the Mac's Audio MIDI Setup recognises the Tascam as an audio and MIDI interface, the outboard synth's audio outputs are patched into the US-122L's inputs, and the synth's MIDI output is routed to the interface's MIDI input and vice versa. Start a new project in Logic and create an external MIDI track – this will accept incoming MIDI signals from your interface.

2 > Assign the MIDI output of your new track to the MIDI output port to which the Triton is connected. This is done in the Inspector, using the **Port** menu. You should also confirm that the track you're playing is sending on the correct MIDI channel to which the Triton is assigned (if you're using Combis or Multis, they may be spread across many channels).

3 > Turn the Triton's local keyboard off, so you aren't triggering it from the keyboard *and* Logic. Also, you'll need to determine whether to send MIDI Program Changes to the Triton. Record some MIDI notes and create a stereo Audio track. Select the inputs into which your Triton is patched as the inputs for the audio track and you're all set!

> Step by step

Setting up MIDI ports in Logic

1 > Take a look at your Audio MIDI setup to see if your MIDI interface is recognised: open **Audio MIDI Setup**, which can be found in the **Utilities** section of OS X's **Go** menu. Click **MIDI Devices** to see if the MIDI interface is shown. If it isn't, click **Rescan MIDI**.

2 > If the Korg's USB is plugged in, it's likely to show up as a MIDI device too. Check the interface is installed properly and open Logic. Now we need to make a Software Instrument track. Assign the I/O of your track to a soft synth. If the computer recognises the Alesis, Logic will too. Look at the MIDI In/Out indicator in Logic's transport. It should register a note when you play a key on the R3.

3 > If it does, you're in business. To get it to play itself, set the Korg up to send and receive MIDI data (check the manual). You may need to turn the local keyboard off so that the R3 isn't triggered by both Logic and the R3's keyboard. Create an external MIDI track. Make sure the MIDI Channel for the track and the R3 match. Click **Port** to ensure that your Alesis is selected.

Reaper is a superb option for anyone looking to set up a home studio on a budget

when you play it because the local keyboard function is switched on and it's triggering the internal synth from its own keyboard. The Alesis is allowing you to monitor this incoming signal 'live', but the MIDI signal isn't getting into Logic.

You have the MIDI inputs and outputs cabled up from the Korg to the Alesis as they should be, and as such, you don't have to use the R3's USB port at all (unless you want to use it for editing the synth). Now it's just a matter of making sure your MIDI interface is recognised by your Mac and assigned as the input in your software. That's easy – see *Setting up MIDI ports in Logic*.

Don't fear the Reaper

Question **I'm trying to compile a workable studio using the cheapest parts needed to get me up and running. I'm interested in using Reaper and recording my old rock ideas. I have an AMD-based system to do this, with an onboard six-channel audio codec (Realtek AC97 Audio) and S/PDIF-in/out interface (not that I know how to use it), a Boss DR5 drum machine, guitar, the CM151 DVD and a QuickShot MIDI Composer keyboard. I feel I should at least be able to have a go but I still have several questions!**

I've read that I need an audio interface for my guitar, mic (which I intend to buy) and keyboard (if it's any good) with the ability to monitor things to handle latency issues using near-zero-latency direct monitoring. How are the sounds generated? Where do they come from when using MIDI and plug-ins, and will the specs for my onboard sound be OK? Which ones should I be considering? I notice you recommended the M-Audio Fast Track Ultra in CM151, for instance. Also, which microphone would you recommend for recording vocals and, at times, guitar?

I'm interested in Reaper but it seems to be short on software (plug-ins). Is this an issue and if so, are there workarounds or freebies that are worth considering? I haven't started using the CM DVD yet, so the software on that may well help with this question.

Lastly, I couldn't help but notice that just about everyone in the mag uses Ableton Live 8. Is this the best way to go?

Tim Hitchcock

Answer Many of these questions can be answered thoroughly by picking up any of our back issues, particularly the CM *Specials* aimed at beginners. We don't have the space to guide you through every step of building your home studio here, but we can give you a few pointers.

First, on the subject of Reaper, it might just be the ideal host for you, considering its flexible licensing arrangement and your emphasis on low-cost solutions. And though you might think it's short on packaged plug-ins, there are a vast number of free instruments and effects available from various sources, many of them as good or better than a lot of the commercial offerings. You've already got some of the best on the coverdisc of this magazine.

For that matter, you could start recording right away with nothing more than the CM Studio – we mean it when we say it's "everything you need to make music now"! Additionally, you can find more free plug-ins than you can count by searching the online database at **www.kvr-audio.com**. If you need something that Reaper doesn't provide, you'll find it there.

Is Ableton Live a better choice than Reaper? That's something only a play with the demo will tell you. Everyone has different requirements from their production environment. Reaper is a very powerful system and it's difficult to fault it in any way.

Now, about your hardware. Low latency is a must for serious work. And yes, a third-party audio interface would be a better bet than your onboard Realtek, particularly in regard to sound quality. For low latency, you're going

"Reaper might just be the ideal host for you, considering its flexible licensing arrangement and your emphasis on low-cost solutions"

to need a card with ASIO drivers, which is most of them. You may even be able to get low-latency performance from your built-in interface using the universal ASIO4ALL software (on the DVD). That won't improve the sound quality of the Realtek, though. There are plenty of other options out there and the M-Audio you mention is a good one. Whether it's right for you will depend on how many inputs and outputs you need, whether your microphone needs phantom power and whether you need dedicated MIDI ports (your Quickshot keyboard has a proper MIDI output jack). Phantom power? That's used to power condenser microphones, the sort you'd use to track vocals and, if you're careful about levels, a guitar amp. There are lots of inexpensive mics to choose from, and models from MXL, Audio-Technica and Studio Projects are popular with our readers. Of course, you could do a lot worse than picking up that classic studio standby, the Shure SM-57.

We stand by our recommendation in cm151 – this little fella is packed with features that make it an ideal hub for a modest desktop production environment

Accidental automation

Question **Having familiarised myself with most of Reaper's features, I'm a little mystified by automation. I can create automation paths and control MIDI, but I can't figure out how to clone paths with MIDI items or media. I've done this once before, purely by accident, and now I can't remember how I did it!**

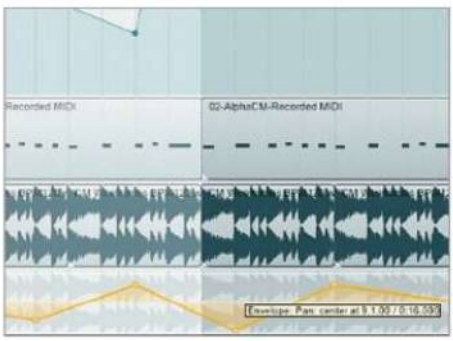
Craig Thomas

> Step by step Copying automation with items in Reaper

1 > Let's say you have some MIDI and media performances recorded in Reaper and you want to copy and repeat sections of them to build a longer arrangement. You'd also like to add some dynamic automation and copy it along with some, but not all, of the items. This is easy to do and can aid in building complex arrangements without repetition.

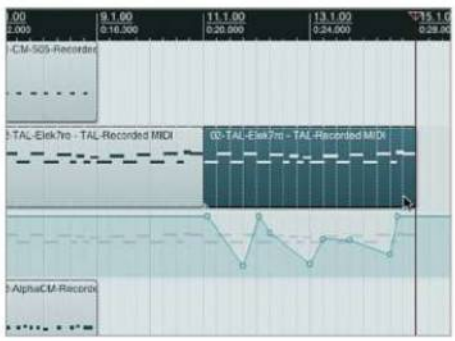
2 > We have three MIDI tracks and one audio track in this project. The second track is a lead from the TAL-Elek7ro plug-in. We're going to automate some of the parameters, then copy and paste some with and some without automation. Start by automating the TAL-Elek7ro lead. Click **Env** to bring up the parameter list, and select **OSC1PW** for automation.

3 > Now we have an automation track for that parameter, inserted just below the TAL-Elek7ro track. We can tie a MIDI controller to it and record in real time, or add some points to the envelope by right-clicking, choosing **Create New Point** and moving them manually. Whichever method you choose is fine, as long as you end up with a complex envelope.



4 > Once you've got your TAL-Elek7ro envelope created, you can move on to another. This time, we'll automate the pan position of our media item (it consists of a single 120bpm drum loop created for the iPad tutorial in this issue). This is done in precisely the same way as the automation of the synth in the last two steps.

5 > Look at the buttons at the top-left. The one we're interested in is in the centre on the bottom row so make sure it's lit up. This ensures that any items copied will include the automation. Now select both drum loop items by **Shift**-clicking. **Copy** them, move them to the desired position in the timeline and **Paste**. Note that the automation copies over intact.



6 > Now let's deactivate the **Envelope Points Move With Media Items** function and copy the TAL-Elekt7ro lead recording. Again, just paste it in right after the original. This time, no automation is carried over. Try again, but reactivate the **Envelope Points Move With Media Items** function and paste another copy in with the automation intact.

Answer Could it be that you simply deactivated the **Move Envelope Points With Media Items** option? This option is activated by default when you first install Reaper. There's a button at the top-left of Reaper's main window for this. Alternatively, you could check the **Options** menu to see if it's still active. If not, activate it and you should be able to copy any MIDI or media items, complete with associated automation envelopes. See the walkthrough on the previous page for more details.

On the busses

Question **I produce fully inside my MacBook Pro using Logic Pro 9 as my main DAW. The normal workflow means I mix down tracks to busses for drums, bass, lead and pads. Usually about six or seven busses are used. At various points I want to create a filter sweep across the whole track, with the exception of one or two busses – for example, to add filter sweep automation on the filter plug-in's cutoff frequency across the whole tune with the exception of the drums.**

There seem to be many options, all of which add some complexity, such as a master buss filter, or duplicate filter plug-ins on all busses. Could you recommend a way to achieve my needs in the most audio- and workflow-efficient way?

Neil Ritchie

Answer It sounds like you're doing a lot of sub-mixing to individual busses (perhaps in an effort to manage large arrangements) but you'd like to send some of those busses through a specific effect while excluding other busses. As you say, there are quite a few methods by which this sort of thing may be achieved, though only you can decide upon the one best suited to your particular workflow. We'd probably opt to route the busses you want to process to yet another bus. This is a simple solution – see the walkthrough below for more.

Logic Pro 9 offers endless bus routing posssibilities, but which is best?

> Step by step Using busses in Logic

1 > We have 14 different instrument tracks, along with three effects channels and a quartet of busses to which the various tracks are routed: drums to **Aux 4**, basses to **Aux 5,** some pads and FX to **Aux 6** and the remainder to **Aux 7**. We want to apply an effect to most of our busses, but not to the drums.

2 > The easiest thing would be to simply add another bus, so let's route all of the submix busses to a new bus. Start by clicking the output of **Aux 5**, the bus labelled **Basses**. Currently, this bus is routed to **Out 1-2**. Let's instead send it to a bus. Select **Bus 14**. It doesn't really matter which you use, so long as it's not being used for any other purpose.

3 > Once you've routed a channel to a new bus, that bus will automatically appear in the mixer. This new bus is labelled **Aux 8**. Let's call it **Filtered Mix**. Look to the top of the new channel and find its **Inserts**. Click the top insert and choose the **AutoFilter** plug-in. This is a stereo bus, so you're only going to get the stereo version offered for use. Select it.

4 > We've already sent our **Basses** bus into this new **FilteredMix** bus. Click the outputs of the other busses you'd like to route to the new one and choose it from each menu. Route the drums to the main outputs – only send the busses named **Pads/FX** and **Pads/FX2** to the new one. As you can see, the levels may need tweaking.

5 > Making sure the section you'd like to process is looped, engage the transport and open the **AutoFilter** on your new bus. Set the new filter to act as a 12dB low-pass. Set the **Cutoff** and **Resonance** to around 12 o'clock. Adjust the amount of dry signal allowed to pass through, or use the LFO for a slow sweep.

6 > To automate the filter, assign an external MIDI controller to the parameters you want to automate and record your real-time noodling on a track assigned to your filter in **Latch** mode, as shown above. Our manipulations have been written into the track and can be played back in **Read** mode.

Question How do I recreate the synth in JG Thirlwell's *Fumblestealth*?

Felipe Garcia

1 > We assume you're referring to that ripping lead sound. It's a classic analogue-style hard sync lead. We can make the same sort of sound with the free TAL-Elek7ro from Togu Audio Line (**kunz.corrupt.ch**). Fire it up and load the **Default** patch.

2 > Take a look at the synth's **Oscillator** section. See those **Sync** buttons? They're the secret to the sound you're after. Essentially, they force one oscillator (the slave) to restart its waveform cycle every time the other oscillator's cycle begins. By altering the pitch of the master oscillator, you get that characteristic nasal sound as the slave osc tries to catch up. Activate the sync on **Oscillator 1**.

3 > Currently, both oscillators are pumping out sawtooth waves. That might be a bit much for our lead. Select the **Pulse** waveform for **Oscillator 1** instead. Let's also push the **Semi** knob all the way down for a lower sound. Play a few notes in the middle to middle-upper octaves to hear where we're at.

4 > Like a lot of analogue synthesisers, Tal-Elek7ro lacks a dedicated square wave. Instead, the pulse wave is used. A pulse wave is simply a square wave with uneven positive and negative cycles. However, you can control the pulse width with the **PW** knob. Play and hold a note as you set the **PW** knob to its middle position. Leave it at 12 o'clock.

5 > We don't need to do anything to **Oscillator 2**, so move over to the **Mixer** section. The mix is fine, but this section also houses the controls that determine the way Tal-Elek7ro responds to the keyboard. It's set to **Monophonic** mode by default. That's fine, since we want to make use of the **Slide** function. Push it up to around the 11 o'clock position.

6 > **Slide** is another name for portamento. Play some notes in a slurred, legato manner (don't let a held key go until after you've pressed another one down). You shouldn't hear anything. Tal-Elek7ro's designers stuck the **Slide** knob on the opposite side of the panel from the bit that activates it. It's on the left of the keyboard. It's set to **Off**, so change it to **Auto**.

7 > The hard sync sound relies on using an envelope generator to alter the pitch of one of the oscillators. Tal-Elek7ro has a two-stage auxiliary envelope generator, in addition to its filter and amp envelopes. It's in the **Envelopes** section and it's assigned to modulate **Osc 1**. Turn the **Intensity** knob up to 12 o'clock.

8 > That didn't do much as both **Attack** and **Decay** are set to zero. Turn **Attack** up to 8 o'clock and set **Decay** at 12 o'clock. Now play some legato notes in the upper range of your keyboard controller and you should get pretty much the sound you're after – a searing lead in the upper registers and a dark drone in the lower octaves.

9 > Adjust the filter – choose **12dB** mode. Set **Cutoff** to 9 o'clock and **Resonance** to 11 o'clock. Push both **Key** and **Contour** to 1 o'clock. **Decay** should be in the middle, with **Sustain** and **Release** at 1 o'clock. Play with the oscillator waveforms and pulse width, then throw in a bit of modulation and send the lot through a delay. **cm**

>cmfocus

SCRATCHING

Whether it's done by old-school vinyl spinners or cutting-edge computer-based turntablists, we reveal how you can use scratching to add vibrant sound and rhythm to your tracks

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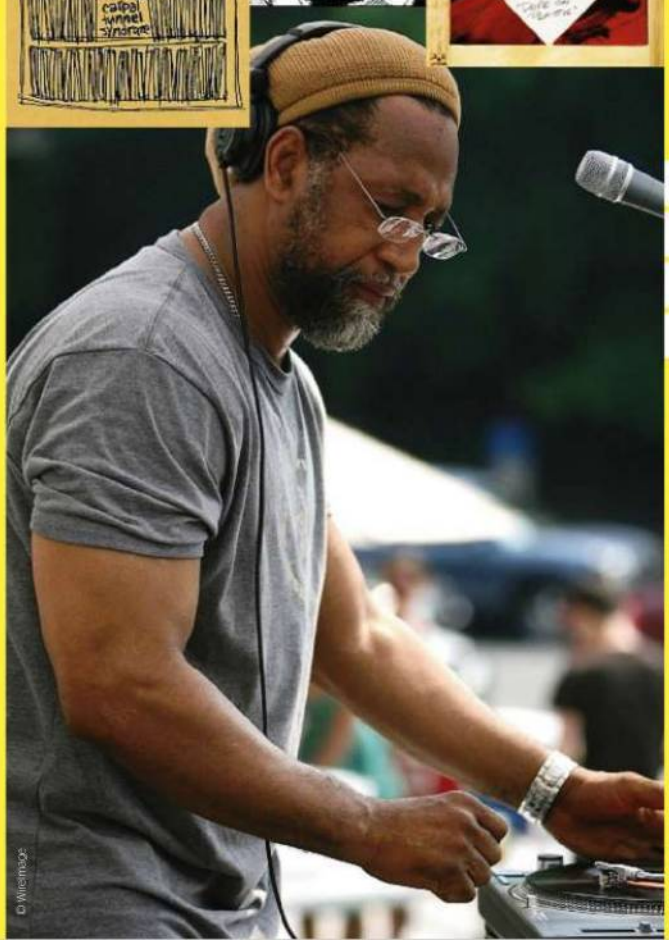


> It's hard to pinpoint the moment when the sound of a manually manipulated piece of thin, grooved vinyl being carved up by a tiny bit of ultra-compressed carbon became sought after. The word 'turntablist' was coined by acclaimed producer and turntablist DJ Babu in the mid-90s, but scratching was already firmly ensconced in the public consciousness by then.

What we do know is that some time around the late 70s, Grand Wizard Theodore put his hand on a turntable to stop it and realised what a cool sound it made when his hand moved back and forth. From there, the likes of DJ Kool Herc, Afrika Bambaataa, Grandmaster Flash and Grand Mixer DXT publicly pioneered the basic techniques.

These days, the art of manually playing back audio using a dynamic interface such as a turntable, CDJ or even a computer controller, features on everything from soundtracks and children's shows to talent shows and chart-topping hits.

The appeal of scratching puzzled many a grandparent and parent in our youth, in much the same way as their parents couldn't get their heads around those funny electric guitar things that emerged in the 50s, or synths in the 60s. However, we reckon the popularity of scratching is down to a combination of factors. Firstly, it's exciting to listen to. There's a sense of raw, hands-on performance, as with any instrument played live. Secondly, it's a great arrangement tool, used to separate and link

"There's a sense of raw, hands-on performance, as with any instrument played live"

sections, or simply as an intro or outro. Thirdly, it just sounds great! You could say it acts as the ultimate instrument, harnessing the music and the song itself, then playing it in new and rhythmic ways.

Of course, as with most instruments, scratching can grow tiresome if overused or done badly. And like any other live performance, it can be tricky to capture the sound of real-time scratching magic and harness it in a track. In the course of the following pages, then, we'll show you how to create, capture and use scratches like a pro...

Tools of the trade

In days gone by, you needed at least one turntable and a hardware mixer to try your hand at scratching. And to be any good at it, you only really had one choice of turntable – the Technics SL-1200 Mk2.

Things have changed radically since then, of course. For a start, today there's a whole range of top-class turntablist decks designed specifically with scratching in mind – they have straight arms that skip less when scratching, ultra-fast start and stop times, obstruction-free designs and, in some cases, even the ability to attach a MIDI controller and play the record like a keyboard.

Finding a turntable is a very personal thing. Tradition means nothing any more, so if you're just starting out and prefer Vestax to Technics, for example, then go for it. Just be sure to try out as many as you can, and have a look at the ones your favourite DJ prefers.

Hit the decks

Another modern choice is the CD. Now, purists will quite rightly point out that you don't get anywhere near the same level of control on most CD decks, even those designed for scratching, as you do with vinyl turntables, but don't be too quick to dismiss them. If all you want to do is add some basic scratching to your sets or tracks, CDs offer a couple of advantages.

First of all, it's far easier to create your own scratch material with CDJs – you simply burn a CD. With vinyl, you need to press up some vinyl or buy additional Serato/Native Instruments/M-Audio scratch hardware. Also, you won't have any trouble with needle-skip, meaning you don't need to practise so hard to achieve certain scratches. And while you're practising, you won't have to worry about wearing out the vinyl!

Next up, we have the 'software and DJ controller' option. These usually look something like a CD deck or turntable and are designed to work either with their own software or some of the popular packages. Models worth checking out include the well-designed likes of EKS' Otus, Numark's V7 or Stanton's SCS.1d.

These units can actually be enormously sensitive, provided they're properly set up and calibrated, making them fine for both home and studio use. However, if you plan to go down this route, always keep in mind that very few clubs are fitted with them, so don't get too attached unless you have easy access to a muscular roadie at every gig.

The innovative Serato Scratch is likely to be allowed at the DMC World DJ Championship for the first time this year, showing just how popular hardware/software solutions are with the new generation of turntablists

Finally, we have the preferred method of many of the new generation of top turntablists: the 'bespoke hardware and software' solution, like those produced by Serato, Native Instruments and M-Audio. Which of these you choose is up to you, but all have the enormous advantages of enabling you to incorporate effects, wild pitch changes and unlimited sound libraries, amongst other powerful features.

Turning the 'tables

Traditionally frowned upon at competition level, the latest word is that even the DMC World DJ Championship is set to allow Serato Scratch this year – a sure sign that these systems are the way forward. They're just as sensitive as vinyl these days (again, provided they're set up correctly – almost all complaints can be traced back to users who haven't followed the setup instructions to the letter) and use control discs – vinyl or CD – so it really is like using the real thing, but with a number of advantages. One disadvantage here, though, is that you'll probably need a separate computer to capture the scratches and source audio separately. You can employ some nifty internal routing to avoid this but it's not ideal, so in this case, two machines are better than one.

In the end, which system to choose really is down to personal preference. However, all are rather expensive for using on just a single track, so if you take one lesson from all of this, it's that just about anything you can DJ with these days can be used for basic scratching as well.

Scratching with CDs

We've already established that scratching with CDs might not have the history, cachet or quite the control of vinyl, but if a CDJ is all you have access to, then don't worry – it can still sound pretty damn good.

There are just a few things to keep in mind. For example, when burning a CD full of scratch samples, make sure you know how your CD deck handles track start points, or how it's set up to handle them. Sometimes when you try to scratch with a track, it will unhelpfully stop itself playing as you're scratching. The sound will come out, but when you release the platter, it won't continue playing. If you can't avoid this, try putting some silence before each sample before you burn them. You might also try burning lots in succession on one track, although you won't be able to 'jump button' them very well (CDJ-1000s only feature three assignable hot-cue points, for example).

Pioneer's CDJ-1000 Mk3 is one of the most popular CD turntables available

Another important thing to do is make sure you have the start and stop sensitivity set correctly, as this will have a huge effect on the sound of your scratches, and they need to be right if you want them to sound like turntables. Usually, it's right in the middle for later-generation Pioneer models.

Finally, try to create set scratch CDs and stick with them. You can have as many as you like, but you'll want to know what track each sample is on like the back of your hand.

Monitoring your scratching while recording requires a bit of setting up

Master your monitoring

The hardest part of recording scratches is getting the monitoring sorted. As with any highly technical, fast and rhythmic instrument playing, being able to hear what you're doing is paramount, but it's even more complicated with scratching. Why? Well, even when you play an unplugged electric guitar or synth, you can still see, feel and hear the timing of your fingers, but with scratching there's no such fixed frame of reference, as there's no way of knowing for sure what sound is coming out, even if you know exactly what your hands are doing.

There are a number of ways to deal with this. Start by making sure your audio hardware buffer size (and, consequently, latency) is set to the smallest value possible without the signal breaking up. With modern equipment, you should be able to get your latency down low enough to be perfectly useable.

Alternatively, another effective method is to set up the monitor speakers separately, connecting one to your DJ mixer and another to the computer supplying the music you're scratching over (you usually won't want the track you're scratching over to be coming through the mixer, as you need to keep the scratches clean in order to sequence them later).

The only problem you might encounter, however, is that you'll probably need to shift the recorded scratch audio a tad to the left to compensate for any recording latency, even if it's only a minimal amount. You also need to make sure the scratches being recorded aren't also sent to your computer's monitoring outputs, otherwise you'll be bombarded with your scratching *and* the delayed record monitoring of it.

> Step by step Recording scratches

1 > We're recording scratches from DJ/producer Alex Blanco and Choice FM's Ben Lightyearz, using a Technics SL-1200 Mk2 with Serato Scratch and a Pioneer CDJ-1000 Mk3 with Native Instruments Scratch Pro, both running through a Vestax PMC mixer. They use microphone recordings and speech synthesis to get customised, copyright-free samples to scratch with.

2 > If you have something in mind for a specific track then just use that as the backing track. Otherwise, make sure you at least have the tempo in mind and use a basic backing track. You can change the timing later, of course, but that can get quite confusing and, as with any instrument, the rhythm needs to fit the track style, so it's best to have the vibe right at the source.

3 > Now we need to do our sound test and set up our monitoring. We need our scratch channels and the material we're scratching over to be completely separate or we won't be able to arrange the scratches, so we run our DJ setup into a mono or stereo channel in our DAW. It's vital to be able to hear everything – for more details on monitoring, see the boxout on the left.

4 > The last decision to make is whether or not to loop your audio while recording, and how long to make the loop. We're recording our scratches on top of the demo track from Alex's Loopmasters collection with Jon Carter, *Block Party Essentials*, so the pair just do passes over the whole track, trying things out.

5 > As with any recording, make sure your levels are good and that you're happy with the take. Do a few runs, recording all the time, then check them back. If you have any doubts, do a few more takes until you're happy. If you aren't happy before it's edited and processed, you haven't got the right take yet. You can edit, of course, but it's usually better to record it right in the first place.

POWER TIP

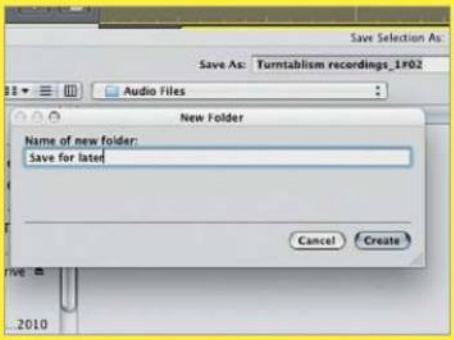
>You scratch my back...

If you have access to a good scratch DJ, it's always worth squeezing them dry, and one of our favourite blags is to have them go nuts over any track we have on the go, from start to finish, with no looping. Scratch DJs love scratching – and showing off how good they are – so it's not usually difficult to persuade them! They'll probably do too much, and you'll usually get sucked in and want to use it all. Ultimately, though, you'll get some great stuff that should – if used sparingly – vastly enhance your track.

> Step by step Selecting and editing scratches

1 > With so many scratches to choose from, we want to make sure we only get the best. However, as the demo track features some radical tempo changes, we also need to be careful where we put them. To start with, simply go through the whole track, listening back to both passes – one by Alex, the other by Ben – and chopping out anything that's not useable.

2 > Efficiency and clarity are the order of the day, so get rid of anything that's not perfect. If you aren't that accomplished a scratch DJ then this can be tricky. However, as we said earlier, while you can edit later if you must, doing so can be tricky, so either keep them simple and good, or keep going at that tricky cut until you nail it.



3 > As we go through and trim out the unwanted parts, we label each of the ones we want to keep with a descriptive title. It's also worth colour-coding them, as with so many small parts, many sounding quite similar, things can get confusing, particularly when scanning the complete arrangement. We bear in mind that our track has tempo changes too!

4 > Quite often you'll end up with a number of scratches that sound good but that you know aren't right for this track. Save them for later projects. Just make sure that when you save them, you do so with their tempo in the name and a bar's worth of silence at the start. Timestretched scratches usually don't work at all well!

Going further

To find out more about scratching, arguably the finest documentary on the subject is Doug Pray's *Scratch* (viewable on YouTube at the time of writing). This tells the story of scratching and turntablism from the very start to the present day, speaking to just about everybody involved. Even if you don't think you like scratching, it's a great story, there's plenty of *incredible* turntablism on show, and it's fascinating to see the whole history unfold on film.

If you want to hone your own skills, there are plenty of online resources that can help, including a complete set of Qbert tutorials on YouTube, showing you exactly how the master does his thing. If you only perfect even half of the techniques that are on offer, you'll be well on your way.

Finally, for the latest scratching news and gossip, head to the official DMC website (www.dmcdjchamps.com). The DMC World DJ Championship is probably the best-known turntablist competition in the world and has been running since 1985. The website has a fascinating history of the tournament and details on how to get tickets for the next one.

> Step by step Making your own scratch material

1 > For the last 20 years – since artists started getting sued for sampling other people's work – the problem with using scratches has been getting hold of copyright-free material. But that's no longer the case, as digital setups enable us to create our own with ease. We start by recording a number of idents and phrases. Speech synthesis software works too, and sound effects can also be effective.

2 > The next step is to edit our phrases. You want sounds with plenty of defined syllables and plosives, as these are the best to scratch with. And depending on how your hardware responds, you might want to leave a second of silence at the start of each sample to ensure proper cueing. If you aren't too keen on your own voice, try applying pitch-shifting and modulation effects.

3 > You might want to jazz up your scratches with a bit of processing. Clean and clear is best, so apply all the kinds of things you might apply to a muddy channel (low-cut, slight mid and high boost, compression). Having said that, people have been scratching with worn-out copies of bad recordings and making classics for years, so don't worry too much on this score.

Five of the best

I WANNA ROCK
DJ JAZZY JEFF & THE FRESH PRINCE
A tour de force of old-school technique, this track was based around a live performance style. Featuring scratching and beat-juggling, it shows one of the true turntable pioneers in action.

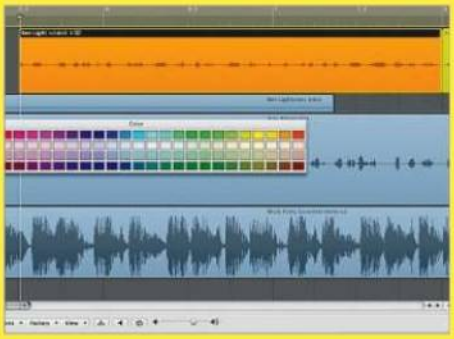
THA REALNESS
GROUP HOME
DJ Premier takes a phrase from Mobb Deep's *Shook Ones Pt. II* and turns it into the basis for an entire track. This is one of the founding ideals in hip-hop, and it's still alive and well today.

ONE TO GROW ON
UMC'S
What the turntablism on this track lacks in modern-day sophistication, it more than makes up for in pure energy, rhythm and musicality. It's hard to imagine a song that's completed more by scratching.

THA WILDSTYLE
DJ SUPREME
Weaving the energy of block party scratching into a hip-house-influenced monster, this one shows how scratching can break free of hip-hop.

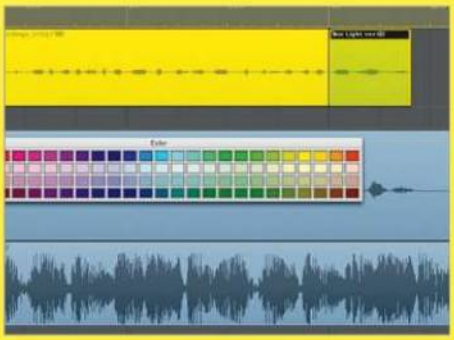
PUMP UP THE VOLUME
MARRS
This classic track features a breakdown that was actually a breakbeat played and scratched live. Listen to how loose it all is compared to modern production, and ask yourself if that makes it better or worse.

> Step by step Arranging scratches in a track



1 > The first thing we do is go through all of our scratches and make their region lengths arrangement-friendly, like a bar or two (being careful to remove any hiss by silencing the audio file up until the scratch). That makes it much easier to line them up when we move them around. We also use a few milliseconds of offset on our scratch parts, as required.

2 > Now we go through our track. You should try to have a mental picture of it beforehand and know where you think scratches will work. Sections of the track where things change are great as scratches add emphasis, but they can also be used to fill in boring bits. Be adaptable, though – if something sounds great, don't ditch it just because it wasn't planned.



3 > Once we've laid out all the scratches we want to use, we find one or two sections that we had a scratch in mind for but that just don't seem quite perfect (a little click here or a mistimed crossfader flourish there). Now, alas, we need to do some editing! We silence an offending section, then cut and paste in something that fits.

4 > Having done a bit of editing, it can be tempting to tinker with the other parts. Unless they sound really awful, we'd suggest you don't. Edited scratches almost always lose the funk, and before you know it, you'll have spent two days trying to make yourself sound like the DMC champion, only to realise your track sounds lifeless and obscenely unrealistic when you listen back. Less is always more!

> Step by step Processing scratches

1 > Scratch DJs usually EQ out the bottom end when scratching, as it can generate some nasty rumbling and makes things seem less defined. They also tend to add a bit of top, again for clarity. Even if your DJ does this when recording, don't shy away from more when needed. Also, scratches can be conspicuous by their absence when they finish, so try a bit of delay on the last sound.

2 > Scratching can generate a very strong signal, especially when sent through a sound system, so applying compression or limiting will not only bring out the subtleties of the scratch, but can also be used to add a realistic 'live' effect. Just be careful not to over-compress things and damage those rhythmic dynamics.

3 > The only other effects we regularly add to scratches are stereo panning on longer scratches (but only sparingly, as a distinctive effect), a stereo widener and some reverb (if we want to make things sound like they're being captured live). Anything else is at your discretion, but we recommend keeping things largely dry in order to get the best out of your scratches. **cm**

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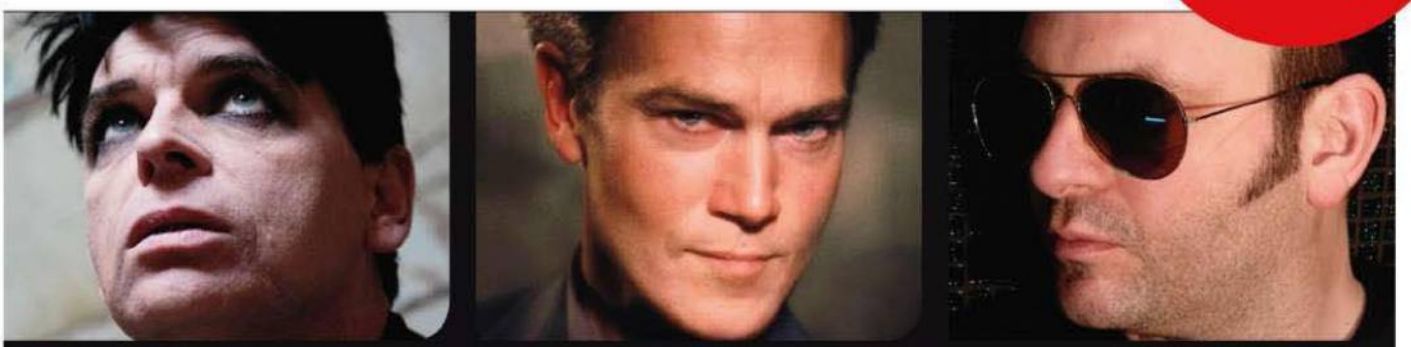

HARDWARE vs SOFTWARE

Electronic music legends Gary Numan, John Foxx and Pentatonik discuss synths real and virtual, and share some of their personal programming techniques

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PLUS! SOLVING DAW STABILITY PROBLEMS / *PRODUCER MASTERCLASS*: BLACK NOISE & NICK THAYER / iPAD MIDI CONTROL / CM *FOCUS*: FILTERS / DESIGNING BETTER STRINGS / SYNTHESISING DRUMS / JOEY NEGRO INTERVIEWED

All magazine and disc contents subject to change

GALAXY Vintage D

Best Service. A legendary grand piano now as Virtual Instrument!

Galaxy Instruments has released Galaxy Vintage D, a virtual grand piano that is based on samples of Bauer Studios' famous 1920 Steinway D, which has served for legendary recordings. This exceptional Steinway concert grand was built in 1920 in Hamburg in the German factory of Steinway & Sons. Over the last 90 years it has achieved a deep and intimate character and a beautiful singing tone.

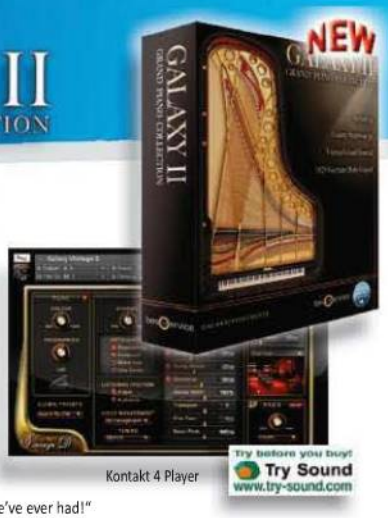
Some of the best pianists have recorded legendary albums on this instrument, among them Keith Jarrett, Chick Corea, Carla Bley, Guillermo and Gonzalo Rubalcaba, Abdullah Ibrahim, Wolfgang Dauner, John Taylor and many others. Richie Beirach called it 'the best piano in the world'.

Try before you buy! Try Sound www.try-sound.com

Kontakt 4 Player

Virtual Instrument incl. Player £ 115,-

GALAXY II
GRAND PIANO COLLECTION



Best Service. The highly rated Galaxy II Grand Piano Collection has been upgraded to Galaxy II K4, which includes the new Kontakt Player 4, a new user interface, new features, better performance and additional samples.

Galaxy II contains three grand pianos: the ***Vienna Grand*** (a powerful Bösendorfer Imperial), the ***1929 German Baby Grand*** (a Vintage Blüthner baby grand), and the 5 star awarded ***Galaxy Steinway*** in stereo and 5.1 surround. Version 4 offers true half pedaling, true repedaling and dynamically playable pedal, damper and string noises when using a continuous sustain pedal. Additional resonance release and noise samples have been added and all the 30GB of samples of Galaxy II have been revised and enhanced. Galaxy Piano's Version 4 takes the Galaxy II Grand Piano Collection to an new level.

Computer Music/UK: „The best piano ROMpler we've ever had!"

Try before you buy! Try Sound www.try-sound.com

Kontakt 4 Player

Virtual Instrument incl. Player £ 219,-

Vienna Choir

VSL. Vienna Choir covers the full range of the human voice including soprano, alto, tenor and bass ensembles. £ 375,- Extended Library Upgrade £ 375,-

Ensemble Pro

VSL. The first virtual instrument & mixing host, featuring cross-platform MIDI and Audio over LAN connectivity on both, Macs and PCs. Contains the EPIC ORCHESTRA bonus library. £ 175,-

Strings Complete

VSL. STRINGS COMPLETE covers the whole range of symphonic string instruments and provides you with authentic sound results for all kinds of orchestrations. Included Collections: Solo Strings I+II - Chamber Strings I+II Orchestral Strings I+II - Appassionata Strings I+II - Harps. £ 1.950,-

RealStrat

MusicLab/BestService. Virtual instr. with an innovative approach to guitar sound modeling and guitar techniques emulating on a standard MIDI keyboard. £ 175,-

RealGuitar 2L

MusicLab/BestService. If you are serious about creating truly realistic sounding solo and accompaniment guitar stuff for your songs, this is what you need. £ 175,-

Ambient Lines

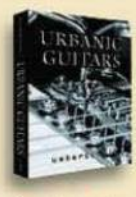
Ueberschall. Dive into the world of spherical and atmospheric sounds. This library is an ideal complement for audio design in movies, commercials, game audio, documentaries.... £ 82.73

Score Elements

Ueberschall. Components for on-the-fly Scoring. Score Elements is especially geared toward professional scoring, game sfx, audio logos and flash applications. £ 89,-

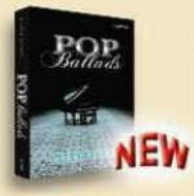
Supreme Styles

Ueberschall. The ultimate library of urban music, which adjust its top priority on guitars and covers a wide range of styles such as HipHop, R&B, Club and Dancehall. £ 89,-



Urbanic Guitars

Ueberschall. A modern dynamic guitar sample collection made with premium gear, experienced talent and high-end signal path; developed for a multitude of professional applications. £ 99,-



Pop Ballads

Ueberschall. Pop Ballads liefert das notwendige Werkzeug für die emotionsgeladenen Facetten der klassischen Pop Musik. 14 arrangierte Songs £ 89,-

Score FX2

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design: aicher-design.de

Ethno World 5
professional & VOICES
by Marcel Barsotti

EW5 PRO & VOICES contains more than 230 professionally recorded ethnic instruments and more than 19.000 high quality samples in the following categories: Bowed Instruments, Stringed Instruments, Woodwind & Brass, Key Instruments, Bell Type Instruments, Metal Type Instruments, World Drums, World Percussion, Gongs & Bowls and the new category of Voices & Choirs. Therefore, EW5 PRO & VOICES with its 19 gigabytes of samples is one of the most extensive ethnic library in the world.

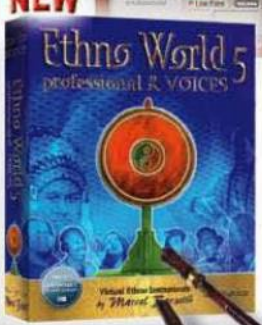
The latest addition to ETHNO WORLD 5 PROFESSIONAL & VOICES are 25 professionally recorded solo-voices from all over the world and an Ethnic Chamber Choir with over 3.800 new samples and phrases. You will find voices from North America, Cameroon, Guinea, China, Iran, Turkey, Bulgaria, Ukraine, North Afrika and Peru.

With the highly improved Legato-Mode in combination with several voice-articulations you now have the possibility to record realistic vocal lines. Another highlight for all film composers are the new Taiko Drums and Big Ethnic Tom Drums, consisting of individual samples (left and right hand) and hundreds of inspiring loops. In the category woodwinds you will find the famous Ney flute (Iran), the Pivana & Tenor Pivana flute (Corsica), the very meticulously recorded pan flute and human whistling. The category Metal Type Instruments there is an all new large selection of Hi-End Crash, Splash, Ride & China Cymbals with Hits, Swells and Loops, the Big Feng Gong and fine glistening Windchimes. The string instruments category has been updated with a Bandura from the ukraine.

ETHNO WORLD 5 PROFESSIONAL & VOICES has tapped into a new dimension with Kontakt 4 and outstanding programming.

Virtual Instrument £ 449

NEW



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SCAN COMPUTERS

Parts or systems...

Scan 3XS Power DAW

"Overall, this is a highly impressive system that takes the crown as the most flat-out powerful we've ever used, yet costs a fair bit less than previous contenders. Can't be bad!"

Verdict

For: Very, quiet and stays cool
Powerful, overclocked i7 CPU
Stylish looks

Against: Not much!

COMPUTER music *Computer Music Magazine December 2009 issue*

we've got it covered.

Supplier of performance hardware and pc audio workstations

NEW

intel CORE i7 inside

★★★★★

Processor Rating

Scan 3XS Power DAW

- Intel® Core™ i7 Processor (2.80GHz, 8MB Cache)
- Gigabyte GA-P55-UD4 Intel® P55
- 625W Enermax MODU82+ Modular Quad
- Thermalright Venomous X CPU Cooler
- 2x2Gb Corsair XMS3, DDR3 PC3-10666
- 512MB Gainward G 210 800MHz
- 640Gb Western Digital WD6401 Caviar Black
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