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welcome

It's testament to the stability of modern operating systems that today's Macs and PCs are veritable paragons of good behaviour when compared to their blue-screenin', non-memory-protectin' Win95/98/Mac OS 9 ancestors. Nonetheless, the fact remains that the only 100% stable computer is the computer that's not been turned on yet.

"The only 100% stable computer is the computer that's not been turned on yet"

As musicians, we push our machines harder than most – the CPU number-crunching that goes on behind a busy mix can easily exceed that of a state-of-the-art PC game. Throw in a few USB MIDI devices and a multichannel audio interface and you've got plenty of potential problem flashpoints.

Hence this month's cover feature, which aims to help you keep your DAW rocking, rolling and sounding its best. Yes indeed, whether you're looking to prevent crashes, lower your latency, get stuck into a spot of housekeeping or improve the output quality of your final mixes, this one's for you. Remember, kids: a happy DAW makes for happy tunes!

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

Am I alone in lamenting the loss of the hard copy equipment/software manual? These days, we're expected to accept a quick-start guide of a few pages, a PDF file or an internet link to an online guide. As useful as these are, surely they complement a hard-copy manual, not replace it.

I've heard a number of different reasons why comprehensive hard manuals are in decline. They include: environmentally unfriendly; too expensive; too complicated to produce; or even, it's more 'creative' to learn through trial and error, stumbling in the dark. I've just printed out a 245-page manual so I can read it when and where I want. I can write notes, place bookmarks and skim to absorb the information I want. Unfortunately, the PDF manual wasn't optimised for printing and the finished hard copy is A4 size, 5cm thick, weighs 1.4kg and is in a ring binder – hardly environmentally friendly and not particularly convenient.

Compare that with the hard manual provided by Ableton: A5, 2cm thick, 600g and nicely bound. The manual for Live has 480 concise and well-written pages, each one far more densely packed than my printed PDF and better in every respect. I would pay for a decent manual if it cut my learning curve and inspired my creativity.

If instrument developers lack the competence or inclination to print their own manuals, they can outsource production or partner a publisher to produce quality, cost-effective manuals. New technology makes it easier than ever.

John Fleming, Whitminster

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 way I see it, there are only three valid reasons for not including a printed manual: pricing, environmental concern (I suspect most people don't print out those PDFs) and, obviously, download-only releases. Beyond that, I agree – when you're paying hundreds of pounds for a complex application, a paper manual should be a given. *RM*

In Bruges

After reading the *Message of the Month* in **cm**154, I decided to write you guys a mail. I also really enjoy the **cm** *Focus* section and have learned quite a few things by reading it, but one of the genres I always fail to produce hasn't been mentioned yet. It's a subgenre of trance but has – here in Belgium, at least – quite a different audience.

The subgenre I'm talking about is Goa trance. It was one I really enjoyed in the late 90s, but that transformed into psytrance at the beginning of this century. Lately, the sound has been revived with the new school Goa trance hype.

My beloved country currently has one of the leading labels releasing that sound, namely Suntrip Records.

I personally enjoy the genre, not only for dancing but also for listening – the layers of psychedelic sounds, the uplifting and soul-touching melodies that are sometimes contrasted with deep, mind-boggling FX...

I hope I've convinced you guys and maybe I'll see a tutorial in one of the next issues!

Bram Hagers, Brugge, Belgium

Well, it looks like this is your lucky day – we just happen to have Goa trance lined up for next month's cm *Focus*! *RM*

Hippy days

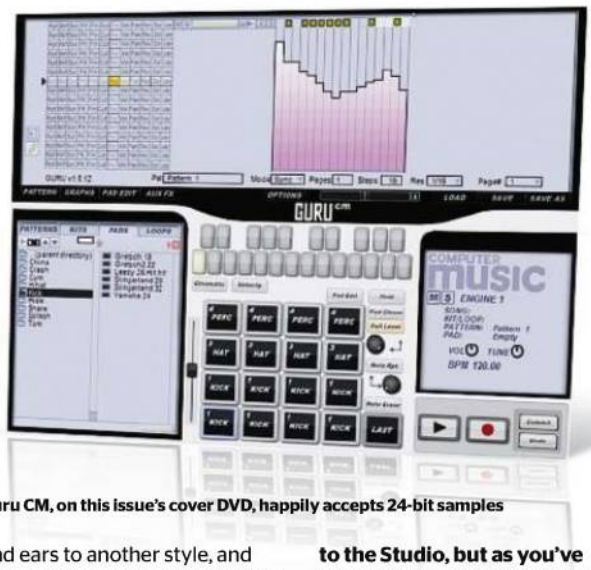
I read with great interest your *Ambient Masterclass* in **cm**153 as I've been creating ambient/New Age music for some time.

As a qualified Sound Practitioner (yes, there is such a thing), I use ambient sound(s) in my practice. I also extend this to the music I create and sell, as a lot of my music is used in visualisation and meditation.

I probably sound like an old hippy, but I believe music in all forms is a great healing tool as it brings joy and harmony to the listener. It was refreshing to see an unbiased and technically creative piece on this genre.

Perhaps a piece on New Age music might be a good idea. Unfortunately, mainstream musical tastes leave this style of music on the sidelines, but still we keep creating and maybe one day Joe Public will tire of the pop genre, open their hearts

Ambient music is more hip than hippy these days...



Guru CM, on this issue's cover DVD, happily accepts 24-bit samples

and ears to another style, and learn what they've been missing.

John E Thornberry, Grimsby

It's turning into a bit of a psychedelic *Inbox*, this one! Couldn't tell you when, but a feature on New Age music is certainly a possibility at some point, yes. *RM*

Sample sorting

Could I request some additions to the **cm** Studio? A dedicated chorus/flanger, a couple of 24-bit sample players (one for drums/one-shots, and one for instruments), and some more presets for Zebra, Rhino, Genesis, and Dominator.

Most importantly, there's a 'must-have' piece of software noticeably missing from the

> "I probably sound like an old hippy, but I believe music in all forms is a great healing tool"

collection - a sample manager! I've tried a few freebies and never found a good one that was usable, stable, offered the sort of features I need, or could cope with a large sample library - mine is around 200GB, most of which are freebies I've been collecting since I got Replay 16 for the Atari over 20 years ago.

If only someone could save me by putting some kind of software application specifically designed to manage sample collections on their coverdisc!

Sarah Davis, London

A sample manager would indeed be a fantastic addition to the Studio, but as you've discovered, developing a good one isn't easy. It's on our list, though. As for those sample players, Guru CM, on this month's disc, just loves 24-bit audio files... *RM*

Disc contented

Every month I print an index of the **cm** DVD so that in future I can check what's on each one without putting them in my PC. This is how you do it...

First, create a little program called DVDtree. Open Wordpad and type **TREE D: /A >Dtree.txt** (assuming your DVD-ROM drive is drive D), and then save it as **DVDTree.cmd** on your desktop.

With the DVD in your PC, double-click the file. This creates a text file listing the contents of the DVD. Open the file in a word processor and use Find and Replace to replace all the **+** | and **** characters with **TAB** and **---** with a blank (ie, nothing), then save the file again.

Now open it in a spreadsheet and follow the instructions, using **Delimited** as Type and **TAB** as Separator. What I do next is remove all the stuff relating to Mac OS. There's usually a blank left-hand column, so remove that too. Save as a text file and re-open it in your word processor.

Format the page as A4 landscape, font size 8, three columns, margins mirrored left and right - inner 6cm, outer 1cm. Make sure it all fits on two pages and print on either side of a sheet of A4. Trim off the 6cm margin, fold it in half and then tuck it into the DVD wallet.

Ewen Flint, Dumfries, Scotland

Beats printing out screenshots of the directory trees in Windows Explorer, that's for sure. Nice work. *RM*

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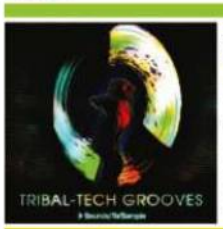

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Halion Sonic surfaces

Steinberg return to the plug-in arena with an impressively kitted-out workstation instrument

They might have invented the VST format, but a brand new virtual instrument is something we haven't seen from Steinberg in quite some time. Enter HALion Sonic, which boasts over 1200 instrument sounds, and promises to surpass its spiritual predecessor, Hypersonic 2 (7/10, cm96), both in the studio and the live environment.

The new system is built on four sound engine modes: disk-streaming sample playback; sliced-loop mode, incorporating the FlexPhraser for triggering slices; a drum mode for rhythm tracks; and a virtual analogue synthesis engine.

The library of instrument sounds was created in conjunction with Yamaha, with 12GB of uncompressed samples available and up to 20 articulations per instrument. Each instrument sound has predefined controls for quickly tweaking layers, while eight SoftPads enable you to trigger notes, plus snapshots of chords.

The synthesis section features three main oscillators, along with auxiliary ones for sub and noise. As well as PWM and sync modes, there's also cross-modulation (ie, audio-rate pitch modulation), and XOR mode, which pumps two square waves through an XOR logical operation, resulting in a sound that's said to be akin to ring modulation.

Filter-wise, there are 24 types, and you can morph between up to four of them. Steinberg reckon their morphing filters are unique, and that they can potentially "create the most ambitious metamorphosing sound textures ever heard". Intriguing.

HALion Sonic features sample playback and virtual analogue synthesis

Locating content is facilitated by the fully integrated MediaBay sound management system, which we presume works rather like that found in Cubase and Nuendo.

Some of HALion Sonic's other features include 64-bit support and VST Expression for editing and control over multiple articulations in Cubase 5.

HALion Sonic comes in VST and AU formats, and is available now for PC and Mac for £212. As an upgrade from Hypersonic 1, Hypersonic 2 or HALion Player, it costs £85.

Steinberg have also announced two new CI-series USB audio interfaces. Joining the CI2 (8/10, cm150) are the CI1, an entry-level unit, and the CI2+, which offers more advanced features. Both of the interfaces have two microphone/line channels (with the first input switchable to a Hi-Z instrument input) with phantom power. The CI2+, however, has some extras related to Cubase integration: the AI Knob, Action Pad and a transport section.

Software-wise, the CI1 comes with Sequel LE and WaveLab LE 7, while CI2+ buyers will get Cubase Essential 5 instead.

Both are set for an August release, with pricing to be confirmed.

www.steinberg.net

The CI2+ sports numerous Cubase-specific features and should be available from August

AdrenaLinn rush

Roger Linn Design revise their rhythmic filter plug-in

Not just for guitars, AdrenaLinn Sync 2 can add a diverse range of effects to all your instruments

> AdrenaLinn Sync provided the effects of the AdrenaLinn III guitar pedal in software form, and now Roger Linn Design are unleashing version 2, which offers a host of new features.

The basic premise of AdrenaLinn Sync is to transform the input signal using tempo-synced effects driven by a built-in sequencer. This new version has been created with the added expertise of Way Out Ware (creators of TimewARP 2600 and KikAXXE), and as such boasts "flawless analog-modeled filters". The sequencer can drive the filter frequency as well as volume/panning, as can the LFO. In addition, there's a distortion section and a limiter.

"The filters simply sound exceptional and don't need post-processing to get professional tones"

Roger Linn Design

This all gives rise to "dramatic rhythmic patterns of filtered, resonated, chopped, pulsed, spiked, sequenced, looped, delayed and otherwise manipulated tones".

The features have been updated according to user feedback and include 100 new presets, a 3D rendered user interface, an improved limiter, and plenty more.

AdrenaLinn Sync 2 costs $99, but is a free upgrade for owners of the original. A free, fully featured 14-day trial version is available from the website.

www.rogerlinndesign.com

Spectral Conquest

Expert Sleepers dream up a new FFT-based plug-in

> Expert Sleepers scored a perfect 10/10 with their Silent Way suite (cm147), but can they repeat their success with the spooky-sounding Spectral Conquest?

This Mac and PC effects plug-in enables you to manipulate the frequency spectrum of your audio signals. Using FFT processing, the sonic spectrum is split into narrow frequency bands, which you can then tweak either via built-in or custom-written scripts, or by setting a simple multiplier. The built-in scripts cover basic tweaks such as gating and filtering, but if you're so inclined, you can roll your own such scripts, to take the effect much further.

Spectral Conquest is available now, priced $29. It's also available in an Ultimate Bundle and a Creative Effects Bundle.

The snazzy-looking display, where you can get hands-on with your audio's frequency spectrum

www.expert-sleepers.co.uk

Mixdown

Our Deputy Editor tells you how to wring every last drop out of your netbook

> Mobile music-making is all the rage here at cm, and while Ronan's proudly buffing up his iPad, I'm still quite happy with my Samsung NC10 netbook. It's proved to be an invaluable musical scratchpad and a handy mobile recording device. It's not bad for tootling around the net either.

With such a dinky screen and unmuscular CPU, though, it's hardly cut out for running modern music software like Ableton Live 8. But I do it anyway. Want to know how? Then read on for a crash course in tuning your netbook for maximum musicality!

I'll assume you're using Windows XP and Live 8, just like me, but if not, I'm sure you can adapt these tips to your chosen setup. First off, there's plenty you can do to maximise use of the screen real estate.

"Forget about chip-melting soft synths and instead use quality samples"

Hunt out your taskbar settings and turn on the auto-hide option to conserve a valuable strip of pixels. In Ableton Live, hit F11 – this puts Live in full-screen mode. Be sure to turn off any pop-out panels that you're not using, and remember you can hide bits of the mixer with the small buttons on the right-hand side. Now, in the Preferences, head to the Look Feel section and check out the Zoom Display option – handy, eh?

To squeeze the most musical juice out of the CPU, I use the ASIO4ALL driver with the sample rate set to 32kHz and the buffer size at maximum, meaning I can run more plug-ins. 32kHz is hardly ideal, quality-wise, but it's only for roughing out ideas, and you can always bump the rate up to 44.1kHz for mixdowns (or transfer the project to your desktop machine to do a proper mix).

It's best to stick to Live's effects rather than piling on VSTs. And don't go slapping reverbs and delays on every channel – just use a couple of global reverb/delay send channels instead. As for sound sources, forget about chip-melting soft synths (the super-efficient Synth1 being a notable exception) and instead use quality samples. Further CPU-saving tricks include disabling unused instruments and effects (grouping to a Rack helps, and you can automate the bypass button too) and resampling: freeze a track, duplicate it, flatten it, then dump the audio in Simpler. Simple!

Big names line up for cm Producer Sessions

More stars confirmed for our live masterclass extravaganza

> ***Producer Sessions Live*, the first ever live event from cm and our sister magazine *Future Music*, is almost upon us! Taking place at SAE London on September 25-26, this truly exclusive music technology weekender brings you masterclasses, seminars and product demos from a roster of music production heavyweights, industry experts, software developers and manufacturers, as well as the chance to get your hands on the latest music software and hardware.**

As reported last issue, Freemasons, Danny Byrd, Dave Spoon, London Elektricity and Tommy D will all be delivering tutorials and Q&A sessions. Now we can reveal that they'll be joined by Sharooz, Alex Blanco and Jon Carter. DJ, artist, remixer and producer Sharooz is a rapidly rising star of the UK electronic music scene, and the brains behind soundware company Sample Magic. Alex and Jon work together in their collective guise as band/DJ collective Roosevelt High. Since the 90s, superstar DJ Jon has played everywhere from Heavenly Social Club to the Glastonbury and Reading Festivals, both under his own name and his Monkey Mafia pseudonym. **cm** regular Alex has been DJing for over 20 years, and a renowned producer/remixer for a decade.

The **cm** and *Future Music* teams will also be there, of course, answering your questions and generally shooting the breeze. There'll be plenty of kit to try out, too, with products on show from Propellerhead, Focusrite, Ableton, Steinberg, Novation, Time+Space, Spectrasonics, Korg, Toontrack, Focal Professional, MOTU, MXL, Numark, Akai, FXpansion, Roland, Cakewalk, Universal Audio, PreSonus, Avid, Digidesign and M-Audio. If you see something you particularly like, you'll even be able to buy it there and then from our show sponsors, Absolute Music.

Producer Sessions Live – a star-studded weekend of unadulterated music technology indulgence!

Entry is £8 per day, and each Producer Session costs £4. Space is limited so get your tickets now. Full details on the show and ticket ordering can be found at the *PSL* site, and you can follow **prodsessionlive** on Twitter for all the latest news and updates.

www.producersessionslive.com

cm Special

> **Whether you're into dubstep, drum 'n' bass, house or trance, you'll find all you need to create your next floor-filler in *Make Dance Music*, our brand new cm *Special*.**

The DVD is packed with software and sounds, with 810 pro samples plus all the tutorial files you need to follow the guides in the mag. Those guides include everything from an expert look at synth patches to a fast guide to breakbeats, plus in-depth tutorials on creating your own unique dance sounds, whether you're after a French house-style polysynth or vocal-style leads.

cm Special* 42: *Make Dance Music is out now! Turn to p96 for stockist information.

www.computermusic.co.uk

Damaged

Hitting the open road leaves Chris Randall feeling driven to start creating new tracks

> I recently had to drive from my home in Phoenix, Arizona (yeah, *that* Arizona, the one full of crazy xenophobes that you keep hearing about on the nightly news) to my mother's home in central Idaho to deal with a family issue.

For my dear European readers who might not have a particularly good grasp of the size of the United States, it would be roughly the same distance as driving from Paris to, say, Oslo. The big downside is that I'm not leaving from Paris or driving to Oslo, and I don't get to stop in Hamburg for a quick run through the Reeperbahn.

The western half of the USA is, to not put too fine a point on it, full of a whole lot of nothing. One can easily drive for an hour or more and not see a single living soul, nor any sign of man, aside from the road in front of you.

This solitude always has an interesting effect on me. After I get over the initial excitement of a road trip (which is normally about an hour into the 19-hour drive), I turn off my iPod and settle in to the sound of the road and the wind.

> "I find that this all-encompassing nothingness always leaves me incredibly refreshed, creatively"

There is no cell phone service to speak of across the vast majority of the American West, despite what Verizon or AT&T may advertise, which means I'm not constantly interrupted in my revery by Twitter updates, text messages, instant messages and – kickin' it old school – the phone ringing. It's just me and the ambience.

I find that this all-encompassing nothingness always leaves me incredibly refreshed, creatively. After I'm done with a trip like this I'm always ready to write a new song, and somehow the strange melodies and drones always work together.

On your next long drive, give it a whirl. Turn off the stereo, crack the windows and enjoy the nothing. At least until Hamburg comes over the horizon.

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

Quartz rocks up

Have Artificial Audio unearthed a gem of a plug-in?

Quartz offers loads of effects for transforming your sounds

Artificial Audio impressed us with their Obelisk back in cm136 (9/10), and now they have us intrigued by Quartz. It's described as "a unique multi-effect plug-in that turns the simplest sounds into ever-evolving rhythmic soundscapes".

You get an array of switchable effect modules, these being gain/pan, tempo-synced tape-style stereo delay, a triple-mode waveshaper, and dual multimode filters. The latter have an optional 'fat' mode, which adds saturation, and can be run at 4x oversampling, for greater sound quality.

"With its variety of effect modules, Quartz gives your sounds the right shape and groove"

Artificial Audio

To bring the sound to life, there's a sophisticated modulation system, key to which are the four definable "modulation lines". These look much like DAW automation curves, with up to 100 points each, and there are plenty of predefined curves to flick through. In addition, there are four LFOs, which can run from a sluggardly 0.01Hz all the way up to 2kHz. They can also be tempo-synced. All modulators can control the internal effects, and they can output MIDI too, for controlling other plug-ins or external MIDI gear.

Quartz is available now for PC and Mac and costs €99, with a limited-time introductory price of €79.

www.artificialaudio.com

Juice up your sounds

SoundToys recently released Decapitator, a full-on, off-with-your-head distortion that impressed us when we reviewed it as part of the SoundToys v4 bundle (10/10, cm152).

With the gain backed off, many users have found Decapitator to be great for gentle 'warming' too, and this is what inspired SoundToys to begin work on Juice.

Juice is an analogue input channel modelling plug-in that's designed to tenderly tweak – rather than terrorise – your tracks. It's very much a work in progress right now, so the specs and preliminary screenshot here are subject to change. However, SoundToys say the plan is "to develop four to six entirely new input models based on console input channels and/or mic pres, running at normal to slightly driven levels." You can keep an eye on Juice's progress at SoundToys' brand new technical blog, The ToyBox, where you can also post comments.

Our first taste of Juice, although this isn't the final GUI

A release date and pricing are yet to be announced, but we assume Juice will be available for Mac and PC in the usual formats.

www.soundtoys.com

Trackers & Demoscene

We take a look at OpenMPT and trace its history back to the 1990s

Back in the days when 56k modems were state-of-the-art, music on the internet was a spartan affair. Geocities user sites were riddled with the shrill, irritating tones of General MIDI, MP3s hadn't yet attained ubiquity, and streaming music just wasn't an option due to the slowness of dial-up internet connections. In the early days of The ModRing – a ring of artist-created websites dedicated to tracker music – the ModPlugin browser add-on, created by Olivier Lapicque, was used to play tracker music straight from websites. Thanks to the architecture of the format, minutes of tracker music were squeezable down to tiny file sizes, sometimes less than 10KB – small enough to download in seconds on that cutting-edge modem.

"The ModPlugin add-on was used to play tracker music straight from websites"

These early seeds spawned the standalone ModPlug Player (superseding the then-famous Mod4Win player) and also the full-on ModPlug Tracker. Long after the project became Open Source and was effectively abandoned, it was resurrected as OpenMPT, and is still going strong as a full-featured multi-format VST-supporting tracker. For the recently released v1.18.02.00, see **openmpt.com**.

DEMO OF THE MONTH

***Haujobb BBQ 2010* by Haujobb**

In a month packed full of party invite demos for the high-profile likes of Assembly 2010, this production is simply an elaborate barbecue invitation for one evening in a park in Cologne, Germany (bring your own beer). We can only speculate that never before has so much effort been made for so trivial an event. And hats off to that. There are links to this and more demos on your **cm** DVD.

Haujobb's extravagant and fun barbecue invitation

Is it still possible to make money as an artist?

> It's official: the music business is dead. We live in a time when a vast number of music fans download all the music they want for nothing, so the notion that you can make a living as a recording musician is becoming an increasingly tired joke.

That's the depressing theory you'll hear espoused by artists and executives alike, but while it's true that the decline in CD sales (and corresponding rise in illegal downloading) means you're highly unlikely to be able to make ends meet simply by selling 'records', all is not lost if you're an artist who wants to make some moolah out of what they do.

"Gigging is a sure-fire way of topping up your profile – and your bank balance"

The trick, in this day and age, is to be versatile, but without selling yourself or your music short. It's very noble to take the view that your 'art' should speak for itself and that simply producing great music and getting it out there should be enough to ensure success. Sadly, it probably won't be.

We're going to assume that you know the basic rules of self-promotion – build a website and keep it updated, get active on social networking sites, give some of your music away and engage with your audience – and focus instead on some practical ways of turning your music into cold, hard cash... or at least giving yourself a chance of doing so in the future.

Play for pay

It's been said many times that the artists most likely to succeed in the music business of the future are those who perform as well as record, and with very good reason. Anyone can steal your tunes, but the live experience can't be replicated. It's also a great way to start networking with other artists, promoters, label-owners, etc, potentially leading to more money-making capers further down the line.

We considered how to make a live computer music performance more engaging in **cm**154's *Burning Question*, and we'll have a nuts-and-bolts feature soon. Rest assured, regular gigging is a sure-fire way of topping up your profile – and your bank balance, if you're lucky. Be sure to pick the right venues, though. If you're into moody, downtempo dubstep, you'll probably be wasting your time playing at a night where the crowd are expecting pumping house.

A faster cash reward may come from DJing – using your artist name when you play, of course. Whisper it quietly but, assuming you can mix, you may find getting DJing gigs easier than 'proper' live ones, and the money you earn could help to subsidise your production work.

This is a view taken by rising electro/disco/house star Grum, who says, "At a certain level, [*DJing*] can be good, as it can be an instant source of income, which gives artists time to work on music during the week, rather than having a full-time job."

It's also a great opportunity to play your tunes out alongside the most popular tracks in your chosen genre to see how they hold up, and where you need to improve them.

The remix route

Of course, when you're in the studio, you'll want to devote plenty of time to your original productions, but another way in which you might be able to generate a revenue stream is by remixing for other artists.

Alex Blanco divides his time between production and remixing work at his West London studio. He says, "Even without being famous, with the right contacts and some good groundwork, it's possible to earn between £400 and £1,500 for a remix – if you're lucky! If you're a big name, that figure can be much higher. Getting your foot in the door can be tricky, though, and even the big labels have much less money to throw around now."

Remixing can be profitable, then, but if your long-term goal is to be successful as an artist or producer in your own right, you need to make sure you don't end up putting all your resources into it. "The trick is finding a balance between giving a remix project your all and giving all your best ideas away," confirms Blanco.

As with DJing, remixing can give you a way of making money while simultaneously furthering

Illustration by Jake

your career as an artist, but there are less obvious ways of doing this too. You'll probably be aware of artist sample collections – DVDs or downloads of samples that aren't produced by a faceless production team, but by someone who puts their artist name to them and gets their picture on the artwork. If you can create sounds that other people will want to use, it could be a nice little earner, and a promotional boost.

Matt Pelling, boss of sample production/distribution house Loopmasters, says, "We accept sample submissions from anyone in the world, whether they're already successful in their own right or are simply very good at something, such as bass sounds, drum programming or a genre such as dubstep or minimal house.

"Artists can approach us directly at any time to discuss their ideas, and typically we're looking for either 'Godfathers of the genre', such as Marshall Jefferson, DJ Pierre, Todd Terry, Mad Professor and John '00' Fleming, or artists who are quickly rising through the ranks and making a big name for themselves in a certain style, such as Meat Katie, Dom Kane, Rogue Element and Jamie Anderson.

"With regards to revenue generated from Artist Series products, this, of course, is classified information, but I'm happy to say that despite the economic factors limiting the amount people can spend on products such as samples, with the right PR and artist co-operation, we can still look to sell 1000-2000 units over a three-to-five-year period. This generally creates a reasonable return that the artist feels is worthwhile."

Taking stock

It sounds good, but what about taking a step back and considering how you might make some money out of music that you're already written and recorded? It might not be very fashionable, but one option is to submit it to a library music site so that it can be used by TV, film and other media producers.

StockMusicSite.com currently has more than 377,000 tracks online, produced by in excess of 2441 artists, and their Vice President, Lee Johnson, says, "We have between 50 and 100 new artists come on board with us each month. Our goal is to provide the best and most diverse selection of music and sound effects possible to our large client base at an affordable price."

So how much can we make? "Artists earn 40% of each licensing sale we make," explains Lee. "They can earn 100% of performance royalties if they administer their own publishing. If we administer it for them, we earn the publisher's 50% share of performance royalties."

You've got a better chance of succeeding in the world of library music if you produce music in a specific genre – preferably one that's currently in demand. Other sites to check out include StockMusic.net and PremiumBeat.com.

While not all of these money-making wheezes are likely to appeal to you, you stand a far better chance of succeeding in today's music business if you're prepared to diversify. It might sound horribly corporate, but you need to think about yourself not just as an artist, but also as a brand. Then it's just a case of extending into the areas in which you can make money, without compromising your integrity and credibility. **cm**

Ins & outs

PANDORA'S BOX
The long-awaited Pandora handheld games console has arrived! As well as seeing some nifty games on the thing, we're hoping some bright spark will use the open source-powered device to knock out some music-making apps. Watch out, iPad...

CHRIS SIEVEY
Much better known as cult comic character Frank Sidebottom, Chris died on 21 June. His first appearance as Frank was on a record promoting Sievey's 1984 ZX Spectrum game *The Biz*. The world is now officially a slightly less funny place. You know it is – it really is!

THE JOY OF SIX
The BBC Trust has rejected the BBC's plans to shut digital station 6 Music. Despite being one of the few stations to showcase new, eclectic, non-mainstream music, the BBC seemed keener on using your licence fee to prolong the inanity of Chris Moyles et al...

ROYAL RUMBLE
The internet is dead, according to pint-sized pop star Prince. "All these computers and digital gadgets are no good. They just fill your head with numbers and that can't be good for you," he said. He also reckons playing guitar stopped him from going bald. 'Nuff said.

BEEN THERE, DONE THAT...
...now get the T-shirt! Pull on the Electronic Rock Guitar Shirt, then wave the magnetic plectrum over it and finger the frets to hear your riffs pumped out via a mini replica amp. See **www.thinkgeek.com**

JONATHAN 'JOFFA' SMITH
The legendary games coder passed away on 26 June. He's most famous for crafting ZX Spectrum classics such as *Green Beret*, *Cobra* and *Firefly*, and as computer musicians, we give Joffa special props for his groundbreaking music routines.

Busting jargon

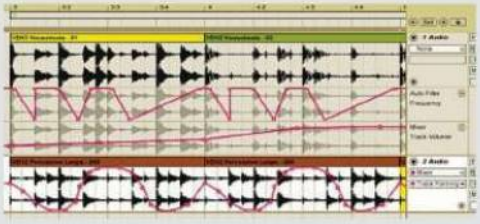
Computer music terminology explained. This month: **Automation**

In the bad old days, mixing was very much a hands-on, real-time activity. Let's say you wanted a guitar to pan left and right during a solo – you'd have to wiggle the panning knob yourself. And how about having some more reverb on the vocals during the chorus? Again, you'd have to manually increase the reverb send for the vocal channel at the appropriate time. As a mix progressed, you might end up with a huge number of knob and fader tweaks to be made, and with the average mixing engineer having only two hands, it might have been necessary to get assistants to help with on-the-fly tweaking. This process would have to be 'rehearsed', then, and when everyone had the hang of it, you'd be ready to make a mixdown by recording the mixing console's output to tape.

In the 70s, advances in technology meant it was possible to record not just audio but also movement of the mixing console's controls, which could then be replayed. This is known as an automation system, as it automates the process of control tweaking.

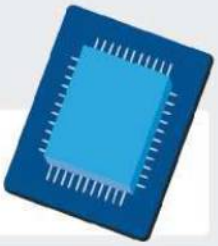
Powerful automation systems are found in all modern DAWs. You can use them in the 'old school' fashion, to record, say, channel volume changes by moving the fader on the screen using the mouse or a MIDI controller. The recorded automation data will typically appear on the screen as a series of lines connected by nodes, usually called an automation curve or envelope. You can then tweak the nodes to edit your recorded automation to perfection.

Of course, you can also draw automation data straight in. Some DAWs offer functions like smooth curves and LFO-style undulations, while Ableton Live's Clip Automation enables you to automate on a per-clip basis.



Automation in Ableton Live – note that you can automate multiple parameters of a single track

System check



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

METAL DETECTED

PC lovers covetous of the sleek aluminium body of Apple's MacBook Pro can sate their lust for metal machines with Asus' latest Eee PCs. The aluminium-clad 1016 and 1018 are petite 10.1" netbook affairs. The 1018P has already launched in the US, so we can confirm that it runs on an Intel N450 1.66GHz Atom processor, has 1GB DDR2 RAM, a 250GB SATA hard drive, three USB ports, and that all-important black or plain brushed aluminium finish. Battery life is said to be up to 10 hours, and you can expect to pay about $430 for the privilege of owning the machine. The unreleased 1016 looks set to be more powerful, with rumours suggesting it has 2GB RAM and a 320GB hard drive. The pair also have a little brother, the 1015, which lacks the aluminium casing but appears to offer the same specs as the 1018.

Metal maniacs will lose their heads over these slick new Asus netbooks

www.asus.com

ITUNES LIBRARY UNSHACKLED

Here's a great piece of news for iDevice lovers: Apple have finally lifted the restrictions on allowing apps to access the iTunes library in version 4 of their mobile operating system. Applications can now access the music in your iPhone, iPod Touch or (later this year) iPad directly, which opens up the devices' potential as DJ tools. While DJing software has previously been available from the App Store, it required app-specific workarounds for users to import music – hardly ideal.

New apps have already appeared to take advantage of the change, though so far they've been quite simple, such as Flare Scratch, which allows users to virtually 'scratch' their iTunes tracks over a beat. While this basic app isn't going to give the likes of Native Instruments Traktor anything to worry about just yet, the potential for future touchscreen DJ applications is huge, and we presume the developers of the more serious current iPhone ones will quickly update theirs to take advantage.

www.apple.com

WINDOWS 8 SLATED FOR RELEASE?

Windows 7 might have launched less than a year ago, but Microsoft are already hard at work on the follow-up, it would seem. Slides allegedly leaked by a software engineer at Hewlett Packard depict the tablet version of WIndows 8 running on a 9" slate device, and it's rumoured that we can expect big improvements to the on-screen keyboard, faster boot times, 3D support, and the launch of a Microsoft app store to rival Apple's. All these niceties are eclipsed by the most exciting Windows 8 rumour, though: Kinect support. Previously known as Project Natal, Kinect is Microsoft's Xbox 360 camera and mic-based control system. If, as rumoured by several blog sites, Windows 8 supports the device, it could potentially detect your presence in the room and log you on to your PC before you've even sat down at the keyboard.

www.microsoft.com

Get with the programmers

The CEO of Slate Digital shares his professional opinions on the industry and the future with **cm**

Slate Digital Steven Slate

cm Your background is in music production/engineering/songwriting. Why are you developing music software?

SS "I was never dissatisfied with audio software, but I quickly realised there were some things missing. The reason I started to develop my own software was to fill in these gaps. Most of the ideas come from a desire to improve my own workflow."

cm Who else works at Slate Digital?

SS "We're a very tight team. We have a compound in the hills of Los Angeles, where we also have two recording studios, and its a fun environment in which to work. The company consists of myself and my partner Fabrice Gabriel, who is also the genius behind the coding of our plug-ins. He literally dreams of DSP code in his sleep! He's also a brilliant musician and has great ears. Alex and Serge are code guys who were responsible for producing the amazing algorithms behind our Trigger drum replacer. The GUI designers are Yannick and Dennis. The office also consists of our administrators Jesse and Deborah, our customer support administrator Alex, our shipping and receiving manager Andrew, and then we have Steve in IT, which is a busy position given the amount of digital delivery that we do."

"The record industry needs to catch up to the technology"

cm What is your role in the software development process?

SS "First, I get the idea. This usually comes right in the middle of a session when the plug-in concept is needed most, but sometimes the ideas pop up randomly – I came up with the idea for the Virtual Console Collection during jury duty! I had snuck in a gear magazine to read during the breaks and was amazed that another analogue 'summing buss' had come to the market. I figured that it made more sense to finally do it digitally.

"Once the idea is there, Fabrice and I work to form the structure of what the plug-in will do and how it will do it. Once Fabrice has a good portion of the code completed, he makes me a test plug-in, and then I'll tweak the parameters in my room while listening to reference material. Once my changes are done, Fabrice will update the code according to the changes. This type of back and forth can happen dozens of times. And we do a ton of listening tests. I can't imagine another company that does more listening tests then we do!"

cm Do you think there's more innovation in music technology than there is in music itself these days? Does it matter?

SS "There's innovation in both, but recently, the technology drives the art. There's a lot of diversity and innovation in music today, but some of the most innovative stuff never gets heard because the music business is a shambles. I think the record industry needs to catch up with the technology. Its getting there, but it has a way to go.

cm What's next for Slate Digital?

SS "We've got a lot of exciting new products coming out over the next year. One that's in public development is our FG-Q mastering equaliser. It has a lot of unique features and also replicates the sound of one of the most famous mastering EQs in the industry. It'll also have a large hardware controller for pro use. It's gonna be cool!"

Kuassa strike a chord

A new name on the amp simulation scene, Kuassa are aiming for "supreme tone" and ease of use

Looking for a no-nonsense guitar amp sim? Amplifikation One may fit the bill, with creators Kuassa Inc claiming that it'll help you to "focus on building your tone rather than messing around with parameters".

"Build great tracks without any obstructive workflow or confusing parameters to handle"

Kuassa Inc

The software doesn't emulate specific gear but instead focuses on simply providing quality tones, according to Kuassa. There are eight amp heads, a noise gate, five distortion modules, five microphone types and five cabinet models. You can use two cabs at once, and the mics can be freely positioned, which should provide endless entertainment for those who love hunting for the sweet spot.

Amplifikation One for PC and Mac, in VST/AU formats, is priced $35. There's a free version, Amplifikation Lite, too.

www.kuassa.com

Soundware news

For those authentic Nashville sounds, check out **SDX: Music City USA** (£119), which boasts 12GB of drum content for Superior Drummer 2.0. It's touted as being ideal for everything from country to punk.

If you'd prefer the sound of Motor City, how about Big Fish Audio's **Detroit Soul** (£65)? Drums, bass, keyboards, sax, guitars and more are included in the 3.6GB of WAV files, presented as 28 construction kits.

Garritan **Jazz & Big Band 3** (£99) is powered by the company's own Aria engine and is rammed full of trumpets, trombones, winds, keyboards, basses and more, totalling over 50 instruments. Sax addicts will be especially interested in the inclusion of a brassy 16 saxophones.

www.timespace.com

5Pin Media's **Tribal Percussion** (£45) packs in 1.9GB of loops, kits and multisampled instruments, with the percussive sounds of djembe, congas, bongos and more. The collection comes in NN-XT, Live Sampler and Kontakt 3 formats.

Spice up your tracks with EarthMoments' **Indian Emotions** (£30), offering 567 samples of traditional Indian instruments, including string, woodwind and vocal sounds, from sitar to dilruba and beyond. It weighs in at 785MB.

Closer to home, BHK's **UK Mashup** (£20) offers 24-bit samples ideal for a plethora of dance styles. The drums are all set at 135bpm, and are joined by effects, music, percussion and bass loops.

Dubstep producers who feel that their tracks lack the human touch should cock an ear to Dubdrops' 130MB **Dubstep and Grime Vocals** (£20) set, in which they'll find 735 vocal samples.

www.loopmasters.com

Disco Electro (£17) is a "shimmering collection" of 450 128bpm samples from producer Jon Pegnato. It's said to take in the best of electro, nu-disco and tech-house, and offers up drum loops, tops, bass, synth, music, FX and one-shots, totalling 286MB.

Also new at Sounds/To/Sample is **Deep Afrika: Tribal Tech Tops** (£14), supplying 200 kick-free loops, featuring authentic tribal ensembles blended with electronic percussive sounds.

www.soundstosample.com

News in brief

HOT NEW VINTAGEWARMER

PSP Audioware have released version 2.5.0 of their VintageWarmer plug-in. Now packing in three variants – MicroWarmer, VintageWarmer LE and VintageWarmer 2 – it's a flexible single or multiband compressor/limiter for adding warmth, tape-style compression and more. It's available now for PC and Mac, priced £149.

www.pspaudioware.com

LIMITED ARTURIA OFFERS

It's summer sale time at Arturia, and the company have released details of two special offers. First up, the V Collection 2 is available with a huge €100 off the usual price. If you don't require the full package, you can go for their two-for-one deal instead. Synth titles included are Moog Modular V, CS-80V, Minimoog V, Prophet V, ARP2600 V, Jupiter-8V, Analog Factory, Brass and The One. These offers are only available until the end of August – see the dedicated website for further information.

www.mabananagottheband.com

SAMPLE A FINE VINTAGE

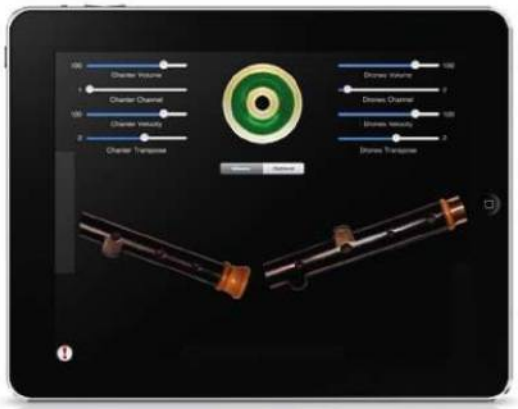
Previously a Scarbee product, VKFX has been relaunched by its developers, Overloud. It's an effects suite for keyboard players, featuring eight analogue-style modules. Overloud have added support for 64-bit hosts and the RTAS format, along with a new, simplified licensing system. It's out now for PC and Mac in AU, VST and RTAS formats for £117.

www.overloud.com

CM153 COMPETITION WINNERS

In cm153's competition, there were two Softube bundles to be won, each containing the terrific Trident A-Range EQ (9/10, cm151) and totally top Tube-Tech CL 1B compressor (9/10, cm150). So who won 'em? Dave Holmes and Steve Foote, that's who!

If you'd like to get something for nothing, turn to p94 for your chance to win a SoundToys Native Effects bundle!



Synthstation marks Akai's arrival in the App Store

Put your bagpiping skills to good use with this MIDI-over-WiFi control app

App watch

New music apps for iPad, iPhone and iPod touch

> Akai SynthStation packs a full production studio into one app. Akai have included three synths, a collection of drum kits with MPC-style pads to trigger them, effects and filters. Sequencing functions include a keyboard grid and a separate grid for drums, and there's an X/Y pad for hands-on control.

Akai SynthStation is available in the App Store for iPhone and iPod touch, priced £5.99.

www.akaipro.com/synthstation

AirPipes is nothing if not unique: "a WiFi-based wireless MIDI bagpipes control surface for the iPad." It produces no sound of its own and instead pumps out two channels of MIDI: one for the drone and one for the chanter – ie, the melody. You can choose between Irish Uilleann and Scottish Highland fingerings, which are said to be suitable for pennywhistle and flute players too. There are further pads for pitchbend, chanter stop (useful for staccato sounds), back D (the note played by the thumb stop on the Uilleann chanter) and octave switch. If nothing else, it's a practical musical demonstration of the iPad's multitouch capabilities, and of course, you could use it to control any sounds via MIDI, not just blaring bagpipes.

Olsynth goes for a pared down, gimmick-free look – presumably extra effort went into its sonics

AirPipes is available now in the App Store and costs £2.99.

www.tradlessons.com/AirPipes.html

Olsynth from Olsonvox is a monophonic synth with a minimal, fuss-free interface. It has seven settings pages: oscillator settings, oscillator tuning, modulation, filter, arpeggiator, filter envelope and volume envelope. There's a five-octave keyboard, and that's about it. Like we said, minimal.

Olsynth is available now for iPad, priced £3.99.

www.olsonvox.com

Game overture

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

> We tend to get caught up with the huge number of new soundtrack announcements here at Game Overture, so let's take a closer look at two soundtracks that have been out for a while.

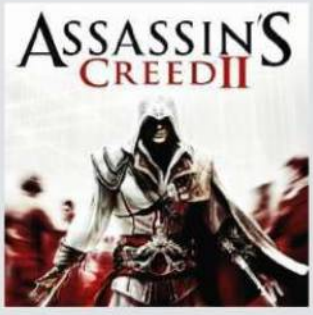
First up is *Forza Motorsport 3*. Composer Lance Hayes (aka DJ Drunken Master – yes, really) has crafted a fine slice of very listenable electronica that really stands up on its own as a soundtrack release. Alternately laid back and aggressive, we think this punchy soundtrack deserves your attention not only for its neat and quirky sound design, but also for its back-to-basics approach. There's no over-the-top symphonic bombast here, just good tunes and compelling rhythms. It almost has a 90s-era Warp Records quality to it that we think you'll like.

Check out **www.djdm.com** for details on some more of Mr Hayes' work.

"Kyd's sound choices and compositions ooze a kind of sophistication that's rare among game composers"

Almost at the other end of the scale is Jesper Kyd's huge soundtrack for *Assassin's Creed 2*. Kyd's sound choices and compositions ooze a level of sophistication that's rare among game composers – it's his background in electronic music that's given him his very sound-oriented approach. The blending of synthetic, organic and vocal elements is both characteristic and innovative – Kyd has a great ear for slightly atonal elements that are introduced almost subconsciously.

This is a masterclass in atmospheric music-making and it's well worth checking it out as a listening experience in its own right. Visit **www.jesperkyd.com** for the lowdown.



You can't go wrong with a Jesper Kyd soundtrack, and the one for *Assassin's Creed II* is a typically strong effort from the ex-demoscene music wiz

Drive time

HFB

High Frequency Bandwidth's Alex Paterson and Dom Beken tell us about their favourite creative software

FXPANSION BFD2
"This drum sample program was/is light years ahead of the competition. Using a Roland electronic kit, we can create drum takes which come up in Logic just like a multi-miked kit in a room, except that if the arrangement changes, we can change the room, mic positions and even the kit! It's cool to be able to drop in replacement fills and parts later, without having to reset the drums and mics."

PSP VINTAGEWARMER
"This has become our 'go to' compressor, whereas in the past we would have reached for a Urei LA-2A or a Fairchild. We wouldn't dare A/B them, but in terms of character, it does a good job, especially when you flick the FAT switch. Plus we can load as many as we like! Their 608 delay is also a joy."

WAVES RENAISSANCE BUNDLE
"This may be because they were one of the first really good sets of EQ and dynamics plug-ins on the market and we know them inside out, but for clinical EQ and levelling jobs, they're spot on the money and RVox can get you nine tenths of the way to a useable vocal level in about three clicks. We use this bundle to treat 'SSL channel strip withdrawal'. There's no useable gate though."

PROPELLERHEAD RECYCLE
"We know ReCycle is as old as the ark, but we went to Logic 9 and at first didn't bother to re-install ReCycle as Logic now has transient markers. However, you just can't beat Propellerhead's algorithm for this, and although we can't bring ourselves to throw away our bank of Akai samplers, we haven't seen their friendly blue glow since finding Redmatica Keymap. Also, exporting as individual audio files seems to iron out a world of pain."

"RVox can get you nine tenths of the way to a useable vocal level in about three clicks"

IK MULTIMEDIA AMPLITUBE
"We're still back on v2, but it still sounds the most like a real amp – much to the relief of our neighbours! Sadly, the latency in any computer setup means old Marshalls still get warmed up for feedback duties now and again. Hopefully there'll be a solution before Noise Abatement at the council call again."

HFB's *Hell, Fire and Brimstone* is out now on Malicious Damage
www.highfrequencybandwidth.com

COMPUTER MUSIC 10 years back

We travel back in time to see what the magazine was up to in October 2000

> With a lead article about online music, this was the issue where we truly embraced the future – and we weren't the only ones. In our *News* section, we reported that EMI had realised the internet was here to stay and released a whopping 200 singles and 100 albums for paid download – but not in MP3 format. "One of our goals is to make buying music as easy as stealing music, and stealing music as hard as possible," they said. "Eh?" we said.

One of our columnists warned that "downloading a full album on a 56k modem can take up to six hours", but we were still excited about one of the first MP3 players, the Hango Personal JukeBox. It could store a surprisingly respectable 6GB of tunes in its chunky, brick-like body, and was a snip at only £625 – including delivery, mind.

"EMI had realised the internet was here to stay and released a whopping 200 singles"

Our cover feature explored how you could make dosh via the net. Still, we warned that radio and touring were still the most important things for sales, saying, "Music is still largely a people business." But we gave short shrift to anyone who didn't share our enthusiasm for a bright digital future, with Courtney Love and Steve Albini being denounced as "stroppy" and "snobbish" by none other than our esteemed editor.

The internet revolutionising music sales? It was a crazy idea, but we thought it might just take off...

MVerb

If you're looking for great reverb, or the inspiration to start coding your own effects, check out Martin Eastwood Audio's new plug-in

Developer **Martin Eastwood Audio**
Format **PC VST/Mac AU and VST**
Web **martineastwood.com**

Martin Eastwood, the developer behind Duet and CompressiveCM (both of which can be found in the CM Studio on the **cm** DVD) isn't the most prolific of coders, so when he releases something new, we're keen to find out more about it. His latest project is MVerb, a simple reverb plug-in with an incredibly impressive sound.

On his blog, Martin describes reverb development as "something of a dark art", but is there really that much more to it than short delay lines?
"Stacking up delay lines is a good starting point but it'll only take you so far before it starts to become unstable and lose clarity," Martin explains. "To achieve a realistic sound, you have to think about how echoes behave in natural spaces, how they build up and how they reflect off different surfaces in a room. There are a number of good academic references on reverb theory, but the companies producing the top reverbs are understandably secretive about the actual techniques they use. However, once you understand the basic building blocks used in reverb – delay lines, all-pass delays, multi-tap delays, filters, unitary matrices and so on – it's just a question of how you combine them together, which becomes a very addictive and never-ending mental challenge!"

"There's nothing more satisfying than making a track using sounds that you've developed yourself"

What inspired MVerb's development?
"I'm a huge fan of Dr David Griesinger, who has written many great papers and developed algorithms used in Lexicon's reverbs. In fact, MVerb is heavily inspired by a paper written by Jon Dattorro, discussing techniques supposedly used in the Lexicon 224."

Are any improvements planned?
"The original idea behind MVerb was to provide the Open Source audio community with a high-quality reverb that was simple to use and could also act as a pedagogical tool for people interested in learning more about reverb, so future development will ideally fit into that remit. I have a few ideas in mind for how MVerb can be improved, though, such as adding modulation to the delay line lengths and tweaking the early reflections."

What other projects does Martin have in the pipeline?
"I'm planning on releasing the code for a few other effects to provide practical examples for people to use and learn from. Hopefully this will inspire people with their own ideas to have a go at developing their own effects. There's nothing more satisfying than making a track using sounds and software that you've developed yourself. After that, I want to look at new software/hardware for improvising and performing electronic music live, rather than being tied to a static, linear sequencer."

Get the source code for MVerb and details of Martin's other projects on his website.

Voice city

In cm152, we looked at KeroVee, an impressive, free Auto-Tune-style pitch-correction plug-in from g200kg. Now, the developer has released a cut-down version called RoVee. This simple voice-processing tool has independent pitch and formant controls, and also includes a Robotic mode for those all-important robo-vocal effects. It's available now as a PC VST effect.
www.g200kg.com

Zen bound

Commercial developers Big Tick Audio have announced an unusual new project. Zen is described by its creators as a universal presets manager, capable of hosting other VSTi's and tagging their patches so you can quickly audition all your patches of one type, rather than having to trawl through each instrument's sound individually. Sounds useful – we look forward to trying it when it's launched!
www.bigtickaudio.com

TAL be back

We haven't seen a major new plug-in from the usually extremely productive Togu Audio Line in a little while now, but to tide us over until their next major release, they have at least given us a new version of TAL-Reverb-2. This update includes a Windows 64-bit version, a three-band subtractive EQ section, stereo width control and a stereo input mode, alongside other handy tweaks and additions.
kunz.corrupt.ch

Freeware Classic

HighLife

Developer **DiscoDSP**
Format **PC VST**
Web **www.discodsp.com**

HighLife was originally coded for discoDSP by the late Juan Antonio Argüelles Rius, AKA Arguru. Like much of his work, it offers exceptional features and has built up quite a following. Since his untimely death in 2007, it's been made Open Source by discoDSP so that development on the plug-in can continue.

"HighLife's most impressive capability is that it can also operate as a VST host"

HighLife is a software sampler with a relatively simple interface, comprising two views. The Editor view is a typical waveform display, where sample tuning, start and end points, and key range information can be entered. Unlike most samplers, actual waveform editing can be performed here, and loop modes can be selected, including forward, backward and bi-directional ('ping-pong') looping.

The other screen is the Performance view, which includes amplitude and modulation envelopes, an LFO, filter settings and HighLife's effects section, including chorus, delay, reverb and two so-called 'wow' effects – Daft, a Daft Punk-inspired auto-filter, and Rock Da Disco, a heavy compressor.

HighLife also features auto-mapping, with which multiple samples can be loaded simultaneously and automatically spanned across the keyboard. However, HighLife's proudest boast is that it can operate as a VST host – you can load a VST instrument into it and 'freeze' it, whereupon its output is rendered as audio and saved as a HighLife sampler patch that you can play back without the original VST instrument loaded. This is especially useful for creating more economical versions of particularly CPU-sapping synth sounds.

HighLife and its source code are available from discoDSP's website. **cm**

COMPUTER MUSIC

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Mobile digital audio recorder
44.1kHz, WAV/mp3, stereo, built-in flash memory (up to 2 hours of mp3 recording), slot for separate SD (16MB - 2GB) or SDHC (4GB) cards, built-in stereo condenser mic, 2x jack ins for external mics or guitar/line, headphone out, line out, mini speaker, USB 2.0 interface, 20Hz-20kHz, includes external stereo mic and USB cable. Dimensions: 15.5 x 8.5 x 3cm. Weight: 200g
~~€ 75.-~~ £ 62.-
order code 203423

Swissonic MDR-4
Mobile digital audio recorder
24bit, sample rate: 44.1 /48kHz, record format: WAV (16/24bit) and MP3 (64/96/224/320kbps), 5 effects (delay, chorus, room, reverb, pitch shift), built-in speaker, 128 x 64 pixel LED display, 1/8" stereo line in, 1/8" external mic in, built-in stereo mic, 1/8" headphone out, Mini-B type USB connector, powered by PSU or 2 AA size batteries, incl. power supply unit, 1GB SD card and USB cable, dimensions WDH: 6,7 x 2,9 x 10,7cm.
~~€ 89.-~~ £ 74.-
order code 226599

Tascam DR-07
Mobile digital audio recorder
Record and play MP3 (up to 320Kb/s) and WAV files (up to 24bit), 44.1/48kHz, built-in stereo mic, analog automatic level input control, analog limiter, stereo in for external mic, stereo line input, headphone and line-out (3.5mm TRS mini jack), USB 2.0, powered by AA size alkaline or NiMH batteries, incl. 2 GB SD card and windshield.
~~€ 145.-~~ £ 120.-
order code 223287

Zoom H2 Bundle
Mobile mp3/WAV recorder
1-point stereo mic design, MS stereo technique, record 360° sound as 2ch or 4ch data, built-in USB interface with audio interface function, WAV 96/48/44.1kHz and MP3 up to 320kbps VBR, headphone out, uses SD cards (up to 4GB), perfect for interviews, podcasts, meetings and live recordings. Includes USB cable, stand, mic-stand adapter, power supply and 512MB SD card. **Bundle includes the t.bone HD660 headphones.**
~~€ 175.-~~ £ 145.-
order code 137629

Boss Micro BR Set
4-track compact studio
Ultra portable, 32 V-tracks, loads and plays mp3 files, onboard multi-FX, dedicated guitar input, timestretch and centre cancel features, 293 rhythm patterns, built-in tuner and mic, USB port for data transfer, SD Card slot, includes 128MB card. **Bundle includes the t.bone HD660 stereo headphones and the t.bone ST40 stereo microphone.**
~~€ 175.-~~ £ 145.-
order code 198217

Zoom Q3
Handy video audio recorder
Stereo condenser mic, true X/Y configuration, 2.4" LC sisplay (320x240px), video resolution 640x480 at 30 frames per second, video format MPEG-4 SP, NTSC/PAL TV out, audio formats with video: 44.1/48kHz 16/24bit Linear PCM or MP3 up to 320kbps, without video u to 96kHz/24bit Linear PCM WAV, up to 1 hour video with 2 GB SD card, auto record level, includes TV cable, soft case, wind screen, 2GB SD card and 2 AA batteries.
~~€ 195.-~~ £ 161.-
order code 234280

Yamaha Pocketrak W24
Mobile Recorder
24bit/96kHz, internal X/Y stereo mic, linear PCM/WAV and MP3, quickstart in 4.5 sec., recording presets, 2GB internal memory, on-board speaker, built-in tuner and metronome, peak limiter, 5-band EQ, high-pass filter, external mic/line in, ALC (auto level control), timer rec, USB 2.0, incl. wireless remote, Cubase AI5 and battery, dimensions: 4.7 x 12.6 x 1.8cm, weight: 92g.
~~€ 249.-~~ £ 206.-
order code 242324

Olympus LS-11
Digital recorder
24bit/96kHz, 2 built-in mics, internal 8GB HDD, expandable to 32GB with SDHC Card, up to 23 hours record time, edit functions, PCM/WAV/WMA/mp3 record & playback, built-in stereo speaker, backlit display, SD/SDHC slot, USB, headphone out, silver metal housing. Weight: 165g (including batteries), connection for external power supply, includes wireless remote and Steinberg Cubase 4 LE.
~~€ 279.-~~ £ 231.-
order code 234496

Edirol R-09 HR 4GB SD Card Bundle
24bit/96kHz mp3/WAV recorder
Up to 320kbps mp3 playback and recording, recording on SD or SDHC card (up to 8GB), integrated stereo condenser mic, OLED display, built-in preview speaker, incl. wireless remote control with split function, USB 2.0, stereo mic in, stereo line in, incl. power supply, 512MB SD card, USB cable, Cakewalk Pyro AudioCreator LE, wireless remote controller and small table mounting plate. Bundle incl. 4GB SD card.
~~€ 279.-~~ £ 231.-
o. code 207377

Sony PCM-M10
Portable 24bit/96kHz audio recorder
Built-in stereo microphone, internal speaker, cross-memory recording, internal 4GB flash memory + MicroSD/memory stick micro slot, limiter and low-cut filtre, 5s. pre-record buffer, manual or automatic recording level control, USB-2.0 connection, includes power supply, Soundforge Audio Studio LE, cable remote, 2 AA batteries and cable, finish: grey.
~~€ 325.-~~ £ 269.-
o. code 238886

Zoom H4 N Bundle
Digital recorder
Perfect for interviews, podcasts, meetings and live recordings. 24bit/96kHz, mp3 up to 320kbps bitrate, two built-in stereo microphones switchable between 90° and 120°, requires 24V or 48V phantom power, USB port. Includes windscreen, USB cable, bag and Cubase LE4. **Bundle includes 2GB SD Card and the t.bone HD660 stereo headphones.**
~~€ 338.-~~ £ 280.-
order code 227414

Zoom R16 Bundle
USB audio interface and DAW controller
16-track playback and 8-tracks recording, 24bit/48KHz PCM recording, internal stereo condenser mic, 8 mic ins, 2 outs, 8 balanced XLR / 1/4" TRS connections, internal effects, Mackie Control emulation via USB, works as USB storage, support for Win XP/Vista and MAC OS, incl. Steinberg Cubase LE4 and 1GB SD card. **Bundle incl. the t.bone MLS66 stereo headphones and 4GB** SD card.
~~€ 389.-~~ £ 322.-
o. code 245233

Sony PCM-D50
Linear PCM recorder
96kHz/24bit WAV recorder, WAV/mp3 player, integrated two-position (X-Y or wide) stereo condenser mics, 4GB internal flash memory, Pro-HG Duo™ memory stick slot, high-speed USB port, digital pitch control, dual digital limiter (PCM-D1 technology), low-cut filter, Super Bit Mapping®, A-B repeat and mp3 playback capability, mic in, line in, line out and headphone out (all stereo mini-jack), includes USB cable.
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Tascam 2488 NEO Bundle
24-track harddisk recorder
24bit/44.1kHz, 8 mic/line inputs (4 XLR with phantom power), internal FX processor, 16x CD-RW drive, new effects for mastering, 250 virtual tracks, high speed USB 2.0 connects to PC or Mac® for data backup and SMF/WAV file exchange, 80GB hard drive, **bundle incl. the t.bone HD-990D headphone and 5 Sony CDQ80N CD-Rs.**
~~€ 755.-~~ £ 624.-
order code 223374

Tascam DV-RA 1000 HD
Professional digital recorder
192kHz/24bit to inexpensive CD or DVD+RW media, it also features Sony's DSD format, the basis for the audiophile Super Audio CD (SACD) and DVD Audio, as an available recording format, record WAV and DSDIFF files directly to CD and DVD discs and transfer such files via USB 2.0 connection to and from a computer, internal 60 GByte HDD.
~~€ 2333.-~~ £ 1929.-
order code 112093

Phonic AM844D
Rack mixer
10 mono mic/line channels, 2 stereo channels, 16 24bit/48kHz digital effects with tap tempo delay function, 3-band EQ with parametric mids, 4 sub groups, headphone output, 48V phantom power, 4 stereo returns, direct out on each channel, 4 aux, 2 track I/O, incl. rack kit.
~~€ 249.-~~ £ 206.-
order code 196393

Phonic AM642D
6 mono mic/line, 4 stereo channels, 4-band EQ
~~€ 205.-~~ £ 170.-
order code 196391

Yamaha MG 166cx
16 channel mixer
8x mono mic/line ins (XLR/jack), 2x mic/line ins (XLR/stereo jack), 2x stereo line ins (jack), 3x aux sends, 8x inserts, 3-band EQ with parametric mids, internal compressors per mic channel, SPX FX processor with 16 programs, 18dB high pass filter, high-end mic preamps, 48V phantom power. Dimensions: 47.8 x 10.2 x 48.9cm. Weight: 5.5kg
~~€ 358.-~~ £ 296.-
order code 115511

Allen & Heath ZED-14
USB compact mixer
6x mic/line ins, 4x dual stereo ins, DuoPre preamps, 4x aux sends, USB interface, channel inserts, channel mutes, hi-pass filter, stereo return, 2-track return, headphones out, stereo record out, mono out, includes Cakewalk Sonar LE. Dimensions: 38.4 x 4.1 x 46.5cm (WxHxD). Weight: 6.5kg
~~€ 368.-~~ £ 304.-
order code 137330

Mackie 1402 VLZ3
14-channel mixer
New XDR 2 preamps, 6x mono mic/line inputs (XLR/jack), 4x stereo line inputs (jack), 2x stereo aux returns, 2x aux sends, 6x inserts, 3-band EQ, 18dB lo-cut filter, PFL, 48V phantom power, internal power supply, balanced master outputs (XLR/jack). Dimensions: 8.1 x 35.6 x 32.9cm (HxWxD). Weight: 4.5kg.
~~€ 369.-~~ £ 305.-
order code 112366

Alesis MultiMix 16 FireWire
16ch. mixer with FireWire interface
8x mic/line ins, 4x balanced stereo line ins, 3-band EQ per channel, 2x aux send/returns, 100x 28bit FX programs, headphone out. FireWire interface: 18 ins, 2 outs, 24bit/48kHz, ASIO/WDM drivers for Win XP SP2, Core Audio drivers for Mac OS X, includes Cubase LE.
~~€ 398.-~~ £ 329.-
order code 186079

Behringer SX2442FX
24-channel mixing desk
16 XLR mic ins, Xenyx mic preamps, 3-band-EQ, 2 FX processors mit 100 presets, stereo 9-band graphic EQ, FBQ feedback detection system, 4 subgroups, 4 aux per channel, internal power supply.
~~€ 449.-~~ £ 371.-
order code 217454

Mackie 1642 VLZ3
Compact 16-channel mixer
8x mono mic/line channels, 2x mic/line stereo channels, 2x stereo channels, 4x subgroups, 4x aux (2x pre/post switchable), XDR2 mic preamps, 60mm faders, 3-band parametric EQ (mono channels), 4-band EQ (stereo channels), 48V phantom power. Dimensions: 42.5 x 13.1 x 42.1cm (WxDxH). Weight: 8.3kg
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order code 112362

Soundcraft FX16 II
16-channel mixing desk
16 mono channels, 4 stereo returns, 3 aux, 19" with inserted Lexicon FX, weight 8,5kg, includes rackmounts.
~~€ 711.-~~ £ 588.-
order code 117908

Mackie 1604 VLZ3
16-channel mixing desk
16x mono mic/line XLR/jack ins, 4x stereo aux returns, 6x aux sends, 16x channel inserts, 8x direct outs, 3-band EQ with parametric mids, 18dB low cut filter, PFL, XDR mic preamps, 48V phantom power, internal power supply, 4 subgroups, master insert, balanced jack outputs, includes rack kit. Dimensions: 44.5 x 12.9 x 44cm (HxWxD)
~~€ 745.-~~ £ 616.-
order code 112364

Mackie Onyx 1640i
Compact 16-channel mixer
16 mic/line ins, inserts ans direct outs on each channel, 4-band EQ, 2 parametric EQs, 6 pre/post auxes (switchable), switchable phantom per channel, 4 sub groups, control room out, internal talkback mic, ProTools M-powered Compatibility Officially Licensed, integrated FireWire acess point, incl. rackmount, dim. 61,7 x 44,2 x 19,1cm, weight 13,5kg.
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MIDI master keyboard
25 touch sensitive keys, joystick for pitchbend and modulation, octave up/down, MIDI output, USB connection, includes USB cable and Magix Samplitude SE, dimensions WDH: 39 x 20 x 5cm, weight: 2,3kg.

€46.- £38.-
order code 230804

Miditech Midistart 3 USB
MIDI keyboard
49 full-size touch sensitive keys, pitch bend and modulation wheels, USB port for direct connection to Mac/PC, MIDI out, includes USB cable and Magix Samplitude SE PC software. Finish: Silver

€55.- £45.-
order code 116317

Thomann SP-5500
Stage piano
88 hammer action keys, 559 sounds, 203 styles, 3 user styles, 100 songs, 64-note polyphony, accompainment control (start/stop, sync start/stop, fill-in A/B, fade), dual mode, split mode, DSP, transpose function, lesson function, pitch bend, headphone out, stereo aux I/O, MIDI I/O, USB port. Finish: Silver Grey

€377.- £312.-
order code 154087

Thomann SPWS-5500
Wooden stand for SP-5500 €46.- £38.-
order code 204071

M-Audio ProKeys 88
Stage piano
88 hammer-action keys, 3 velocity curves, 64MB sound bank, 126-voice polyphony, single/split/layer modes, pitch bend and modulation wheels, 3 reverbs, chorus, tremolo, USB/MIDI interface, stereo headphone out. Pedal connections: sustain, sostenuto, expression. Windows XP and Mac OS X drivers.

€439.- £363.-
order code 181874

Korg SP-170
Stage piano
88 natural weighted hammer action keys, 2x9W built-in speakers, 10 sounds, effects: reverb and chorus, key transpose and pitch control, 2 line/headphone outs, MIDI out, dimensions: 131 x 32.5 x 13.3cm, weight: 12,1kg.

Black €479.- £396.-
order code 242228
White €479.- £396.-
order code 242231

Yamaha P85
Stage piano
88 graded hammer action keys, 2x 6W speaker system, 64 note polyphonic, 10 sounds, stereo samples, reverb, integrated sequencer, dual performance mode, 10 demos and 50 demo songs, metronome, incl. music stand, sustain pedal FC-5 and power supply, finish: black, weight: 11,6kg.

€519.- £429.-
order code 202239

Kurzweil SP2 XS
88-note digital stage piano
Weighted action keys, 64 voices, split and layering function, 4 keyboard zones, 64 Kurzweil presets (pianos, e-pianos, mallets, strings and voices), 60 rhythm patterns, metronome, 16 user set-ups, four freely assignable knobs, pitch and modulation wheels, effects, USB port, LED display, connection for expression pedal and footswitch, MIDI in/out/thru, internal stereo speaker, weight: 22kg.

€859.- £545.-
order code 210648

Korg SP-250
Stage piano
60-note polyphony, 2x 11W amplifier, 30 sounds, reverb and chorus effects, layer function with individual volume control, 2 headphone outs, damper, MIDI in/out, keyboard stand, music stand, includes sustain pedal and power supply. Dimensions: 129.5 x 38 x 14cm. Weight: 19kg

€666.- £551.-
order code 189377

suitable flightcase €185.- £153.-
order code 116660

Yamaha P155
Stage Piano
88 graded hammer action keys, pure CFIII piano voice, 17 voices, polyphony 128 voices, dual and split mode, metronome, 2 headphone outs, 2x 12W, includes note stand, FC-4 pedal and PA301 power supply, weight: 18,6kg.

Black & ebony
order code 223258
Black & mahogany €1135.- £939.-
order code 223244

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

61 waterfall keys €1479.- £1223.-
order code 220551
73 waterfall keys €1635.- £1352.-
order code 220582

Doepfer Dark Energy DVD Bundle
Expander
Monophonic stand-alone analog synthesizer with USB and MIDI interface, USB, MIDI input, 4 CV outputs, 1 gate output, external power supply, dimensions WDH: 18,5 x 14,5 x 6,5cm, weight: 1,2kg. **Bundle including german video tutorial DVD** „Hands on Synth Sound".

€375.- £310.-
order code 245106

Neo Instruments Ventilator
Rotary Cabinet Simulation
Reproduction of a Leslie 122 Roto effect, rotor speed adjustable, drive section for real tube feeling, variable mic position of the virtual mics, true bypass, speaker simulation disconnectible for guitar amp, connection for remote footswitch/halfmoon switch, stop function with remote switch, power supply included, dimensions: 19.2 x 15.3 x 5.5cm, weight: 1.1kg.

€377.- £312.-
o. code 237621

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

€649.- £537.-
order code 233868

Hammond XK1
Organ
61 velocity-sensitive Waterfall keys, VASE III digital tonewheel generator (as in the new B3 and XK3), 9 drawbars (tap select upper, lower, pedal), digital overdrive, 8-pin Leslie connector (for Leslie 21 system). Dimensions: 116 x 33 x 11cm. Weight: 15kg.

€1288.- £1065.-
order code 190384

Moog Minimoog Voyager Electric Blue
Electric Blue Edition Vr. 3.3
Performance synthesizer, fractal blue solid ash cabinet, electric blue back lit panel, new blue LEDs, new killer patches, 7 banks of 128 presets, external mixer knob, MIDI enhancements allow you to send either 7 or 14bit resolution data from the mod wheel.

€2833.- £2343.-
order code 188096

Novation Launchpad
Ableton Live/MIDI controller
Bi-directional communication, 64-button grid with colour-synced status feedbac, scene control switchable to control volume, sends, muting and more, up to 6 units may be operated simultaneously, USB bus-powered, large rubber grips, automap-enabled, includes Ableton Live 8 Launchpad version. Weight: 0.76kg

€175.- £145.-
order code 236641

Akai APC 20
Ableton Live USB controller
Exclusive bi-directional communication between the APC 20 and Ableton Live (no mapping required), USB plug-and-play, 40 triggers, 1 rotary control knob, 8 channel faders, 1 bus fader, compatible with PC and Mac, includes Ableton Live Lite Akai APC 20 edition.

€179.- £148.-
order code 243147

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

€211.- £175.-
o. code 243915

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.

€389.- £322.-
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.- £451.-
order code 223060

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

€145.- £120.-
order code 184360

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

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.

€266.- £220.-
order code 108023

SSL Duende PCIe
DSP-powered SSL processing
The legendary sound of SSL with up to 32 channels, SSL EQ and dynamics processing, based on SSL's award-winning C Series mixing consoles, relieves the plug-in processing burden on your computer's CPU. PCI-Express card. Expandable with optional SSL plug-ins for the Duende platform. Supports VST, Audio Unit or RTAS (Digidesign Pro Tools 7 through the use of optional VST-RTAS wrapper) host application.

€279.- £231.-
order code 209147

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

€279.- £231.-
order code 138750

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.

€311.- £257.-
order code 217030

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.

€349.- £289.-
order code 233752

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.**

€398.- £329.-
order code 114106

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

€415.- £343.-
o. code 209773

M-Audio ProFire 2626
24bit/192kHz FireWire audio interface
26x analog/digital I/O, ideal for project studios, 8x preamps with Octane™ technology, flexible onboard DSP mixer, user-assignable master volume knob, standalone operation, critically acclaimed jitter elimination, Pro Tools M-Powered compatible, 8x analog mic/line jack ins with phantom power, 2x instrument ins, 8x analog outs, 2x ADAT I/O.

€422.- £349.-
order code 207107

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.

€438.- £362.-
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

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.

€1159.- £958.-
order code 219882

Apogee Ensemble
8-channel FireWire audio interface
24bit/192kHz AD/DA converters, 4x digital adjustable mic preamps (75dB gain), 4x Hi-Z instrument ins, 2x headphone outs, 8-channel ADAT I/O, 2-channel SPDIF I/O, UV 22 HR dither, full integration with Logic Pro, compatible with all Core Audio applications, includes Apogees Maestro software, up to 3 units may be cascaded. Dimensions: 19"/1U

€1699.- £1405.-
order code 190423

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the t.bone SC140
True condenser microphone
18mm diaphragm, cardioid, 20Hz-20kHz, -3dB 75/150Hz low cut, -10/20dB pad, 130dB max. SPL. Includes shockmount, windscreen and aluminium case.
~~€ 46.-~~ ~~£~~ 38.-
order code 195305

SC140 Stereo-Set
Matched pair with stereo bar. ~~€ 93.-~~ ~~£~~ 77.-
order code 195307

Sennheiser MKE 400
Microphone for video cameras
Hyper-cardioid polar pattern, frequency range: 40Hz - 20kHz, 3.5mm stereo jack plug connection, includes windshield, connection cable and 1x 1.5V battery (AAA). Size of base plate is 180 x 180mm.
~~€ 145.-~~ ~~£~~ 120.-
order code 204069

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.
~~€ 269.-~~ ~~£~~ 222.-
order code 154595

Sennheiser MD421U-2
Dynamic microphone
Cardioid polar pattern, 5 step bass filter, includes clamp.
~~€ 279.-~~ ~~£~~ 231.-
order code 128331

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.-~~ ~~£~~ 891.-

the t.bone SC440 USB
USB condenser studio microphone
USB connection for direct access to Mac and PC (not compatible with Windows Vista!), cardioid polar pattern, 20Hz-18kHz, includes plastic case.
~~€ 55.-~~ ~~£~~ 45.-
order code 197603

the t.bone SC450 Set
Large diaphragm studio microphone
Cardioid, external low cut and -10dB pad switch, 200Ω impedance, requires 48V phantom power, 30Hz-20kHz, includes shockmount and PVC case. Dimensions: 50.5 x 190mm. Bundle includes the t.bone MS180 pop shield.
~~€ 93.-~~ ~~£~~ 77.-
order code 203194

SC450 Stereo-Set - matched stereo pair in case (pop shield not incl.) ~~€ 169.-~~ ~~£~~ 140.-
order code 174363

the t.bone SC1100 Set
Studio large diaphragm microphone
Polar patterns: cardioid, figure-8 & omni. Low cut switch and -10dB pad, 20Hz-20kHz, includes aluminium case and shockmount. Bundle includes the t.bone MS180 pop shield.
~~€ 139.-~~ ~~£~~ 115.-
order code 203865

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.
~~€ 179.-~~ ~~£~~ 148.-
order code 235937

the t.bone SCT800 Set
Valve studio microphone
12AT7 valve, 20Hz-20kHz, 200Ω impedance. Includes deluxe case, shockmount and external power supply. Bundle includes the t.bone MS180 pop shield.
~~€ 188.-~~ ~~£~~ 155.-
order code 203198

SCT800 Stereo-Set - matched stereo pair (pop shield not included) ~~€ 377.-~~ ~~£~~ 312.-
order code 174362

the t.bone Retro Tube II
Large diaphragm tube condenser mic
Retro bottle design, 35mm dual diaphragm capsule, vacuum tube preamp, 9 different selectable polar patterns, 10dB pad switch, hi-pass filter switch, frequency range: 20Hz - 20kHz, impedance: < 200Ω, equivalent noise level: 20dB (A-weighted), max SPL: 134dB for 0,5% THD, incl. power supply, 7-pin XLR cable, wooden box for mic and aluminum case for mic and all accessories.
~~€ 235.-~~ ~~£~~ 194.-
o. code 225039

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).
~~€ 244.-~~ ~~£~~ 202.-
order code 110642

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.
~~€ 285.-~~ ~~£~~ 236.-
order code 223002

AKG C214
1" large diaphragm microphone
Cardioid, 20Hz-20kHz, switchable 20dB pad, requires 12-52V phantom power, XLR connector, includes case, windshield and shockmount. Dimensions: 16 x 5.5cm (length x diameter). Weight: 280g
~~€ 333.-~~ ~~£~~ 275.-
order code 211318

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.
~~€ 389.-~~ ~~£~~ 322.-
order code 129929

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
~~€ 449.-~~ ~~£~~ 371.-
order code 128926

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.-~~ ~~£~~ 446.-

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
~~€ 933.-~~ ~~£~~ 772.-
order code 174067

Brauner Phantom Classic
Solid state microphone
Cardioid polar pattern, pressure gradient transducer, equivalent noise <11dBA, signal to noise: 83dB, 20Hz-22kHz, 142dB max SPL @ 0.3% THD, requires 48V phantom power. Includes flexible suspension mount, aluminium case and Vovox cable.
~~€ 945.-~~ ~~£~~ 782.-
order code 139461

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.
~~€ 2333.-~~ ~~£~~ 1929.-
order code 169705

ART Tube MP
Tube microphone preamp
Hand selected 12AX7A valve, limiter, 48V phantom power, phase reverse, XLR and jack I/O, perfect for hard disc recording or as a valve DI.
~~€ 37.-~~ ~~£~~ 31.-
order code 191529

dbx 266 XL
Stereo compressor/limiter/gate
Patented OverEasy technology (attack & release times), XLR I/O, -10/+4db switch, stereo link, dbx sound.
~~€ 135.-~~ ~~£~~ 112.-
order code 131808

dbx 166 XL
2-channel compressor/limiter/gate, stereo or dual mono, OverEasy or hard knee mode, PeakStop limiting.
~~€ 205.-~~ ~~£~~ 170.-
order code 131035

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.
~~€ 325.-~~ ~~£~~ 269.-
order code 216155

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.
~~€ 389.-~~ ~~£~~ 322.-
order code 236376

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
~~€ 425.-~~ ~~£~~ 351.-
order code 123370

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
~~€ 469.-~~ ~~£~~ 388.-
order code 182221

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.
~~€ 679.-~~ ~~£~~ 562.-
order code 190335

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).
~~€ 679.-~~ ~~£~~ 562.-
order code 244200

Universal Audio 1176 LN
Mono limiting amplifier/compressor
A unique classic, extremely fast attack time (20 - 800 microseconds), class A line level output amplifier, two units may be linked together via optional 1176SA stereo adapter (order code 180931) for stereo operation. Dimensions: 19" rack/2U. Weight: 4.3kg.
~~€ 1875.-~~ ~~£~~ 1551.-
order code 180926

Avalon VT-747SP
Valve stereo spectral-opto-compressor
6-band EQ, parametric side-chain LF-HF equalizer for spectral control, 60dB output meters, balanced in/out, dimensions: 19" x 2U.
~~€ 2333.-~~ ~~£~~ 1929.-
order code 156667

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.
~~€ 149.-~~ ~~£~~ 123.-
order code 117131

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 power, stereo line out (balanced XLR), guitar in and pass-thru for seperate amp/tuner, includes external power supply.
~~€ 149.-~~ ~~£~~ 123.-
order code 205731

Boss VE-20
Vocal Performer
Vocal effects dynamic compressor / de-esser, enhancer, delay, reverb, 2 harmonist and pitch correction, LCD display, looper mono, 38 sec., sounds: 30 preset + 50 user, requires optional power supply Boss PSA-230 (order code 102842, not included).
~~€ 189.-~~ ~~£~~ 156.-
order code 235812

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.
~~€ 755.-~~ ~~£~~ 624.-
order code 225557

tc electronic Finalizer 96k
Studio mastering processor
Gain maximizer, 96KHz 24bit AD/DA, multi-band compressor/expander, 3-band spectral stereo image and un-correlated dithering, format conversion AES/EBU, S/PDIF and Tos-link, enter and exit at any sample rate e.g. 32, 44.1, 48, 88.2 and 96kHz (even asynchronous conversion is possible), manual or auto fade tool.
~~€ 1219.-~~ ~~£~~ 1008.-
order code 133460

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AKG K-121 Studio
Stereo headphones
Semi-open dynamic headphones, 55 Ohms rated impedance, 200mW maximum input power, frequency range 18Hz to 22,5kHz, 101dB/V sensitivity, self-adjusting headband and auto-shut-off feature, single side jack, incl. 3m cable with 3.5mm stereo mini-jack plug, 1/8" to 1/4" screw-on adapter, weight: 220g (without cable).

€ 81.- £ 67.-
order code 219545

Sony MDR-7506
Professional headphones
Closed back, 63 Watts, 106dB, 1/4" and 1/8" jack connectors, compact, designed for professional DJ and studio use.

€ 115.- £ 95.-
order code 135709

AKG K271 MKII
Closed dynamic studio headphones
Circumaural design, 55Ω, 200mW max input, 16Hz-28kHz, 104dB/V sensitivity, self-adjusting headband and auto-shut-off feature, 3m cable. Includes 5m coiled cable, 1 pair velvet pads and gold plated mini-jack to ¼" screw-on adapter. Weight: 240g

€ 129.- £ 107.-
order code 206951

5m extension cable
¼" stereo jack.
€ 6.50 £ 5.40
order code 153216

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.

€ 139.- £ 115.-
order code 249403

Sennheiser HD 212 pro
32Ω, 12Hz-19kHz.
€ 87.- £ 31.-
order code 161045

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).

€ 199.- £ 165.-
order code 185476

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!

€ 95.- £ 79.-
order code 232799

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!

€ 139.- £ 115.-
order code 186461

KRK RP5 Rokit G2
Active studio monitor
75W, 5"+1" speakers, 53Hz-20kHz, magnetically shielded. Dimensions: 27.6 x 18.5 x 25cm. Weight: 8kg.
Unit price!

€ 139.- £ 115.-
order code 213024

KRK RP8 Rokit G2
8"+1", 140W.
€ 235.- £ 194.-
order code 213090

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!

€ 215.- £ 178.-
order code 222139

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!

€ 219.- £ 181.-
order code 207242

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!

€ 279.- £ 231.-
o. code 235038

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.

€ 377.- £ 312.-
order code 241073

Adam A7X
2-way active bassreflex nearfield monitor
7" carbon/rohacell/glass woofer with 100W, X-A.R.T. tweeter with 35W, shelving filter tweeter: >5kHz ~ ±6dB, shelving filter woofer: <300Hz ~ ±6dB, frequency range: 42Hz - 50kHz, crossover frequency: 2,5kHz, SPL max. / pair 1m: 114dB, gain: +14dB / - 8dB, gain tweeter: ±4dB, THD 90dB/1m > 100Hz: <0,5%, inputs XLR and RCA, input impedance: 30kΩ, dimensions: 20,1 x 33,7 x 28cm, weight: 9,3kg. Unit price.

€ 429.- £ 355.-
o. code 245513

Dynaudio BM5A MKII
Active nearfield studio monitor
2-way bass reflex design with 7" woofer and 1" soft dome tweeter, 90W (2x 50W RMS), max SPL 1m (pair): 117dB, frequency response: 48Hz - 21kHz, HF/MF/LF analog room filters, dimensions WHD: 18.6 x 32 x 32cm, weight: 8.7kg.
Unit price.

€ 469.- £ 388.-
order code 246075

Genelec 8030APM
Active 2-way studio monitor
58Hz-20kHz free field frequency response, 108dB SPL peak @ 1 m, 130mm (5") bass driver, 19mm (3/4") metal dome tweeter with DCW (Directivity Control Waveguide), 3kHz crossover frequency. Amplifier power: 40W bass + 40W treble, magnetically shielded, aluminium cabinet, balanced XLR input. Dimensions: 28.5 x 18.9 x 17.8cm. Weight: 5.6kg

€ 469.- £ 388.-
order code 171718

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.**

€ 499.- £ 413.-
o. code 227555

Adam A8X
2-way active bassreflex nearfield monitor
9" carbon/rohacell/glass woofer with 150W, X-A.R.T. tweeter with 50W, shelving filter tweeter: >5kHz ~ ±6dB, shelving filter woofer: <300Hz ~ ±6dB, frequency range: 38Hz - 50kHz, crossover frequency: 2,3kHz, SPL max. / pair 1m: 120dB, gain: +14dB / - infinite dB, gain tweeter: ±4dB, THD 90dB/1m > 100Hz: <0,5%, inputs XLR and RCA, input impedance: 30kΩ, dimensions: 25.5 x 40 x 32cm, weight: 12.8kg. Unit price.

€ 569.- £ 471.-
o. code 245573

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!

€ 1190.- £ 984.-
order code 117183

JBL LSR 4328PAK
Active studio monitor bundle
Includes LSR 4328P and LSR 4300 ACC, 8" 150W woofer, 1" 70W tweeter, room mode correction technology (analyses room frequencies and trims the speakers), 50Hz-20kHz, 112dB max SPL, XLR & balanced jack ins, AES/EBU (XLR) and S/PDIF (COAX) ins, USB data connection, HIQnet network. Includes accesory kit (microphone, remote control, software and USB cable).

€ 1259.- £ 1041.-
order code 195301

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!

€ 1322.- £ 1093.-
order code 234475

Behringer DJX 750
5-channel DJ mixer
24bit digital effects, BPM counter with time and sync display, Ultraglide faders, XPQ stereo surround effects, 3-band kill EQ, 3-way kill switch, monitor function with master/ cue balance control and split option, auto talkover.

€ 155.- £ 128.-
order code 223751

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.

€ 438.- £ 362.-
order code 191081

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.

€ 655.- £ 542.-
o. code 231622

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
€ 811.- £ 671.-
order code 118996
Finish: Silver
€ 833.- £ 689.-
order code 119965

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.

€ 1079.- £ 892.-
order code 238350

Gemini CDMP 1300
Single CD player
Plays Audio/MP3-CDs/CDRs, BPM counter, remote control, antishock RAM memory, jog wheel with pitch bend and search, quick start & cue, single & continous play mode, seamless loop with reloop, VFD display, pitch fader 8,16 or 24%, variable pitch: ± 24 %, pitch bend: ± 26% maximum, dimension: 48.3 x 89 x 25.4cm, 19", 2U, weight: 2,5kg.

€ 205.- £ 170.-
order code 215511

Denon DN-S 1200
Single CD player
Touch sensitive jog disc, MIDI interface controller (PC/Mac), USB audio, hot starts & seamless looping, 3 platter effects, 4-way BPM counter, memo function, pitch range & deep pitch resolution, vibrant tube display with 2-line character text support, loop A/B trim, power-on-play, slot-in CD player, D-Link, 4 built-in DSP effects, next track function with cross fader, dimensions: 21.5 x 8.7 x 23.2cm.

€ 425.- £ 351.-
order code 205617

Pioneer CDJ-350
Single CD player
Plays MP3, AAC, WAV, AIFF, USB (flash recorder, disc drives), USB A/B connection, includes Recordbox music management software, beat display function for better scratch and looping performance, auto beat loop function, dimensions: 21.8 x 29.6 x 10.8cm, weight: 2.7kg, system requirements: Windows VISTA/XP, Mac OSX 10.4 or higher.

€ 579.- £ 479.-
order code 249908

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.

€ 1085.- £ 897.-
order code 238584

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.

€ 1666.- £ 1378.-
order code 238585

Denon DN-HC 1000 S
Midi sub controller
For Serato Scratch Live, USB plug & play connection (USB MIDI / bus power), track select and fast search control, file select control, 5 cue and 3 sample player controls, auto loop, loop I/O, file, browse, history, prepare switches, tap function, for use with all MIDI file DJ software, durable metal casing.

€ 149.- £ 123.-
order code 238857

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.

€ 268.- £ 222.-
order code 220244

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.

€ 325.- £ 269.-
order code 227391

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.

€ 525.- £ 434.-
order code 171073

Vestax VCI-300
DJ MIDI controller
24bit, 4-channel soundcard (2x I/O), 1x stereo input, 1x mic input, 2x stereo outputs (master/ monitor), USB connection (bus powered), 2x aux inputs, 1x headphone output, 2x master outs (RCA), includes Serrato Software, power supply optional. Dimensions: 41 x 2.8 x 27.5cm. Weight: 3.2kg

€ 709.- £ 586.-
order code 212112

PROBLEM
Maximise stability
Optimise your DAW
Minimise latency
Prevent crashes

SOLVED!

Your essential guide to keeping your music computer running smoothly and efficiently, and dealing with hardware and software problems on those inevitable occasions when things go wrong...

Your DAW is a big, complicated machine. It might look clean, slick and simple, but below the surface there are literally millions of calculations going on every second, enabling you to edit, process and mix MIDI and audio into complete tracks.

With so much complexity, there's always the chance that something will go wrong. Whether it's something minor, such as a disconnected output, or something not so small, like a full-on system crash, it's inevitable that at some point you'll have to pop the hood on your DAW and do some troubleshooting.

Technical problems can be hugely frustrating, particularly when all you really want to be doing is making music, which is why we've put together this guide. Think of us as your personal mechanics!

Over the following pages, we'll get inside the inner workings of your DAW and tackle the most common general problems that bedevil even the stablest of systems. These are problems that all DAWs and operating systems can come up against, so whether you're using Pro Tools or Cubase, Logic or Reaper, Mac or PC, there'll be plenty of advice for you here.

One of the most common headaches we get asked by readers to diagnose is crackly or mistimed sound, due to something going awry with buffer size and latency. Not sure what these are, or why they can go wrong? Not to worry – we'll explain it all, and show you how to adjust the relevant settings should you ever have problems with them. This can affect both recorded audio and MIDI data, and we'll explain the effect of different buffer sizes on each and show you how to get your latency as low as possible without impeding the audio stream.

We'll also take you through how to correctly install and update plug-ins, what to do when certain sounds vanish in the mix, what happens if you press Play and hear no audio at all, and how to avoid problems when exporting your finished track. In addition, we'll show you how to wipe your DAW's preferences and start afresh when things go really wrong, and what to do if your DAW crashes on you completely.

Of course, prevention is better than cure, and your DAW may need a bit of maintenance to keep it running smoothly. We'll go through some of the best ways to keep it – and your computer – purring. All of that, plus a collection of quick tips, will ensure that if things do go wrong, you'll have 'er right as rain in no time!

Latent issues

Set the wrong buffer size for your audio interface and a range of potential problems can occur. Your recorded audio could crackle and glitch, your MIDI notes might not input (or play back) on time, and, in extreme cases, your DAW might even crash completely. But what is a buffer? Why does it need to be of a specific size? And why is latency such a big issue?

All recorded or internally generated audio in a computer setup has to travel along a signal path – from the input device, through the cables connecting it to the computer, into the DAW's rendering algorithms and out of the monitor speakers. The buffer size affects the length of time between you inputting an audio or MIDI signal and the computer giving it back to you in the form of an audio track or virtual instrument output. The larger the buffer size, the longer this processing time, commonly referred to as latency. A DAW/audio interface set to a large buffer size will have a long latency, while setting a small buffer will result in a short latency.

The latency manifests itself as the time it takes between pressing a key on your MIDI keyboard and hearing the resultant sound come back through your speakers. You want this to be as brief as possible, as the delay becomes increasingly noticeable at anything over about 10 milliseconds. Buffer size is measured in samples.

Balancing act

So why not just set the buffer as small as possible? Well, if you set the buffer size too small, your DAW won't be able to process the incoming signal fast enough, making your recordings crackly or even dropping them out altogether. Too big and you'll start having problems trying to play in time as the computer takes its time stably processing everything.

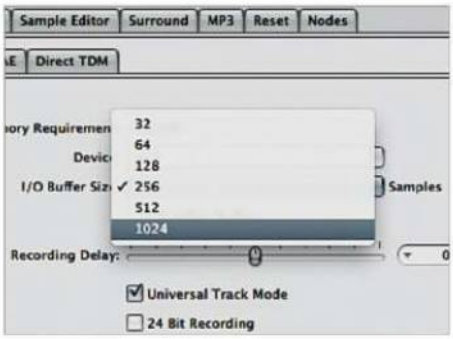
So why would you ever want to set a large buffer? Quite simply, because if you're not actually inputting anything (ie, you're at the mixing stage), latency becomes irrelevant, so there's no reason not to go for maximum stability.

Setting latency and buffer sizes involves your audio hardware as well as your DAW software. The most important thing is to make sure you have the correct ASIO (Audio Stream In/Out) driver for your soundcard or audio interface, which will link the card directly to your ASIO-compatible DAW, without any other audio settings getting in the way.

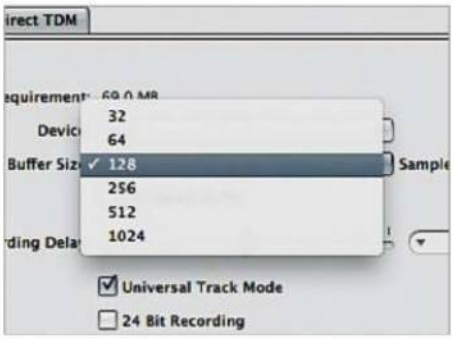
When buffers act up, it can be very irritating. Fortunately, getting the balance right between buffer latency and stability is simple.

> Step by step Minimising latency

1 > Setting your buffer size is easy. Most DAWs have it located in the Preferences, Tools or Options screen, and you'll always find it close to the menu in which you select your soundcard or input device. Some DAWs hide it in a separate sub-menu, but it shouldn't be too tough to track down.



2 > The most common problem with buffer sizes is hearing crackly audio coming back through your monitoring setup. To fix this, raise the buffer size a few notches – 128, 256 or 512 samples should give very low latency, but even 1024 should be usable. Some audio interfaces go all the way up to 5048 samples, which is higher than you'll ever need. (Audio on the DVD: **Crackly.wav**)



3 > If your problem is high latency, resulting in severely lagging audio, you'll want to reduce your buffer size gradually. The default size in most DAWs is fairly low to begin with, so proceed with caution. As soon as the signal starts breaking up, take the buffer size up a notch – that's your minimum setting for your current circumstances. (Audio: **MistimedMIDI.wav**)

POWER TIP

>Helping hand

Have a look in the options and checkboxes around your buffer size menu. Most DAWs offer a few tricks to help keep your latency at an acceptably low level. These vary from program to program but, for example, Logic includes an I/O Safety Buffer option, which enables fine-tuning of buffer size – good for when you need more control. Cubase also has a unique option – Constrain Delay Compensation – which compensates for the delay caused by monitoring software instruments. It's the little clock button at the top left of the toolbar.

4 > Many audio interfaces require you to restart your DAW to apply buffer size changes, so you might want to save yourself a step by doing it in the control panel of the interface instead, prior to launching your DAW. The buffer size should be displayed in a suitably prominent place.

5 > In some cases, you might see your input and output latency listed in milliseconds next to the buffer size menu, which is very handy. As a general rule of thumb, you should be aiming for between 4 and 9 milliseconds on each. Our buffer size shown here, 256, hits this mark nicely. Yours should be around the same size.

Cleaning house

In an ideal world, things would never go wrong. Your DAW would always do exactly what you told it to, sound would come out of it just as you intended, and your EQ plug-ins would make you breakfast. Sadly, we don't live in such a place and things inevitably go west. While being able to fix problems as they arise is certainly important, it's even better to know how to set things up so that nothing goes wrong in the first place.

It's common knowledge that the fewer moving parts a machine has, the less chance it has of breaking, and the same goes for your DAW. We're not suggesting that you stop installing all those plug-ins, rather that you make it easy for your software to boot up quickly and easily.

One step towards this is to organise your files and folders properly. It's amazing how much difference a little organisation can make, particularly as sessions containing loads of parts can easily spiral out of control unnoticed.

Even straightforward measures such as creating a dedicated folder for each session will help, as will populating that folder with sub-folders for different mixes, audio files (always copy samples over from other locations, rather than reference disparate drives and folders directly from your project) and, of course, your clearly labelled master session file.

This takes five seconds, and will make managing your projects much easier. It also means that your DAW will always boot up without having a panic attack because it can't find moved or missing files, and should you need to transfer the entire session to a different computer, you just have to drag one folder across. The same goes for archiving – with a bit of organisational discipline, you'll always be confident that only one folder needs to be backed up for each project.

Downloadable program updates are a fact of life in all walks of computing these days, and when that favourite plug-in of yours gets a free update or patch, do take a minute to download and install it. Not only will this prevent potential problems from popping up later on, but you'll usually get increased functionality too.

Declutter your drive

Two important things to keep an eye on are your RAM and hard disk space. As your hard drive fills up with audio, video and session files, your computer's performance will start to suffer to a greater or lesser extent. This could mean choppy DAW performance, slower import of audio files and plug-ins taking ages to load up. Trust us, nothing kills the buzz of a session faster than having it grind away every time you just want to add a sample or two.

So go ahead and clean out that drive, either by moving large, seldom-used files (such as movies) to an external hard drive, or transferring all of your music-related stuff to a drive of its own, preferably a high-performance internal one. Even just tidying up the clutter on your desktop can give your computer a bit of a boost. As a general rule, always leave at least 10% of your system drive empty – any less can be detrimental to your computer's performance as it struggles to supplement its RAM with enough hard disk-based 'virtual memory'.

Battering RAM

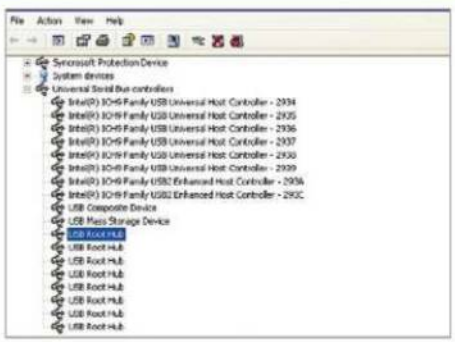
RAM doesn't generally produce as many potential problems as hard disks. Most computers come with more than enough to run even the heaviest DAWs these days, and 2-4GB of it should be more than sufficient to keep your machine purring away happily while working with audio. If your computer does start slowing down noticeably, and you clearly have enough hard disk space free, then you might want to think about installing a couple more gigabytes.

Finally – and we absolutely can't stress this enough – use a reliable automatic backup system. Or two. The agony of losing that project you've been working on for weeks will make all other problems seem truly trivial.

> Step by step Troubleshooting audio interfaces

1 > If you've plugged a USB audio interface into your PC but it doesn't seem to be working, the first thing to do is to check that your DAW software is actually registering it. Find your DAW's device preferences screen and check whether the interface shows up in there or not.

2 > If it doesn't, that means your computer isn't 'seeing' the device. A potential way to fix this is to head into Windows Device Manager, or the USB section of Mac OS X System Profiler. In most cases, this will automatically cycle the inputs and your connection should pop up. If there's a cross or exclamation mark next to the port name, you might have a problem with the USB port.



3 > Your USB device might not be working because it's plugged into a low-power port. Any USB 2 or 3 port should provide more than enough power, but older USB 1 ports might fall short. So, try switching ports. Also, if you're using an unpowered (or even powered) external USB hub, it might not be getting enough power to your device, so plug the device directly into your computer.

As a last resort, delete all of your Preferences files to wipe the slate clean

Scorched earth

Sometimes things go wrong that you just can't fix. Your DAW constantly freezes or crashes, won't recognise your impassioned commands and generally gives you the digital middle finger. At that point, you might think it's time to cut your losses and start over, but before you go running off to find your discs and reinstall everything, there's one last thing to try.

Your DAW's Preferences file(s) determine how it behaves in terms of settings, layout and everything else that you've ever told it to do. Trashing this file resets your DAW back to 'freshly installed' status, putting all options to their default settings and thoroughly clearing the decks. It's possible for the Preferences file itself to become corrupt, so clearly this procedure solves that problem, too.

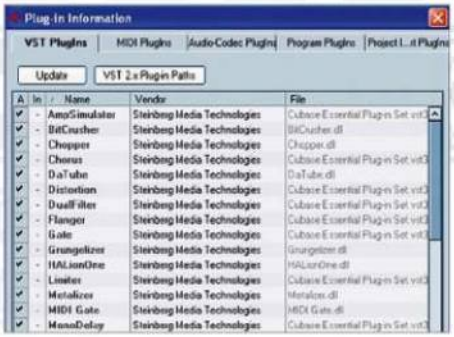
Most DAWs store their Preferences files outside their program folder, usually in a system folder along with the Preferences for all your other applications. The location of this folder depends on your operating system, but in general, Windows PCs keep it in the Application Data folder in Documents And Settings, while OS X Macs keep it in the main Library folder.

To fully execute your purge, you want to get rid of anything in that folder related to your DAW. For example, if you're using Pro Tools, trash everything with Digidesign or Pro Tools in the file name – DigiDesign Prefs, com.digidesign, Pro Tools Preferences and so on.

Once that's done, the next time you open your DAW, a new set of Preferences will be created, set to the factory defaults. Don't worry – your projects will still load fine.

On a final note, before you trash those Preferences for good, make a copy of them and keep it somewhere safe, just in case you ever do need to get your old settings back for any reason.

> Step by step Dealing with missing plug-ins



1 > When you install a plug-in, it should subsequently show up in your DAW's instrument/effect menus. If it doesn't, one of the first things to do is to update your plug-ins roster from within the DAW itself, if it has such an option. Look for an **Update plug-ins** button in the Tools, Options or Preferences window.

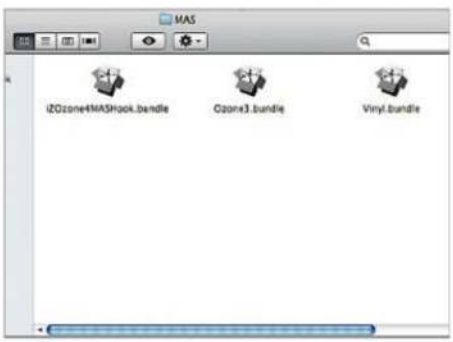
2 > Still no joy? The next thing to check is that the plug-in has installed into the folder your DAW has been told contains all your plug-ins. On a PC, you may well find this folder in your DAW's program folder, or **Program Files/Steinberg**. If your new plug-in isn't in the same folder as all your others, reinstall it, being sure to point it in the right direction when the installer asks.

3 > On a Mac, it's even easier. Head into the Library folder on your hard drive, then **Audio»Plugins**. In there, you'll find dedicated folders for VST, Audio Units, RTAS and MAS plug-ins. Run a search for your errant plug-in and move the requisite file into the right folder.

POWER TIP

>MIDI plug-ins

As well as audio plug-ins, there are MIDI plug-ins to consider too. These include effects such as quantisers, transformers and step sequencers. Don't panic if you see them in your plug-ins folder but not in your DAW – they won't appear in the same menus as their audio siblings, since they're meant for MIDI tracks only. You install and update them in the same way as all of your other plug-ins, though.



4 > Some plug-ins – especially the more complex ones – come with not only DLL/VST/AU files, but also other support files and their own dedicated Preferences. If things go wonky, it's worth knowing where they are. Here, our iZotope software bundles are located in our MAS folder.

5 > If you've installed a software instrument with a huge amount of sample content, it'll create its own folder on your hard drive. Usually it puts the main plug-in file in the correct folder, but sometimes the plug-in won't register because it's been stashed in the instrument folder, so look in there too.

hold everything

The R-09 is a crystal-clear 24-bit / 96kHz recorder that captures everything you can throw at it. If you need to capture sound just the way it happens, hand the job to the R-09.

24-bit / 96kHz with stereo condenser microphone built-in
Compact (shown actual size), weighs just 200 grammes
High-capacity SD/SDHC memory card (up to 32GB)
Wide viewing angle via large OLED display
Preview speaker built-in
Wireless remote controller included
USB 2.0 file transfer
Pyro Audio Creator LE wave-editing software and carry case included

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NEW

R-05 now available
24-bit / 96kHz with stereo mic built-in
Records to SD card with extended battery life
Strong, attractive metallic exterior
Onboard editing; built-in reverb
Music practice features (change tempo without changing pitch etc.)
Windscreen and tripod mount included
www.roland.co.uk/r05

Roland
www.roland.co.uk

Music to the power of 3

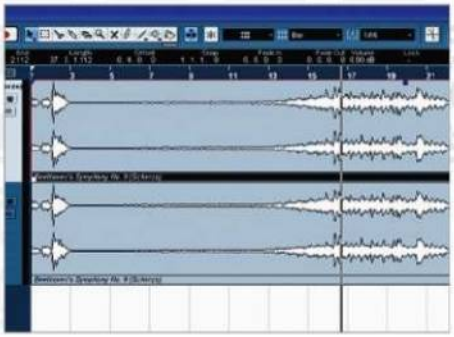
For the most part, you'll be exporting your mixes in WAV, AIFF or another lossless format in order to maintain the highest possible quality. If you just want to export a quick mix in MP3 format, though, you might be disappointed to find that your DAW simply doesn't give you the option to do so. Pro Tools, for example, only makes it available as a paid-for upgrade.

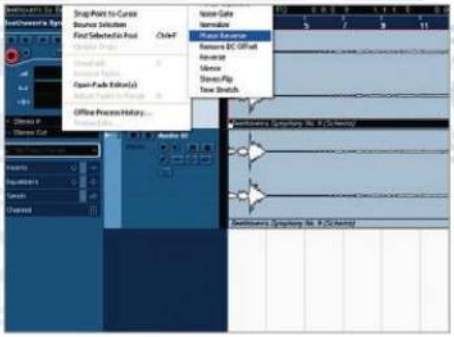
The reason for this has to do with the encoders and decoders that have been patented for processing MP3s by the Moving Picture Experts Group. What this amounts to is a thorny legal thicket of problems that unfortunately means your favourite DAW might not let you export in your chosen format.

Thankfully, there are several free solutions available. You can load your exported WAV mix into the Switch audio converter (www.nch.com.au/switch), which quickly and simply changes any audio format to another of your choosing – including MP3.

Alternatively, you can get the LAME Open Source MP3 encoder (www.lame.sourceforge.net), and if you'd like a bit more flexibility, the amazing free DAW Audacity comes with the ability to export MP3s, among many other things. Get it at www.audacity.sourceforge.net.

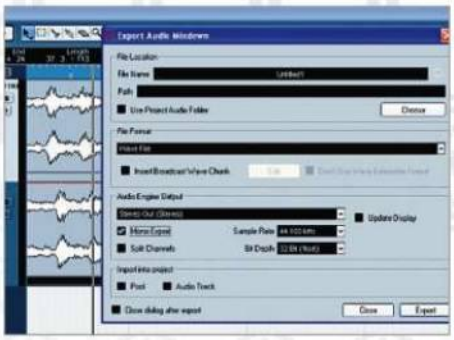
> Step by step Fixing phase problems





1 > If you've used more than one mic to record an instrument or vocal, when the resultant audio files are played back together, the sound may almost vanish. This is because the two signals are out of phase. Phase refers to the time difference between the sound reaching the two mics. If a peak in one meets a trough in another, the sounds cancel each other out.

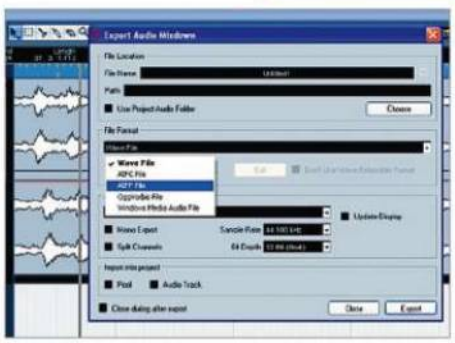
2 > You might want to re-record the material. If so, you'll need to reposition the mics. The placement depends largely on what you're recording (you'll treat a guitar differently from a drum kit), but as a rule, try to get them as close together as possible, and at an angle to each other. This should eliminate any phase problems.

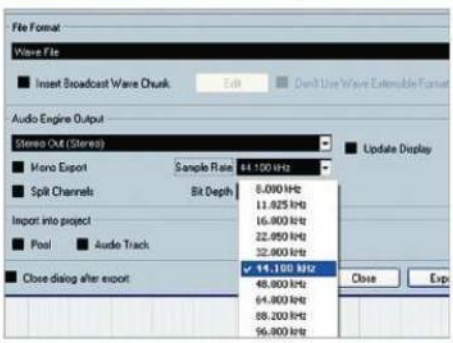


3 > If re-recording the material isn't an easy option, you'll find that most DAWs contain a **Phase Reverse** or **Invert** switch – it's usually located on each mixer channel, in a Process menu of some sort, or available by right-clicking the waveform. Reverse the phase of one of the audio tracks.

4 > Phase problems aren't always so cut and dried – sometimes the audio will only be slightly out of phase, making it tinny or dull. This can be solved by introducing a tiny delay to one track. Either move it manually or use that channel's Track Delay setting if your DAW features one.

> Step by step The export business





1 > When it comes to exporting a mix, there are lots of things to consider and plenty of potential to damage the quality of your final master. First things first: you definitely want your mix to be in an uncompressed format – WAV, AIF, SD2, etc – so you don't sacrifice any quality.

2 > If your exported audio sounds lo-fi and crunchy (in a bad way), you need to adjust your bit depth and sample rate. The standard export rate is 24-bit/44.1kHz. Deviating from these numbers slightly probably won't cause any initial problems, but could be an issue later on if you or someone else carries out any mastering processing.

3 > Every DAW goes a bit weird now and then, and sometimes certain boxes will be checked that you don't want checked. If you find that your mix is automatically being re-imported back into your project, for example, then you need to turn that option off. Before you hit the **Export** button, make sure all the boxes are checked or unchecked as they should be.

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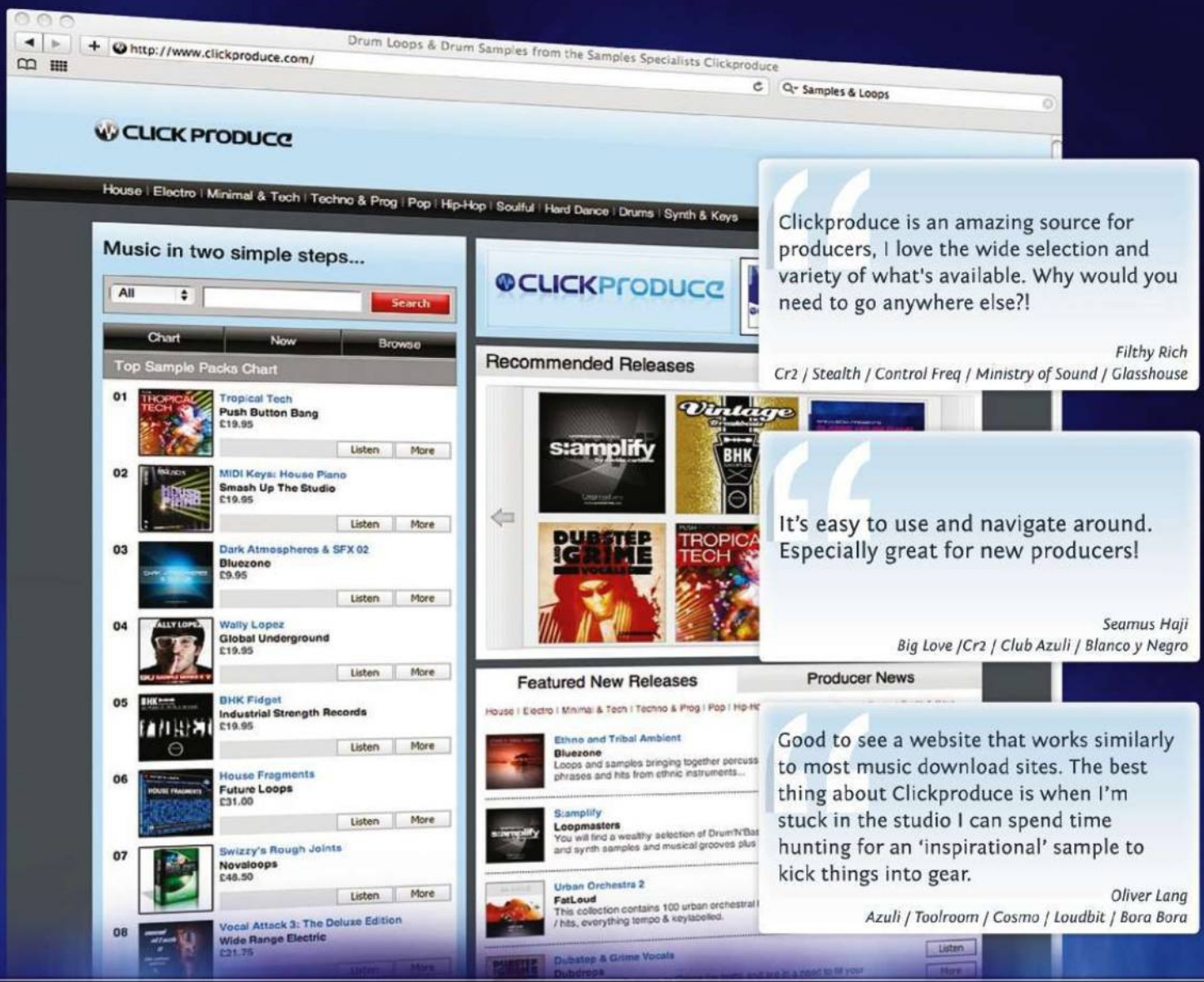

> Clickproduce is an amazing source for producers, I love the wide selection and variety of what's available. Why would you need to go anywhere else?!
>
> *Filthy Rich*
> *Cr2 / Stealth / Control Freq / Ministry of Sound / Glasshouse*

> It's easy to use and navigate around. Especially great for new producers!
>
> *Seamus Haji*
> *Big Love /Cr2 / Club Azuli / Blanco y Negro*

> Good to see a website that works similarly to most music download sites. The best thing about Clickproduce is when I'm stuck in the studio I can spend time hunting for an 'inspirational' sample to kick things into gear.
>
> *Oliver Lang*
> *Azuli / Toolroom / Cosmo / Loudbit / Bora Bora*

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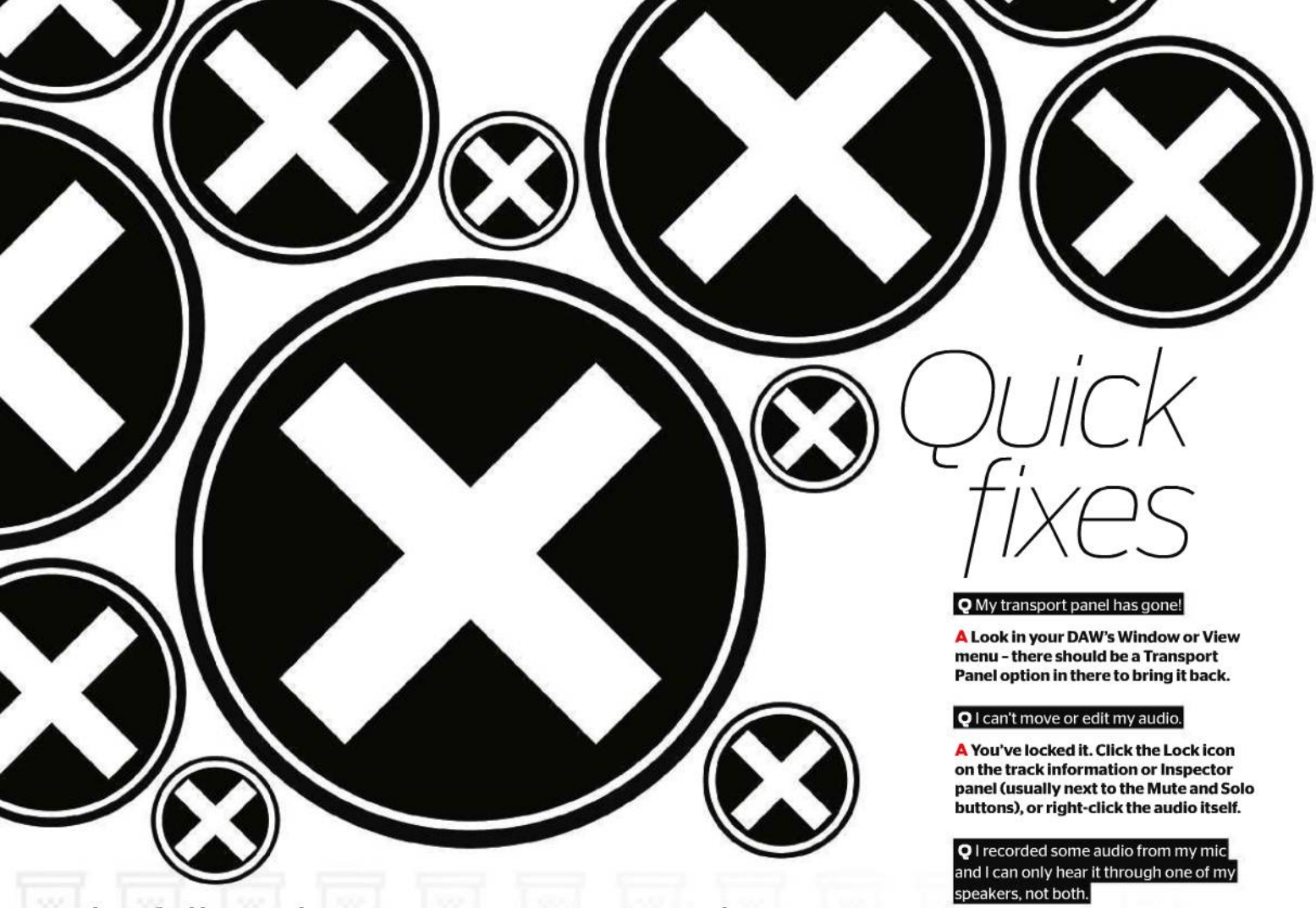


Quick fixes

The full crash: every musician's nightmare

We've all been there – that horrible moment when your DAW locks up completely, leaving you no option other than to force quit, losing all your hard work since the last save point. Then when you reload it, the same thing happens again. And again. And again. Misery.

You could always uninstall and reinstall the whole thing from scratch, but that can take time and may not fix the problem anyway – it may not be the DAW itself that's the issue. So before you go for the nuclear option, take a minute to try to figure out why your DAW might be crashing, as fixing the problem may be easier than you think.

First, think about what you were doing when it crashed. Were you loading a particular plug-in, or had you just told your DAW to process a piece of audio by bouncing it down? If something specific like that is indeed crashing your system, then try performing the same action in a brand new session and see if the crash still occurs. This way, you can isolate the problem.

Quick freeze

One thing that can help narrow down plug-in problems is the track freeze function, which most DAWs have. This simply renders plug-in instruments or effects-processed tracks as audio and deactivates the plug-in, but keeps it available for 'unrendering' and editing. If your session keeps crashing, freeze tracks with plug-ins on and see if it stops the crashes. If it does, the last plug-in you froze is the culprit.

If it's a petulant plug-in that's crashing your DAW, the reason could be that the plug-in itself has corrupted. In that case, a quick reinstall of the effect or instrument – rather than your whole DAW – should do the trick. If you've made your own patches for the plug-in, be careful not to trash them along with it!

But what if it's a DAW-specific process that's causing the crash and, even worse, what if it's persistently crashing on startup? When your DAW boots up (and in general, while it's running), it talks to the rest of your computer system to ascertain that all the tools it needs (USB connections, plug-ins, audio drivers and so on) are in place. If something isn't where it's meant to be, or isn't working properly, then the result will be a crash.

When you launch your DAW, a splash screen will be the first thing that pops up. With most DAWs, at the bottom of that screen there'll be a scrolling list of what's happening during the boot-up process. Watch this progress and make a note of what's being done when the crash occurs, and if the crash gives you an error code, have a look at the manufacturer's website to see exactly what it means.

Another possible cause of crashes is having too many programs running simultaneously – even a powerful machine has its limits, and occasionally two programs just won't get on when running at the same time. Try quitting all of them and relaunching. Also, if your DAW uses physical copy protection, such as a USB dongle or Pro Tools Mbox, it could be that the computer isn't registering it properly due to a USB issue. Unplugging and replugging it should sort things out – unless the port itself is shot, of course.

If none of that helps and you're still getting crashes, there are a few other things you can try. You could trash your DAW's preferences (see p28), or have a go at partitioning your hard drive so that one section is dedicated solely to audio use. However, be aware that this is a fairly complex process that might require you to format your hard drive, so make sure you've made at least one full backup before trying it!

Q My transport panel has gone!

A Look in your DAW's Window or View menu – there should be a Transport Panel option in there to bring it back.

Q I can't move or edit my audio.

A You've locked it. Click the Lock icon on the track information or Inspector panel (usually next to the Mute and Solo buttons), or right-click the audio itself.

Q I recorded some audio from my mic and I can only hear it through one of my speakers, not both.

A You've recorded a mono signal onto a stereo track. Convert it to a mono track or create a new mono track and re-record it.

Q Why can I only drag my audio clips to certain positions?

A Your snap-to-grid function is active. The button to turn it off should be somewhere in your main toolbar, or in your Options menu.

Q The timing bar at the top of my screen has gone weird!

A It's probably set to display timecode, rather than bars and beats. You should be able to quickly set it back simply by right-clicking on it.

Q My track's automation is suddenly all over the place – what happened?

A You moved the control in question with Automation Write activated. Deactivate it, then open up your automation data and delete the bits you don't want.

Q I edited a piece of audio but now I want to get it back to how it was before.

A Select Undo from the Edit menu, or press Ctrl/Cmd+Z.

Q I edited a piece of audio, then saved it and now I want the original back. What do I do?

A Nothing – you blew it! Unless, of course, you have a persistent backup system such as Apple's Time Machine, in which case you should be able to dig out the original file, assuming your backup had time to store it before you edited it.

Troubleshooting tips and tricks

OVERLOAD!

Your DAW offers a vast number of simultaneous audio and instrument tracks, but as with any application, there will be a point at which the system starts to struggle. You should notice warning signs prior to this, such a slowdown in processing, stuttering audio, etc. Solutions to this include freezing plug-in-laden tracks and bouncing down multiple tracks onto one track, then muting or deleting the originals.

PRESET POWER

If you're creating your own synth and effects plug-in patches, do you actually know where they're stored, in case things get messy? A preset will have an .xml, .fxp, .fxb or .aupreset file extension, and they can end up in a variety of places, including your DAW's program folder, your shared plug-ins folder, or the specific plug-in's dedicated folder, if it has one. Be sure that all these locations are included in your backup routine.

CAN'T UNDO!

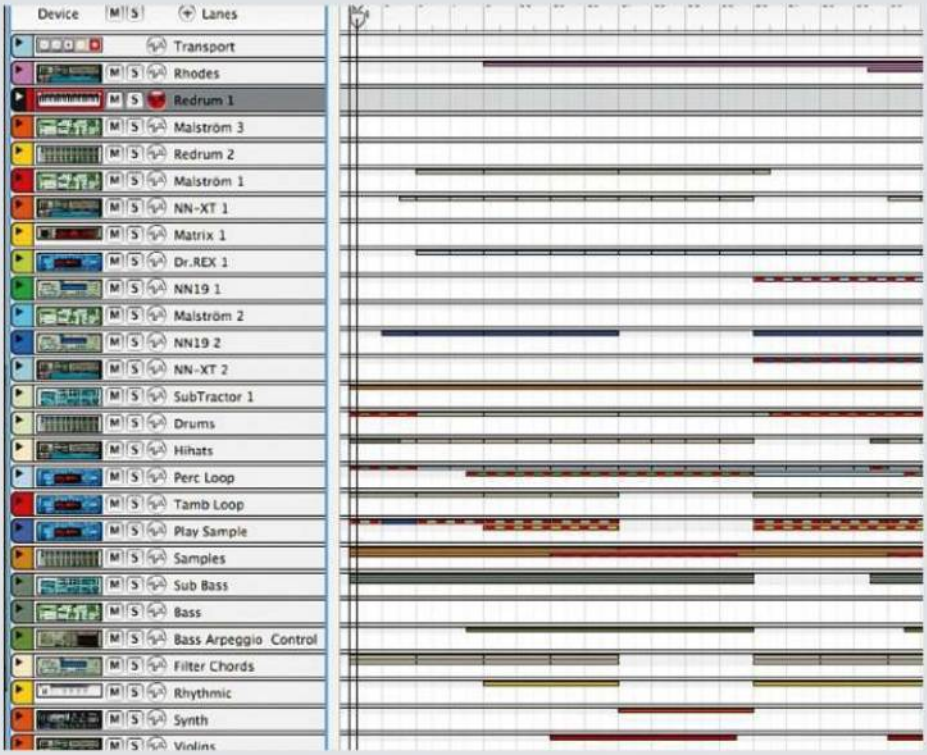
Get to know just what your DAW can and can't undo. Some DAWs, such as Reason, let you go back on absolutely anything, from a volume fader change to a cable routing. Others are less generous. Some won't let you undo your fader movements or changes made within third-party software instruments. Take the time to experiment and find out what operations can and can't be undone.

SENT CORRECTLY

If you're using effects on auxiliary channels, you might find that you can still hear them, even when you've turned down the volume faders for the audio being processed. This is because you've set the effect sends to be pre-fader, meaning the amount of signal sent to the effect is only affected by a channel's send control, not its volume fader. Turn pre-fader off and any reduction in volume on the mixer channel will also affect the amount of signal sent to the auxiliary effect.

CHOP CHOP

Applying a cut to an audio clip can create a nasty artifact in the form of a clicking sound at the cut point. To get rid of this, you can either apply a very small fade-in or fade-out to the clip, or make the cut at what's known as the zero-crossing point. This is the point where the waveform crosses the 0dB line as part of its cycle – ie, silence. Your DAW or audio editor probably offers a 'snap to zero-crossings' option to do this automatically, but if not, just zoom right in and do it manually.



Overloading your system with too many tracks can cause a whole host of problems, from stutters to slowdowns

DITHER ME THIS

When exporting a mix, some DAWs give you the option to apply dither. If you're exporting a mix that you later intend to master, this is best avoided. The maths behind dither is complicated, but it's really just the process of adding a very low level of noise to counter possible distortion. If you dither your track before it goes to mastering, you could be jeopardising your future finished version – not to mention annoying your mastering engineer – as you're applying final, destructive processing to a track that isn't actually finished. Unless you've deliberately mastered the track yourself and are actually exporting the final, *final* version, leave this option well alone.

ERROR CODES

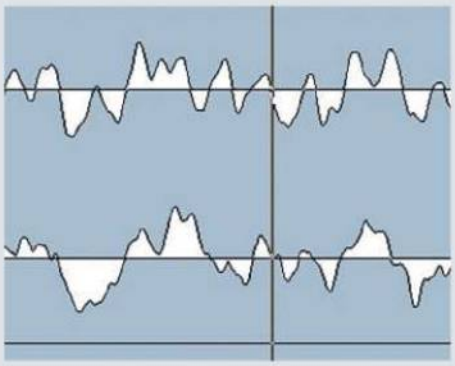
Sometimes when something goes wrong, your PC will throw up a numbered error code that, on the face of it, serves no practical purpose. The code comprises very specific information and is there to give tech support some guidance as to what's going on should you call them in. However, there are plenty of error code lists available online for DAWs and other applications, so if you've encountered a bemusing error message, they can be a good place at which to start diagnosing your particular problem.

PAY TO PLAY

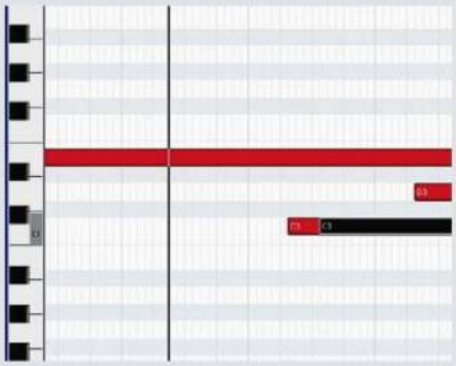
With so many plug-ins available, it's easy to end up with loads of expired demos and tried-once-then-forgotten freebies cluttering up your hard drive. Apart from taking up space, these can slow down load times, cause stability problems and generally get in the way. So, if you're carrying loads of dead weight, spring clean that plug-ins folder!

DOUBLED UP

If you're using a hardware synth as a MIDI keyboard, you might run into a scenario where your DAW records two MIDI notes on top of each other, instead of just one every time you press a key. This will be due to the keyboard's Local Off setting being disabled, so simply re-enable it.



Zooming in on your DAW's zero-crossing point enables you to apply cuts to audio clips without leaving artifacts



Enable your keyboard's Local Off feature to avoid recording MIDI notes on top of each other

CLOSING WINDOWS

Even in a simple track, you can quickly find that a lot of plug-ins are getting in on the action. If you're in the habit of leaving all your plug-in windows active – even if they're hidden behind each other – you'll find that not only does your workspace gets very cluttered very quickly, but your DAW might start glitching when you switch between the windows. This is easily sidestepped by closing the windows of instruments and effects that you're finished with for now.

STEP BACK

If things are going wrong and a problem's presented itself that you're having trouble fixing, try not to get frustrated and lose control of the creative process. This can really mess up a music session. If it's all just too much, get up and walk away for a minute. This might seem obvious, but stepping back and doing something else for a while enables you to look at the problem in a fresh light when you return to it.

CHAIN GANG

If you find that a particular chain of effects plug-ins isn't giving you the sound you think it should, the order in which they're inserted is probably the cause. Effects don't just all process the track onto which they're inserted at the same time – they feed the signal from one to another. For example, a compressor inserted before a reverb will deliver a totally different sound to when it's inserted after the reverb. In the former case, you'll be compressing a dry signal, then adding reverb; in the latter, you'll be compressing a reverbed signal. Reorder your insert effects by dragging them to different slots in your DAW's mixer.

IN A MAZE

When you're working on a big session with lots of tracks, it can be easy to lose track of what's going on and where everything is. You'll forget which bit is the bridge, which kick drum had that compressor plug-in loaded and where the lead vocal is among the mass of audio files. Every DAW offers a range of workflow tools – such as markers, folders, colour-coding and grouping – to help you make sense of the session. Make sure you use them! They'll make your life easier, enabling you to spend more time making music.

Even the biggest screen will get cluttered if you leave all your windows open, and it could cause your DAW to glitch

STILL WORKING...

Everyone's been there – the dreaded hourglass or spinning wheel that clearly ain't going anywhere, and that popped up out of nowhere when you seemingly weren't doing anything to warrant it. The first thing to do is give it time. Press Alt+Tab and navigate to another program – your system might just need a minute. If the problem persists, you'll have to force quit your DAW: Ctrl+Alt+Del on a PC, or Cmd+Alt+Esc on a Mac.

NEVER ENDING

When you bounce tracks down or export your mix, a progress bar appears on screen, indicating how long the process will take. But what if that bar's progress seems to take forever, even if you're not processing that much audio? The first thing to do is take a close look at what you're actually processing – you might have muted or hidden hefty pieces of audio that you don't want included, which could be lengthening the process. If that's not the issue, you're probably suffering from a lack of hard drive space or severe hard disk fragmentation, so have a clearout and run a defragging program.

GO TO SLEEP

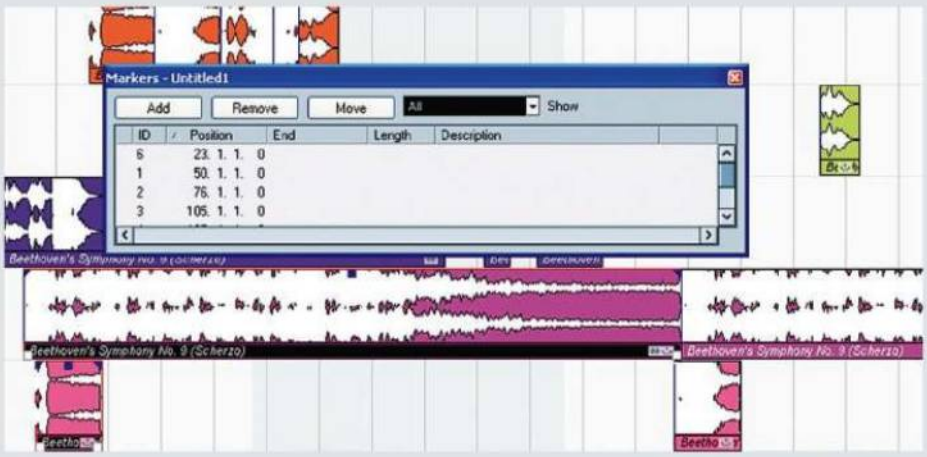
Letting your computer go to sleep when you're not using it is all well and good, but if you leave your DAW running when it enters its slumber, you might find that when you return, things aren't as they should be. Your DAW might take a while to boot up or refuse to work at all. Quite a few DAWs and plug-ins require USB authorisation dongles, and if the computer goes to sleep, the dongle might lose communication with the DAW. Unplugging and replugging the dongle will solve this problem, but if you know you're going to be away from your computer for a while, save and quit your project first.

NOISE CONTROL

Low-level hum or hiss on microphone inputs is a common complaint in studios built on a budget, as mics can pick up interference and background noise quite easily, particularly if they're hooked up with unbalanced cables. Improving your environment and cabling is the definitive solution to this, but you might be able to fix this problem in your DAW. Insert a shelving EQ on the incoming signal to filter out the noise, possibly reducing the mic gain while you're at it.

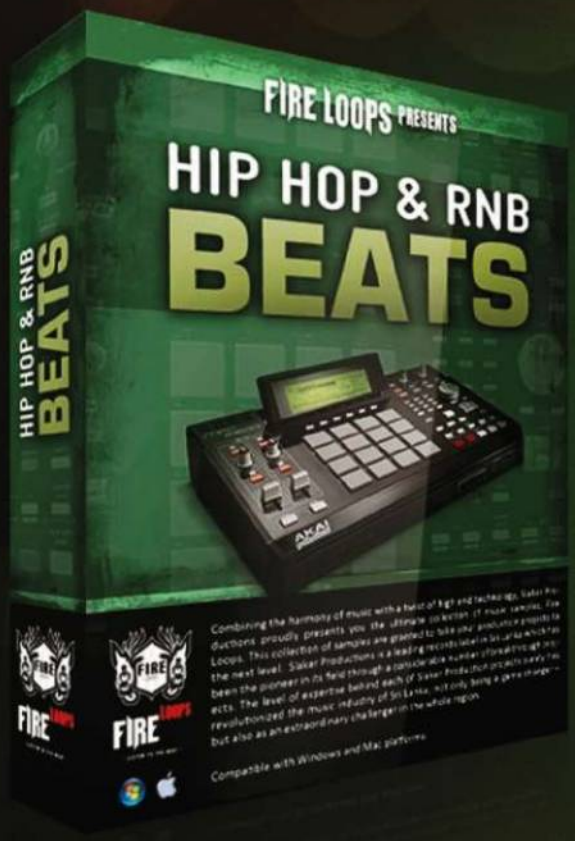
GOT ISSUES?

If you come across a DAW problem that isn't covered here and you just can't figure it out, check the manufacturer's website for a list of known issues with the software in question. If the developers have found an issue and have publicised it, the chances are they're working on a fix for it in their next update.cm



Colour coding is just one way in which you can keep organised when you've got lots of audio files in one project

LOOKING FOR BEATS?



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Over 340 percussion loops in 600MB of 24 bit audio. These percussion loops are played & edited to match perfectly with urban styles of Hip Hop, Rnb, Tribal, House & DnB.

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ELECTRO HOP

Includes 11 construction kits with 140 loops in 600MB of 24 bit audio. The pack features analog synths with analog beats created using the most sought after analog gear.

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DIAMOND RNB PACK 01

11 construction kits containing over 166 loops of beats, keys, bass & guitars. Made using the best quality equipment in the game especially for fans of smooth Rnb.

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cmDVD.. PC MAC

FXpansion Guru, 2021 Jazz Club samples, the latest reader demos, Nick Thayer, Black Noise and Wizard Sleeve on video, and more, all up in this month's disc!

DVD contents

Full software
FXpansion Guru CM (PC/Mac)
Martin Eastwood MVerb (PC/Mac)
elysia niveau (PC/Mac)
Ohm Force Frohmage (PC/Mac)

Demo software
112dB Big Blue Limiter (PC/Mac)
Iced Audio AudioFinder 5 (Mac)
Loomer Sequent (PC/Mac)
NuGen Audio Monofilter 4 (PC/Mac)
MeldaProduction Total Bundle (PC/Mac)

Tutorial files
CM Focus
Drum Synthesis
Touch & Go: iPad MIDI Control
Off the Dial
Problem Solved
Sound Essentials
String Theory
Totally Trackers

Samples
The Jazz Club Collection: 2021 24-bit samples, including construction kits, drum loops, drum hits, basslines, guitar riffs and organ multisamples

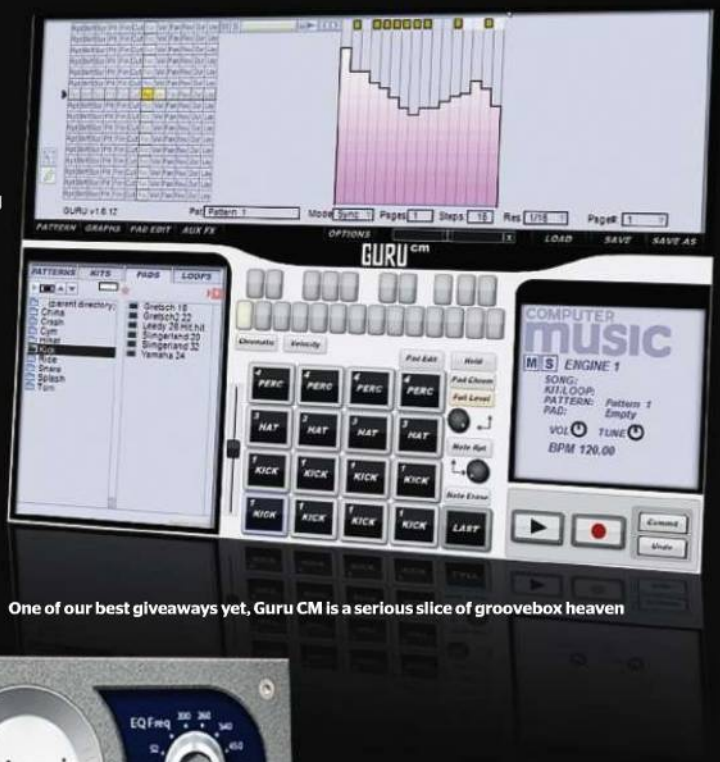
Reader Music
Decitronic – *You Smell Like A Winner*
Jonas The Plugexpert – *Errumm*
Moscow Youth Cult – *Phase IV*
Winterborn and Blaster – *1400 Miles*

Full software

FXPANSION GURU CM (MAC/PC)

An amazing virtual groovebox instrument that works as both a plug-in and a standalone application. Guru CM is exclusive to **cm** readers and comes with a huge library of nearly 1000 loops, hits, kits and drum patterns. For instructions on installing and using this incredible piece of software, see the tutorial over the page.

System requirements
PC **733MHz CPU, 512MB RAM, RTAS/VST host or standalone**
Mac **733MHz CPU, OS X 10.4, AU, RTAS/VST host or standalone**
Web **www.fxpansioncom**



One of our best giveaways yet, Guru CM is a serious slice of groovebox heaven

elysia niveau looks basic but sounds sensational

ELYSIA NIVEAU (PC/MAC)

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

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

MARTIN EASTWOOD MVERB (PC/MAC)

A straightforward reverb from the brains behind CompressiveCM and Duet, MVerb sounds superb and is easy to use. Read all about it in *Freeware news* on p18.

System requirements
PC **VST host**
Mac **AU/VST host**
Web **martineastwood.com**

OHM FORCE FROHMAGE (PC/MAC)

Luscious low-pass filtering is the order of the day with this fragrant offering from French funsters Ohm Force. With a choice of distortion modes and optional additional harmonically distributed bands, this free filter is an essential install.

System requirements
PC **RTAS/VST host**
Mac **AU/RTAS/VST host**
Web **www.ohmforce.com**

Demo software

112dB BIG BLUE LIMITER (PC/MAC)

An analogue tube limiter emulation, Big Blue Limiter is ideal for adding character to your busses and mixes – see our review on p107. The demo licence on the disc enables you to use this trial version until 28 October 2010.

System requirements

Mac 1.2GHz CPU, 256MB RAM, OS X 10.4 or later, AU/RTAS/VST host

PC 850MHz CPU, 256MB RAM, Windows 2000 or later, RTAS/VST host

Web www.112db.com

MELDAPRODUCTION TOTAL BUNDLE (PC/MAC)

We review MeldaProduction's MMultiBandChorus and MMultiBandDistortion in this very issue on pp112 and 113, both of which are included in this huge suite of 44 demos! These trial versions emit noise periodically and will open the MeldaProduction website on launch.

System requirements

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

PC SSE2-capable CPU, Windows XP or later, VST host

Web www.meldaproduction.com

LOOMER SEQUENT (PC/MAC)

Sequent (cm154, 8/10) 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

NUGEN AUDIO MONOFILTER 4 (PC/MAC)

Designed for getting your bass sounds firm and tight, Monofilter 4 adds definition to your mix and helps to alleviate phase issues. We review it on p106. This demo version will expire after 30 days.

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.

Iced Audio's superb AudioFinder 5 gives incredible control over your sample library

Loomer Sequent scored an impressive 8/10 last month and now you can try its seven effects and 22 step sequencers yourself

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/VST host

Web www.nugenaudio.com

ICED AUDIO AUDIOFINDER 5 (MAC)

Organise your samples with this extraordinarily handy audio management tool. It boasts copious cool features, including the ability to add metadata to any sound, built-in sample editing, pitch analysis tools and preview with pitch control. Last month, we awarded AudioFinder 5 a perfect 10/10 score – give it a try, then wonder how you ever worked without it! The demo will gradually lose features until registered.

System requirements

Mac OS X 10.5

Web www.icedaudio.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. Move your mouse over the links for each section to get a 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, copy them to your hard drive.

>Exclusive full software!

FXpansion Guru CM

PC MAC

cm DVD
ON THE DVD
FULL SOFTWARE
FXpansion Guru CM is in the **Full Software** folder

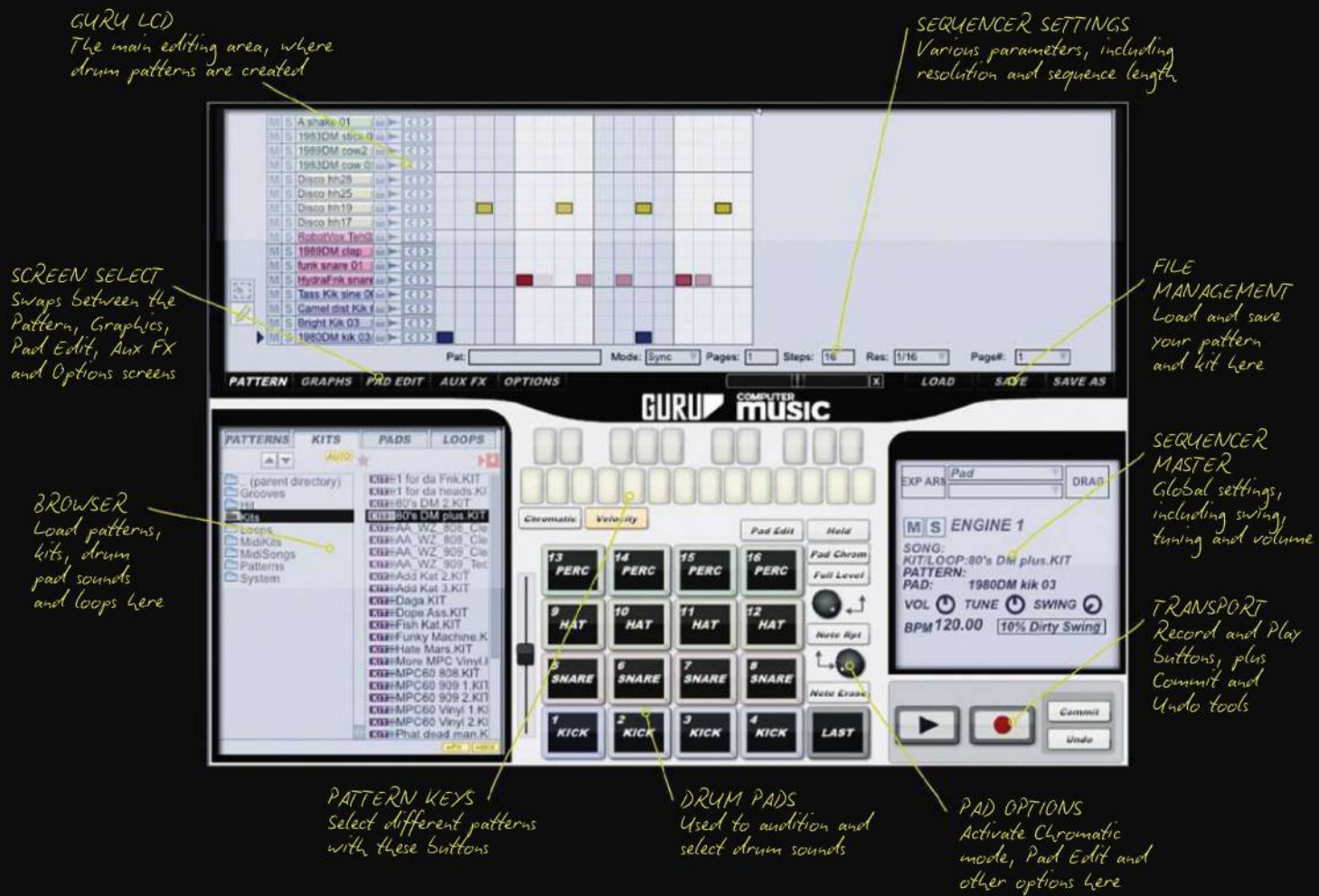
This month, we're making all your drum dreams come true with a free, exclusive version of the superb Guru drum machine from FXpansion

> FXpansion's Guru virtual drum machine was awarded a perfect 10/10 score in **cm**89. We were particularly impressed with its ease of use, excellent bundled sounds and array of capabilities that far exceeded those of most of its competitors. Now we're very excited to be able to present an exclusive, free version of this mighty software groovebox!

Guru CM is packed with good stuff, including a library of more than 1000 hits, loops, kits, patterns and grooves; 16 drum pads with eight sample layers each; 24 patterns with 512 steps each; intelligent beat slicing; randomisation; full automation; more than 20 effects; and 16 outputs. Not only will it run as a standalone application for PC and Mac, it'll also work in your DAW as an AU, RTAS or VST plug-in instrument. Restrictions compared to the full version are that only one Guru engine can be used per instance, there are no mixer or scene pages, and the built-in software rendering is disabled.

In this tutorial we'll show you how to install and authorise the software, and guide you through its basic operation. As Guru CM has so much going on, we don't have space to cover everything here, but full documentation is provided in the PDF manual in the **Software\Guru CM\Docs** folder.

When you register online, make sure you supply your email address because **cm** readers get 30% off the full version of Guru. Now let's rock the funky beats!



> Step by step Installing and authorising FXpansion Guru CM

1 > First of all, if you already have the full Guru installed, installing Guru CM will overwrite it, so don't do it! Start by running the Guru CM installer for your platform, in the **Software/GURU_v1-7-1_CM** folder. Windows users run **Install GURU.exe**, Mac users run **Install GURU.app**. The Guru installer will guide you through the installation process - just follow the on-screen instructions.

2 > Windows users will be asked to pick their shared VST folder. If you aren't sure where this is, check your shared VST folder options in your DAW. The installer will also prompt you for a path to install the standalone software and data - the default paths should be fine. Mac users will be prompted for a location in which to put the data file - again, the default should be fine.

3 > When the installation is complete, you'll be asked if you wish to check for updates online. For the moment, select **No**, then click the **Done** button on the installer to finish up. Now run the program, which can be found in the **Start»All Programs»FXpansion»GURU** menu on PC, or the Applications folder on Mac.

4 > When you run the program for the first time, you'll be asked for a serial number. To obtain your serial number, click the **Get your free serial number** button in the middle of the interface. The FXpansion website will launch. If you already have an FXpansion account, enter your username and password. If you don't, click where it says **Click here if you don't have an account yet**.

5 > Enter your details in the **Create An Account** section of the page that appears. Once your details have been approved, you'll be able to log in to your account. Fill in the Address page. You'll be asked to confirm this information on the next page, and once you've done that, you'll be told that your account has been created successfully.

6 > Enter **www.fxpansion.com/gurucm** into your browser's address bar and you'll be taken to a screen with a link that says **Click here to request your free GURU CM serial number**. The serial number will be displayed. Important - make sure you make a note of this number because it will only be issued once!

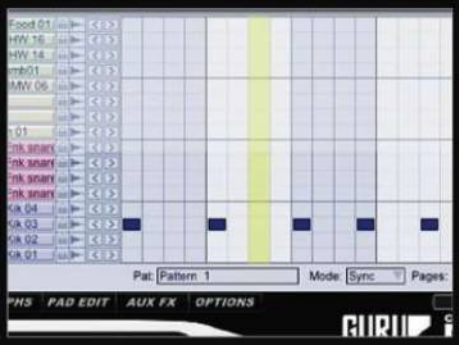
7 > In Guru CM, click the **Launch License Manager** button. When its interface appears, click the **Authorize & activate Guru CM** button. On the next page, enter your serial number. Click **OK** and you'll be asked to select an authorisation method. Click **Online, Automatically**.

8 > You'll be asked to enter your FXpansion account login details. Enter your username and password, then click the **Log In!** button. Your username, password and serial number will be displayed. Click the **Request Authorisation** button. The FX License Manager will contact the FXpansion server, and the next screen you'll see should say **Success!**

9 > Click the **OK** button and exit the FX License Manager. Bring up Guru CM again and the software will be ready to use. Guru CM works as both a standalone application and a plug-in. The application and plug-in work in essentially the same way, but as it's not possible to export audio from the standalone version, we recommend using it as a plug-in in your DAW.

> Step by step
Getting started with FXpansion Guru CM

1 > Now we've got the installation and authorisation out of the way, it's time for the fun stuff. The first thing to do is select a kit. The Kit menu is at the bottom left-hand corner. Begin by clicking the **1 for da Fnk.kit**, then the flashing **OK** button to confirm your selection.



2 > You can now sequence a beat using the step sequencer in the top half of the display. To place a trigger, click the grid. Copy the pattern shown here in the **Fnk J Kik 03** row. To play this beat, click the Play arrow button in Guru CM, which starts playback in your DAW. You can stop playback by clicking the Play button again, or by using your DAW's transport controls.

3 > Copy the snare pattern shown here. If you make a mistake, delete a placed trigger by right-clicking it. Next, copy the hi-hat pattern. The hi-hats are a little loud, but you can adjust volumes by dragging the coloured bars under the name of each drum sound. You can also mute and solo sounds using the **M** and **S** buttons to the left of their names.

4 > Before we go any further, let's save this setup. Click the **Save As** button on the centre right-hand side of the interface. Select an appropriate location to save the song file, enter a name and click **Save**. If you want to load up your saved pattern, simply use the **Load** button.

5 > Let's customise our kit a little. Select the **Pads** tab in the panel at the bottom left-hand corner of the interface, then select the **Percussion** folder. Click **Pad 13** in the pad display at the bottom of the interface, then click **80's HomePerc 04**. You can now trigger this sound in the fourth row down. Click the **OK** button to confirm your sample choice.

6 > Copy the pattern for Pad 13 shown here. Note that you can nudge the patterns on each row left or right using the arrows to the left of the grid. You can lock a row by clicking the Lock icon, preventing the addition or deletion of triggers and disabling the nudge buttons for that row.

POWER TIP

>Any export in a storm...

Guru CM doesn't have the audio export functionality of the full version of Guru, but it's still possible to render audio from the plug-in version using your DAW's export/bounce system. Any Guru CM parts will be included in the mix when you export audio from your DAW, so if you just want to render out the Guru CM parts of a track, simply solo the plug-in before exporting. For further information on the full version of Guru, see **www.fxpansion.com**.

7 > You can also load your own samples by dragging and dropping them onto the drum pads. As well as tons of kits, single-hit pads and preset drum patterns, Guru CM also includes a whole load of loops that can be accessed via the **Loops** tab in the bottom left-hand panel. To load these loops, click them, then confirm by clicking the flashing **OK** button.

8 > The Graphs view enables very deep editing of patterns. Click it and a matrix will appear, showing a range of parameters for each pad. To edit one, click the appropriate square in the matrix and the step sequencer to the right will display that parameter for each step. Alas, that's all we have space for – read the manual to find out much more about Guru CM. **cm**

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

2021 cm samples

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

Don your polo neck and trim your goatee for our exclusive Jazz Club collection, including everything from trad sounds to jazzy dance beats

Groove Criminals

100 brushed snare loops
61 drum fills
62 drum hits
123 drum loops
158 guitar loops
2 Hammond organ multisample sets
122 keys loops

The majority of these beats were recorded using a vintage Ludwig drum kit and Paste cymbals, while the brushed snare loops used a Yamaha 14x6" steel snare with vintage wood hoops. The guitar licks came from a Gibson ES-335, while the keyboard runs were recorded as MIDI data and fed through various sound sources, both vintage and modern.

Huge thanks to the GCHQ jazzers, Rich, Matt, Brian and Simon, for their chops.
www.groovecriminals.co.uk

Cyclick

3 drum kits
384 drum loops
17 guitar loops
17 bass loops
48 keys loops

These beats come in two varieties – straight and processed – with the acoustic kits used to program them presented as velocity-layered CMplay patches. The instrumental loops share chordal and modal patterns, which means they can be chopped and changed easily.

Alex Blanco

35 construction kits
200 guitar loops
173 single hits

The jazz guitar loops were played by ace strummer Joe Hurst (**www.myspace.com/joehurstmusic**) and are accompanied by 350 jazz-tech drum loops in 35 construction kits and around 175 percussive single hits and strums.
www.myspace.com/djalexblanco

PLUS

Exploring Nuendo 5

Take a tour of the latest version of Steinberg's audio production software. This official video takes an in-depth look at some of the new features, and demonstrates their practical application.
www.steinberg.net

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

Artists Nick Thayer, Black Noise and Wizard Sleeve

Breaks legend Nick Thayer, electro-house bad boys Black Noise (AKA Aquasky) and US hip-hoppers Wizard Sleeve demonstrate the techniques behind their big beats and slick rhymes. This epic three-part video shows a three-way collaboration, starting in Nick's studio in Australia and ending up in Black Noise's Bournemouth studio, revealing plenty of indispensable production tips along the way.

Web www.myspace.com/djnickthayer
www.myspace.com/blacknoiseboyz
www.myspace.com/WeAreWizardSleeve

HAVING PROBLEMS?

In the unlikely event that you have trouble with your disc, send an email to **support@futurenet.com** 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, CMU155/September/10, Bath BA1 2BW. Don't forget to include your full name and address!

cm STUDIO

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

APPLICATIONS

XT Software energyXT2.5 Core cm 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

Synapse Audio Junglist (PC)
Effects-packed virtual analogue synth

EFFECTS

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

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.

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

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

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

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

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

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

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

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

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

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

PSP Springverb (PC)
Authentic VST spring reverb effect

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

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

Camel Audio CMFuzz (PC)
Quick and dirty distortion

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

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

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

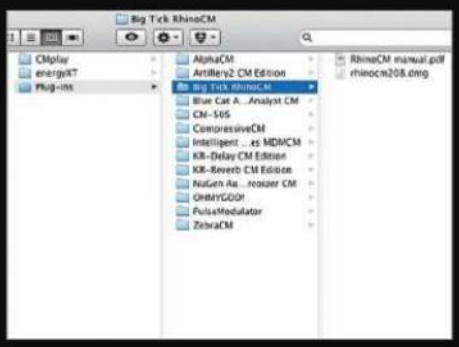
Create big, bad bass sounds with the full version of classic virtual analogue synth Junglist

Using RhinoCM's filters

PC MAC

Continuing our exploration of RhinoCM, this month we get to grips with the synth's filters

cm DVD
ON THE DVD
FULL SOFTWARE
RhinoCM is yours for the taking in the **CM Studio** folder



1 > This month we're going to explore RhinoCM's subtractive synthesis side, taking a peek at its filters. RhinoCM has been updated recently, so install the new 2.08 version from the **CM Studio/Mac Software/Plug-ins/Big Tick RhinoCM** or **CM Studio\PC Software\Plug-ins\Big Tick RhinoCM** folder on the cm DVD.

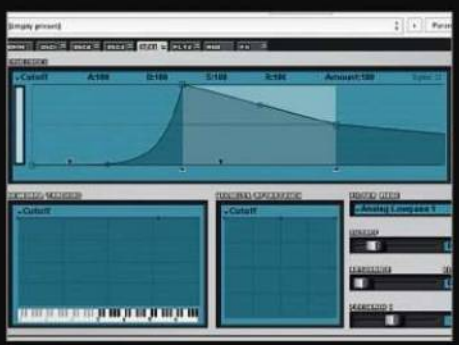
2 > Load the synth up in your DAW, right-click the first preset in the Bank list and select **Clear [[Empty Preset]]**. This will initialise the preset so that we can work on it from scratch. Click the **Osc1** tab at the top of the interface to bring up the settings for Oscillator 1. In the **Oscillator Shape** panel, click the word **Sine**.

3 > This brings up a list of available wave shapes for this oscillator. Rather than using FM or additive synthesis to create our source material, we're going use a preset square wave that quickly gives us a harmonically rich tone perfect for filtering. Select **Single Cycle»Square** from the list.

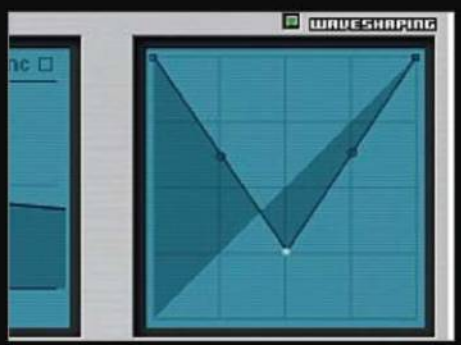
4 > Now we need to activate the filter. Select the **Filt1** tab at the top of the interface. The Filter panel will appear. Where the Oscillator Shape panel once was, you'll now find the Filter Mode menu. Click this and select **Analog Lowpass 1**.

5 > You won't actually hear the effect of the filter just yet because we're still listening to the unfiltered oscillator output. In the Modulation Matrix, reduce the **Osc 1 RAW** value from **100** to **0**, and turn up the **Osc1 Filt1** value to **100**.

6 > You'll barely hear anything as the filter cutoff frequency is set to **Slow**. The **Cutoff** is below the **Filter Mode** menu. Turn it to **20** to let more of the high frequencies through, and set the **Cutoff Env Mod** fader to **100**. You'll hear a little attack at the start of the envelope, but this isn't visible in the Cutoff Envelope.



7 > You can get a better look at the shape of the Cutoff Envelope by dragging up on the envelope display to zoom in. Drag right on the envelope to look at the start of the envelope. Increase the length of the attack stage by dragging the square node, and change the shape of the curve by dragging the circular node.



8 > The filter has its own morphing waveshaper, which enables you to fade between two different waveshaper functions. Activate waveshaping by clicking the button by the waveshaper. You can then right-click here to create nodes on the Waveshaper display to mangle the sound.

9 > Moving the **Waveshaper Fader** to **0** shows the first waveshaping function in the Edit window; moving it to **100** shows the second. You can hear the sound morph between the two when you slide the fader. The **Feedback** sliders control the amount of Filter 1 and Filter 2 fed back into the current filter. cm

Reader music

Our team of producers and engineers cast their expert ears over this month's quartet of tracks

cmDVD
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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

MOSCOW YOUTH CULT
Phase IV

Artist Jon Dix
Contact www.myspace.com/moscowyouthcult

> This is either a song of two halves, or two songs stuck together. The first half is an abstract electro-pop song with vocals and hooks. The second half is a darker instrumental piece with half-time drums. The way they connect is great, the pop song falling apart as vocals drift into the distance, and heavily 'wowing' synths introducing the downtempo piece. The backing track of the first half is driven by a big, fat kick and clanking snare and clap, and over them are some atonal noises to counter the very melodic and 'nice' vocal delivery. It's a carefully thought-out production that works to create a unique sound. It doesn't feel like it's fully developed but the potential is big.

Arguably, the second half is much too long for its content: arpeggiating guitars, distorted flute melodies and lead guitars that don't feel like they're going anywhere. It's an interesting contrast to the first half, but you soon get bored. Maybe the piece as a whole would feel more connected if the first half was developed further and the end coda shortened.

What the artist says:

"The track is an ode to the 70s sci-fi film of the same name. The first half is a full-on electro squelcher, with a massive, dirty bass sound from Omnisphere driving it along, before melting into the coda, in which we wanted everything to sound 'sampled', battered and tape-y."

Equipment used Steinberg Cubase, Spectrasonics Omnisphere, Stillwell Olga and Minimoog, GForce Software M-Tron, Native Instruments Battery, Octave The Cat, iZotope Trash, Camel Audio CamelPhat, DBX hardware compressor, four-track tape machine, full band set-up

JONAS THE PLUGEXPERT
Errumm

Artist Richard Jonas
Contact www.myspace.com/plugexpert

> With such an immodest band name, one's expectations are high. It's a bit like a guitar band calling themselves The Rock Gods. Starting out with some manic beat slicing, the frenetic pace is only slightly smoothed by the introduction of legato synth and bass figures.

The bassline has a suspenseful, 'horror movie soundtrack' feel to it as it wanders around in a dissociated way. There isn't an apparent time signature or tempo. The beats are a jumble of cut-ups that don't settle on any time, and the harmonic elements drift over and around them, but the weave of the two somehow pulls the whole thing together into a cohesive picture. It's not an easy listening piece by any means, and with no rhythm, it has no dance appeal, but it is interesting from a cerebral point of view.

The relentless, stuttering beats render it a bit too linear and maybe a drop in the middle could bring both relief and dynamic shape. You certainly breathe a sigh of relief when it stops! Perhaps The PlugAbuser would be a more apt name...

What the artist says:

"This track was created in my favourite tracker, Renoise, using mostly native DSP-looped samples and freeware VSTs. The track is a reiteration process of one break run through different VST/DSP set-ups and resampling, combining these samples, cut up with different loop settings, for a relentless-sounding metallic composition."

Equipment used Packard Bell laptop, Behringer mixer, Behringer BCR2000, Akai LPK25, Renoise 2.5, Itchy Synths Subbsonic, Oatmeal, Togu Audio Line TAL-DUB II, Ohm Force pack - Ohmboyz, Hematohm, Ohmicide

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?

Veteran producer, engineer and remixer Graham Massey gives his considered professional opinion on this month's featured reader demo

Producer/engineer **Graham Massey**

Graham is a key figure in the UK techno scene, having formed 808State in 1988. He recently remastered the 808State entire back catalogue for ZTT records, as well as the band's acid house records for Rephlex Records. Graham is now working with The Sisters of Transistors quartet, for whom he writes, produces and plays drums.

DECITRONIC
You Smell Like a Winner

Artist Sean Gilleece
Contact www.myspace.com/decitronic

> This wins the award for best song title this month hands down! The track itself is a robust slab of techno, littered with tasty snippets of tunes and rooted around some great throat-singing monk samples. One immediate problem is the kick drum, which is heavily distorted and has a very strong note to it. It sounds good when it first comes in but soon becomes very tiring, as it's so loud and dominant. It's also causing pumping problems on the overall track compression, because it's so loud.

Apart from that, everything else is good. The variety of themes and tunes keeps the interest and the use of the monks is inspired. The bassline is what holds it all together, with its bold, dirty sound and strong hook. It allows for all the mayhem to go on around it, without losing the spirit.

The balance of the mix is a bit out. Again, it's mainly the kick, but the hats are a bit lost and possibly dull, while the backbeat clap is a little innocuous and – strangely, but presumably intentionally – has an alternating slow attack, losing the transient on every other clap. What the mix does do well is display the attitude and intention.

What the artist says:

"The track was actually the first fully finished track from Decitronic. It came about by applying gates and flange over the vocal sounds of Tibetan monks. This eventually began to progress into a full track and, as always with Decitronic, there has to be a breakdown. Which there is."

Equipment used **Compaq CQ61 laptop, Tascam US-122 Mk1, Alesis MultiMix 12 USB, AKG K99, Steinberg Cubase 5, reFX Vanguard, Propellerhead Reason, free plug-ins**

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!

WINTERBORN AND BLASTER
1400 Miles

Artist Barry Han
Contact www.soundcloud.com/winterborn-and-blaster

> This month's pick of the reader demos immediately stands out, as it has a different energy to the regular techno DAW submissions, in that there's a real feeling of performance to the piece.

Winterborn and Blaster seem to have a lot to express, in a stream-of-consciousness, conveyor belt kind of way, and the music subtly mutates along in its support. The vocals are central to the piece and rarely stop for breath in the six-and-a-half-minute epic. The delivery style is split between a sung chorus and the read-off-a-page style of, say, Mark E Smith, which divides the piece into manageable chunks.

The instrumentation is almost traditional – 'band with treated guitar and overdriven bass guitar'. There's some good conga and drum work, which sounds like someone grooving, while an attractive, overblown flute motif brings colour and gives a flavour of either Gil Scott Heron or Black Grape, depending on your age. The guitarist explores a number of techniques and effects, which weave in with some simple synthesiser.

If there's a criticism of the recording, it's that it's on the wrong side of distorted. There's a lot of distortion on the bass and guitars and that's good, but the drums, and particularly the hi-hats, sound clipped. I suspect it's been mixed at high monitor levels and top-end complacency has set in, or it could be that the monitors being used have an inaccurate top end. The bass guitar takes up a lot of space, being both subby and with a fuzzy top end. I think some of the lower subs aren't really needed and would allow the drums to breathe a bit easier; or maybe it needs just a slight dip in the volume of the bass. Again, this may be the room it was mixed in.

It's easy to get carried away with fat bottom end but many modern sound systems emphasise the subs – great for minimal music but tiring when pushed together with more complex material. Still, I don't suppose they set out to get in a hi-fi magazine, and the track triumphs with its original slice of 2010 swagger – it sounds like some mates having a blast.

What the artist says:

"The track started life as a jam with drums, bass and main keyboard riff. I put the drums through the CMFuzz plug-in and that changed the feel completely. Calum wrote the lyrics from texts and Facebook messages and the rest of the track was built around his vocals."

Equipment used **PC, Steinberg Cubase 5, Line 6 Pod Farm, Rob Papen Predator, Novation V Station, CM suite, Shortcircuit, Focusrite Saffire Pro 10, Epiphone Rivoli, Fender Telecaster, Epiphone Les Paul copy, CME UF50, Korg DW-8000, Korg MS-10, Roland SH-101, Kawai K4, Behringer B1 mic, AKG C 1000 mic, Art Tube MP Studio V3 preamp**cm

BLACK NOISE

NICK THAYER

cm Producer Masterclass

You get three acts for the price of one this month, as we cross continents in a massive collaborative production effort!

cm DVD

ON THE DVD

Watch them put their advice into action in our exclusive videos

WIZARD SLEEVE

World music

> This month's *Producer Masterclass* is an intercontinental collaboration of epic proportions, involving Australian breaks hero Nick Thayer, Bournemouth house-heads Black Noise (also known as jazzy jungle and breakbeat innovators Aquasky), and US rappers Wizard Sleeve, responsible for the vocals on the breakthrough dance hit of last year, Sidney Samson's *Riverside (Let's Go!)*.

The project began with Nick creating a basic track using various percussion, effect and synth parts in his home studio using Ableton Live. These were then rendered as audio and sent over the internet to Black Noise, who cherry-picked their favourite elements from Nick's work and added new beats and sounds in Steinberg Cubase. Finally, Black Noise and Thayer collaborators Lex One and Mike Beatz (AKA Wizard Sleeve) were invited into the studio to lay down some rhymes.

"I wasn't really quite sure where this was gonna go!" Nick confesses. "Having worked with both Black Noise and Wizard Sleeve before, I had a vague idea of the sort of territory we'd be in, but as anyone who has spent any time in a studio knows, even the best intentions get thrown aside when in the midst of a studio session. I just tried to lay down a bed and some loops that would provide a foundation for those guys to get crazy on top."

Black Noise's Kieron Bailey joined his bandmates Brent Newitt and Dave Wallace late, after jetting back from a gig in Taiwan. "Despite having been awake for about 35 hours and suffering awesome jet lag, I felt the session went pretty smoothly!" Kieron says. "Working with Nick is always easy, as he's a really smart producer who understands how to lock in the simple, fat groove. Wizard Sleeve are really pro when it comes to recording vocals – they always come to the studio with dope lyrics and deliver pretty much first time in the booth."

How did Wizard Sleeve themselves find the session? "Fun times!" says Mike Beatz. "It's always great chemistry working with Black Noise. They're masters of their craft, so we're definitely in good hands whenever we record with them."

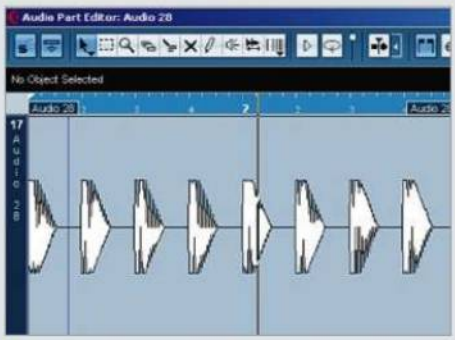
Do Wizard Sleeve ever record their own vocals? "It depends on who we're working with, but for the most part, we record our own vocals. I think most artists do nowadays. You definitely have to have some sort of basic knowledge when it comes to recording as an artist to survive in these times."

On this month's **cm** DVD you'll find three exclusive videos showing each stage of the recording process, from Nick's guide to processing and creating sounds in Ableton Live through Black Noise's additional production, and finally, the recording of Lex One and Mike Beatz' vocal performances.

Web **www.myspace.com/djnickthayer**
www.myspace.com/blacknoiseboyz
www.myspace.com/WeAreWizardSleeve

> Step by step Black Noise go to work on the drums

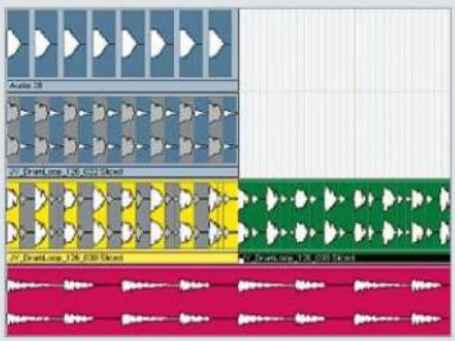
1 > Black Noise load the parts and Nick's rough demo of the track into Cubase. The first thing they do is colour code the beats, instruments and effects so that they can be easily identified. The beats are also grouped into a folder, which makes them easier to edit.



2 > The first new element to be added is a kick drum. Black Noise load up a one-bar kick drum loop from their sample library and slice one of the beats out of it. The extracted sample is placed on every beat to create a four-four kick pattern.

3 > To quickly get some extra percussion into the track, a couple of loops are sourced from Joey Youngman's Jacked Out Future House sample library. These are both straight-up house loops, and they're loaded onto two new audio tracks in Cubase.

4 > One of the loops has a nice open hi-hat sound, which is chopped out. Black Noise mute the non-hi-hat parts of the beat to create a simple off-beat hi-hat pattern. This track is put into the beats group with the rest of the drum loops.



5 > The second Joey Youngman beat has a skippier, more complex groove. Two versions of this loop are prepared for use in the track. The first is the original, unedited loop, and the second has the off-beat hi-hat sounds muted. These are coloured differently, making them easy to tell apart.

6 > To pump up the drum sounds as much as possible, the beat group is run through Sonalksis TBK2 Digital Grimebox's degrader effect. This is set to clip at 0dB, and the plug-in's input level fader is turned up to drive the beat as hard as possible before obvious distortion occurs.

> Step by step

Synth programming and processing, and recording Wizard Sleeve's vocals

7 > Next, Black Noise turn their attention to the samples Nick has supplied. First up is the big synth tom riff. The original version consists of a low main groove with a high, hook-y part at the end. The first low part is edited out, leaving just the hook.

8 > To create a synth line to go with this hook, Black Noise decide to load up a synth they haven't used for a while. reFX Vanguard is primarily intended for creating trance sounds, but it can also be a great source of electro bass and lead noises. They tweak a preset, detuning some of the saw oscillators by a fifth to create a big, electro-style lead.

9 > A simple pattern, loosely based on the original tom part is used to trigger the Vanguard patch. Effects plug-ins are applied to the sound to beef it up a bit. First, Cubase's Compressor is applied. This uses the kick drum as a sidechain input, causing the electro lead to pump along with the beat.

10 > Cubase's Limiter is applied directly after the Compressor to boost the sound's overall volume level, then Cubase's Multiband Compressor is added, with the **FM Radio** preset loaded. Black Noise like the presets from the old version of the Multiband Compressor so much that they use that, rather than the new version of the effect.

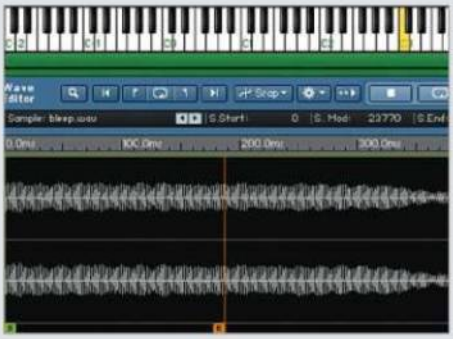
11 > To accompany the Vanguard patch, a detuned sawtooth-based noise from a Moog synth is loaded into Native Instruments Kontakt. The Kontatk patch is set to Monophonic mode and the release time is reduced to give it a tighter feel. The sample is then tuned to the Vanguard patch using the keyzone's tuning parameter.

12 > Kontakt's output is pushed through the same Compressor, Limiter and Multiband Compressor combo that was used on the Vanguard synth. The Compressor again takes sidechain input from the kick drum, and the ratio is fine-tuned to give the sound a powerful, pumping feel.

13 > To make the synths more 'sleazy', portamento is added to the Vanguard and Kontakt patches. In Kontakt 3, this involves clicking the **Add Modulator** button and selecting **Others»Glide**. The Glide time can then be set with the fader that appears.

14 > Black Noise want to create a mashed-up version of the synth riff to use in the verse sections of the track. In order to create this, the free Glitch plug-in (from **illformed.org/plugins/glitch**) is loaded onto the synth bus. A patch that Black Noise often use for this sort of thing is then called up.

15 > The preset involves the effect's gater and retrigger algorithms, which stutter up the sound. The output of this bus is then bounced to an audio track and a note is sliced out of it to create a new riff. This note isn't the root note, so Cubase's real-time transpose function is used to pitch it down to the right key.



16 > This processed synth riff plays on the verse along with the simplified Joey Youngman loop, and the original version of the riff plays the chorus along with the full version of the loop. The track is starting to take shape. The next sound to be added is a high square tone. This is another sample played back via Kontakt.

17 > As with the last sound, the polyphony and **Release** time are reduced. A new output is created for this sound because it needs different processing to the Moog riff. This time, Cubase's RoomWorks reverb effect is applied to give the short sound a long, atmospheric tail. A limiter is then applied after the reverb, which boosts the volume of the reverb tail and helps it sound louder in the mix.

18 > To create a variation on this riff, a copy of the MIDI part is created and used to trigger Cubase's old-school A1 synth. A wobbly lead sound with LFO-modulated filter cutoff is used to lay the part back. This version of the sound is used in the verse, with the sampled square wave version playing over the chorus.

19 > Now Black Noise have finished adding their own elements, they bring in some more of Nick's sounds. The military-style snare roll is deemed ideal for fills, and in order to make it stand out in the mix more, it's run through Cubase's DaTube saturator, then limited. The lows are attenuated a little, too, so it doesn't muddy up the mix when it plays.

20 > All the elements are in place and a simple arrangement is created, bounced to audio and loaded into a new project. Enter Wizard Sleeve, whose vocals are recorded through a Neumann mic, Focusrite preamp and E-MU interface. Several takes are made for each part of the song, and these include 'emphasis' tracks where Lex and Mike double the important words.

21 > When the vocal recording is done, Dave accidentally unplugs the PC, much to Kieron's dismay! Thankfully, Cubase's auto-save feature was enabled before the computer was shut off and the project is recovered. The final touch on the vocals is a low-cut EQ courtesy of the Sony Oxford EQ plug-in, and some compression from Waves Renaissance Vox dynamics processor.

Kit list

NICK THAYER

MacBook Pro 15"
Ableton Live 8
Ableton Operator
Behringer Truth 2030 monitors
RME Fireface 400 audio interface
Crowther Audio Prunes And Custard
Crowther Hot Cake
Roland SH-2000
Korg Poly800 mkII

BLACK NOISE

HARDWARE

Custom-built PC with 2x Opteron dual-core processors on an Asus KFN5 motherboard with 4GB RAM and a Western Digital VelociRaptor hard drive
E-MU 1616M PCI soundcard
Steinberg Midex 8 USB MIDI Interface
Roland Alpha Juno
Roland SH-101
Clavia Nord Rack
E-MU Vintage Keys
E-MU Proteus 2000
Fender Rhodes 73 Mark I
Akai s950
2x Akai S3000XL
Vintage Marshall 50-watt valve head with 4x12 cab
Roland Octapad
M-Audio Keystation 88
Focusrite VoiceMaster Pro
Neumann U87 mic
AKG C3000 mic
Shure SM58 mic
Yamaha 82CX mixer
Dynaudio BM5 monitors
MASS Technology 250 amp

SOFTWARE

Windows XP
Steinberg Cubase 4
Ableton Live 7
Sony Sound Forge Pro 10
Native Instruments Komplete 6
Waves Renaissance bundle
Sony Sonnox bundle
Korg Legacy Collection
d16 Decimort
Ohm Force Predatohm
Ohm Force OhmBoyz
Celemony Melodyne
Lexicon Pantheon Reverb
reFX Vanguard

WIZARD SLEEVE

Apple iMac G4
Apple Mac G5 tower
Digidesign Mbox 2
Pro Tools
Alesis M1 Active MKII
SE Electronics Reflexion Filter
Shure KSM27
AKG C214

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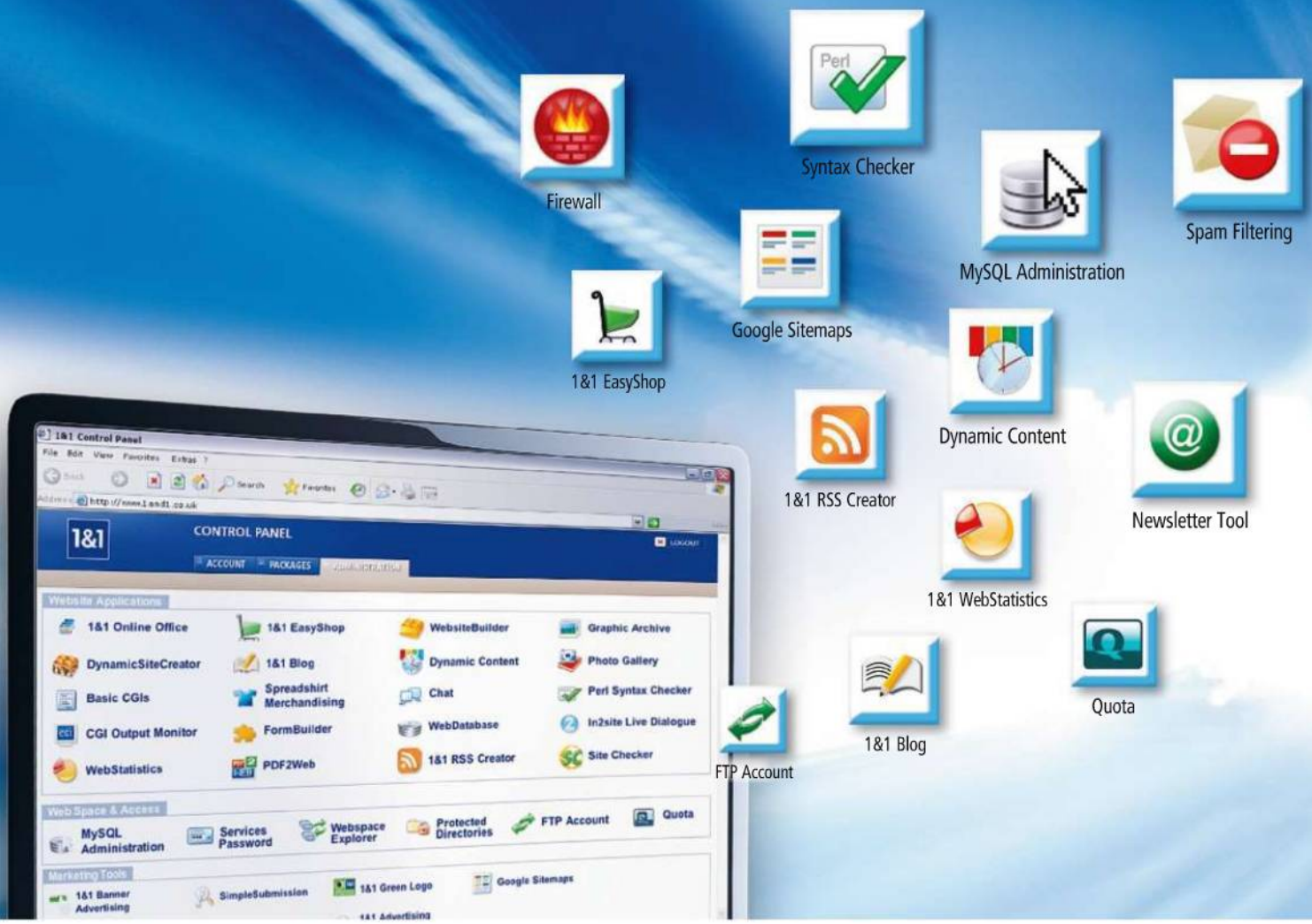

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Preparations for the London Music Show 2010, which takes place on October 8-10 at ExCeL London, are moving on apace.

Formerly known as the London International Music Show, LMS is now run by Future Publishing, the makers of **cm** 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*. The focus of the Zone is a purpose-built 74-seat theatre, showcasing presentations, demonstrations and tutorials on all aspects of music production.

We're planning a collection of events that are going to be utterly unmissable for anyone producing music on their PC or Mac. Seminar topics will include mixing, effects, synthesis, making it in the industry, mastering, DJing and much more.

Needless to say, the 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. As a teaser, we can reveal that Grammy-winner Steve Levine, producer-to-the-stars Tommy D and trance heavyweight John '00' Fleming have already signed up to dispense their know-how.

Steve Levine has been at the forefront of the UK music scene for over 25 years, his recording and mixing credits including Culture Club, The Clash, Ziggy Marley, Mis-Teeq, Honeyz and 911. He's also a regular on TV and radio and holds the post of Chairman of the Music Producers's Guild.

Songwriter/producer Tommy D has worked with an equally diverse array of legendary names, including Kanye West, KT Tunstall, Kylie Minogue and Michael Jackson.

Rocking the capital at LMS (from top): Tommy D, Steve Levine and John '00' Fleming

John '00' Fleming has been tearing up dancefloors from the DJ booth since the 80s, and releasing his own tunes since the late 90s. He's also remixed a ton of other artists, including Muse, Mansun and Nine Inch Nails, and owns Joof Records.

As well as the show itself, on the Saturday night LMS will also play host to a very special concert. Acts are yet to be confirmed, but that's just our way of saying that the sky's the limit! It could be Tina Turner, the Aphex Twin, Jan Hammer, or even all three. Elton John might even show up... for a live mash-up with breakcore wizard Shitmat! Whatever happens on the night, you'd be remiss if you missed this unmissable event!

Opening times are 10am-5pm on Friday and Sunday, and 10am-6pm on Saturday. Tickets are on sale now at **www.londonmusicshow.com** and via our 24-hour hotline on **0871 620 7059**. We'll be bringing you further details in the mag next month, but keep an eye on our Facebook page (**www.facebook.com/computer.music.mag**) and Twitter feed (**www.twitter.com/computermusicuk**) for updates as they happen.

Win tickets to the London Music Show 2010!

Fancy going to LMS 2010 without having to buy tickets? We've set aside passes for nine lucky **cm** readers. To be in with a chance of winning, all you have to do is enter for free online. Good luck!

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The question
The London Music Show is being held at...

A. Cardiff International Arena
B. Birmingham NEC
C. Excel, London

New for old

Are software synth emulations really as good as the classic hardware they set out to replicate? We turn to three electronic music legends to find out

> A book has a uniquely tactile feel, character and even smell, and is totally non-linear – you can jump instantly to any page. Books are, in essence, analogue. The downsides, though, are that they're bulky, eventually they fall apart and if you drop one in the bath, it's goodnight, Vienna.

The 100% digital likes of Apple's iPad, Amazon's Kindle and their ilk are also books. They're not tactile in the same way as the real thing, they don't have the same character and they don't work when the battery's dead. But they can store umpteen volumes at once, they're light, they're hard-wearing and their functionality extends into many other areas. We're still talking disaster in the bath, though. In terms of the primary purpose of a book, however – delivering the words unto your eyes – both formats deliver exactly the same results.

Funnily enough, the synthesiser is very similar. On the face of it, the differences between the original analogue synth and its software counterpart are considerable. There are advantages and disadvantages to each, but ultimately, both play music and both sound, to all intents and purposes, the same.

So is software really *better* than hardware? Clearly, we at **cm** would argue that it is, but who better to ask than the three music legends above? Electro-innovators Gary Numan and John Foxx cut their teeth in an analogue world and saw the birth of digital, while Pentatonik's career took off a few years prior to the beginning of the music software revolution.

We scored some face time with all three, getting their thoughts on hardware synths versus their software equivalents, as well as securing some invaluable music production advice.

John Foxx

The electric Foxx

John Foxx, founder of Ultravox! (the exclamation mark was a tribute to German electronica outfit Neu!) and sonic innovator, has always adhered to the philosophy of the synthesiser. In fact, his first solo release in 1980, *Metamatic*, fully embraced the electronic muse, leading to the increasing belief during that decade that organic instruments were a dying breed.

While that belief was misguided, Foxx's influence remains. His art is also still active – he was on tour at the time of writing and new recordings still appear. Older works are also being dusted off – the label Edsel recently released the Foxx live album *In The Glow* from 1983, plus studio albums with Louis Gordon: *The Pleasures Of Electricity* (2002) and *Shifting City* (1993).

"A technique I often use to interrogate each new advance is to ask what it can do that previous technologies can't," reveals Foxx. "Then you have the answer to what it will most likely get used for.

"This is a unique period in history. Things are happening faster than ever before, so you can actually test the accuracy of your own predictions without having to hang around for several hundred years to be proved wrong."

Electro legend John Foxx is a huge fan of the original ARP Odyssey analogue synthesiser, but has also embraced GForce's amazing software emulation of it, the Oddity.

"The Odyssey was one of the central synthesisers of its time, part of the first affordable generation of synths in the early to late 70s," he says. "The designers somehow managed to repack all the vital ingredients from those earlier, giant modular systems into tiny, mono keyboard units. You could actually carry them around. Miracle!

"First-generation drum machines were beginning to appear as well, adapted by us from cheesy cocktail bar accompaniment units. But the designers were beginning to move quickly. In 1976, I realised we were in for a sonic revolution of sorts – one at least as fundamental as affordable electric guitars precipitated in the 1960s. Each of these synths had its own qualities. For instance, the Moog was warm, big and deep. By contrast, the ARP was aggressive and precise, with a ring modulator, which meant you could make stunning metallic percussion sounds. So that was the synth I chose.

"I also realised the really important job in hand was to allow these new instruments to sound like themselves, to reveal their unique properties, rather than trying to imitate previous instruments. We had to devise an entire new sonic grammar around them. This really was future music in the making.

"These instruments had no memories, so after losing too many good sounds, I copied out an empty diagram from the manual and used that as a template to note down good patches as I was recording *Metamatic*.

"When Dave Spiers [*of GForce*] sent me the Oddity a couple of years ago, it was fascinating to find all the sonic character of the Odyssey embodied in new software. It's surprising how good, sensitive designers can examine and replicate sonic qualities from things as quirky as analogue filters and circuitry. You really have to know both areas to map all this effectively, and this software embodies all that close observation and emulative skill.

"Each analogue synth was slightly differently calibrated, and when you do a direct transposition like this, the differences are interesting. The improvements are significant, and I'd have given anything to have had them at the time. Digital technology has enabled complete tuning stability and patch memories. What a relief! There are several other innovations as well."

The analogue effect

"One other vital factor is the effects chain, and this is still unique to analogue. There are many simulations available – I hear them all the time – but none sound quite like the variability and summative result of passing synth signals through a Space Echo, an MXR flanger/phaser, a Marshall valve top, then equalising via a non-transistor console and finally compressing and expanding onto and off tape, as was commonly done in that first generation of synthesiser recording.

"Emulating something analogue in the digital realm is a bit like attempting to write down in words what exactly happens when you walk down a street. Something that seems commonplace is actually incredibly complex if you have to describe precisely what occurs at each moment, together with all the possible random variations available, in order to make it happen at all.

> "Digital technology is only just becoming visible to us and we're only at the start of discovering what its unique properties may be"

"I guess that this all represents a necessary evolutionary stage – digital technology is only just becoming visible to us, and we're only at the start of discovering what its unique properties may be.

"We're still driving forward using the rear-view mirror. When all that marvellous designer skill, experience and detail gets applied to completely new concepts is when we'll finally get to the true sound of digital."

Pentatonik

Simeon Bowring, aka Pentatonik, both loves and hates analogue synths, and is all for their software counterparts. "Old analogue synths – and even some newer ones – were a pain the backside," he says. "They always did their own thing and never stayed in tune for more than a few minutes. I often lost a great mix because the synths went out half way through.

"Back in the 90s, there was no automation on the desk, so you had to do the mix in one go and make all the fader moves with your hands. Many times, my Roland SH-09s, or the 101, or the Jupiter-8 would go out of tune or start making a buzzing note, or they would start playing a completely different melody altogether."

Such was – and is – analogue hardware. The problem with it is that it can dull impetuosity and impulsiveness – you just want to get an idea down quickly but you find yourself spending the day just getting everything working properly.

"That happened a lot working on my first Pentatonik album, *Anthology*," says Bowring. "Plus they were always going off for repair. I never had a bill less than £250 for a repair, and the Jupiter-8 went wrong all the time, to the point where I gave up on it after spending around £800 on it. I got all the synths out the other day – only three out of 16 worked."

Gigging with laptops is another welcome innovation, as live gigs with analogue kit could be problematic. "Those synths used to heat up so much under the lights, they were hot to the touch. You would tune them in the soundcheck, run them all through a tuner before the beginning of the gig, and then the lights would go on and you could forget it."

Live is hard

The other problem with playing live was getting on and off stage. "If you were headlining, you would soundcheck first, then all the gear would be moved by the crew off stage or to the back," remembers Bowring. "They always ended up unplugging things, or maybe you would find someone had borrowed a MIDI cable. You then had to put together your rig – in my case, eight synths, a sampler, an MC50 sequencer, a Mackie mixing desk and a few effects units – in the dark, at 2am, strobes going mad around you, music blasting out of the monitors. That's why everyone started attaching lights to their heads: so they could see what they were doing! All my soft synths stay in tune – although, weirdly, my Jupiter V is always sharp when I first call it up."

> "Old analogue synths were a pain in the backside – they always did their own thing and never stayed in tune for more than a few minutes"

The arrival of music software was a godsend for Bowring, who says that with old-fashioned hardware, it could take several weeks to do what he can achieve in a day now using his computer.

"I have very clear ideas for what I want to achieve with a track, and the quicker I can do that, the more time I have to do other things that inspire me. The time you take outside of the studio is as important, if not more, than the time spent in the studio – you have to look for inspiration. The quicker the workflow, the more you will capture of that inspiration.

"A track like *Movement 4* on my first album took around four weeks of slogging it out. In contrast, *By The Sword*, on my last album, *A Thousand Paper Cranes*, was written, recorded and mixed in around seven hours!"

For Simeon Bowring, software means he can achieve far more in much less time than he could with old hardware

Keeping it soft

Bowring's most recent Pentatonik album, *A Thousand Paper Cranes*, came out on Hydrogen Dukebox in 2008. He's also signed to Flat Belly Recordings, who are re-releasing tracks from 1994's *Anthology*.

"I had to get all the old gear out to recreate sounds for that one," says Bowring. "I made a few sounds on the SH-09s that I've sampled up, but having had the gear out for a while, I want to put it all back into storage. I really do prefer the way of working today with software. It's so much more streamlined and so much easier keeping track of data – you just press Load and it all comes back as you last left it, with all the synths, desk and settings. That's amazing!

"I will keep collecting old synths as I love the quirkiness and design of them, and I like the look of the new Dave Smith synths and the newer Moogs. I would like to get my hands on a Voyager. That kind of hardware would appeal."

In demand as a mix engineer, Bowring has also produced and remixed the likes of Blondie, Groove Armada and Pete Shelley, and he jointly won a BAFTA for his videogame soundtrack work.

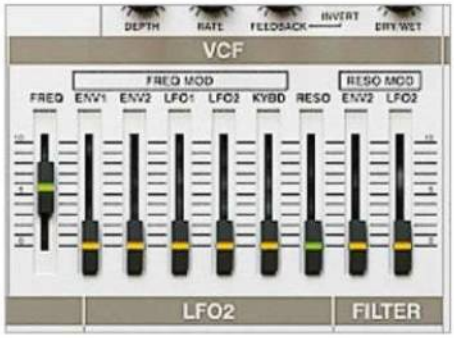
He's recently made his mixing talents available to the public too – email simeon@a1people.com.

> Step by step

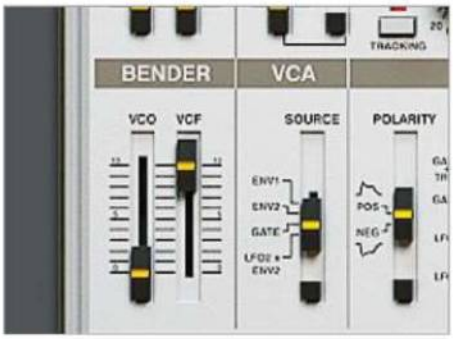
Emulating an analogue bass synth with Pentatonik

1 > Here, Bowring is making a bass patch in D16's not-yet-released LuSH-101 synth. "Zero all the controls on the patch to start with a blank canvas. Turn off all the oscillators, take off all modulation and resonance and bring the filter up to maximum. Put all envelopes onto positive polarity. Set the filter type to **Low Pass** as we're making a bass sound. Have all the gate settings set to Gate, not Envelope."

2 > "Bring up the sawtooth wave. What we have here is a very aggressive-sounding raw sawtooth, very useful for electro house. Double it up with a sine wave an octave below for extra power in the arrangement. This patch has lots of raw power – when used in arrangements, you can add reverb in build-ups."



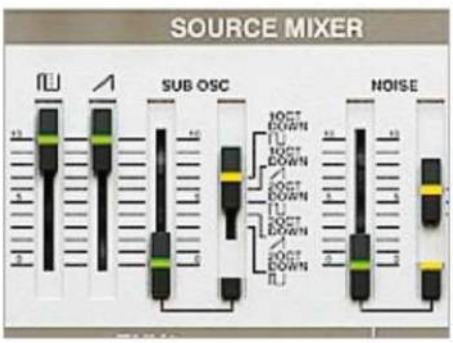
3 > "I want a chunky, smooth bass sound so I'm going to thicken it up and smooth it down. Bring up the third Sub Oscillator. Have this set to square wave, one octave below the other oscillators. Bring the filter cutoff **Freq** control half way down (under the VCF section). Save this as **Deep Bass**."



4 > "For a sub-bass sound, bring the **Freq** filter cutoff control down and save the patch as **Sub Bass**. For movement in the sound, assign the filter cutoff to the pitch wheel. In Shioitor, there's a section called Bender, similar to a real Roland SH-101. Push up the **VCF** control to maximum in the Bender section. Now when you play a note, the pitch wheel opens and closes the filter."

5 > "Try out the settings to get the right amount of bite when you use the pitch wheel to open the filter. I'm setting the main cutoff three quarters of the way up, so when I open the filter with the pitch wheel, I get a roar as you hear the power of the oscillators. Use automation on this sound for dubstep or house basslines with loads of wobble."

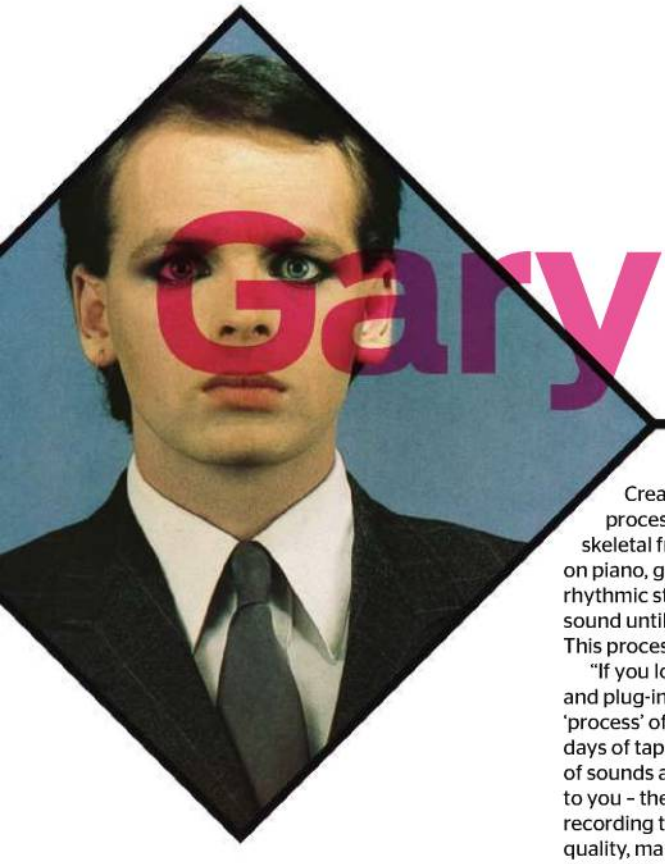
6 > "To add more attack, assign the filter cutoff to Envelope 1. Bring up the **Env 1** control in the VCF section to maximum. This means that Envelope 1 now has an effect on the filter. Bring up the **D** control on Envelope 1, just a little. This brings up the decay and adds even more bite to the sound."



7 > "Take the third **Sub Osc**illator down to **0** in the **Source Mixer** section for a purer tone. This gives a very hard attack to the sound that's great for cutting though a mix, and which sounds similar to a TB-303. Save it as **Aggressive Bass** – great for house and electro! Remember, we still have the pitch wheel to modulate the filter cutoff. Add some **D**elay for an electro sequence effect."

8 > "Now we're going to add compression with Logic's Compressor, as it's very aggressive on its Platinum setting but doesn't overly colour the sound. Set the **Attack** to **15.5ms**, **Release** at **100ms** and **Threshold** at **-21**. Set its **Peak** setting with a **Ratio** of 3.9:1. Increase the **Ratio** for more attack. Real analogue synths have a very hard front end – adding compression helps to emulate this in software."

9 > "Experiment! There lots more you can do. Try assigning Envelope 2 to the VCA, or assign it to the VCF for even more attack on the filter. Also, try increasing the resonance by pushing up the **Reso** control for some proper 303-style acid action. Small (or large) amounts of distortion or overdrive can add harmonics and character to the sound."



Gary Numan

No going back

Gary Numan isn't sad to be saying goodbye to his analogue synths.

"I don't really use any old technology, because I sell it on when I'm done with it," he says. "I feel no allegiance or affection for old kit whatsoever – except for my guitar – so I never hang on to things for sentimental reasons."

He does make sure he's wrung every last drop of creative blood out of any gear before he sells it, though. "I only sell things when I think I've got all I can out of them. Strangely enough, I recently did a guest appearance with Nine Inch Nails at the O2 in London and they'd got in an old Polymoog for me to use. It was the first time I'd even seen one for about 25 years and it did feel a little bit like stumbling across an old friend. Not one I want to stay in touch with, though."

Gary's new method of working does mean he can rule the music, rather than let the music rule him.

"It certainly provides a superior set of tools to record your ideas. Bringing an entire studio down to the size of a laptop is pretty amazing and that gives you freedom, I suppose, as I'm free to take my laptop and keyboard and record in the garden, on tour, overseas... anywhere I like."

Creating a song has always been a simple process for Gary Numan. He first records a skeletal framework of music, almost always on piano, generating a basic loop or two for rhythmic structure. He then adds layers of sound until he finds the magic he's looking for. This process has changed little over the years.

"If you look at the overall picture, computers and plug-ins have hardly changed the actual 'process' of creating music at all since the days of tape," Numan asserts. "It's the amount of sounds available to you – the ease of recording them, the quality, manipulation, correction, editing and so on – this is where the advances have been."

Numan didn't start using software for music until the late 80s. For three albums he focused on Waldorf's PPG Wave system, and during that time, he lost touch with other advances in music technology.

"I had to take some time out and bring myself up to speed before I could go back into the studio and work on my own again. The creative process was still the same but so much else had changed. Sequencing had come of age, sampling had arrived... I suppose the biggest change between now and then is the amount of choice and control you have over sounds and parts these days."

Numan knows that software technology can be immensely liberating, but that during the creative process, the fleshing out of a track can often be a nightmare. "That's where having too much choice can work against you. Yesteryear, the number of options for sound was, relatively speaking, limited, as were the number of tracks available. Today, track number limitations don't really apply and the amount of phenomenal sounds at your disposal is just staggering.

"For all the speed and ease of computer systems, the sheer amount of choice means that the recording process can take longer than ever. It takes time to go through 25,000 snare drums to make sure the one you're using is the right one."

"The biggest change between now and then is the amount of choice and control you have over sounds and parts these days"

Perhaps unsurprisingly, Numan's ever-evolving sound means he's constantly using the latest technology

Software vs synths

Numan is a dedicated user of software. He's not a gear junkie, though, or even a synth or plug-in boffin. "I don't know too much about them, and don't care really," he says. "It's all about writing cool melodies and creating great sounds.

"It was Ade [*Fenton – Numan's producer*] who really got me into the [*Access*] Virus when we worked on my *Jagged* album. We're very much into experimenting with modern software to see how it can help us create new sounds, so we take loops, piano, vocals, guitars, drums, bass or whatever, and feed them through a whole host of effects plug-ins, such as Native Instruments Reaktor, iZotope Trash and the SoundToys collection, and see what we can come up with.

"We're currently working on two new albums and, in terms of source sounds, alongside the Virus TIs, we're using a lot of new plug-ins we haven't used before, like Omnisphere, Camel Audio Alchemy and Native Instruments Massive for the synthy stuff' XLN Audio's Addictive Drums and BFD2 for the live drums' and Battery 3 and Stylus RMX for the electronic drum sounds. Guitar and bass are being processed through Guitar Rig 3 and the vocals we edit using Celemony Melodyne."

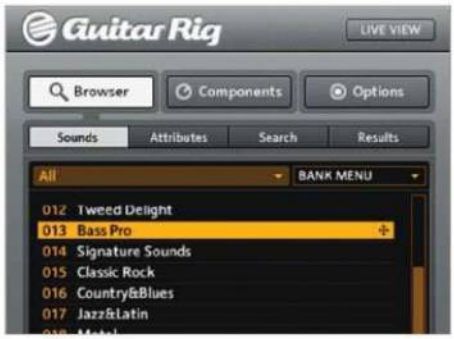
> Step by step The making of *The Fall*

1 > Gary Numan's track *The Fall* utilised a variety of plug-ins. He describes how each component was brought together. "This is where the huge bassline in *The Fall* originates. Native Instruments Massive is great for the type of fierce sounds we like. We use a wide range of plug-ins and our arrangements are very busy, so we often have to bounce particularly CPU-hungry instruments like Massive."

2 > "Logic 9's Pedalboard is surprisingly good. You can choose from 25 amp heads, five EQs, 10 reverbs, 25 speaker cabinets and three different mics to recreate some classic guitar and bass sounds. You can use the software for drums and synths, not just guitars. The dirt in the bassline is achieved using the Rawk Distortion Pedal."

3 > "We wanted the bassline to pump quite heavily so a Logic compressor is used on the channel strip with the sidechain set against Bus 22, which is where the kick drum is routed to. We've also used the Sonalksis Stereo Tool, which is great for taming really wide sounds and placing them within the stereo image."

4 > "We wanted a harsh guitar sound in the chorus of the track so we chose to use NI's Guitar Rig. The Pro version comes with 15 amps, 25 cabinets and 48 effects. A dry cabinet signal allows us to add further distortion using SoundToys' brilliant Decapitator plug-in."

5 > "As you can see, we have several Guitar Rigs open and each double-tracked signal is sent to a bus, where EQ and compression are added. We've also used a Send to add a touch of reverb to the guitars using Space Designer. In total, there are three different guitar signals in *The Fall*, made up of two DIs and one amp recording."

6 > "There are several live bass recordings in the track, each doing different things. We've layered the main chord progression bass together. One is a deep, warm sound achieved by routing the DI signal into Bus 17, with Guitar Rig's fingered bass saturated using SoundToys' Decapitator and PSP's VintageWarmer 2. We've pushed the EQ quite hard on this at around 50-100Hz."

7 > "This is then layered with a very crunchy and heavily distorted bass sound that we programmed in Guitar Rig, with a PSP Console EQ pulling a lot of the very low end and the 140Hz area out, so that it can sit on top of the warm bass without any mud."

8 > The vocals in the chorus are first processed in Melodyne and then comped using Logic's Flex Time. We've double-tracked the vocal comps and processed them using Channel EQ, PSP McQ EQ and VintageWarmer 2, then added some Clip Distortion to give them a touch of bite. Delay is added using SoundToys' excellent EchoBoy plug-in."

POWER TIP

>Focal point

"Find a place to be creative and undisturbed. It's very handy having a decent studio at home but it's also full of distractions that don't help the creative flow. Children knocking on your door, for example; a wife who needs a hand putting something in the loft. These are the kind of things that tend not to happen when you travel to a studio away from your home. Also, if you can, create the core of the song on a single instrument. I write songs on piano and then finish them off using all the other technology." **cm**

cm DVD

ON THE DVD

The files referenced in the walkthroughs are in the **Tutorial Files** folder

THE BEGINNERS' GUIDE TO

DRUM SYNTHESIS

Synthesising your own drum sounds from scratch isn't just for retro throwbacks – it can add originality and enhance both your compositions and mixes, as our guide reveals

> Before the invention of dedicated drum machines – analogue, digital and sample-based – any electronic drum sounds you wanted in your track had to be created completely from scratch. Multi-gigabyte sample libraries and easy-to-use software sequencers with drag-and-drop functions are a distant world away from the sonic crafting that electronic pioneers had to employ to create their drum sounds.

Drum machines were first introduced as accessories for organ players to keep time to. In fact, one of the market leaders during the early era of beatboxes was Ace Tone Industries, founded by Ikutaro Kakehashi. Mr Kakehashi would then go on to found the Roland Corporation in 1972.

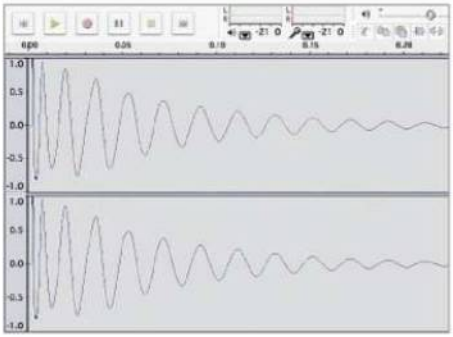
Roland were responsible for two of the most famous drum machines of all time – the TR-808 and the TR-909. While the drum sounds produced by these machines were far from realistic, they became hugely popular due to their weighty kicks, comprehensive tuning options and unique analogue character. Both of them are still incredibly popular today in hip-hop, house, drum 'n' bass and even pop music.

Processed beats

It was expected that the unrealistic sounds and retro styling of such devices would see them resigned to the dustbin as soon as much more accurate sample-based drum machines began to flourish. The appeal of drum synthesis, though, lies in its versatility. Not only is it possible to create drum sounds on almost any subtractive synthesiser, but the tuning, modulation and envelope options go far beyond that of a manipulated drum sample. It's possible to tune a synthesised drum sound to any frequency and, as the sounds are synthesised in real-time, the artifacts introduced when tuning samples, present in early drum machines like the Linndrum and MPC60, aren't an issue. This enables programmers to create incredibly deep and smooth sub-bass kicks – something the TR-808 is famous for.

Over the next few pages we're going to look at creating a kick drum, a snare, tom toms and hi-hats using nothing but soft synths – the ES2 from Apple's Logic DAW by way of example, but we'll be staying within its basic functionality, so any virtual analogue dual-oscillator synth with frequency modulation will do. We'll also show how you can go about mixing them into your tracks and combining them with sampled sounds.

> Step by step Synthesising a kick drum



1 > Here's a sample of a TR-808 kick drum from The A Class Series' Planet Drum Machines sample pack in Audacity. As you can see, it most closely resembles a decaying sine wave. While it's not a pure sine, it gives us the clue that this would still be a good starting point for our synthesised kick.

2 > We're going to recreate the sampled kick using Logic's ES2 synth. Load it or any other virtual analogue synth. The default ES2 preset has too much going on, so we've put a pure sine wave patch on the **cm** DVD for you – it's called **Pure Sine Wave ES2.pst**.

3 > We need to shape the sound to make it more percussive. Using **Env3**, drag the **S**ustain right down to **0**, set the **D**ecay to around **200ms** and the **R**elease to around **30ms**. Leave the **A**ttack at **0**. This will give you a short, sharp sine wave.

4 > With an acoustic drum, the harder you hit it, the higher the initial pitch. We're going to recreate that using ES2's modulation system. In the first mod slot, select **Pitch 1** as the **Target** and **Env2** as the **Source**, then drag the **Amount** right up to **1.00**.

5 > Draw in some MIDI notes – preferably a low note such as C0. You should hear a high-pitched trigger – this is because the **S**ustain of the pitch envelope is still set to full. Drag it down to **0** and your new kick will come alive. Experiment with different **D**ecay amounts and adjust the oscillator semitone tuning to taste.

POWER TIP

>Tune your kicks

One of the main advantages of using synthesised kicks is the ability to accurately tune them to the key of your track. Tuned low-frequency content can make the mixing process much easier as you won't have a dissonant clash between the kick and the bassline. In fact, they'll usually complement each other. Even if you're used to using samples, why not underpin your sampled kick with a tuned, synthesised one? It may save you a few hours of mixing time further down the line.

The characteristic decay of a cymbal can be synthesised using an envelope

Shaping your sound

When creating your own drum sounds, consider how their physical equivalents would sound in the real world. Percussion sounds by their nature start instantly when struck and range from very short, such as a closed hi-hat, to sounds with a long natural decay, such as a crash cymbal. In the world of synthesis, the duration of a tone is set using an amplitude envelope.

An amplitude envelope shapes the sound by manipulating its volume level over time, and the most common type of envelope is the ADSR, named after its four parameters: Attack, Decay, Sustain and Release. Attack defines the time it takes the sound to reach its full volume – ie, rising from silence. For drum sounds, this will almost always be set to just above zero, to trigger the sound instantly.

Decay defines the time it takes for the sound to fall to the level dictated by the Sustain setting. For drum sounds, Decay is a vital parameter and will be set very short for tight sounds, medium for toms and similar, and longer for crashes and the like. The Sustain parameter doesn't come into drum shaping much, since percussion instruments typically don't sustain – they usually start decaying as soon as they've been struck. Exceptions might be drums played with brushes, or a cymbal roll played with mallets.

Finally, Release dictates how long the sound takes to reach silence once a MIDI Note Off trigger is received by the software. Release wouldn't be an issue in the real world, but in synthesis, once the note trigger ends, the sound will silence instantly if it's set to zero.

There are two solutions: extend the length on the MIDI note so it stretches all the way to the start of the next note, or adjust the release time to taste. Around 40ms should give you a natural sound, without introducing a new decay tail.

Synthesised snares

Snares are trickier to synthesise than kick drums but don't let that put you off!

Now let's synthesise a snare drum sound to go with our kick. The sound of an acoustic snare drum comes from two main parts: the drumheads and the snare itself, the latter being a bunch of crimped wires that rest against the lower head and rattle against it when the drum is struck.

Snare drums are typically more difficult to synthesise, as they don't have such an obvious pitched sound like a kick or tom, so it's not just a case of tuning an oscillator with the right envelope shaping.

When a drumstick strikes a snare drum, you hear the sound of the drumhead and the sound of the snare combined. Smaller drumheads mean higher pitches, so we know we're going to need a higher frequency than we used for the kick drum. We're also going to need to add the sizzling rattle of the snare wires themselves, and the best way to do that is to use a noise oscillator.

Theoretically, a noise oscillator produces all frequencies at once, which sounds like a harsh blast of white noise. Although that gives us the fizz we need, it means it's not possible to tune it.

As we discussed in the kick drum tutorial, the harder you hit a drum, the higher the initial pitch, so we're going to need to introduce another oscillator to replicate the drumhead, in order to be able to tune our snare. So, the snare drum is made up of two oscillators: one for the drumhead sound, usually a sine wave but possibly a triangle wave; and one for the snare wire sound, a noise oscillator. If you look at the waveform of a synthesised snare sound, this is confirmed as, chances are, it will look like a 'jagged' sine wave – ie, a sine mixed with noise. The more 'jagged' the sine wave, the louder the noise oscillator in the mix.

If we take a look at the Roland TR-808's snare (included on the DVD: **808 Snare.tiff**), it's the perfect example of this type of dual-oscillator synthesis. Now let's make one of our own.

> Step by step Synthesising a snare drum

1 > Let's start with the patch from the previous kick drum tutorial. This is a basic sine wave in Logic's ES2, but we're going to change it to a triangle wave this time. We're using ES2 again, because it has a lot of oscillator choices, including the noise type that we need for our snare.

2 > Activate **Oscillator 3** by clicking the **3** button and select **Noise** as the waveform. You still won't be able to hear it as you need to use the triangular mixer to mix the oscillators. Let's go for a 75/25 split in favour of Oscillator 3, ignoring Oscillator 2 for now.

3 > If you preview what we've created so far, it doesn't sound like much of a snare – we need to carve it into shape. Drag the **S**ustain of Env 3 to **0**, the **D**ecay to around **70ms** and the **R**elease to around **40ms**.

POWER TIP

>Use the filter to snare your sound

The filter of your synth will play a huge part in shaping the sounds of your home-made drums. For snare drums in particular, it can serve a number of useful purposes. For example, a high-pass filter set to about **0.25 Cutoff** will help the snare to sit comfortably with the kick and roll off some of the lower frequencies that might be generated by your triangle wave oscillator. Try pumping up the **Resonance** too, to give your sound some extra sizzle and impact.

4 > Now we need to emulate the initial pitch bend. It won't be as extreme as the kick drum's, because the snare drum head is tighter, returning more quickly to its natural pitch when struck. Using ES2's modulation, set the **Target** as **Pitch 1** and the **Source** as **Env2**. We'll set the **D**ecay to roughly **100ms**, but it's worth experimenting with longer settings.

5 > We're going to modulate the amplitude of the snare to create a 'flamming' sound. In the second modulation slot, select **Osc3Level** as the **Target** and **LFO1** as the **Source**. Set the LFO **Rate** to around **11.00Hz**, the type to **Tri** and the modulation amount to roughly **0.5**.

> Step by step Synthesising tom toms

1 > Load up the **Pure Sine Wave ES2.pst** patch from the cover DVD to reset the ES2 to a single sine wave oscillator. We're going to use ES2 again but you can use any synth that has at least two oscillators and flexible modulation options.

2 > We're going to recreate the classic pitched analogue tom sound. We want it to have a much grittier sound than our kick so we elect to use a triangle wave instead of a sine. Change Oscillator 1's wave shape to **Tri**.

3 > We're going to underpin the pitched triangle wave sound with a sine wave tuned down an octave. This will give our tom a weightier sound. Turn on **Oscillator 2**, choose **Sine** as the waveform and tune it down 12 semitones (one octave). Set the mix at roughly 80/20 in favour of the triangle wave.

4 > Now we're going to shape the tom's velocity curve. Again, little to no **A**ttack, zero **S**ustain and a short amount of **D**ecay and **R**elease is the goal here. Using **Env3**, adjust the Release time depending on how much you want your tom to 'ring out'. We've set it to **120ms**.

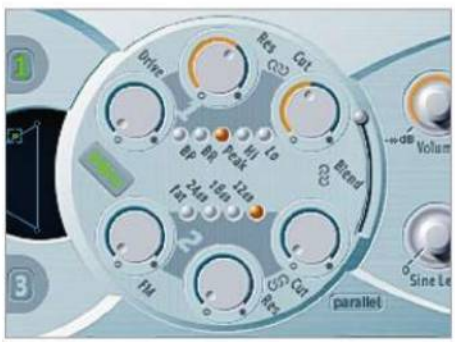
5 > As we've already discussed, the harder you hit a drum, the higher the initial pitch. Let's recreate that. In modulation slot 1, set **Pitch 1** as the **Target** and **Env2** as the **Source**. This time we'll set the **Amount** a little lower, around **0.80**, as we want the pitch to decay slowly.

POWER TIP

>Don't oscillate too wildly

Doubling up your main oscillator with a sine wave tuned down an octave is a great way to thicken up your sounds. It's also a good way of maintaining a consistent tone if you're using a lot of pitch or amplitude modulation. However, one thing to remember is that a sine wave can be very overpowering in the mix if it's too loud, so make sure you use it subtly, rather than giving both oscillators equal velocity. As little as a 10% mix can make a significant difference.

6 > Don't forget, we're now dealing with two tuneable oscillators. In the second modulation slot, choose **Pitch 2** as the **Target** and **Env2** as the **Source**. Set the **Amount** to a little less than Oscillator 1, as we want a more consistent sound for our sine wave.



7 > Our tom is starting to sound a bit more like a 909 now, but it still needs further work. Set the filter type to **Peak**, bring the **Cut**off down to around **0.5** and turn the **Res**onance to **0.65**. This gives the tom a mid-frequency boost.

8 > Finally, we're going to add some harmonic distortion to our tom tom. Set the **Distortion** to **6dB** and the **Tone** to roughly **8.9kHz**. This will add some top-end fizz and give our tom a more analogue sound. This tom can also be used as a kick – simply play it a few octaves down.

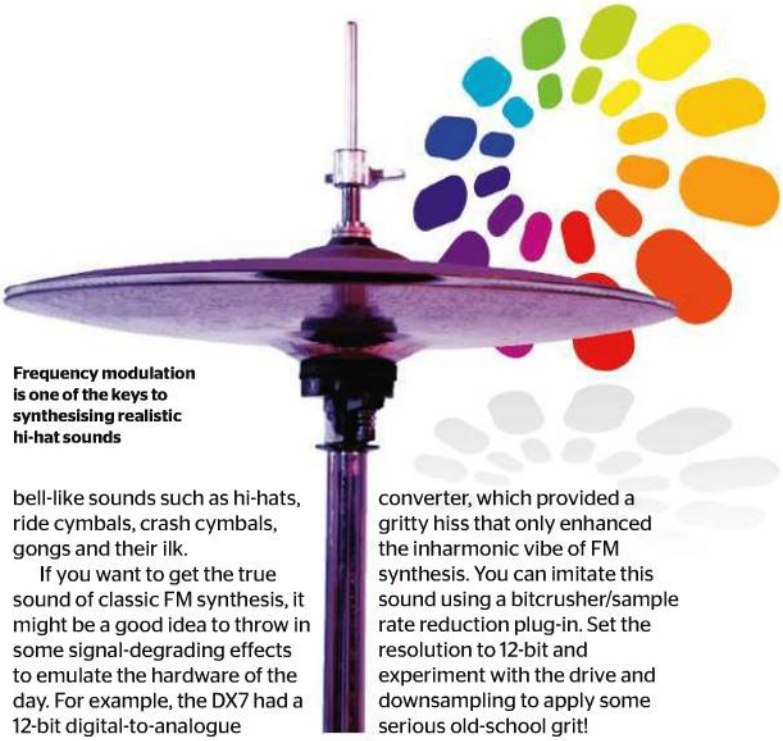
Synthetic hi-hats

Synthesising hi-hats and cymbals can be tricky, especially using subtractive synthesis. The reason is that cymbals, be they crashes, hi-hats or rides, have a lot of inharmonic frequencies, meaning their frequency ranges aren't made up of multiples of their fundamental frequency (ie, the root note).

Aside from the noise oscillator, all of the waveforms available to us in standard subtractive synthesis generate harmonically related frequency content (ie, all harmonics are integer multiples of the root frequency), making it inappropriate for synthesising cymbals. To get around this, we can make use of our synth's frequency modulation options.

Frequency modulation is a complex type of synthesis, made popular by the famous Yamaha DX7. In short, it works by one oscillator modulating the frequency (or phase) of another at a frequency within hearing range, and if the frequencies of the two oscillators are not harmonically related, the resulting sound will contain inharmonic frequencies – just what we need for cymbals!

You don't need to worry too much about how FM works in detail. Just remember that the dissonant harmonics that can be generated by FM make it ideal for bell-like sounds such as hi-hats, ride cymbals, crash cymbals, gongs and their ilk.



Frequency modulation is one of the keys to synthesising realistic hi-hat sounds

If you want to get the true sound of classic FM synthesis, it might be a good idea to throw in some signal-degrading effects to emulate the hardware of the day. For example, the DX7 had a 12-bit digital-to-analogue converter, which provided a gritty hiss that only enhanced the inharmonic vibe of FM synthesis. You can imitate this sound using a bitcrusher/sample rate reduction plug-in. Set the resolution to 12-bit and experiment with the drive and downsampling to apply some serious old-school grit!

> Step by step Synthesising hi-hats

1 > By now, we know all about envelope shaping and oscillator choices. Set **Osc 1** to the first sine wave and **Osc 3** to **Noise**. Create a short sound by setting the **S**ustain to **0** and the **D**ecay to around **24ms**. Set the mix to around 85/15 in favour of the noise.

2 > A hi-hat is made up of two sonic components – the initial sound of the stick hitting it and the resonating tone that follows. To create the initial attack, we need to use frequency modulation. Turn Oscillator 1's waveform knob to around a third of the way towards **FM**.

3 > Oscillator 2 must be turned on before the modulation can happen. Activate it and set it to **Sine**. Tune it up an octave for faster modulation. Immediately, you'll hear a brighter, more percussive sound.

POWER TIP

>Sweet harmony

If you analyse your new hi-hats in Logic's Channel EQ, you can see how important harmonics are to the sound – and you can use ES2's distortion to add even more. Try setting it to **10dB** at a **Tone** of **13.5kHz** to really bring out the unique sound of the frequency modulation. Also, experiment with the FM amount. We've set it quite low but if you push it up to full, it becomes even less melodious and more fizzy and interesting.

4 > We want a subtle pitch bend on the attack. Set **Pitch 1** as the **Target**, **Env2** as the **Source** and the **Amount** to **1.00**. Use the **D**ecay of **Env2** to shape the pitch – **18ms** should give you a subtle but pleasing effect.

5 > Bring out the body of the hi-hats by setting the filter to **Peak**, the **Res**onance to **0.50** and the **Cut**off to **0.220**. This creates a notch in the mid-frequency range, making the hi-hats more upfront and giving them more body.

Mixing tips for synthesised drums

The ability to tune your kick drum to fit with your bassline is a definite benefit of synthesis

OK, so you've designed and created your own kick, snare, toms and hi-hats from scratch. That's all well and good if you're trying to sound like Kraftwerk, but what about integrating your new drums into more modern genres? They may sound a bit weak alongside your sample library, but don't worry, there's plenty we can do to our synthesised sounds to get them to really come alive.

First up is the classic drum treatment – compression. Compression is important when mixing drums for a number of reasons: it levels out erratic volume levels caused by energetic drumming, and it brings out attack transients, giving the drums more punch. It's this second aspect that we're interested in. Up until now, we've only been able to set the attack time but not the *volume* of the attack stage – it always helps to add some transient attack volume with a compressor.

Next, reverb. When you record a drum kit, you inevitably capture the reverb of the space around it, so our ears positively *expect* the sound of reverb. In fact, most sampled drums have at least a hint of reverb, and even if they're bone dry in terms of space, the processing they've been through gives them more 'life' than our synthesised versions have. If we're to make our sounds fit better in our tracks, we're definitely going to have to give them some space to live in.

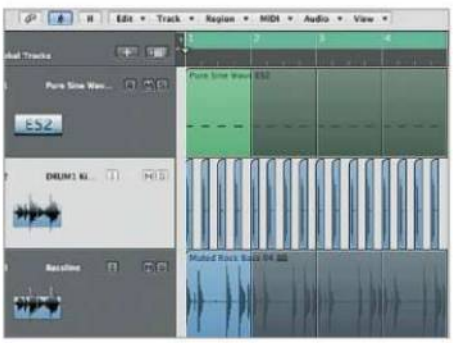
Finally, we mentioned in the kick drum walkthrough about using synthesised kicks to underpin sampled ones. To reiterate the benefits of this, you can easily tune your synth kick to the key of your track and bassline, which will make things much easier when it comes to mixing further down the line. Now let's take a look at how you might go about it...

> Step by step Mixing your synthesised kick drum

1 > Triggering the kick drum sound we made earlier, draw or record a simple four-to-the-floor pattern into your sequencer. Don't worry about the pitch for now – we'll get to that a bit later.

2 > As our synth kick is quite raw and subby, we're going to layer a sampled kick with more of a bite on top of it, in order to fill out the frequency spectrum. We've chosen a kick from a Vengeance house pack that lacks sub-bass. Choose a sample and line it up with your MIDI-triggered synth kick.

3 > You should instantly hear the benefit of this type of doubling (our example is on the cover DVD), but it's often worth high-pass filtering the bass of the sampled kick to avoid potential phasing issues. Alternatively, if there are no serious conflicts, a shelf filter can work too. Adjust the mix between the two kick drums until you're happy with it.



4 > Next, we import a bassline to go with our kick drum. The one we've chosen is in the key of A, so let's change our kick drum triggers to A0 instead of C0.

5 > Mute the sampled kick. As you can hear, the synthesised one sits much easier with the bassline now that they're in the same key. Even if the effect is subtle, as the mix gets busier later down the line, you know that your low end is sorted, and you'll really appreciate the difference on a big sound system.

POWER TIP

>Classic drums

To get that classic sampler sound and feel, try resampling your synth drums through a soft sampler such as Logic's EXS24. In Logic, render the kick using the **Bounce in Place** function and load it into the sampler. You can mimic classic hardware samplers such as the Akai MPC60 and E-MU SP-1200 by inserting Logic's Bitcrusher plug-in and lowering its **Bitrate** setting to 12-bit. Using a combination of samples and synthesised sounds gives you a huge amount of versatility when building drum tracks. **cm**

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ON THE DVD

The files referenced in the OSC walkthrough are in **Tutorial Files**

Apple's iPad makes wireless DAW control easy and fun, enabling you to untangle yourself from that clutter of cables and get seriously hands-on with your mixers and plug-ins

Apple's iPad is all about portability. Designed from the ground up as a 'go anywhere' device and stuffed with wireless functionality, you'd be right to assume that it would make the perfect cable-free remote for your recording studio.

We pointed out exactly that in last month's seven-page iPad extravaganza. iPhone users have already discovered the joys of using their mobiles as an ersatz remote transport for Logic. Now they'll be casting envious looks towards the iPad's rightly-smug userbase, who will find a bevy of new kit aimed at upping the ante in the wireless studio stakes.

The iPad's enhanced and enlarged multitouch screen allows for more than the iPhone's smattering of buttons. Now users can avail themselves of full-sized sliders and knobs that react and respond in exactly the same way as the sliders and knobs of a motorised hardware mixer or even a synth-styled control surface. Jealous of your mate's expensive Mackie Control or MotorMix? Well, you can do the same sorts of things with an inexpensive app for your iPad, without so much as a USB or MIDI cable in sight.

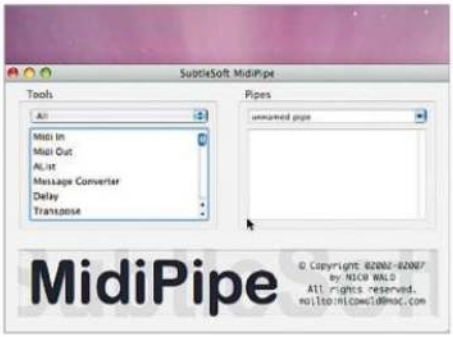
The App Store is brimming with amazing toys for the control freak in you. There are no less than four dedicated DAW controllers available already, bringing faders, pan, marker and transport controls right to your fingertips, and, as you'd expect, they work with Apple's Logic, along with Cubase, Pro Tools and Sonar. Even Ardour fans can link up in Linux!

If that isn't enough, we'll introduce you to some of the more esoteric wireless MIDI and OSC controllers on offer in the App Store. There are some very interesting alternatives available that give you the ability to play your synths, samplers and beatboxes in new and inspiring ways. There's even an app that gives you the power to create your own customised control surfaces from the ground up, using free software for your desktop computer.

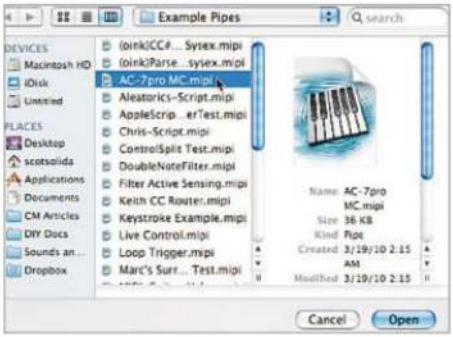
All of these apps work via your iPad's Wi-Fi connectivity. Some require that one or more applications are installed on the target computer, but in most cases, that software is free, and our tutorials will make getting up and running a snap, freeing you from the shackles of those messy MIDI and USB cables.

> Step by step Controlling Logic with AC-7

1 > Saitara Software's AC-7 Pro Control Surface is one of the most professional DAW controllers available for the iPad. Let's set it up to work with Logic Pro. First, we need to install a couple of freebies. We need the DSMI Server. Saitara suggest using the older version 1.01, which can be downloaded from **www.saitarasoftware.com**. Once you've got it, open it and run it in the background.



2 > DSMI Server enables MIDI data to be communicated over a wireless network. This will facilitate the communication from our AC-7 software on the iPad to our DAW. We also need a system to do the reverse – that is, to allow the DAW to talk back to the AC-7 on the iPad. To do this, download and install MidiPipe from **http://bit.ly/4HbV2e**.



3 > We also need to get the custom AC-7 settings file for MidiPipe. This is available from the Saitara Software site too. Download it into the **Example Pipes** section of the **SubtleSoft MidiPipe** folder, then open it in MidiPipe. This file is called **AC-7pro MC.mipi**. Now you can minimise the MidiPipe window to get it out of the way.

4 > We're assuming that your Wi-Fi network is operating properly and that both your iPad and your desktop computer are on the same network. Fire up the AC-7 Pro software on your iPad. Note that you have eight faders on the left and a Master fader just to the right of them. Look for the **Mode** button above that Master fader and make sure the selected mode is **LC**.

5 > Open Logic. If you have a current project you're working on, load it. If not, load a template, such as the **Rock** one shown here. Go into the **Logic Pro** menu, then **Preferences»Control Surfaces»Setup**. When the Setup window appears, click the **New** button and select **Install** from the drop-down menu.

6 > Now, oddly enough, although we selected **LC** (Logic Control) mode on our AC-7, we need to install a Mackie Control as the control surface, rather than the Logic Control that's just above it. Select the **Mackie Control** and click **Add**. It should appear in your Setup window. Now we just need to get it talking to the AC-7.

POWER TIP

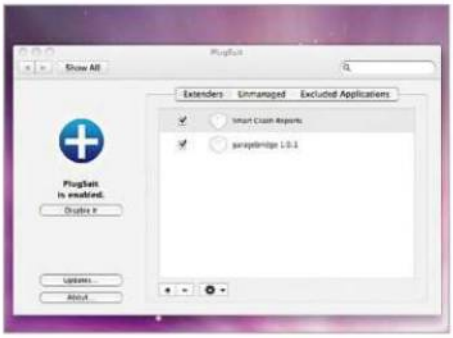
>Wi-Fi worries

Most of the apps we used were rock solid and the response was quick and smooth over our Wi-Fi network. However, you'll get the best results if you use a direct connection between your DAW and your iPad. You can use a public network, but it might slow the response down. Also, there have been some issues reported with the iPad's Wi-Fi connection. We experienced a couple of broken connections while working with the AC-7, DSMIDI Server and MidiPipe. We restored the link between Logic and the iPad only after repeating the process described in this tutorial, after which performance returned to normal.

7 > Remember all that stuff we installed and opened back at the start of this tutorial? This is where it comes into play. Find the **Out Port** at the upper-left corner of your **Control Surfaces** setup. Use the drop-down menu to select **MidiPipe Input** as the **MIDI Out** port. This will get Logic talking to the AC-7. Next, select **DSMIDIWifi-out** as the **MIDI Input** port. Close the Setup window.

8 > Open Logic's Mixer window. If all went as it should have, you'll now be able to move a fader (or faders – remember, the iPad is multi-touch capable!) on your AC-7 and have Logic respond in kind – and vice versa! Try renaming **Track 1** in Logic **Guitar**. Your AC-7 Pro track name should change with it.

> Step by step Controlling GarageBand '09 with Entrackment



1 > Talkative AB's Entrackment is a full-featured controller for Apple's GarageBand '09. To use it, you'll need to install the Entrackment Client plug-in from **www.talkative.se/products/entrackment**. If you're running OS X 10.5.8, you may also need to run PlugSuit (from **infinite-labs.net/plugsuit**) to make the plug-in work, as we did.

2 > Once you have everything downloaded and installed, fire up a GarageBand project or make a new one. Make sure your iPad is connected to the same network as your host computer. Now, start Entrackment on your iPad. You'll be met with a screen that gives you news on Entrackment, along with a list of your available hosts.

3 > Click the **Mix View** icon at the bottom of Entrackment's screen. This will bring up a sparse window, but you should see your GarageBand project's tracks on the left side. You'll also see a Transport button at the top. Tap that button to bring up your transport controls. Touch **Play** to engage the transport and play your tune. You can also activate looping if you like.

4 > Tap outside the Transport window to return to your main screen. Entrackment only shows you the controls you need at any given time. Tap each track on the left-hand side to bring up its mixer channels. Play with Entrackment's faders and GarageBand's faders will respond, and vice versa.

5 > Open the Transport window again and engage the transport. Close that window by tapping outside it. Now tap the green **Pan** button for one of your tracks. This brings up a large pan pot. Touch and drag the white dot on the pan control to move your sound around the stereo sound field.

6 > Add some more tracks in GarageBand and try renaming them. You can also mute and solo tracks from your iPad, of course, and flip it over into portrait mode to simulate GarageBand's horizontal channel controls. It could use some more features, certainly, but even in its current state, it's a handy way to mix and track.

> Step by step Assigning notes in S1MidiTrgFree

1 > S1MidiTrgFree from Miura Acoustic is, as the name suggests, a free MIDI controller for drums or sequencers. Let's use it to control our CM-505 plug-in (on the DVD). You'll need DSMIDIWiFi installed and running and, if you're using Windows, MIDI Yoke, too. DSMIDIWiFi will need the desired MIDI Yoke ports selected. Having done that, start your host and get a CM-505 up and running.

2 > Having made sure your iPad is on the same network as your computer, start S1MidiTrgFree. As you can see, it's pretty slick. Our main interest lies in assigning those pads to the CM-505's various drums. Tap the **Settings** icon at the upper-right corner and the pads should turn orange. You can touch any control to open its editor. Touch the top-left pad.

3 > The MIDI Settings screen will appear. You can assign a new note using the menu at the bottom. Assign the selected pad to **B0**. This will trigger **Kick1** on the CM-505. Touch the **Done** button. Repeat to assign a pad to each of the CM-505's sounds. To see what notes to use, click the CM-505 logo to flip the plug-in – they're listed on the back. When you're done, you can tap out rhythms on your iPad!

Open Sound Control (OSC)

Developed by the UC Berkeley Centre for New Music and Audio Technologies, OSC is a means by which musical instruments, computers, controllers and other technological gadgets can 'talk' to each other over a network. OSC is fast, flexible and, most importantly, designed from the ground up with real-time communication in mind.

Plenty of developers and manufacturers have embraced Open Sound Control. You can find it in Jazz Mutant's Lemur, James McCarthy's SuperCollider, Cycling '74's Max/MSP and even Native Instruments' Reaktor. And since your shiny new iPad is fully networkable via Wi-Fi, you won't be surprised to learn that there are already several OSC-enabled musical tools available.

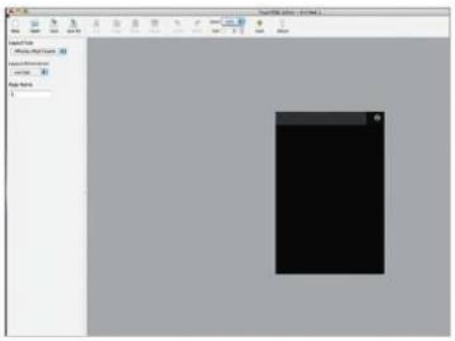
One of the first was the hex-grid-style instrument HexOSC. Sporting nearly 100 playable hexagrams, it offers both internal voices and the ability to transmit OSC data.

And then there's TouchOSC. This brilliant app from Helix is the current king of OSC-based control apps, along with its desktop design software. We like it so much that we've put together the tutorial below, to show you how to create your very own touchscreen control surface. Better still, we also show you how you can use it to talk to all of your MIDI equipment.

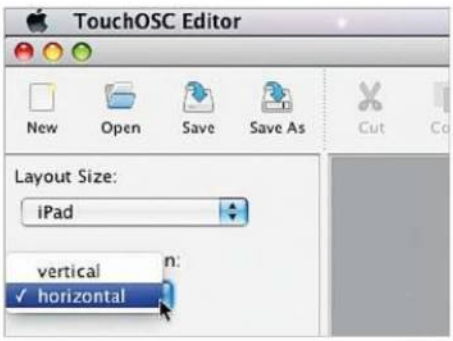
Hex on the brain – and it's no wonder, with 98 hexagram 'keys' on offer!

Mrmr from 10base-t Interactive is a free, Open Source OSC controller that enables the user to create custom interfaces for their OSC-based audio and video gear. These interfaces are created by editing small text files and can be opened from within the app. You can also use a free builder program to make panels for your iPhone or Nokia. Setup can be a bit of a head-scratcher, but there are online tutorials to help you get going, and the price is certainly right!

> Step by step DIY control panel design with TouchOSC

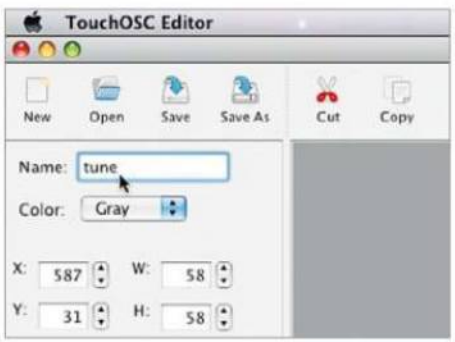


1 > We're going to use the magnificent TouchOSC and its associated software to create a remote interface for one of our favourite plug-ins, the thumping TAL-Bassline. You'll need TouchOSC on your iPad, and the TouchOSC Editor (from **http://hexler.net/software/touchosc**) on your desktop computer. We'll start with the TouchOSC Editor.

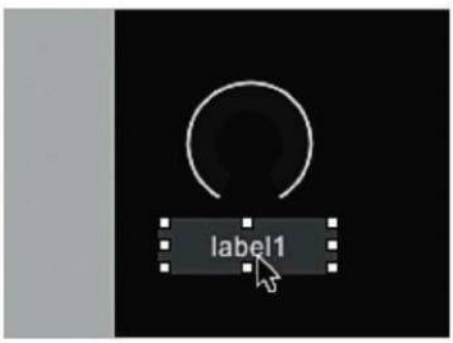


2 > The default panel layout is for iPhone/iPod Touch so let's change the **Layout Size** to that of the iPad by selecting it from the drop-down menu. For this layout, let's also change the **Layout Orientation** to horizontal, which will be better suited to the horizontal layout of the TAL-Bassline plug-in. It might help if you have TAL-Bassline opened up, so you can use it as a reference.

3 > Now we can begin filling our blank layout space with all of the controls for our plug-in. Nearly every one of TAL-Bassline's parameters is amenable to real-time tweaking from the iPad. Let's start at the top left and work our way across and down. That puts TAL-Bassline's **Tune** knob up first. Right-click the upper left of the layout and choose **Rotary H** from the menu.



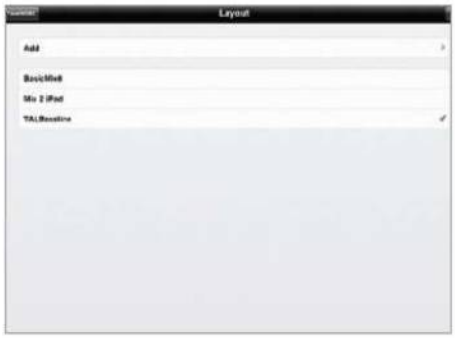
4 > A knob will appear. You can drag it into the desired position with your mouse. Reduce its size by clicking and dragging the white nodes at each corner. The selected widget's properties are reflected in the section just to the left of the design area. You can select the colour, adjust the position and choose a name for the control. Name this one **Tune**.



5 > We've given it a name, but it isn't reflected in the layout. We can add a label by right-clicking in the layout and choosing **Label V**. You don't need to name this one, but you do need to enter the desired text into the **Text** field. Name it **Tune**. Deselect the **Background** option, reduce the **Size** to 12 and change the **Color** to **Gray**. Click and drag the label in the layout to place it below the knob.

6 > You can continue to add controls and labels to match those of the parameters you'd eventually like to control. Be careful to name them as you go, and don't include spaces in the names. We've used resized faders for two-position switches and created some buttons to act as a sort of 'mini-keyboard' for triggering notes. You can copy our design or come up with your own.

> Step by step Exporting your TouchOSC Layout

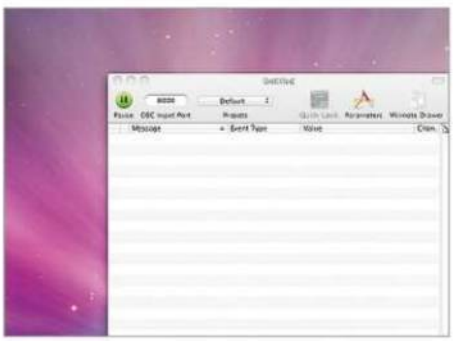


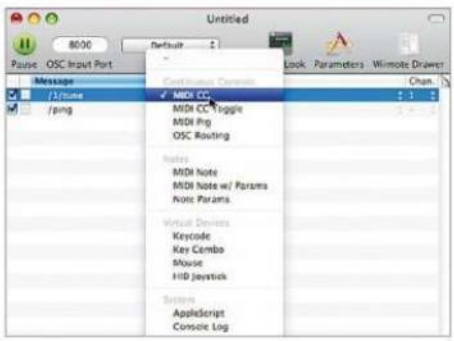
1 > Now we need to get our layout design from our computer into our iPad. If you don't want to make your own panel, load the file **TALBassline.touchosc** into the TouchOsc Editor – it's on the cover DVD. Click the **Sync** button in the editor – your iPad and computer will need to be networked at this point. It'll take a second, but a box will appear to let you know that sync is in progress.

2 > Open TouchOSC on your iPad. Tap the **Layout** arrow on the Info page and the Layout page will appear. Touch the **Add** arrow. Your desktop computer should now be reflected in the **Found Hosts** section. Select it. It'll take a second or two for your new layout to download from your desktop. Once it has, its name will appear on the Layout page in TouchOSC.

3 > Tap the name of your new layout to select it. TouchOSC will return to the main TouchOSC page. Tap **Done** at the top right and your new layout will appear. To delete a layout (and you'll probably need to as you experiment with new layouts), you'll need to return to the Layout page and click **Edit**. However, we like our new TAL-Bassline layout, so we're going to leave it as it is.

> Step by step Using OSCulator

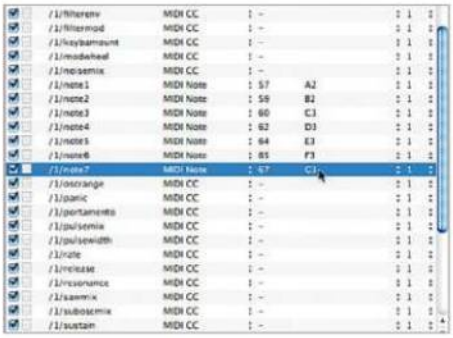


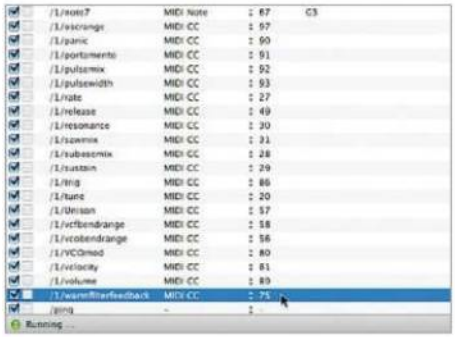


1 > We can't control TAL-Bassline with our new layout just yet because the plug-in doesn't recognise OSC data. Fortunately, it does do MIDI, and we can use an application called OSCulator to turn our OSC data into MIDI. It's at **www.osculator.net**, and you can just use the demo for our purposes here.

2 > We need TouchOSC and OSCulator to be able to speak to each other. OSCulator has an **OSC Input Port** field – the number here should match the outgoing port in TouchOSC on your iPad. Open TouchOSC and tap **Network**. We've set our input and output ports to **9000** and **8000**, respectively.

3 > Return to the TouchOSC page and touch **Done** to return to your TAL-Bassline layout. Turn the **Tune** knob. You should see the movement reflected in OSCulator on your computer. Look to the right of the new **/1/tune** message in OSCulator and locate the **Event Type**. Click in that column to assign **MIDI CC**.





4 > Repeat this procedure with each of the knobs, sliders and buttons you made. You'll have a long list of Message entries. Most will be MIDI CC, but if you put in buttons to act as note triggers, select the **MIDI Note** type and assign the desired note value. We've assigned our seven note triggers to successive white keys from A2, to facilitate a short minor scale.

5 > We need to tell OSCulator which MIDI CC numbers should be transmitted for each control. These are entered into the **Value** column. They range from 0-127 and you can assign them arbitrarily, but you might want to avoid commonly used CCs such as 7 (usually volume). You can find the 'official' list of defined and undefined CCs at **http://bit.ly/buo97f**.

6 > Save your OSCulator patch (ours is on the DVD). Now open TAL-Bassline in your DAW. All that remains is to call upon TAL-Bassline's **MIDI Learn** function to assign each of our TouchOSC controls to its associated TAL-Bassline parameter, then save the TAL-Bassline patch so that you can call it up at any time. There you have it – touchscreen synth control! **cm**

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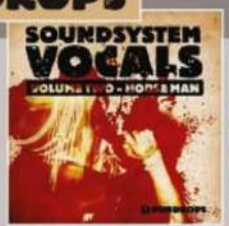

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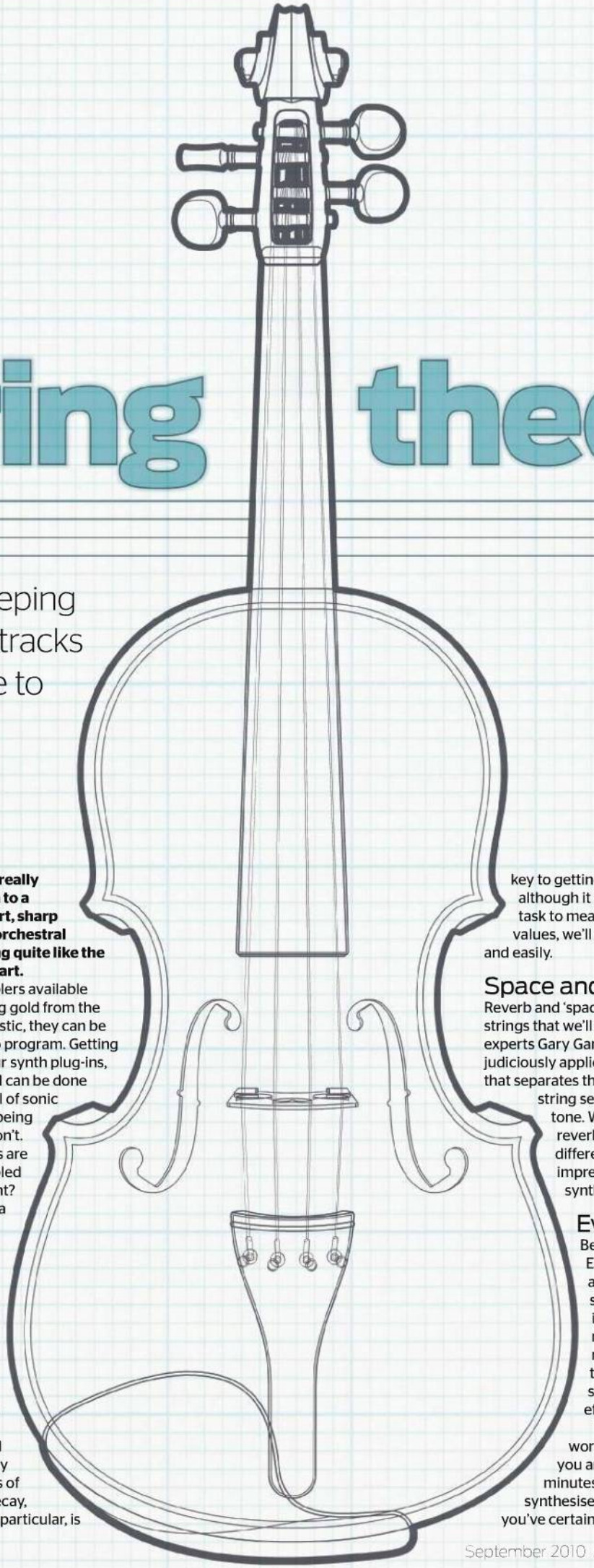
String theory

Add lush, sweeping tones to your tracks with our guide to synthesising better strings



cm DVD

ON THE DVD

You'll find the audio files referenced here in the **Tutorial Files** folder

A good set of strings can really bring an extra dimension to a track. Whether it's a few short, sharp stabs on a violin or a whole orchestral section, there's really nothing quite like the sound of a beautiful string part.

There are numerous ROMplers available that can give you instant string gold from the get-go, but while they're fantastic, they can be costly and very challenging to program. Getting great strings sounds from your synth plug-ins, however, is relatively easy and can be done in minutes. Synths offer a level of sonic control that sampled strings, being based on 'fixed' recordings, don't. Of course, synth string sounds are qualitatively different to sampled ones, but different's good, right? While you might assume that a 'real' string section is the best choice for any given track, we urge you to try the same thing with synths instead – it's always worth a go.

Envelopes

In this tutorial, then, we'll be getting your synth strings sounding as expressive, 'human', natural and powerful as possible. Among the main weapons in your arsenal – and we'll return to these repeatedly – are the envelope parameters of your string patches: attack, decay, sustain and release. Attack, in particular, is key to getting great-sounding strings, and although it may seem like an impossible task to meaningfully tweak all those values, we'll show you how to do it quickly and easily.

Space and time

Reverb and 'space' are two other aspects of strings that we'll spend some time on. As string experts Gary Garritan and Paul Steinbaur attest, judiciously applied reverb is the main thing that separates that soaring Hollywood movie string section from a dry, characterless tone. We'll show you how to get your reverb just so, and where to pan your different instruments to create the impression of your own personal synthesised string section.

Everything else!

Beyond that, we've got tips on EQ, layering, string terminology and how to create more unusual string sounds. While this tutorial is primarily about synthesis, most of our advice can be readily applied to audio parts too, but be aware that many string samples will come with effects already added.

Try as we might, we couldn't work out a way to actually make you an expert violin player in minutes, but if it's great-sounding synthesised strings you're looking for, you've certainly come to the right place...

The secret to great string sounds

There's a good reason why synth string parts are difficult to get right, and that's because a synth doesn't sound remotely like you'd expect a string instrument to sound. In reality, it'll never sound like the real thing, but you can certainly bring feel, sensitivity and expression to them if you approach them with the right attitude.

When you hear a string section on a track, you're not just hearing the strings themselves. You're hearing the room they were recorded in, the objects in that room, the number of musicians playing them and, of course, the numerous effects added afterwards to exaggerate or remove elements of the sound.

Now, you might ask why strings are special in this regard. After all, you'd be hard pressed to find an instrument on a piece of current music that hasn't been put through at least a couple of effects. And it isn't as if you can't make capable MIDI drums or basslines with very little processing. But the reason strings so badly need this processing is because we, as listeners, have certain expectations of them.

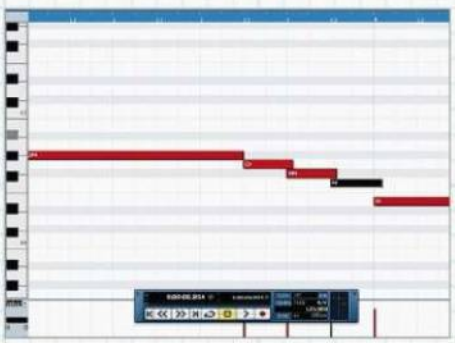
"What one often hears in movies is compressed, EQed, reverbed, artificially balanced, stereo enhanced and heavily processed," says Gary Garritan of orchestral VSTi specialist Garritan Libraries. "I remember going to a session where they were recording strings for an upcoming movie and they were in the most beautiful-sounding hall. While in the control room I glanced down and saw the lights on outboard gear flickering during recording. I asked the engineer why on earth they were using a Lexicon reverb in such a wonderful-sounding space. The engineer remarked, 'Because that's the Hollywood sound'. The natural sound of the strings wasn't enough and they were going for expectations. Even classical music on the radio today is often compressed and processed, because that's what listeners are accustomed to."

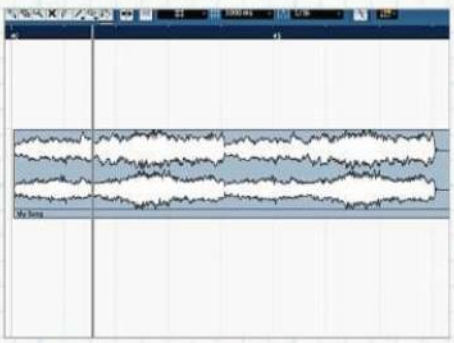
You may not have The Urban Soul Orchestra in tow, but you can still get great string sounds in your tracks

This is one reason that an untreated piece of MIDI data mapped to a synth sounds... well, very little like a string. Our experience of string pieces in music, movies and videogames is of instruments that are coloured and highly treated. In addition, playing strings well at a professional level requires serious skill, so performing your MIDI part on a keyboard probably isn't going to work. Do this and your strings are likely to sound deeply unnatural (although that might be want you want, of course, in which case, have at it!). Therefore, we'd recommend that you draw in your MIDI data by hand when dealing with strings, or at least be prepared to heavily edit it if you do choose to input it via the keyboard. Of course, if you're a real string player who happens to also have decent keyboard skills, you might be able to nail it in real-time, but the rest of us should grab that mouse.

Paul Steinbaur of Vienna Symphonic Library agrees. "Traditionally, MIDI arrangers tend to over-arrange," he says, "especially when they're playing chords on the keyboard. It makes sense to think through every line played in an arrangement separately, and also perform each section separately to get as close as possible to a human performance. Of course, you can also edit the MIDI part later on, but it's faster to record it right in the first place."

> Step by step Synths versus samples





1 > Off the bat, synth strings sound stilted, unnatural and contrived. Of course, the advantage of them, though, is that synths are endlessly manipulable and can generate string-type sounds that couldn't exist in the real world. (Audio on the DVD: **MIDIStrings.wav**)

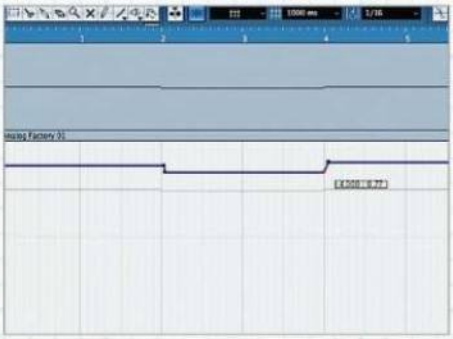
2 > String samples have the advantage of sounding great, assuming they're well recorded. The downside, though, is that pitch-shifting and timestretching them can create unpleasant artifacts. Depending on what you're going for and how much flexibility you want, a good set of natural string samples may suit your track better than a synth. (Audio: **SampleStrings.wav**)

3 > One trick that isn't used often enough, we reckon, is combining the two. You might find an excellent string sample that you want to expand upon by adding a few short notes, or an extra layer (a double bass, say), which a synth might be perfect for. Be sure to match the reverb, panning and attack of the two parts, though.

> Step by step Attack! Attack!

1 > The easiest way to make your strings sound more natural is to adjust their envelope values – in particular, the **Attack** and **Release**. Here's a single MIDI note, which we've sent to Arturia's Analog Factory synth. We've kept the envelope parameters low, so the note sounds very little like a string. (Audio on the DVD: **BareString.wav**)

2 > The **Attack** is the envelope stage you'll most want to focus on. Generally, you'll want a fairly high setting to emulate the effect of a bow on a string, unless you're looking to create a deliberately short, sharp sound. (Audio: **AttackString.wav**)



3 > A good way to coax smooth sounds out of your MIDI strings is to change the **Attack** value on each note – even a small adjustment will make a difference. This doesn't have to be time-consuming or difficult – simply input some automation data to control the value of the Attack control. (Audio: **MultipleNotes.wav**)

4 > Imagine your parts being played by real-world string instrument players. Each one will have their own idiosyncrasies, so make their envelope settings subtly different.

5 > Pay careful attention to the **Release** setting. It's not quite as important as the **Attack**, but you can give your strings more natural 'tails' if you tweak it correctly. As a general rule, for sustained notes keep it just below the half-way mark, but ultimately, trust your ears.

POWER TIP

>In the middle

Although it's not essential for great strings, if you've got a moment you could play with the **Decay** and **Sustain** settings as well. The impact of these will often be extremely subtle (unless you go the whole hog and turn the Decay all the way up) but they can make a difference, particularly if your strings are short and sharp. They may also get lost if your mix is busy, but can be just the thing for giving a solo string part a bit more impact.

Waves' Linear Phase Equaliser is a great option for string sounds, but do your strings really need any EQ at all?

Equally stringy

It's difficult to take you step by step through the process of EQing your strings because so much depends on where they are and what they're doing in the track. Are they out front and bold, or performing a solo? Are they hanging around in the background, providing atmospherics? All of these will require different treatments.

As if that wasn't confusing enough, there's a school of thought that says strings don't really need any EQ at all, especially if they're treated properly with enveloping, reverb and panning. That's meant to be applied to 'real' strings, of course, but could be worth bearing in mind with synth parts too.

There are some good general rules to follow, though. For starters, you probably won't need to boost the upper frequencies on your strings, even the low notes, as this can make them needly and irritating if overdone. And trust us when we say that it's a unique kind of irritating that only a high, screechy string can give!

Your sound may also benefit from a gentle high-pass filter, though again it depends where you place your strings. This can be handy if they're fairly low and foreboding, and sharing space with the kick drum or the bassline. As long as you don't cut too much, it can be a big help, though higher strings can take more than lower ones.

If you do decide to use an EQ, try to make sure it's a transparent one. By using a good linear-phase equaliser, you can make whatever boosts or cuts you deem necessary without colouring the sound. Strings have many, many harmonics, so if you need to make adjustments, it makes sense to leave the core sound as transparent as possible.

The lingo

We're not about to get heavily into music theory, but it'll help to know some string-related terminology. First up, *legato*. Meaning 'tied together', this describes the flowing, joined-up sound of notes played smoothly without any gaps in between. The opposite is *staccato*, which means very short, disconnected notes. This shouldn't be confused with *pizzicato* – the technique of plucking the strings, rather than bowing them.

One word you'll probably be familiar with is *portamento*, which means 'to glide'. Many synths have a portamento or glide switch onboard that enables them to slide from one note to another when activated.

If you play with the attack and release settings on a series of staccato notes, you might end up with a *ricochet*. This is the sound of a bow bouncing off the strings and being brought back down rapidly, making for a series of very sharp notes.

If you have a note with a short attack and release, followed by one with lenger settings, the first note is designated *marcato*, which means means 'accented'.

***Tremolo* is a word you'll almost certainly have come across before. It's the sound of the string section just before the villain strikes in a horror movie – the extremely rapid movement of the bow back and forth across the strings to create a characteristically tense sound.**

> Step by step Reverb nation

1 > More than anything else, reverb is the key to giving your strings that movie-score feel. Before you start, make sure the release values on your string notes aren't too intense (you don't want to conflict with the reverb tails) and set up a group channel you can send them all to. (Audio on the DVD: **DryStrings.wav**)

2 > Stick a reverb on the group channel as an insert effect and put the channel fader up high for now, preferably with one of your string parts soloed. A good starting point would be a hall or cathedral preset – most reverb plug-ins come with several, so dig around until you find a good one.

3 > Strings can take a lot of reverb, so don't be afraid to turn that wet mix knob right up. The real character will come through balancing the reverb time and the send level. Remember, each string track represents a human being sitting in a specific position in a big room, so set different send levels for each one! (Audio: **WetStrings.wav**)

4 > It pays to consider the type of reverb unit you use. Plate reverbs, for example, tend to be a little too harsh on strings, even at low settings – although, of course, this isn't a concrete rule. Here we've used Vacuumsound's Poor Plate plug-in. On 'plate-appropriate' sounds it's a great reverb, but in this case it doesn't work at all. (Audio: **Platestrings.wav**)

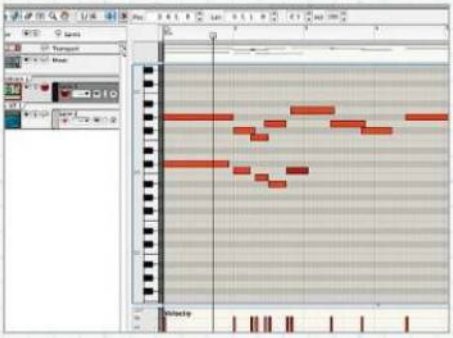
> Step by step Pan power

1 > Just as you need to set different amounts of reverb for different parts, you also need to pan them individually. Unless you've got a single string track that you want to leave dead centre, a string section will need to be panned quite wide if you don't want it to sound muddy.

2 > Lower-sounding instruments – your cellos, doubles basses or synth equivalents thereof – can be panned more towards the centre of your stereo image (you could even leave one of them dead centre), while violins or violas – anything high pitched – will quite comfortably sit a little further out.

3 > Remember that if you have two or three instruments at similar pitches, they need to be in different pan positions so as not to overwhelm each other. You can be as subtle as you like, or for an unusual effect you could take two instruments – violins, say – and pan one left and the other the same distance to the right. (Audio on the DVD: **Panned strings.wav**)

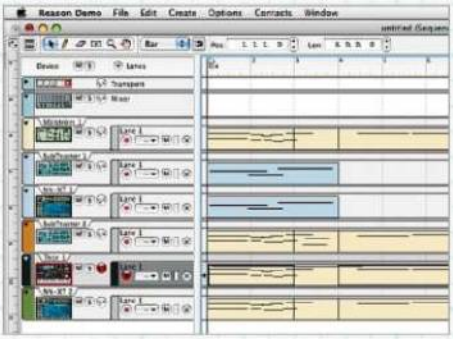
> Step by step String on string



1 > Layering string tracks on top of each other will increase their texture and fullness, but there are some things to be aware of. Copying and pasting the same notes from layer to layer will sound horrible, so sequence each track individually. If you're in a hurry, you can paste notes, then tweak them all individually, but it may actually be quicker to draw them in manually.

2 > While it's OK to use multiple layers of MIDI notes on the same track, you'll get better results if you use separate instruments for each layer. Here we're using Reason's Maelstrom and Subtractor synths, and NN-XT Sampler. All our patches sound similar but have enough character to give texture to the layers. (Audio on the DVD: **DryLayers.wav**)

3 > These layers are all going to need different envelope values to sound distinct. The good news is that when you're layering the same type of instrument – a 'violin' section, say – the attack values don't need to be massively variable to make an impact, so tweaking them shouldn't be difficult or time-consuming. (Audio: **WetLayers.wav**)



4 > You'll find that top-line instruments such as violins and violas will require more layering to sound good compared to your bigger, boomier cellos and double basses. When you're working on the latter, try just a couple of layers with slightly longer attack values than your higher string instruments.

5 > Finally, remember that if you're writing each layer as a separate track, you can quickly find yourself with dozens of mixer channels to deal with. To speed things up at the mixing stage, sum your layered instruments to group channels on your mixer.

POWER TIP

>The quantise question

In general, you're best off avoiding quantisation of any sort with your strings, as there's no way a human player would be that accurate. However, if you're arranging a complex string track with several notes in it, then switching quantising on for the initial sequencing can be very helpful in terms of arranging notes. You can then turn it off and shift things around to remove the robotic feel. Be wary of doing this with multiple layers, though, as in almost all cases, you'll want some variation between them, and correcting each track individually can take a while.

Effects units such as Nomad Factory's CM MFX-Rack are ideal for quickly and easily distorting your audio and MIDI strings

Strung out

Want to turn that particularly high string into a piercing electric guitar? How about a wailing siren effect, or making that big double bass into a big double-electro bassline? One of the main advantages of synthesised string parts is that they can be utterly transformed with ease.

First, that guitar. Add some distortion using the plug-in of your choice – in our example, we're using Nomad Factory's MFX-Rack CM. We've tweaked the Low Pass Filter knob to get rid of some of the harshness the distortion gives our violin, and have turned the Drive and Resonance knobs all the way up to really bring out the character. Be aware that you may need to increase your envelope attack settings, even if they're fairly high already, to avoid clicks as the audio plays. (Audio on the DVD: StringGuitar.wav)

The siren is even easier. Take a really high-pitched violin track and insert a chorus effect. Turn the Delay and Rate values all the way up and you're done. Simple as that. There's no other adjustment necessary and you've got a great sound that would be right at home with some heavy house drums underneath it. For some extra flavour, automate the width across a breakdown or add an automated high-pass filter. (Audio: StringSiren.wav)

There's more. Compress the hell out of a rhythmic, repetitive cello section, then use a combination of a high-pass filter and a distortion plug-in to really bring out its guttural character. There you go: instant funky bassline.

It may seem obvious, but these are techniques that work equally well with both string samples and synth parts. So whether you're messing around with an analogue synth or a loop jacked from the London Philharmonic, get stuck in! (Audio: StringBass.wav)

Choose your string

If you're a producer without access to a massive orchestra, you'll be wanting specific software instruments to provide string noises for you. The problem is, unless you're absolutely wedged with cash, many of the big-name string brands will be out of your reach. Fear not, though: whether your budget is huge or non-existent, you can get brilliant string sounds at a price to suit.

One good solution comes from Falke Music Lab. Although the company have a dedicated web page, you can find their String Ensemble at **http://freemusicsoftware.org/504**. It's basic – just a couple of filters – but has some superb sounds packed into it, and the envelope controls that are so essential for natural-sounding strings. The best bit? It's absolutely free.

Then there's LMS' FTM String. This one's about as basic a design as it gets, but it'll give you the tools you need to create a variety of string sounds. Again, it won't cost you a penny – get it from **www.lnt.de/~stepe/demo/VSTPlugin**.

Also free is AlgoMusic's String Synthesiser, which brings the clasic sounds of various 70s string synths to your desktop. Like the others, it's fairly easy to work with and sounds great. It can be found at **www.algomusic.net**.

With well over 200 instruments, Personal Orchestra 4 should have enough strings for even the most avid composer

Sounds on a shoestring

If you're up to spending a little money, there are dozens of budget solutions – plug-ins that won't hurt your pocket and will reward you with very high quality string sounds.

One of the cheapest options is Cakewalk's Virtual Strings. It's incredibly easy to use, and although it may not be as lush or vibrant as some of the big boys, with a little bit of tweaking, you can get great sounds out of it (**www.cakewalk.com**).

Another dedicated string-modelling synth is Loomer's String, which brings back an array of classic 70s string sounds (**www.loomer.co.uk**). It may not be the most exciting plug-in to look at, but it has huge potential for creating fantastic string sounds, and if you can get past the rather spartan interface, you'll find an instrument packed with outstanding noises.

Behind the rather drab looks of Loomer's String lies a wealth of brilliant 70s string sounds

Moving up the price scale, one of the best synths for producing good, basic string sounds is Arturia's Minimoog V. This synth is traditionally used for bass sounds, but its pad section comes with some great string presets that are endlessly tweakable. You can get this fine piece of software at **www.arturia.com**.

If you look around, you'll also find plug-ins dedicated to particular genres or styles of string. There are millions of orchestral packages out there, but for something more unusual, check out Sonivox's Playa Hip-Hop Strings, a dedicated set of sounds for hip-hop. It boasts a fantastic interface, modelled on an MPC sampler, and is very easy to use. See **www.sonivoxmi.com**.

Orchestral manoeuvres

Of course, if you have serious cash to blow and want the pinnacle of string sounds in your DAW, then you'll want to look at developers like Vienna Symphonic Library. They have a staggering range of dedicated string ROMplers, all beautifully recorded and processed. Full string sections and individual instruments are available, and you'll find them all on their website at **www.vsl.co.at**.

Also hugely reputable is Garritan's Personal Orchestra 4, which does exactly what it says on the tin. It includes a lavish full string section as well as every other part of the orchestra. Find out more at **www.garritan.com**.

So no matter how much you want to spend – even if you don't want to spend anything at all – there are plenty of excellent string machines out there, whether you're after sample playback instruments or synths. **cm**

Stringing it all together

Because of their frequency range, mixing strings in with the rest of your track – especially if you have other busy sections – can be tricky, so here are some things to bear in mind.

Although there is a school of thought that says otherwise, in general, volume automation on individual strings can make things sound awkward. String sections usually build to a crescendo or decrescendo in unison, so having the volume of your various individual instruments popping up and down within the mix can be disconcerting. This is by no means a concrete rule – you might want to have a single violin playing an particularly mournful note a bit louder – but to control your string volumes, you should generally keep all of them on the one submix fader.

Also, you need to give your strings space to breathe. Even if you're only using a couple of low-down cellos to give atmospheric accent to a dance or drum 'n' bass track, dropping the main drums and bass and just letting your strings play for a bar or two can really make them stand out.

Because strings will take up the entire frequency spectrum, you may find clashes occurring more frequently than usual. Try putting your strings in first and building the mix around them, rather than trying to get them to fit around the other elements of your track. Of course, this all depends on how prominent you want your strings to be.

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Clear signals

Following last month's look at Renoise's versatile trance effects, we introduce the tracker's handy Signal Follower

ON THE DVD

Our Renoise projects and the ZebraCM synth are all on the disc

Last time, we used Renoise's LFO Device to create a tremolo effect and a trance gate. This month we're continuing the trance theme, adding more parts to last month's song and looking at how we can use a kick drum and the Signal Follower to approximate sidechain compression.

It's common practice in trance to use sidechain compression to get the kick drum cutting through the rest of the track, not only giving that trademark pumping effect, but also keeping the headroom from being compromised by a loud kick drum coinciding with other parts in the same frequency range.

When a kick drum is used as the input for a compressor's sidechain, the gain reduction on the compressed channel when the kick drum sounds is what creates the pumping effect, and that's what we want to achieve here.

While Renoise doesn't actually have a dedicated sidechain compressor, the indispensable Signal Follower can be used in tandem with either a Compressor or Gainer in order to emulate the effect.

When using the Signal Follower to control a linked device, you can see the effect it's having by looking at the two bars on the right of the device. The first is the level indicator for the signal coming in. The second bar is the data value going out, and that's the one to look at when tweaking parameters.

We'll be using Zebra CM and its Electronic Garden presets pack. Load your song from last month, or **CM_trackers_tutorial_27final**, which can be found on your **cm** DVD, along with the samples we'll be using and Zebra CM itself.

>Step by step: Using the Signal Follower in Renoise 2.5

1 > Load the bass and kick samples into Instrument slots 01 and 02 respectively. Underneath the Pattern view, alter the **Step Length** to **4** and, beginning at position 02 on Track 02, enter an offbeat bassline starting with a minor 3rd (D♯) for the first half of the track and dropping to the root (C) for the second half. (Continue or load **CM_trackers_tutorial_27final**)

2 > Beginning at position 00 on Track 03, enter in a four-to-the-floor kick drum rhythm. Under **Track DSPs**, add a Signal Follower device to the kick track and a second Gainer device to the trance-gated chords on Track 01. Note that we can't currently choose the tracks to the left of the kick as destinations on the Signal Follower. (Continue or load **CM_trackers_tutorial_28a**)

3 > Click and hold the title of **Track 03**, then drag it all the way to the left of the Pattern view and release it, making our kick track Track 01 and the trance-gated chords Track 02. Now set the Signal Follower **Dest**ination to the **Gain** of the new **Gainer (1)** device, which is on Track 02. (Continue or load **CM_trackers_tutorial_28b**)

4 > On the Signal Follower, ramp up the **Dest. Min** to around **7dB** and drop the **Dest. Max** to around **-16dB**, inverting the output. Making sure the **Attack** is at **0** seconds and drop the **Release** time to around **0.03** seconds. Hold down **Ctrl/Command** when adjusting parameters for fine-tuning. (Continue or load **CM_trackers_tutorial_28c**)

5 > Switch to **Instrument 03** (or the next free slot) and add a second Zebra CM under **Instrument Settings**. Call up the **BAS Foghorn** preset and enter a melody line on Track 04. Add a **Delay DSP**, select **Line Sync**, pick **03** for the left, **05** for the right, and raise both of the **L** and **R Feedb**acks. (Continue or load **CM_trackers_tutorial_28d**)

6 > We need our Gainer to affect this new sound, as well as the old one. Switch to the **Mixer** view and drag the second **Gainer** from Track 02 to S01. Check and note how the Signal Follower remains linked to this Gainer. Now add a **Send Device** to both our original trance-gated 02 track and our new melody 04 track. (Load **CM_trackers_tutorial_28e**)**cm**

easy guide to...

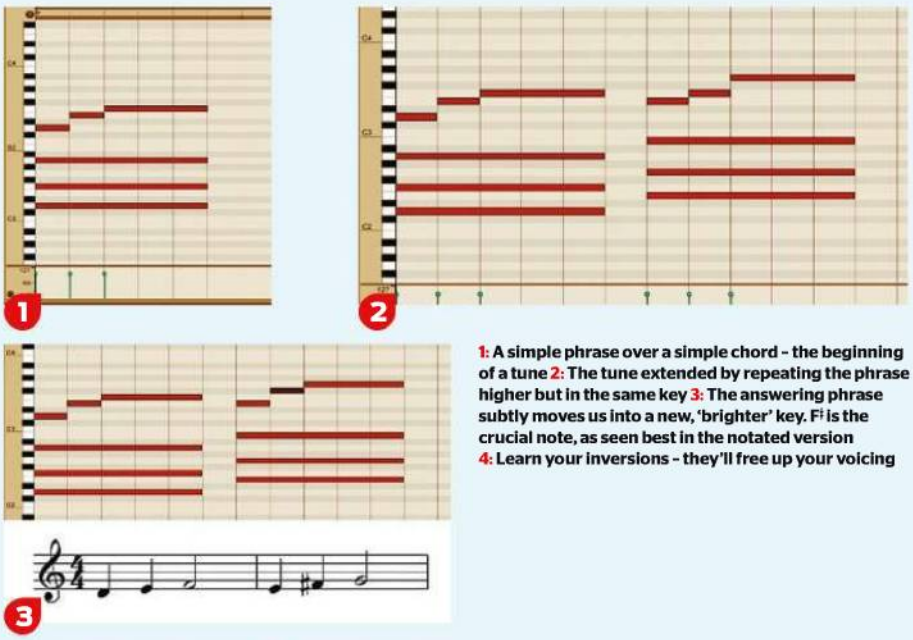
Changing keys

In the fifth part of our guide to understanding melody, we examine the interaction between notes and key changes

> We're in the middle of a process of thinking about melody and seeing how a little knowledge of scales might give you extra resources as you compose and arrange your tracks. Last month we printed a table of all the major scales (apart from C, which we hope you can navigate by yourself!), so we're now going to feel free to use major scales in any transposition, albeit sparingly, and avoiding the ones with the most sharps or flats for the time being!

We also devoted some time to looking at the process of key change, or modulation – in this instance, nothing to do with synthesis – and now we're going to see how key changes and the notes in a scale interact.

We've previously used the idea of two intervals – tones and semitones (whole and half steps in US parlance) – somewhat mechanically in the construction of our scales. However, as well as being potentially expressive elements in a melody, these intervals can be consciously and deliberately used to facilitate a key change.



1: A simple phrase over a simple chord – the beginning of a tune 2: The tune extended by repeating the phrase higher but in the same key 3: The answering phrase subtly moves us into a new, 'brighter' key. F♮ is the crucial note, as seen best in the notated version 4: Learn your inversions – they'll free up your voicing

In and out of key

Let's take the somewhat simplified example of a short phrase using notes of the C major scale, D E and F, which work well over a D minor chord (D F A), as in **Fig 1**. Obviously, most tunes will be considerably longer than this and may well have several different chords, but we're using such a short phrase just to make the point succinctly. The phrase uses a rising tone followed by a semitone, which can easily be seen in the piano roll editor.

We can extend the tune by starting it a step higher (E F G – a semitone followed by a tone) and accompanying it with an E minor chord, as shown in **Fig 2**. This keeps us in the same key, since all melody and harmony notes still fit the C major scale. This is called a 'diatonic transposition' – moving the phrase around but staying in the same key.

Suppose we keep the same interval structure (tone, then semitone) when moving the phrase up: D E F then becomes E F♯ G, as in **Fig 3**. In this case, the altered note is seen more clearly in the staff notation and is called a 'chromatic transposition' because of the new note involved. This new note, F♯ replacing F, gives us a subtle sense of the new key involved. Of course, where more such altered notes occur in a melody, there will be a stronger sense of change. We'll have some more complex examples of this in future tutorials!

> "When we have to flatten or lower notes in order to change a scale from one key to another, we can sense a darkening of the sound"

Light and dark

Musicians sometimes talk about some keys being lighter or darker than others. Whether or not any particular key has an intrinsic degree of brightness, key changes certainly do. When a move into a new key involves raising notes from the previous scale, we often get a sense of lift, or the new key being brighter or lighter. In contrast, when we have to flatten or lower notes in order to change a scale from one key to another, we can sense a darkening of the sound. The precise words you use to describe the sensations will be subjective, but there is a definite change of mood.

A simple example, just using chords this time, would be E minor (E G B) to E♭ major (Eb G B♭). Although we're moving from a minor to a major chord, there is still that darkening of the sound. F major (F A C) to D major (D F♯ A) is a similar example, using two major chords from different keys. Try playing both examples back and forth to get the feeling of this brightening and darkening. Note, though, that this effect doesn't work with chords that fit the same scale – there has to be some chromatic movement.

Innovating with inversions

We're always keen on you becoming more fluent with inverted chords, so **Fig 4** shows three different ways of using inversions to make the F/D transition smoother. In the first example, F is in root position, so D is inverted; in the second, F is inverted so that D can be in root position; and in the third, both chords are inverted.

In each case, this enables the voice (or finger, if you're playing a keyboard) sounding the A to stay in place, as it's the one note in common between the two chords and helps to bind the two together. Also, notice that the voice (or finger) playing the F changes to F♯, so the chromatic change is brought out. The remaining voice always moves between C and D in whichever octave – another smooth change.

All three of these examples are equally useable and, ideally, an advanced arranger or composer will be able to handle them fluently and not always be stuck with the same (usually root position) voicings. **cm**

Language music

Expand your musical horizons and make your tracks sing with rachMiel's guide to creating language-musical hybrids

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.

> Language and music enjoy an intimate relationship with each other. It can, in fact, be hard to say where one ends and the other begins. Reciting a Dylan Thomas poem can verge on singing; playing a Bach fugue can verge on linguistic discourse.

Imagine two poles – pure language (think neutral, facts-only-ma'am news broadcast) and pure music (song without words, scat). Language music inhabits the fertile and mysterious realm that lies between these poles.

Artists have been exploring this realm for a long time. One could argue that any song, speech, recited poem, monologue – anything employing the voice in a more than strictly linguistic way – falls within the language music rubric. But that's not what I mean by language music. Rather, drawing from the essence of language and the essence of music to create a true language-music hybrid.

A pop song with lyrics wears a language-music costume; a true language-music composition is encoded as both language and music at the genetic level, in its sonic DNA.

> "A true language-music composition is encoded as language and music at the genetic level, in its sonic DNA"

Once you've come to terms with the essences of language and music (see the boxout below), you can begin splicing language and music genes together to create compelling language-musical hybrids. To that end, let's start by exploring the music of language.

The four classical parameters of music are rhythm, pitch, timbre and volume. Let's apply each of these to language. The rhythm of a spoken unit of text (word, phrase, sentence, etc) is in its pacing, the duration of each of its constituent phonemes, syllables and pauses. Spoken language has a very strong rhythmic component, a kind of linguistic groove that varies markedly from language to language, and in some cases, from speaker to speaker.

The pitch of a spoken unit of text is in its intonation, the variations in pitch from syllable to syllable, word to word. The timbre of spoken text is in the sound of the voice doing the speaking – each voice as unique as a fingerprint.

The volume of spoken text has a micro and macro component. On the micro level, certain syllables and words are accented, voiced at a higher amplitude. On the macro level, phrases, sentences, even paragraphs have dynamic envelopes (crescendoes and decrescendoes), much as they have pitch envelopes (intonation).

The language of music

The essence of language is communication (see boxout below). And how does spoken language communicate? Through vocal symbols understood by speakers of that language; utterances organised into words; phrases, sentences, paragraphs structured along a system of grammar and syntax. Each of these qualities has an analogue in music.

Take, for example, a jazz scat solo with no instrumental accompaniment. The words are note clusters (sometimes single notes, like single-syllable words); the language phrases are musical phrases; the sentences are clusters of phrases generally falling within standard bar groupings; the paragraphs are sections (verses, choruses, heads, intros, outros and so on). The grammar and syntax of the scat are its underlying musical structures: pitch (jazz-inflected D minor), rhythm (syncopated 4/4 with triplet feel), dynamics (accents) etc.

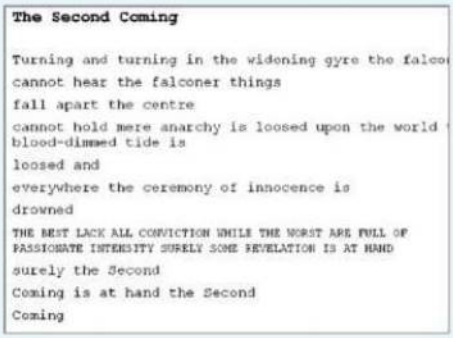
Understanding essences

The starting point for creating language music is to understand – in the head, ears and gut – the essences of language and of music. Let's give it a go! The essence of language, as I see it, is communication: of thoughts, feelings, emotions, information, hopes, dreams, fears, joys, etc. Written language communicates via notation: letters, words, punctuation marks, spaces, line breaks, formatting. Spoken language communicates via vocalisation: phonemes, syllables, words, phrases, sentences, moans, verses, grunts, whispers, intonation, pauses, inflection, breath.

And what is the essence of music? Well, for me it's the flow of sound through time. This sound is usually 'organised' – structured on a matrix of grids: rhythmic, harmonic, dynamic, durational, etc. But not always; the procession of sounds in a forest at night is, for me, also music. Generally, music is expressive, compelling, dramatic. But not always; sounds are sometimes just... sounds.

Your personal takes on what constitutes the essences of language and music might well differ non-trivially from mine. To which I say: *vive la différence!* There are no absolute definitions of language or music, no right or wrong answers. It's all relative; language and music are in the eyes/ears of the beholder.

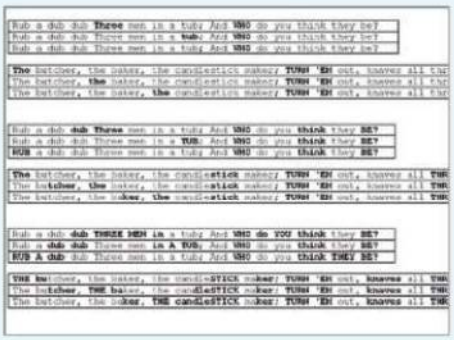
>Step by step Making language-musical tracks



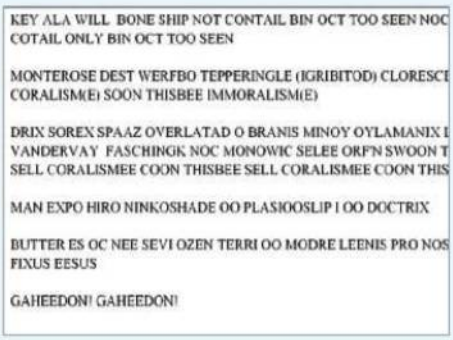
1 > The six audio examples on the DVD demonstrate the breadth of language music by moving from the language to the music end of the language-music continuum. This first example is an extreme cover of Yeats' popular millennial poem *The Second Coming* (audio on the DVD: **second_coming.wav**). Note: all of the examples on this page were recorded by F'loom (see boxout below).

2 > This example is also a cover, though not an extreme one, of a poem by the Dadaist Hugo Ball (audio: **elomen.wav**). Though the text consists of made-up nonsense words, it comes across like language for two main reasons: its sound (many of the words are close variants of words from European languages) and its shape (the flow/intonation follows that of spoken language).

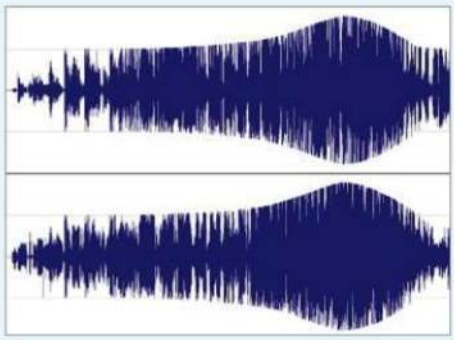
3 > This next example is a fantasia on the word air (audio: **air.wav**). Like the first two examples, it leans clearly towards the language end of language music. But more than these examples, elements of music are present: the singing quality of the spoken word, the breath drone, the slow pacing and silences, and the understated electronic effects.



4 > Next, another extreme cover, this time of the well-known *Mother Goose* rhyme (audio: **rub.wav**). Note how the text slowly reveals itself over the course of the piece, and how things move from the abstract (disjunct syllables) to the concrete (full sentences). In effect, this piece is a full journey (in reverse) through language music: from pure(ish) music to pure(ish) language.



5 > This example is similar to that in Step 2 (*elomen*) in that it consists of nonsense words (audio: **brickle.wav**). However, unlike *elomen*'s vocal lines, which follow the pacing of natural spoken language, *brickle*'s vocal lines often adhere to a superimposed rhythmic grid. Arnold Schoenberg did this a century earlier with *Sprechstimme*, a half-spoken, half-sung voice.



6 > This final example is an excerpt (the ending) from a longer piece entitled *M'ood Music* (audio: **m'ood.wav**). It is the most purely musical example of the bunch, in the sense of music as abstract sound. No words are used. Instead, F'loom serves up a smorgasbord of yelps and groans and ululations to express the arc of mounting excitement, climax, release.

Experimentalists' corner: Experimenters' corner: F'loom

In the mid-90s, conductor Robert Kulik, poet Michael Ives and composer Rick Scott had a series of conversations around the notion of combining the essence of language (communication) with the essence of music (flow of sound). From that trialogue arose the language-music vocal trio F'loom. In 2000, Ives left the group to pursue poetry full-time and was replaced by soprano Bess Phillips. A pair of albums and numerous singles have been released by F'loom: see www.floom.com.

F'loom's repertoire can be organised into a set of language-music categories: extended vocalisation (explorations of the abstract sonic potential of the human voice), extreme covers (radical interpretations of well-known poems, songs, etc), glossolalia (speech in an imaginary language), mouth percussion (polyrhythmic, polymetric, tongue-driven percussion), social commentary (part Firesign Theater, one part Zappa, with a dash of millennial angst), song (a cappella three-part-harmony singing), three-headed poetry (F'loom as tri-headed musico-linguistic organism), verbal polyphony (the simultaneous rendering of multiple distinct verbal lines; three people saying different things at the same time).

More morphin' fun

Our resident sound designer reveals how you can twist and transform your instruments into something completely new

cm DVD
ON THE DVD
The samples and patches referenced are in **Tutorial Files**

> Additive synthesis may very well be the ultimate sound creation technology. Given enough power, an additive synth can conceivably recreate any sound imaginable. More than that, it offers the synthesist a method by which imitative instruments can be wrangled into something entirely new.

There's an example on Wendy Carlos' *Secrets of Synthesis* LP, wherein one orchestral instrument morphs gradually into another as the notes increase in pitch. There was no precedent in the analogue world. Carlos meticulously patched each of the two sounds, sine wave by sine wave, then used her additive GDS synth to interpolate between the two. When I say "meticulously", I mean it! Additive synthesis requires that the user define every partial in a waveform and use individual envelopes to determine how those partials behave over time – and a convincing acoustic emulation can require hundreds of partials.

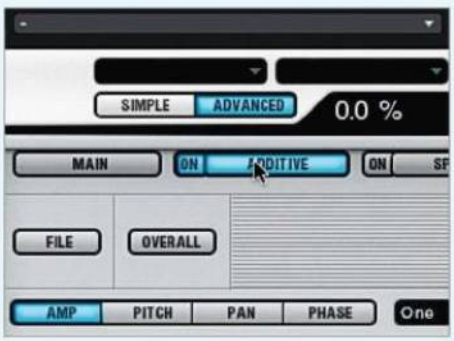
Fortunately, advances in personal computing have provided some shortcuts. Many of today's additive synthesisers can make use of 'resynthesis', whereby an acoustic sound is reconstructed as an additive waveform and thereby subject to all the manipulations available to the synthesiser being used.

As an example, in a recent episode of *Doctor Who*, a human transforms into a werewolf, accompanied by the sound of the human's scream morphing into the howl of a wolf. This was accomplished via Symbolic Sound's Kyma system. Luckily for **cm** readers, there are some less costly – if less precise – solutions out there that provide some very interesting results.

>Step by step Morphing sounds with Alchemy

1 > There are many inexpensive additive plug-ins available, including models from discoDSP, VirSyn and Image Line. I'm using Camel Audio's Alchemy, a synth with a superb additive resynthesis algorithm. If you don't have it, the demo can be used for everything in this tutorial. Fire it up and initialise the sound by choosing **Clear** from the menu.

2 > Play a couple of notes. You'll hear only a basic sawtooth wave. I'll show you how to resynthesise sampled waveforms and use them to create a morphing timbre of the sort that can only be created with additive synthesis. Each sound is made of up to four sources, each of which can be edited individually. Click the **A** button at the top-left to access Source A.



3 > The Source is making use of Alchemy's VA engine. Click the **Add** button to switch it over to Additive. Now you'll hear a simple sine wave. You can do some basic editing here, but we want to go more in-depth, so click the **Edit** button. You'll see a waveform display. That's not really what we're after, so click the **Additive** tab above the display.

4 > You'll see a display with a single, vertical blue bar at the left, on top of a sort of envelope display. The top display is where you can edit the amplitude, pitch, pan and phase levels of the partials that make up an additive waveform. Amp is currently selected. Try playing the sound, then click and drag in the display to increase the levels of some more partials.

5 > The partial on the far left is the fundamental. When only the fundamental is present, all you'll hear is a sine wave. Each additional partial adds more complexity to the waveform. You can adjust lots of parameters for each partial, which resynthesis makes easy. Click on **EditorData** (it said **Sine** before our changes) and select **Import Audio**.

6 > You'll be met with the Import browser, which is set up to bring the audio in as a granular file. Change that by clicking the **Additive** button at the top. You can leave all of the other settings alone for now. Find the sample file called **Voice.aif** on the **cm** DVD. It's a recording of my own voice singing "Ahh". Select it and click **Import**.

BUSTING JARGON

CROSSFADING

It's a common misconception that crossfading and morphing are the same thing. They aren't. A crossfade simply reduces the level of one audio file as another is faded in at the same time. This is fine for many situations, but it lacks the depth and malleability of a morph.

RECOMMENDED LISTENING

WENDY CARLOS, *DIGITAL MOONSCAPES*

I've recommended this one before, but it bears repeating, if only for the hybrid additive timbre heard at the end of *Luna*. Here, Carlos wraps the harmonics of a violin in the envelopes of a piano, producing a "hammered violin" that's far more subtle and complex than anything that could be produced by an analogue synth or even a sampler.

PRO TIPS

MORE ON MORPHING

Some subtractive synths and even a few effects offer the ability to morph between parameter sets. If an instrument you like doesn't, you might be able to call upon your DAW's parameter automation to create simple morphs on non-morphing synths, assuming that every parameter is available for automation.

SIMPLE IS GOOD

Early additive synths offered limited resynthesis – they could take in short, simple waveforms. Such waves were useful merely as a starting point for a more complex sound. Even now, some resynthesis algorithms will work best with certain types of sounds. For the most authentic results, simple is usually better.

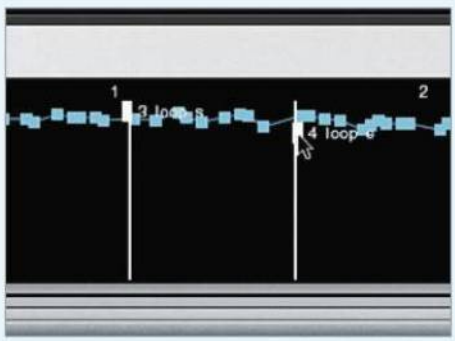
THE GREATER RIGHT OF THE WRONG

Conversely, you can get some wildly original timbres by resynthesising something that doesn't lend itself to the technology. For example, drum loops provide crazy rhythmic timbres when they're reduced to a handful of partials.

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.

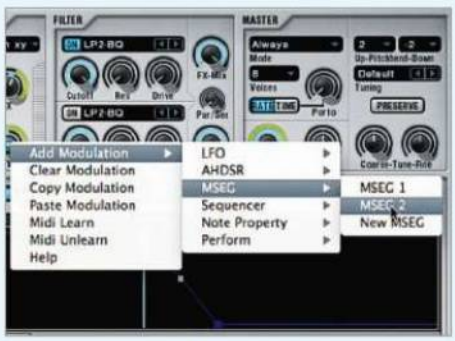
7 > Our partials and all the various levels and breakpoints are now set. Play a note or two from your MIDI controller. That's my voice, recreated as a synthesiser patch that we can manipulate just as we would any additive patch. Let's loop it. Find the **Loop** function at the top-left and select **Continuous**.



8 > The sound will play back indefinitely, but let's adjust the loop points by dragging the loop markers in the lower display. It doesn't have to be perfect. Use your ears and do your best to find a smooth loop – copy my loop points if you like. You can also experiment with different loop modes, though I've kept mine set to **Continuous**.

9 > You now have one Source to play with, but to morph, we'll need more. Select **Source B** and import the file called **Bamboo.aif** using the same techniques you used for Source A (you'll probably need to deactivate Source A to hear Source B clearly). Loop it. Do the same for Sources C and D, importing **Clarinet.aif** and **OmniViolins.aif** respectively.

10 > Making sure all four Sources are looped and active, return to the main page by clicking the **Edit** button. To access the Morph tools, click the **All** button at the top left. You'll see the Morph section just to the right of the Sources. Use the **Morph** drop-down to select **morph xy** as our Morph mode. Have a play with the **X** and **Y** knobs to morph between Sources.



11 > Assign the **Morph X** and **Y** knobs to some modulation source by right-clicking on the **X** and **Y** knobs and choosing **Add Modulation**. Now select a mod source from the available options. I chose **MSEG 1** for the X knob and **MSEQ 2** for the Y knob. These are Alchemy's multi-segment envelopes and they can be used to create complex modulations.

12 > The MSEG editor will appear. Here you can create envelopes to morph between Sources automatically each time you play a key. Edit **MSEG 1** and **MSEG 2** so each source comes in and out as you like. You can load preset envelope shapes. I've used slower envelopes to create an evolving pad. Now add delay for extra ambience. **cm**

DAVE LEE JOEY

One of Britain's most revered house producers and DJs talks to **cm** about Logic, mega-hits and the price of plug-ins

> Dave Lee has been a leading light on the UK dance music scene for over 20 years now, although to pigeonhole him solely in that genre would seem a little unfair on a man whose influences range from house to techno, soul to disco, and from deep and downbeat to high-energy floor fillers.

Since releasing his first track in 1990 under the Joey Negro name – Dave's longest serving alter ego – he's maintained a prolific output, although you're more likely to know him through the string of aliases that are called upon to delineate his broad musical output. Joey Negro, The Sunburst Band, Doug Willis, Sessomatto, Z Factor, Akabu, The Hed Boys... not forgetting his global success as *American Beauty*-sampling Jakatta, which – for a brief time at least – propelled Dave into the upper echelons of commercial success.

Today, 20 years after his debut, there are no signs of slow-down when we meet Dave in his north London flat, studio and record label base.

cm You're an artist, label owner, A&R, producer and remixer. If one aspect of your career were to take off to the exclusion of all else, which would you prefer it to be?

DL "I think if anything did that, it would frustrate me. When Jakatta took off, they [*Ministry of Sound*] wanted to press the button – "Second album, let's take this live..." – and I didn't want to do it. Maybe it was stupid but I didn't want to commit the next 18 months to doing something like that. It's not that I didn't like the music, but

NEGRO

I'd just spent the last 12 months doing the album. And I got a taste of what was probably to come – a lot more television stuff, a lot more interviews. I'd rather be in the studio making music.

"Having that level of success is nice for a couple of months but then the novelty wears off. You've always got interviews to do and meetings to go to. I actually don't mind doing all that, but not to the point that it excludes what you got into making music for in the first place. But realistically, I guess the promotional side is probably at least as important as the music side of things these days – at that level, anyway."

"I guess if there had to be one pseudonym that took off to the exclusion of all else then that would probably be The Sunburst Band. I just can't see myself getting as fed up with making jazz funk. Having said that, I remember that when I was making the last Sunburst Band album – which is all live bass, live guitar, brass section, vocals – I was thinking, 'I can't wait to do something more electronic.' I love that sound but I don't *just* love that sound!"

CM Your output is nothing short of prolific. You must have workflow pretty much nailed.

DL "Yes, and no. Yes, but I always feel like I'm playing catch-up. I've always got 15 tracks in my head that I haven't even started, another 15 incomplete tracks in the Mac – sometimes more than that – at various stages of completion. Some of those tracks have been going for five or six years, others I started three months ago. I wish I could have four solid weeks in the studio with no DJing or office work to get in the way, just to get all my 'in progress' ones finished. In reality, of course, I keep starting new tracks, though I will say most of them do end up getting finished at some point. It may be that on one track I need to get the bass player back to redo something, or a singer in for extra backing vocals, and I'll wait until there's more than that one thing for them to do before I book them in. So the constant flow of product probably looks better from the outside than from the inside!

"But then sometimes you go through a phase when you're just on it and you finish things quickly. And then other times – especially when you're making an album, it would seem – you can go through three months and not actually complete anything. You've maybe got 15 tracks

Dave on remixing

"I've done remixes that have been knocked back – every remixer has. In retrospect, there's a couple of them where you can see what the guy wanted and I didn't deliver that. Sometimes it's a question of the A&R not being able to articulate what they want. You have to be pragmatic about it – even if the guy doesn't have a clue what he wants, he has to be happy with it. What I'll say these days is, 'What have I done recently that you like?' so we're at least both on the same page.

"It's worthwhile being as clear as you can be with the person you're doing the mix for. Some guys will ask for 'something people can dance to – something you put on and people go, yeah!' And these people work for record companies! What it does tell you is that they're pretty clueless and they probably want something quite obvious.

"That's not to say that everyone who works at a major label is like that, but it's still worth trying to ascertain what they're looking for, so you can go in with your eyes open and not have to go back and redo it, which is always painful.

"Nowadays I don't like doing too many mixes unless I've got a really clear idea of what I want to do. Certain tracks I'd love to remix, as I can hear an angle for a great version; other songs I might love but just couldn't see what I could add. Also, the label often just want a banging 'big room' remix, which is totally understandable, as that's what gets played in many clubs, but it might not be what you'd want to do to the track, so it's best leave it.

"Plus, the market for remixes has dropped right off. The money you get now is nothing like what you were getting in the 90s, so there isn't even the financial incentive any more. Now I'll probably make a similar amount of money if I do my own track, so I prefer trying to please myself, rather than trying to put myself in somebody else's head. Unless it's something where you think you can do an amazing job on it, and you maybe get more work out of it, or it's going to do something for your reputation, or it's a cool hip act, like Empire of the Sun or MGMT or Phenomenal Handclap Band... You do it more from a strategic point of view, rather than thinking it's going to be a big earner."

on the go for this album, and over a three-month period they've gone from being 20% finished to 70% finished – but still nothing's actually finished! It's at that point you can start really regretting having started the album. It's all especially overwhelming if you're the label, and the A&R man, and the artist. In some ways I'd quite like to have a label I could take this in to and see what they think. However, I can imagine it would also annoy me at points!"

cm So Apple Logic is the hub of operations...

DL "Most of what I produce eventually ends up as audio in Logic. I still mix with the desk and even if I do decide to keep it in the computer, I'll quite often bounce some elements through the desk and Tube-Tech [*PE 1C Program Equaliser*] individually, just to give it a less digital sound. If I'm doing a track that's got a lot of live elements and guitars, then I definitely prefer to put it through the desk and a bit of the Tube-Tech.

"I suppose it depends if it already sounds OK inside the box. If that's the case, you can't help but think, 'Do I want to completely undo that mix to put it separately through the desk?' Either way, once I've got it all inside the computer, it's a good way of fine-tuning the track, and you can then work differently in terms of sending groups of tracks to compressors, bit crushers... or all the music to a bus for filtering, phasing and so on.

"I guess in the old days a song would just be totally finished at the mix stage and then you'd listen to the DAT and think, 'That's fine'. Or if there was some drastic stuff you weren't happy with, you would mix it again. But now I can play it out a few times or in the car and think, 'Maybe the bass drum needs turning up a bit', or, 'The first verse vocal isn't bright enough'. It's amazing what you don't notice when you're mixing, when you're listening to details but maybe not the big picture.

"On other occasions, I might change the whole drum track, redo the chords in the verse or whatever. So sometimes it's only about 70% finished at that point, when it's gone from the desk back into the computer as stems, but I like the flexibility. The negative side of that flexibility, though, is that you can go on forever."

> "It's amazing what you don't notice when you're mixing, when you're listening to details but maybe not the big picture"

cm What made you choose Logic?

DL "Apart from the early days of the sequencer, I've always used Logic. I used to use it on the Atari back in the 90s, when more people were using Cubase. And I guess it's got much more sophisticated since those days. It's been just over ten years now that I've been using Logic on a Mac, bringing the audio side of things into play as well. Up until that point, we used to have a tape machine, but obviously there are a lot more cons than pros with tape these days.

"I've thought about Pro Tools – those who have it insist it's better quality-wise, but then it's so much more expensive. Ten years ago there was a bigger gap between Logic and Pro Tools, but I definitely find that there's a lot more flexibility in Logic than there is in Pro Tools. So yes, Logic. For me, I haven't seen another system that looked better. Anyway, I think people can get a bit too anal about sound quality sometimes. There are loads of records that sound pretty crap that are still fantastic pieces of music, and others that are sonically excellent but devoid of any soul or originality.

"I guess some of these new systems like Ableton Live and Reason and whatever, they definitely offer something different. I wouldn't want to work on them exclusively – sometimes I'll do things in Ableton or Reason, though I generally find Logic is the hub."

cm So let's talk about plug-ins...

DL "Of all my soft synths, the one I use most is that Rob Papen one – Predator. That's great if you're making more electronic stuff. There must be an awful lot of dance music producers who are using that. It's got some good presets and is quite easy to use. However, I think the Logic ones are pretty good for many things, as are some of the internal sounds on the EXS24. There's so much you can do with the filters.

"I still sample quite a lot from records and CDs, but I try not to use sample CDs. I don't know why, really. I suppose nowadays it's a silly rule, but I don't tend to go that route when starting a track off. Often they seem to be too much of an assembly kit for dance music, and although putting them together well is still a skill, it feels like cheating.

"I'm an idiot if I think I'm the only one who's got a certain record I sample, but I prefer to find the sound for myself than just trawl through a CD of breakbeats or whatever. I'm sure if I did that, I'd come across some amazing stuff, but the prospect of doing it bores me slightly.

"What can frustrate me is the speed I finish things. Not that I've ever been fast, but back in the old pre-digital days, going back and fiddling with tracks wasn't so much of an option. Ideally I'd like to produce music a lot faster. Sometimes I get a track to a certain stage and then start picking it apart and being over-analytical.

"I think if you make music quickly then you're less likely to start deconstructing it, but some of my over-analysis has definitely led to a much better finished product; other times not. You can never tell until you try an idea if it's an improvement or not. And alas, trying things can take a while. If you bang out a track in a day then you're kinda, 'Right, OK, I'm into it, let's just get it out there'. Although you're probably not hearing some warts, it's hard to say if they'll matter. Some do, some don't"

cm What other plug-ins are you into?

DL "I'm using the [*GForce*] Minimonsta quite a lot. I've used that for fat, Moogy bass. That's been pretty good, I have to say, though I back it up with a sub bass for the bottom end. I've hired Moogs out a couple of times if I've had a solo that I think would sound better on the real thing. It's not cheap – like £40 or something – but then I guess these things aren't cheap to buy. If I had one, I wonder how many times in a year I'd use

Kit list

Access Virus B/C
Roland Juno-106
Sequential Circuits Pro One
Tube-Tech PE 1C Program Equaliser x2
Soundtracs Solitaire desk
Yamaha P50
Line 6 Echo Pro
Fender Rhodes Mark II Stage 88
Focusrite Penta compressor
Apple Mac Pro
Apple Logic Pro
PSP plug-ins
GForce Minimonsta
Waves plug-ins
Rob Papen Predator

Apple's Logic Pro is at the core of Dave's studio, being his DAW of choice for over ten years now

it. I don't like the idea of hiring stuff, but in some ways it's not such a stupid thing if you're not going to use it very often.

"So, the Minimonsta isn't bad for bass. It's good for lead sounds too. I just used it on a Matt Bianco mix. I think if you were only using soft synths then it's a different proposition, but I do make an effort to use hardware as well, because then you get a good balance."

cm There's a lot to be said for getting to know a few bits of equipment inside out, right?

DL "I agree – not that I can honestly say that I do know that many bits of equipment inside out! Maybe the Juno-106. You only get to know things by using them a lot and not many people know their equipment really well, because these days – especially when you talk about soft synths – we've all got loads of them."

cm What are your thoughts on the issue of software piracy?

DL "Well, if software was cheaper then a lot more people would buy it. I've bought Waves plug-ins, for example, and it's bloody expensive, and the extra money for the updates is a bit of a piss-take. Take something like Antares Auto-Tune, which I think is much better than Logic's internal equivalent: it's a lot of money – £250 or so! It's too much. If it was more like £100, I'd probably decide that it was worth having. And I think there are a lot of plug-ins like that – just that bit too expensive.

"The days of the big studio, where they can afford the £20K Pro Tools rig and limitless outboard gear because Aerosmith are recording there for nine months or whatever – those days are largely gone now. And there aren't a lot of those studios left these days – it's mainly individuals and smaller studios. We can't afford £500 here, £400 there.

'There are some things that are quite good value, though. Considering all the plug-ins and soft synths you get with it, I think that Logic is amazing value.

"But then someone could argue with me that CDs are too expensive. And I'd say no they're not, not any more! We still put out CDs, and they still sell OK. Not in massive quantities, but we sell enough for me as the label and the artist to make it worthwhile. But now we have to give people a double CD, and it's all sale or return. Trouble is, it's so easy to copy CDs and share files with your friends. We can't compete with free, so it's a pretty difficult time to be doing this!

"Of course, it's hit people much harder who are lower down in the industry. I haven't got that much sympathy for, say, Madonna, who's selling six million instead of nine million and her tracks are still all over the radio. She's still doing fine, thank you very much.

'I'm not saying it's right, but if as an artist you were selling 5000 and now you're selling 500 – so now you have to get a part time job in a pub to make enough dosh – I've got a bit more sympathy with that person." **cm**

The American dream

"I loved the [*American Beauty*] film. I bought the soundtrack and I sampled two bits – the tranquil piano bit where there's a crisp bag blowing about by the garage door, and the main crux of it, the marimba-type loop from the main theme with the tabla percussion and a low bass.

"Compared to sampling some old, crackly live funk 45, this was quite an easy proposition as it was all in time and beautifully recorded. I just added some drums, put a spoken word acappella on top of it and pressed it up as a semi-bootleg, naming it *American Booty*.

"When it came out, it did OK – probably sold about 3000, which was nothing spectacular – but I thought it had something special about it. So, I remixed it, got the Indian singer Swati Natekar to add some vocals, and pumped up the drums slightly. That was the version that took off, mainly down to Pete Tong playing it. As soon as Pete got behind it there was interest from a few labels, including Ministry. I think I've made more money out of the 13% I had of the publishing on that than 100% of all my other tracks!"

$1485 of SoundToys gear up for grabs!

Win a stunning SoundToys Native Effects bundle!

COMPUTER music

> competition

When it comes to effects plug-ins, there are few we'd rather play with than SoundToys'. They recently updated their SoundToys Native Effects bundle to v4, and it received a 10/10 rating in **cm**152, along with Editor's Choice and Performance awards. The pack costs $495, but we have three to give away – one for each winner of our competition!

SoundToys classics such as the Echoboy delay, Tremolator tremolo, fabulous filterin' FilterFreak, Speed pitch/time tool (for Pro Tools and Logic) and PhaseMistress phaser are all here, as are two new plug-ins for v4. PanMan transcends standard autopanning, and as well as LFO operation, it offers level-dependent modes that react to your signals.

Decapitator, meanwhile, dishes up superb analogue-style saturation and offers models of five real-life circuits – it's ideal for anything from gentle warming to cranium-crushing, face-flaying distortion.

HOW TO ENTER

To enter, send a text to **87474** containing: the keyword **SOUNDTOYS**, followed by a space, then **A**, **B** or **C**, then another space, then **your email address**. Alternatively, you can go online and use the form at **www.futurecompetitions.com/cm155** to enter the competition. Entries must be received between July 28 2010 and August 31 2010, and only UK residents aged 18+ may enter.

The question

Decapitator is a...

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C. Analogue-style saturation unit
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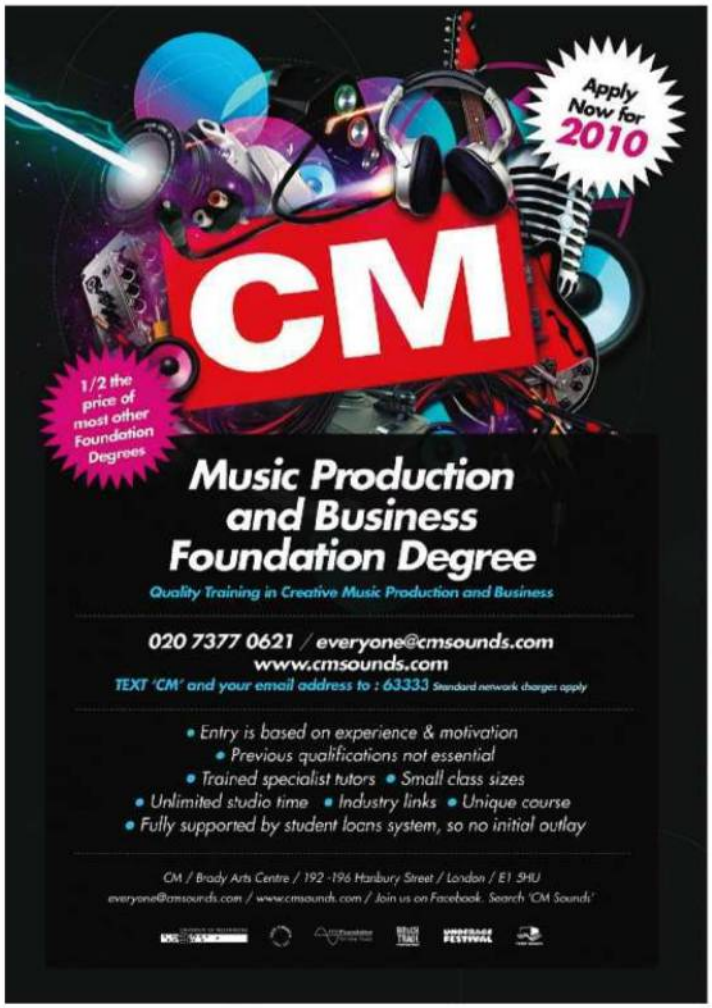
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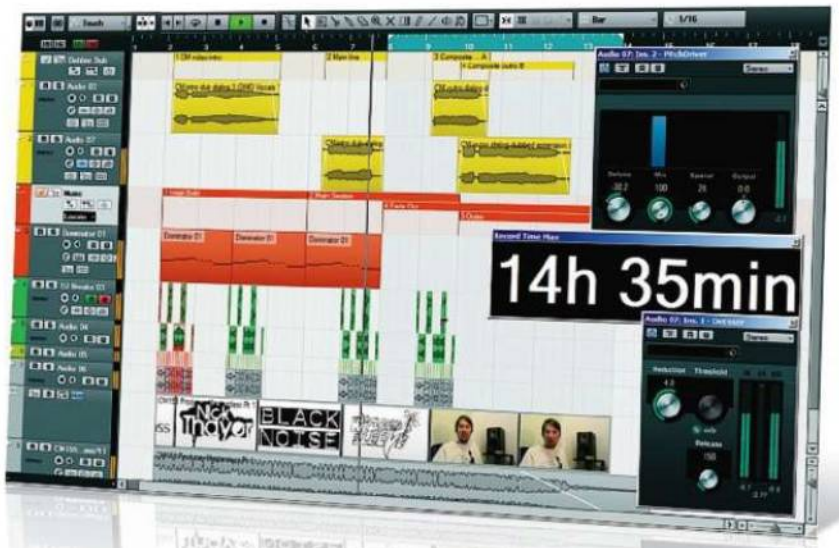
cm/reviews

The latest computer music gear tested and rated!



98_ STEINBERG NUENDO 5

The professional post-production suite reaches version 5, gaining some sophisticated new features

100_ TOONTRACK BEATSTATION

Brilliant and baffling in equal measure, this groove-based beatbox boasts a precariously open-ended design

105_ AUDIO DAMAGE DISCORD3

More time-bending antics than Doctor Who from this stereo pitchshifting delay

This month

98___ Steinberg Nuendo 5
100___ Toontrack Beatstation
102___ Waves HLS Channel
103___ Waves PIE Compressor
105___ Audio Damage Discord3
106___ NuGen Audio Monofilter 4
107___ 112dB Big Blue Limiter
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113___ MeldaProduction MMultiBandDistortion
114___ Mini Reviews
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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!

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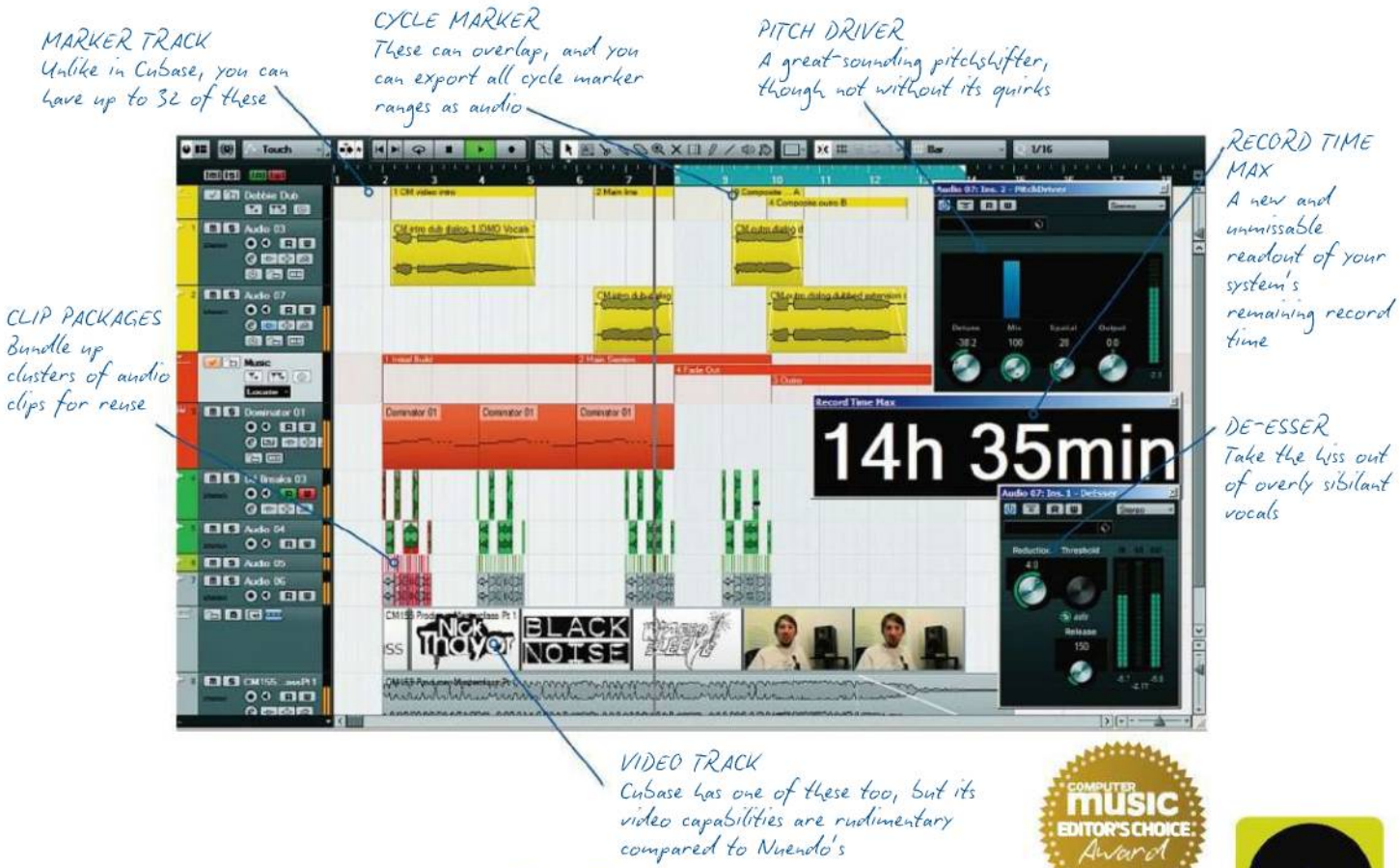

Steinberg Nuendo 5 £1531

PC MAC

COMPUTER MUSIC EDITOR'S CHOICE Award

COMPUTER MUSIC PERFORMANCE Award

cmDVD ON THE DVD

Audio demos and Steinberg's introductory video are on the DVD

Cubase's big brother strikes back! Weighing in at almost three times the price, though, it had better have some dazzling special effects

System requirements

PC 2GHz CPU, 1GB RAM, Windows XP/Vista/7, 4GB drive space, QuickTime 7.1 and OpenGL 1.2 graphics card for video playback

Mac Intel Core CPU, 1GB RAM, OS X 10.5.8, 4GB drive space, QuickTime 7.1 and OpenGL 1.2 graphics card for video playback

> Whereas Cubase has long been a staple product for computer musicians, those working in post-production for film, TV and radio are more likely to turn to its sibling, Nuendo. The two apps are superficially similar, but each has its own exclusive features.

Post-production is where music, sound effects, actors' dialogue, etc, are compiled into a finished stream of audio in a specific format – it might be in surround sound, too. This is where Nuendo steps in, with features such as extensive surround support (up to 12 speakers), pro video and sync functionality, import/export of a wider range of formats, and network collaboration.

Traditionally, certain features in Nuendo have filtered through to Cubase (and vice versa), and in fact, there are a few things in Nuendo 5 that are also in the recent free Cubase 5.5 update. Of course, this is *Computer Music* magazine, not *The Post-Production Times*, so we'll focus on the musical side of Nuendo 5.

Dialogue box

The Cubase/Nuendo MediaBay is something that, until now, hasn't really clicked with us. The idea is that you use it to index all the relevant data (audio, MIDI, projects, plug-in presets, etc) on your drives, so that you can browse, filter and preview it all at your leisure. It's been overhauled for Nuendo 5 (and Cubase 5.5) and we're pleased to say, it's really making more sense now. The layout has been refined and it just seems more logical and friendly, not to mention swifter overall, making it something we actually want to use. You need to tag all your data for it to be of much use, but that chore could well be worth the effort for post-production houses.

Also new are Clip Packages, whereby you select a bunch of related audio clips and export them – you can later pull them from the MediaBay to recreate the original structure of clips. Many music producers create beats with samples on audio tracks, and we found Clip Packages to be a great way of stashing away such 'composite beats' for later use.

New in the mixer is the Wave Meters view, which shows a visual recreation of the clips on the audio tracks scrolling upwards. It doesn't show the channel's output data, though, and while that does mean you can see what's

"Surround Panner v5 makes the previous effort look clunky"

coming up in advance, it still feels like an underdeveloped idea – you can't adjust the speed or scrub by dragging, for instance.

Next up is Direct Routing, enabling you to designate eight possible output destinations for each channel, then flick between them with a single click. You can switch multiple channels at once, and even select multiple destinations, and it's all automatable. It works nicely (aside from a momentary level increase during the change), though you can't set a level offset for each output. Note that you can now arm multiple channels for recording too.

Just drive!

There's a new pitchshifter plug-in, Pitch Driver, with a claimed range of "up to 24 semitones", but while you can go two octaves down, it seems you can only pitch up by one. And the Detune parameter isn't in semitones – it's an arbitrary scale ranging from -98 to 98. Since it stops shy of -100/100, it's always a bit out of tune at its extremities. All of which is a shame because it sounds bloody good! On vocals, you can get a natural-sounding shift with sensible values, or push it right down for creepy, 'slowed down tape' effects. We tried it on synths, too, and there are some impressive thickening choruses to be had, as well as deep sub-bass reinforcements. It even sounds cool on drums.

Elsewhere, you've got in-depth data tagging of markers, which is intended to facilitate spotting (ie, marking) of actors' dialogue that needs to be dubbed (eg, due to being recorded in a noisy location). The slick Surround Panner v5 makes the previous effort look clunky, with crafty features like rotation and width/depth adjustment. The new QuickTime-based video engine offers improved performance and more functionality, and there's multi-mono file support (for Pro Tools compatibility). There's also a new De-Esser plug-in that gives natural results with no fuss – it's simple but effective.

Looking sharp

There are a bunch of new features from Cubase 5, the biggest being the PitchCorrect (Auto-Tune-alike) and REVerence (convolution reverb) plug-ins, and Melodyne-esque VariAudio graphical pitch/timing editor. Like Cubase 5.5, Nuendo 5's performance has been sharpened – it's snappier overall, with fewer dropouts when running complex projects at low latencies – and the interface has been touched up a bit.

However, there's still no proper undo for mixer operations, and the 'window hell' of the Nuendo/Cubase interface doesn't seem to be going away any time soon. The timestretching algorithms are still only average, and while you can perform 'elastic audio'-style tricks, it's not handled as elegantly as in some other apps. Bugs-wise, the improved 32-bit-to-64-bit plug-in bridge didn't play nice with all of our plug-ins (although it seems better than before), and oddly, Nuendo seems to cause a tiny fade-in whenever you hit play – very odd! Steinberg have already issued one maintenance update during our review period, so here's hoping they keep up the pace with the bug-crushing.

Overall, Nuendo remains a post-production powerhouse with an epic price tag to match. **cm**

Wave Meters in action! They look pretty cool but we'd like to see Steinberg take the concept further

The Passes panel and Trim mode – the 'primary' automation curve appears faintly in the background

Automation station

Nuendo's automation system has always been more sophisticated than Cubase's, and the new Passes system is a case in point. Let's say you record a complex automation curve using multiple passes, but you're not happy with the last few passes and want to hear how it sounded earlier. The Passes panel shows each pass as a separate entry, and you can 'back up' through them, for immediate comparison. The clever thing is that you can return to an earlier point, then record more passes, creating a new 'branch', shown in the right-hand area. You can do this as many times as you like, creating a tree representing your different efforts, then click on the nodes to flick through the various permutations until you find 'the one'. For anyone who records automation manually, this is pure gold. Note that Nuendo's main undo system also offers branches functionality.

The enhanced Trim feature (which, unlike Passes, is in Cubase 5.5 too) is similarly superb. Click the Trim button and a secondary automation curve is layered over the primary one – you can shape it as normal, by recording or with the mouse, and it will influence the final shape, which is also depicted. You can now non-destructively create, say, a general level dip in the middle of a complex curve, as shown above.

Contact via website
Web www.steinberg.net
Info Upgrade from v4, £212

Alternatively

Steinberg Cubase 5
cm137 >> 9/10 >> £510
Nuendo's music-focused sibling

Pro Tools 8
cm136 >> 9/10 >> £Varies
An industry standard app for both music and post-production

Verdict

For	Deep, powerful feature set
	Superb automation system
	Intuitive surround panner
	MediaBay is coming of age
	Improved performance
	Pitch Driver sounds good...
Against	...but the parameters are odd
	Wave Meters could be more functional
	Still no mixer undo!

A solid and attractive update that's light on pointless 'whizz bang' additions

9/10

Toontrack Beatstation £80 PC MAC

cmDVD ON THE DVD

Hear what we cooked up with BeatStation in our audio demos

This groove-based beatbox seeks to be all things to all users, but does that mean it'll end up appealing to no one in particular?

System requirements

PC Pentium 4/Athlon CPU, 512MB RAM, Windows XP SP3/Vista/7

Mac G5/Intel CPU, 512MB RAM, OS X 10.4.11

> When Beatstation was announced, it wasn't clear what it was or who it was designed for. And even after spending some time with it, we're not sure we can answer either of these questions. Stranger still, we're not sure Toontrack could either. They call it "a tonal and percussive open surface new generation virtual instrument", which is accurate enough, but tellingly, the sell line for Beatstation is vague and non-committal: "It's what you want it to be."

Beatstation has the look of a groovebox, with the main part of the interface taken up by a bank of sample-based pads. You can add and remove pads, drag them around and select from four pad styles: one square and three circular ones of different sizes. The pads are designed for rhythmic sounds but there are also Bass and Lead 'pads' (actually mini virtual keyboards) for instrument sounds. You can change the look by loading up skins, and you can design your own with the Skin Tool.

The pads can be filled up with samples from the browser sitting to the left. Beatstation ships with content in Lowbit, Organic and Synthetix categories, and in each of these you get drum kits/instruments, MIDI grooves, REX files and individual sounds. You can load up sounds as a whole kit or on a pad-by-pad basis.

Music library

The quality of the library is generally good, with the acoustic drums being particularly impressive. There's plenty for those who aren't so keen on 'real' sounds too, though, with dance music and hip-hop fans well catered for.

Crucially, it's possible to bring your own samples and loops in. MP3 and WAV formats are supported, and MIDI and REX files can be imported. You can also use expansion packs in Toontrack's EZX and SDX drum kit formats, as well as the new Beatstation-specific BTX format.

Below the browser are REX and MIDI file players, which can run independently or (in sync) together. To hear everything you've got loaded, just hit the play/pause button. To the right of this are two FX busses, a master effect and a master volume control. The effects come from Overloud, which ensures better than average quality, and the range is extensive, with categories including Bitcrush, Chorus,

"Ultimately, it's hard to say exactly what you will find it useful for – if anything – until you actually give it a go"

Compressor, Delay, Distortion, EQ and Reverb, as well as instrument-specific ones for piano, bass, snare, vocals, etc. Each effect has just a single slider to play with, enabling you to dial in 'more' or 'less' of that effect.

And that, on a basic level, is it. If you want to use Beatstation very simply, run it standalone, load some sounds and/or a MIDI/REX file and click the pads or press play. There's not a lot you can do with your sounds, though, as parts can't be edited and there's no sequencer. Thankfully, Beatstation also works as a plug-in instrument, so you can use it to make songs in conjunction with a compatible sequencer/DAW program.

Under the skin

You might be thinking that Beatstation is very much a beginners' tool, but if you look below the surface, it's surprisingly capable. Open a pad's Properties window and you'll find some fairly powerful sound design features – up to five samples can be layered on each pad simply by dragging and dropping, and each layer can be tweaked individually. The likes of volume, ADSR, pan and pitch can be adjusted, and there are reverse and offset options, making it quick and easy to build up layered sounds. There's no dedicated filtering or EQ, but you get one insert effect slot per pad, for which EQ/filters are an option. In standalone mode, you can record your samples via the built-in recorder (see boxout).

Then there's that REX file player. As well as being able to play back REX files, you can also drag a complete REX file onto a pad, or just a slice from it. So, if you just want to use one hit from a loop in your drum kit, it's easy to get at it.

The MIDI file player offers velocity, swing, drum flam and transpose controls. You can drag and drop MIDI parts from Beatstation onto tracks in your DAW, or convert them to audio.

Plug in a MIDI keyboard and you'll find that the lower register plays the bass instrument, the middle area fires off the pads and the upper octaves are dedicated to your lead sound. The downside is that the mapping is fixed so you can't, for example, plug in a drum pad controller and assign the pads as you want them.

In keeping with its open-ended nature, Beatstation offers numerous skins so you can customise its look

When you're using Beatstation as a plug-in in your DAW, there's just a single stereo output, which won't please those who want each sound popping up on a different DAW channel for easy mixing and application of plug-in effects.

So, how to sum up Beatstation? The more you use it, the more potential uses spring to mind. There's plenty for anyone who wants a quick groove or an easy way of building a layered and processed custom drum kit. That said, beginners might be put off by the fact that it's not a self-contained production package, while pros will bemoan the lack of comprehensive controller support and multiple outputs. The documentation is also flimsy, consisting of a few annotated images pointing out what the interface does, plus some videos on the website.

Ultimately, it's hard to say exactly what you will find it useful for – if anything – until you actually give it a go, and unfortunately there's no demo. For some users, it will feel like less than the sum of its parts, while others will find that it slots seamlessly into their workflow. **cm**

Contact Time+Space, 01837 55200
Web www.toontrack.com

Beatstation's sample recorder isn't packed with options, but it is quick and easy to use

Recording and sampling

Although Beatstation doesn't have its own sequencer, when you're running it in standalone mode, it does boast a sound recorder and editor, and this proves to be very easy to use.

Once you've opened the dedicated window, you simply select your audio input, hit the record button and make some noise. Once you've recorded your sounds, you can normalise the resulting audio file, crop it to remove any unwanted silence and adjust the fade handles. Drag the audio file onto a pad and it instantly becomes one of said pad's layers.

It's also worth noting that if you do this with a melodic sound and you put it on either the Bass or Lead pad, you can tell Beatstation what note it is, so the software can pitch it across the keyboard. The patches you can generate in this way might not be up to velocity-layered, multisampled standard, but if you want an incredibly quick and easy way of creating playable sounds, you've got it.

Handily, this also works with your own imported samples and REX slices, giving you more flexibility, though it would have been nice if the software could automatically detect pitch, as this would help beginners who might not necessarily know anything about musical notes.

Alternatively

Native Instruments Maschine
cm138 >> 9/10 >> £529
Extremely powerful software/controller groovebox combo

MOTU BPM
cm141 >> 6/10 >> £279
Groovebox that works as a plug-in or as a fully self-contained app

Verdict

For
- Great for building drum kits quickly
- Basic, easy sampling functionality
- Decent bundled library
- REX file support and good effects
- CPU-friendly

Against
- No multiple outputs
- Fixed MIDI mapping
- Minimal documentation

More flexible than it seems at first look, Beatstation will appeal to those who want to create drum kits and grooves in a hurry

7/10

Waves PC MAC

HLS Channel £232

cm DVD
ON THE DVD
Hear a vocal treated with the HLS Channel and read the manual

Based on the classic Helios mixing console, Waves remodel a channel strip for our virtual pleasure

The Helios mixing desk is a rare classic studio console from the late 60s and 70s with an idiosyncratic upright and sometimes wrap-around design. These custom-built consoles were used by The Rolling Stones for their mobile studio, and The Beatles, who had two in their Apple studios.

Waves' HLS Channel gives us a faithful reproduction of the original's features. With the help of renowned engineer/producer Eddie Kramer, they sourced a module from the original Rolling Stones mobile console to base it on.

The original's character was in no small part due to the varying colouration introduced by harmonic distortion in the preamps, and Waves have precisely modelled this, including an adjustable drive knob and the characteristic noise and hum. On the real thing, the sonic colour imparted would depend on whether you plugged into the line or mic input, and this has been reproduced, with a switch to toggle between the two options. The noise is optional too, and while it's pure nostalgia to hear the hiss increase as you ramp up the gain dial, it's equally satisfying to be able to switch it off when it's not appropriate – noise was always the enemy in the analogue days, after all!

Yours faithfully

The EQ is a faithful reproduction of what was, in its day, a comprehensive three-band equaliser: a 10kHz high-frequency shelf with a +12/-16dB range in 4dB steps (yes, 4dB!); a mid-range bell curve offering eight choices of centre frequency and a +/-15dB range; and a low-frequency band that's either a variable roll-off at 50Hz or a shelf boost at four frequencies.

In our PIE Compressor review (see opposite), we make a general observation about the overly faithful nature of many software reproductions, and this applies even more to HLS Channel. Old gear might well have had a unique sound but it was also frustratingly limiting at times and this

EQ is a perfect example, not least the clunky 4dB steps at the top-end. Why not take the best bits of the original while improving on the shortcomings to realise its full potential?

The EQ does sound great, though. The top end is extremely smooth and silky and the bottom end particularly fat and warm. The presence range is a little harsh, possibly, but the general mid-range has a highly musical feel and lends itself to mid-scooped 'hi-fi' sonics. The preamp colouration is subtle but it adds to the energy of a sound, making it more urgent – almost as if it's jumping out of the speakers, but not in a compressed way.

There can't be that many more classic consoles for software developers to plunder, but the Helios is certainly one that's worth revisiting. HLS Channel is among the most analogue-sounding plug-ins we've tried, right down to the noise. It also has the limitations of the original, but at least you can add another instance if you need more EQ bands. **cm**

Contact Sonic Distribution, 0845 500 2500
Web www.waves.com
Info With PIE Compressor, £347

System requirements

PC Pentium 4 2.8GHz/Athlon 64, 1GB (XP)/2GB (Vista) RAM, Windows XP/Vista/7, VST/RTAS host, iLok

Mac G5 Dual 2GHz/Intel CPU, 1GB RAM, OS X 10.4.11, iLok

Alternatively

Focusrite Forte Suite
cm140 >> 8/10 >> £250
Modelled on the Focusrite Forte, it includes dynamics, as well as EQ

UAD Helios Type 69 EQ
N/A >> N/A >> $199
Another Helios recreation, this one is for the UAD DSP platform

Desk job

HLS Channel and the PIE Compressor (reviewed opposite) were both developed in association with Eddie Kramer, an engineer/producer whose credits cover pretty much every major name in rock from the 60s and 70s. Primarily known for his engineering skills, he joined Olympic Studios in 1966 and worked with The Beatles, The Rolling Stones and Jimi Hendrix, among others. He went on to engineer five albums for Led Zeppelin, which launched his production career.

It was at Olympic that Eddie got to know the Helios mixing desk inside out, and Waves reckon it proved quite a job to find one in its original condition because so many have been modified over the years.

As well as giving his seal of approval to the vintage emulations on these very pages, Kramer also collaborated with Waves to produce The Eddie Kramer Collection, which is more representative of his personal sound.

Verdict

For Very analogue-sounding preamp
Really smooth and silky top end
Big low end
Switchable analogue noise and hum

Against Same limitations as original

Another analogue-modelling triumph for Waves, though the EQ section is a little too close to the original for comfort

8/10

Waves PC MAC
PIE Compressor £232

cm DVD
ON THE DVD
Hear PIE Compressor working on vocals and a mix, and read the manual

The classic Pye bus compressor is here to put the squeeze on our DAWs – bring on the Bakelite!

> Eddie Kramer, the veteran engineer/producer with a CV that reads like a who's who of rock gentry, has given his personal thumbs-up to a couple of vintage model plug-ins from Waves: the HLS Channel reviewed opposite and the PIE Compressor on this page.

Back in its day, the Pye compressor was broadly acknowledged as one of the best bus compressors around. It was a 1960s solid-state British design made in Cambridge by Pye TVT as part of their mixing console range. This was prior to the advent of the SSL bus compressor that became ubiquitous during the 80s, making almost all precedents a faded memory.

Bus compressors are the ones intended to be inserted across a stereo mix to 'glue' the whole track together. Their quality is in the transparency, so when they're doing a good job, it's not always obvious because you're not hearing common compression artifacts such as pumping and breathing. What you're looking for is a tight, warm sound, a controlled dynamic and a cohesive mix picture.

The controls on the PIE are straightforward and very literal in their recreation of the original. It's a dead ringer for the real thing and the VU ballistics are spot on, too. A Threshold knob sets the level at which compression starts, and a Ratio dial sets the amount of compression that's applied to the signal once it passes the threshold. It's a fixed attack device, so there's no control for that, but you can set the Decay Time (release) from 100ms to 3.2secs. Finally, an Output knob enables you to set the post-compression makeup gain. The only real departure from the original's control set is a switch to toggle analogue hum/noise, which can work on either a 50Hz or 60Hz mains frequency.

While this accurate recreation is appreciated, as with many plug-in emulations of old gear, it's a shame that it's not possible to break free of the original's limitations. Here, for example, variable – as opposed to stepped – release, threshold and ratio controls would have been welcome for more precise control. And why not toss in adjustable attack and a sidechain option?

COMPUTER MUSIC PERFORMANCE Award

Mmm, PIE...

As ever, though, it's the sound that counts, and this is without doubt a great-sounding compressor that's very easy to set up and use. The beauty is in the solidity, warmth and detail that it brings, and the lack of undesirable side effects. The tightness and definition in the lower mid and mid ranges really make this a spectacular processor.

This doesn't need to just sit on a bus either: it comes in mono and stereo versions, and it's perfectly suited to natural dynamic control of vocals or instruments. One thing to note with PIE is that it does subtly subdue the very highest frequencies.

Overall, PIE compressor is a very faithful emulation of the original unit. It's simply a great-sounding compressor that's perfect for overall mix compression, sub groups or individual sounds. **cm**

Contact Sonic Distribution, 0845 500 2500
Web www.waves.com
Info With HLS Channel, £347, TDM version, £463

System requirements

PC Pentium 4 2.8GHz/ Athlon 64, 1GB (XP)/2GB (Vista) RAM, Windows XP/Vista/7, VST/RTAS host, iLok

Mac G5 Dual 2GHz/Intel CPU, 1GB RAM, OS X 10.4.11, iLok

Alternatively

Cytomic The Glue
cm146 >> 9/10 >> $99
Analogue-modelled SSL-esque bus compressor at a crazy price

Waves V-Series
N/A >> N/A >> £686
Contains an emulation of the Neve 2254, a renowned bus compressor

Verdict

For Transparent processing
Ultra-realistic VU ballistic
Lovely body to the sound
Faithful emulation

Against Small loss of high end
Limited to the original control set

A splendid-sounding compressor that adheres strictly to the original's spec

8/10

All aboard!

Nowadays, bus compression isn't just about slapping a compressor across the entire mix. With the multiple bus and group possibilities of software DAWs, you can have several parallel buses grouping together similar sounds: drums, guitars, synths, strings, backing vocals, etc. Across these you can strap numerous processors – not just compressors – and experiment to bring out the best in them. Drums in particular can benefit from this approach.

Traditional mix compression is a more sober affair and it involves putting a compressor across the master channel before you start, then mixing into it. There are all sorts of factors that can conspire against you here, not least the settings of the compressor itself and the interaction between the bus compressor and any preceding fader rides. It isn't easy, but many big-name mix engineers have found considerable success with this method.

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cm DVD
ON THE DVD
Take a listen to some sample sounds and peruse the manual

Audio Damage Discord3 $59 PC MAC

Smack your pitch up with the third version of this highly versatile timebending pitchshifter

> Audio Damage's plug-ins are firm favourites here at **cm**, and their latest unit looks like it will also worm its way into our good books. Discord3, a stereo pitchshifting delay plug-in, offers three pitchshifting algorithms, including the one from previous versions, which is based on old-school Eventide H910 and H949 hardware units. The basic functionality is broadly similar to that of the previous version – see the boxout below for more information.

New for v3 is a fresh new GUI employing numeric 'grab the digit' controls, whereby clicking on any number and dragging up or down adjusts it, so you can make large changes by dragging the leftmost digits, and subtler tweaks with the rightmost ones. One downside is that you can't manually enter values, but hopefully AD will remedy this in a future update.

The animated display in the top centre of the interface provides a vague visual reference for things such as the shift, buffer size and mod settings in the first two modes, and the amount of Chaos (or randomisation) in Granular mode. However, we have to say that its usefulness is somewhat minimal. Another notable change is that the AU version now has MIDI Learn for all parameters, just like the PC VST version.

Shifty business

The main attraction is the addition of those two new shifting algorithms: Clean and Granular. The first gives a more modern, coherent style of pitchshifting, and both it and the Vintage mode now have full control over the buffer size, from 32 to 2048 samples, enabling you to adjust the processing to suit your source audio – a smaller value is better for maintaining transients in drum beats, for example, whereas a larger one works best on pitched material. Of course, you can dial in settings that give totally bonkers effects – an area in which Discord3 excels.

Discord3 is very much aimed at audio experimentalists and sound designers –

those who want smooth, artifact-free shifting would be better off looking elsewhere. It can often take a while to find settings that sound good in the context of a typical mix as it's all too easy to destroy your audio source and create an incomprehensible soup of sound – although if that's your thing, you'll be laughing.

With time and care, though, it's possible to create everything from subtle pitch modulations (adding metallic overtones to pitched material, for example) to bizarre, inharmonic, granular chaos that sounds awesome on drum tracks. Using the plug-in sparsely to add scratch-style effects on drums had us entranced for hours!

For those seeking something a little bit out of the ordinary, Discord3 should prove to be a constant source of inspiration. **cm**

Contact info@audiodamage.com
Web www.audiodamage.com
Info Upgrade from Discord 1, 1.5 or 2, $10

Paths of glory

For those who have yet to try Discord, the basic signal path for each channel (left and right) is as follows: pitchshifting of up to three octaves, with fine-tuning in cents; delay measured in milliseconds (0 to 1999), or synced from a bar down to a 32nd-note, including dotted and triplet divisions; then filtering, with controls for Feedback and Cross-Feedback (from one channel to the other). There's also a pair of LFOs (one per channel) for modulating the delay time, pitchshift amount and filter frequency. These have four waveforms each and a Waveshape control, plus you can link the channels to mirror any changes made to either side.

The high- and low-pass filters of previous versions are also still present, but instead of separate controls, you operate them more in the manner of a band-pass filter – drag the small white circle horizontally to move both cutoffs at once, and use vertical movements to adjust the distance between them.

System requirements

PC Windows XP/Vista/7, 32-/64-bit VST host

Mac Intel CPU, OS X 10.5, 32-bit AU/ VST host

Alternatively

Loomer Shift
N/A >> N/A >> £42
Granular diatonic pitchshifter/echo unit with three shifting algorithms

SoundToys v4
cm152 >> 10/10 >> $495
Check out the Crystallizer plug-in, available on its own for $179

Verdict

For
- Capable of truly 'out there' effects
- Two new modes sound great
- Sensible parameter set
- Accurate grab-the-digit controls...

Against
- ...take a little getting used to!
- Patience required for best results
- No presets included

For those who are seeking to warp pitch and time, this is a typically strong offering from Audio Damage

8/10

NuGen Audio Monofilter 4 $119

PC MAC

cm DVD
ON THE DVD
Hear Monofiltered synth bass and drums, read the manual and try the demo

A noticeable facelift for v4, but as all true plug-in lovers know, it's what's inside that really counts

> When we looked at v3 of NuGen Audio's Monofilter, it was as part of their Stereo Pack (9/10, **cm**126). Now revamped, Monofilter 4 can still be bought as part of a pack or on its own.

The plug-in's underlying remit is to improve bottom-end definition. This is achieved primarily by reducing the stereo width of the signal below a user-selectable frequency point. Parameters include image width both below and above this crossover point, control of crossover slope steepness, filter type, automatic and manual L/R phase correlation, processed element monitoring (both mono and stereo), auto level trim, and unlimited undo/redo.

Monofilter 4 includes a far slicker interface, with the main controls now operated by dragging nodes on the main width envelope display. There's also a low-latency filter option, more presets and the ability to switch the algorithm of all plug-in instances simultaneously.

Most significant is the improved visualisation, featuring two types of analyser (see boxout). View settings include peak hold, a 1/3-octave bar graph and pre-/post-processing. You can use Monofilter just for analysis by configuring neutral settings, and there's a preset to do this for you.

Feel the width

Monofilter 4 offers greater flexibility than most 'bass monoiser' tools – you can reduce the width on a sliding scale and adjust the crossover by moving its upper and lower boundaries, enabling both gradual and sharp transitions. Narrowing the high frequencies and keeping the lows stereo is also an option, and there are faders for adjusting the levels of the mid and side channels. You can listen to the mono and stereo elements in isolation, and a useful bonus is the integrated high-pass filter for rolling off the bass.

So, what's Monofilter good for? First, it can benefit any mix element with which the lower frequencies are wandering in the stereo image

or suffering from phase issues. When used for mastering, it can help you to control the impact of the low end while retaining a decent high-frequency spread. This can be helpful if your tracks are intended for club or radio play, you plan on cutting to vinyl, or you're mastering problem tracks where you don't have access to the original mix. It's not magic, though, and the automatic phase correction works best on static or slowly changing differences.

The three filter settings (low latency, linear phase and high-quality linear phase) do sound different. The low-latency option is only really for live use, while the HQ linear phase mode sounds best, though it can be CPU-intensive. Functional annoyances include the overly quick decay on the frequency peak hold, and periodic audio and visual glitchiness when running under Logic. NuGen Audio are aware of the issues and say they will be addressing them in future updates. Minor moans aside, Monofilter 4 is a handy tool and well worth the upgrade. **cm**

Contact info@nugenaudio.com
Web www.nugenaudio.com
Info Upgrade from version 2/3, $59

Phased out

The large analyser appearing behind the main width envelope indicates panning by frequency, whereas the lower one indicates phase correlation by frequency. With a mono signal, the analyser will be inactive, showing a straight central line. However, any difference in levels between the left and right channels (eg, panning) will cause the analysis curve to move up or down at the relevant frequency. Upward movement indicates that the left channel is louder, while downward means the signal is louder on the right. A signal might be equally loud in the left and right channels, but not necessarily in phase. To this end, the lower window shows phase correlation against frequency. Positive correlations (as the majority of the signal should be) will show above the line (0 to +1). Below the line (0 to -1) indicates instances of uncorrelated left and right channels, and can be useful for spotting phase cancellation problems.

System requirements

PC P4 1.4GHz, 512MB RAM, Windows XP/Vista, VST host

Mac G4 1.4GHz/Intel CPU, 512MB RAM, VST/AU host

Alternatively

Brainworx Control 2
N/A >> N/A >> €118
As with all Brainworx plug-ins, this features Mono Maker functionality

DrMS
N/A >> N/A >> €120
Flexible M/S processor – use the HPF filter on the sides element to monoise the bass

Verdict

For
- Offers a huge amount of flexibility
- Great-sounding linear phase algorithm
- Nifty new phase correlation meter
- Useful audition modes

Against
- Peak hold decays too quickly
- Linear phase HQ mode uses lots of CPU
- Peak hold decays too quickly to be useful
- Occasional glitches in Logic

Typical NuGen attention to detail makes Monofilter 4 a one-stop solution for monoising bass

8/10

ON THE DVD

Listen to BBL in action, try out the demo and read the manual

112dB PC MAC Big Blue Limiter $149

Interested in a limiter with a vintage tube sound that "adds a little mojo" to anything you run through it? Here you go, then!

The Redline range of plug-ins from 112dB have greatly impressed us, racking up a bunch of high-scoring reviews. Now it seems that the company have got the blues, as they kick off a new range with Big Blue Limiter (BBL). This isn't another transparent brickwall limiter for making your mixes ear-bleedingly loud without drastically altering their sonics, though. Rather, the BBL is designed to add warmth and is modelled after vintage tube characteristics.

It's hard not to notice the, er, 'eccentric' colour scheme – gold, yellow and blue won't be to everyone's taste. For those who can't stomach it, fret not, as 112dB are already working on an alternative 'modern' skin.

Running through the controls, there are sliders for threshold and output levels, and accompanying metering. Dual VU-style meters in the centre of the GUI show gain reduction for the left and right channels, while the 'cat's eye' indicates how much 'character' is being imparted – basically, the amount of saturation. Using the Knee knob, you can adjust the curve of the BBL's limiting response, and you can shape the response further with the Release control. There's no Attack control, which is understandable for a limiter, but you can set the lookahead – see boxout for details.

The Drive control lets you push the input stage harder, adding more harmonics. The results of this are different to simply lowering the threshold, and if you want more grunge, grind and grit, 112dB advise using a trim plug-in before BBL to boost the incoming audio level.

The Compare button matches the output level to that of the input, allowing a fair comparison between the bypassed and effected signals. Because a louder signal almost always sounds 'better' than a quieter one, level-matched comparisons are essential when trying to assess whether an effect is really improving a sound and not just making it louder. The only downside is that BBL's compare function doesn't take into account the level-boosting drive setting, but hopefully this can be amended in an update. Other niceties include MIDI control and stereo linking.

Punch-up

Dropped in a mix, BBL is immediately pleasing to the ear. In many situations, it's less harsh than standard digital limiters, and it stays musical, even at extreme settings. Using the drive control can really heat things up, generating punch and overdrive without ruining the sound – quite a balancing act.

BBL achieves great results and is suitable for both subtly enhancing and seriously spicing up source material such as vocals or drum loops. In fact, it's worth a go on all types of busses: drums, synths, you name it. It imparts a little too much warmth to be a general-purpose mastering tool, but for some mixes, it can supply that missing oomph. The simple operation and good sonics make Big Blue Limiter a genuinely useful addition to anyone's mixing toolkit. **cm**

Contact info@112db.com
Web www.112db.com

Forward thinking

Big Blue Limiter features variable lookahead, controlled by a knob at the bottom left of the GUI. Lookahead is a technique used by many dynamics plug-ins, and it means the limiter plug-in is looking in advance at the incoming audio so it can react to peaks before they occur. How? The audible signal is delayed while the signal feeding the unit's sidechain is passed through undelayed. While most plug-ins do this by having a fixed latency, BBL actually adjusts its reported latency as you tweak the knob, down to a minimum of six samples. Higher values reduce the risk of sudden transients popping through.

While a good idea in theory, some hosts handle latency changes more smoothly than others. Cubase 5 had no problems with it, but in Ableton Live 8, the knob wouldn't turn at all, even with the audio engine disengaged. We'd really prefer an option to use a plain fixed-latency mode.

System requirements

PC Intel/AMD 800MHz CPU, 256MB RAM, Windows 2000/XP/Vista/7, RTAS/VST host

Mac G4/G5/Intel 1.2GHz CPU, 256MB RAM, OS X 10.4, AU/RTAS/VST host

Alternatively

SSL LMC-1
N/A >> N/A >> £Free
Simple limiting compressor, for warming – or smashing – sounds

Universal Audio VCA VU
cm127 >> 8/10 >> $105
UAD-based dbx 160 emulation that can really get things pumping

Verdict

For Delivers warmth and punch
Brings out hidden details
Very flattering sound
Compare button
Separate Drive function

Against 'Marmite' interface
Lookahead strangely implemented

It's slightly quirky, but Big Blue Limiter gives easy access to a range of warm and tasty tones

8/10

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. Cinematique Instruments nearly recorded everything they could get their hands on!

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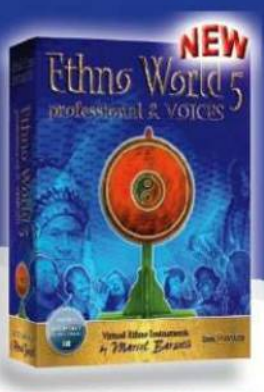
Virtual Instrument (incl. Player) £ 175,-

Ethno World 5 professional & VOICES by Marcel Barsotti



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Kontakt 4 Player

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Best Service. If you are serious about creating truly realistic sounding solo and accompaniment guitar stuff for your songs, Music Labs RealGuitar is just what you need. RealGuitar is a sample-based virtual instrument with an innovative approach to guitar sound modeling and guitar part performing on keyboard.

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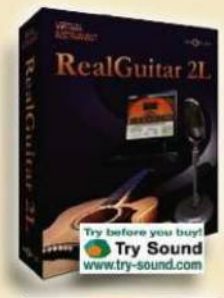
Virtual Instrument (incl. Player) £ 175,-



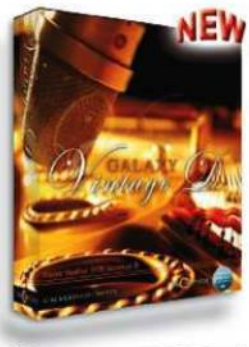
epic world

Best Service. Epic World - Cinematic Landscapes by Eduardo Torilante is the perfect tool for composers and sound designers to create ambience for films, documentaries, video games and new age music.

Epic World is a 7gb library with more than 350 patches, including drones, pads, instruments, voices, whooshes, sfx and more than 1000 loops, instruments and vocal phrases. It contains a huge arsenal of sonic landscapes that go from bright to dark, from soft to powerful and from magical to haunting.

In a matter of seconds you can easily create inspiring cinematic landscapes, drones and beds. Soulful and emotional, its magical atmospheres and acoustic instruments will take you on a sonic trip to a fantasy world. Pushing the boundaries of sound-scapes and sound design, Epic World blends unreal atmospheres with real sounds.

Virtual Instrument (incl. Player) £ 265,-



Kontakt 4 Player

Galaxy Vintage D

Best Service. A legendary grand piano - now a 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'..

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. Galaxy II K4 is based on the new Kontakt 4 engine by Native Instruments, presenting new features, better performance and a completely redesigned direct access user interface.

Version 4 offers true half pedaling, true repedaling and dynamically playable pedal, damper and string noises when using a continuous sustain pedal.

Computer Music/UK:
„The best piano ROMpler we've ever had!"

Virtual Instrument (incl. Player) £ 219,-

Kontakt 4 Player

best service

Daily shipping
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email: uk@bestservice.de
phone: 0049(89)345026

VIENNA ENSEMBLE PRO

VSL. This mixing host will bring all the elements of your studio together in a way no other software can.
Two great products in one power package! Vienna Symphonic Library's completely revamped mixing host VIENNA ENSEMBLE PRO comes with the 9 GB sample pack EPIC ORCHESTRA, offering an impressive cross-section of Vienna's most popular instruments!
Vienna Ensemble PRO is the first MIDI and audio LAN solution that works universally on Macs and PCs, hosting Vienna Instruments as well as 3rd party VSTi (PC), AU (Mac) instruments and effect plug-ins.

With the 64-bit version of Vienna Ensemble PRO you can load as many samples as all of your RAM will hold! Use it as a host on the same computer as your sequencer to integrate all your 64-bit and 32-bit instruments, or use it as a master-slave solution, even on cross-platform networks with multiple Macs and PCs. Run your sequencer on your main computer, launch Vienna Ensemble PRO on the slave computer, and simply connect them using an Ethernet cable. You can easily route the audio streams of a whole arsenal of computers back to your main machine.

£ 175,-

VIENNA SPECIAL EDITION

VSL. This Special Edition brings together the complete orchestra – and more – in an affordable Collection. It is the ideal, resource-saving companion for orchestral arrangements on the laptop, or for newcomers to the world of Vienna Instruments, offering a useful cross-section of Vienna Symphonic Library's over one million samples.

The Standard Library includes 28 instruments and ensembles, covering large post-romantic instrumentation. It contains solo and ensemble strings, solo instruments and ensembles of the brass section, woodwinds ranging from piccolo flute to contra bassoon, harp, drums and percussion as well as celesta and the Bösendorfer Imperial grand piano.

The Extended Library doesn't offer more articulations to the Standard Library instruments; rather, it contains 35 additional instruments which enhance the symphonic variety of this Collection (e.g., basset horn, contrabass trombone, saxophones, Vienna's famous Chamber Strings and Epic Horns). It also adds instruments like the Vienna Konzerthaus Organ, a harpsichord, acoustic and electric guitar, and many more.

Virtual Instrument Standard Library £ 295,- *Virtual Instrument Extended Library* £ 395,-

SR5 Rock Bass

Prominy. The true sound of MusicMan® StingRay®5 includes over 15 Giga-bytes*, approx. 14,000 samples.
SR5 Rock Bass enables you to compose and create natural bass guitar tracks that imitate real bass guitar playing!
With SR5 SPM (Super Performance Multi), you can play ultra realistic guitar performance in real-time. You can access various playing techniques instantly without stopping your performance and create convincing bass guitar tracks very quickly.
Main Features:

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- Fretboard Monitor • Auto Stroke Detection
- Realtime Legato Slide • Assignable Key Switch
- The lower note samples (low B - low D#) are included.
- Direct signals from the bass guitar
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Virtual Instrument £ 85,-

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Best Service. With the release of CHH Vol.4 the Chris Hein Horns series has been completed!
With 54 extremly detailed solo instruments and 32 sections, CHH-Complete is the largest available Brass- & Woodwind library for Jazz, Pop, Funk & Big-Band. With its large sections and high dynamic sound, CHH also works great to spice up your orchestral productions. For an extremly low bundle price for CHH-Complete you get aprox. 80.000 samples and 44 GB content.
Vol. 1 - Vol.4 contain different groups of instruments perfectly matching each other. All instruments follow the same concept, so, if you know one, you know them all. Each volume contains solo-instruments as well as section combinations..

Virtual Instrument £ 790,-

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FX Edition

K-Size. FX Edition contains 1400 high-end and totally new sounds and loops: Atmos, DownSweeps, Hits, Impacts, PreArrangement, Loops, Modulations, Noise, SingleShots and UpSweeps. £ 79,-

TechHouse Edition

K-Size. 2800 high quality loops and sounds. Kicks, Claps, Cymbals, FX, Basses, Percussion, Snares & Synths. Loops are splitted into categories: Full-, Addon-, HiHat-, Percussion-, Synth- & Sidechain(!)- Loops. £ 79,-

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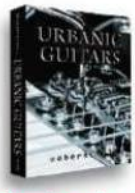
Best Service. This most creative library contains an extensive collection of rhythms, synthlines, soundscapes, abstracts, atmos, melodyphrases as well as fx - and noiseloops. £ 79,-



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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. £ 89,-

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Ueberschall. The ultimate library of urban music. The library deals with a wide range of styles such as HipHop, R&B, Club and Dancehall, as well as other surrounding genres. £ 89,-

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Ueberschall. Grants you access to the melancholic and emotional facet of modern and classic pop music. 14 complete songs which has its own unique styles. £ 89,-

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design: aicher design.de

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best service

Abbey Road Plug-ins PC MAC

RS124 Compressor $335

cm DVD
ON THE DVD
Hear RS124 squashing some signals, then read the manual

Another gem from the Abbey Road vaults, this time a unit used extensively on the Beatles' material in the late 60s

COMPUTER MUSIC PERFORMANCE Award

The RS124 is a variable mu valve compressor designed by Abbey Road technical engineers in the 1960s. Housed in an Altec 436 compressor case but with modified innards, over the years it's developed almost mythical status.

Now available in plug-in form, the software RS124 includes three original Abbey Road units, accessed via the front-panel serial number. The three versions capture both the individual design variations that existed at the time, and variations in how the units have matured since.

Conceptually, the RS124 is straightforward, with input gain used to drive the signal into the (fixed) threshold, and output trim used to adjust the output level. Attack times are fixed and the 'recovery' time is via six notched positions, labelled fast to slow. All units include a Release Hold option, which is accessed using the red positions between the main recovery settings (see boxout). Related to Hold mode is the momentary Balance button that, when manually held down, instigates the compressor release.

Finally, the plug-in includes a couple of extras that weren't on the originals. There's a feature called SuperFuse that matches the compressor's release time to the attack time, while RTAS users benefit from a twin-unit stereo plug-in, and TDM users a three-unit L,C,R plug-in, both of which have individual unit selection.

Three's not a crowd

In use, each RS124 unit behaves differently. This is most obvious with the third unit (serial 60070B), which achieves faster attack and release times, enabling you to clamp sharp transients. Also obvious is that the other two models have slow release times, even using the fastest setting. This means you can use them very subtly, or you can pre-arm them (see boxout) and then run them with considerable gain reduction (20dB or more).

We found we could automate the Hold option and this made it easier to use. Applied in this manner, the first two units produced glue-like, smooth compression for vocals and bass guitar. However, on mixes, these settings sounded too squashed. With much lower gain reduction, both units are suited to full mixes, although the gain structure required us to boost the resulting signal – we placed a gain plug-in after the RS124.

In contrast, SuperFuse mode turns the RS124 into a very different compressor indeed. With release times matching the fixed attack, it effectively disables the recovery setting. The third unit again sounds very different, but in this mode, all three can perform excellent pumping drum overhead/room mic compression, and snappy snare and kick processing.

Clearly, the RS124 is a very carefully modelled emulation. However, the Hold option could be easier to work with – for example, with the option to automatically pre-arm it with a certain level of gain reduction, following a set period of silence. Plus there's no mouse wheel support. Even so, it's an impressive plug-in and the nearest most of us will ever get to the real thing.

Contact plugins@abbeyroad.com
Web www.abbeyroadplugins.com

Release the pressure

The RS124 includes an option called Hold. It sets the release to an ultra-slow time, holding the current gain reduction level practically indefinitely. On the original units, it was included for two scenarios. Firstly, at high levels of gain reduction, the RS124's naturally slow attack and release means initial transients can cause a big 'thump'. Let's say you want to heavily compress drum overheads. You'd let the track play, then, during playback, shift the knob to Hold in order to 'lock' the current gain reduction level, pre-arming the compressor with an initial level of gain reduction. Then when playing back 'for real', you'd switch from Hold back to your release option just after the initial transient.

The other use for Hold is to engage it at the tail end of a track, to disable the release stage, as with a slow release and high gain reduction you might otherwise hear the background noise audibly fading back in.

System requirements

PC Windows XP/Vista, VST/RTAS host, iLok

Mac OS X 10.4, VST/AU/RTAS host, iLok

Alternatively

Softube Tube-Tech CL 1B
cm150 >> 9/10 >> £320
More flexible than the RS124, but with slightly less mojo

IK Multimedia Vintage Tube Compressor/Limiter Model 670
N/A >> N/A >> €79
Not immediately intuitive, but it sounds great

Verdict

For Carefully modelled emulation
Three units to choose from
Excellent SuperFuse addition
Classy sound with lots of mojo

Against Hold option can be fiddly
No mouse wheel support

Not just for Beatles fanatics, this one will appeal to anyone seeking colourful vintage-style compression

8/10

Cakewalk A-300 Pro £210 PC MAC

A multi-faceted Cakewalk-branded MIDI controller keyboard that picks up where Edirol left off

> Cakewalk's (and, by extension, Roland's) A-300 Pro is one of the most synth-esque, performance-orientated offerings we've seen of late – you wouldn't be embarrassed to take take it on stage with you. For extra cachet, it's a shame it doesn't have the Roland logo on the back, but this badge of honour is reserved for the company's sound-filled keyboards.

The A-300 Pro has 32 keys, which is a reasonable trade-off between portability and playability. (If you want more keys, there's the 49-note A-500 Pro and 61-note A-800 Pro.) As with the majority of keyboards from the Roland family, this one is smooth and playable (you can choose from a selection of velocity curves), making it particularly suited to synth work.

Other than the number of keys, all three models share the same specs: you get 45 assignable controls, which include banks of buttons, knobs and faders. You also get eight Dynamic Pads – these light-up when they're hit and are velocity-sensitive. They're just about large and well-spaced enough for drumming with your fingers (loop triggering is another possible application), though we did find that the velocity response is slightly unpredictable unless you hit the pads slap-bang in the middle.

Turning to the other controls, the nine knobs feel smooth and firm enough, and although the nine faders don't have masses of travel, they're fine too. Unlike the Edirol PCR-300, the controller that the A-300 Pro effectively replaces, there's no crossfader. This seems to have been omitted to allow the inclusion of the pads, which seems like a fair swap to us.

Other noteworthy features include a bright, backlit LCD display and left-side-mounted USB, MIDI I/O, and Hold and Expression pedal connections. We prefer this to having them on the back, making it easier to put a QWERTY keyboard behind the A-300, though it could be undesirable if you prefer to place your MIDI keyboard alongside your QWERTY one.

Unless you're a Sonar user (see boxout), the A-300 Pro doesn't have any fancy auto-mapping features built in, though it does come with a selection of control maps that cover all the major DAWs. Manual assignments and custom control maps can be made in the supplied A-Pro Editor software, which works as expected.

The A-300 Pro is a reassuringly simple all-in-one controller that will perfectly suit many producers. It's a touch more expensive than some of its rivals, but its superior build quality and styling make it a solid investment. **cm**

Contact Roland UK, 01792 702701
Web www.cakewalk.com

Sonar and more

Cakewalk describe the Production Plus Pack, which ships with the A-300 Pro, as "the most powerful suite of OEM music creation software available today". The centrepiece is Sonar 8.5 LE, a cut-down version of the latest iteration of Cakewalk's DAW. Its feature set includes support for Cakewalk's Active Controller Technology (ACT), which means the most relevant parameters are automatically mapped to the A-300 Pro as you move around its mixer, instruments and effects. There are also three instruments: Rapture LE (a pared-down edition of Cakewalk's classy wavetable synth); Cakewalk Sound Center (a general purpose sound module); and Studio Instruments Drums (a simple acoustic drum module).

The bundle is undoubtedly a great entry point into the world of computer-based music-making, and certainly does more to justify the A-300 Pro's price tag.

System requirements

PC 1GHz CPU, 512MB RAM, Windows XP or later, USB port

Mac G4/G5/Intel 1GHz CPU, 512MB RAM, OS X 10.4, USB port

Alternatively

M-Audio Oxygen 49
N/A >> N/A >> £135
49 keys, cheaper and supports M-Audio's DirectLink automatic mapping, but there are no pads

Korg microKontrol
cm67 >> 8/10 >> £240
37 keys, though they're of the mini variety, along with 16 pads, eight knobs, eight sliders and a joystick

Verdict

For
- Impressive look and feel
- Control maps for DAWs supplied
- Pads more useful than a crossfader
- Genuinely useful software bundle

Against
- Higher price than many rivals
- Dynamic mapping only usable with Sonar

A well-designed, do-it-all controller keyboard that delivers that extra dash of Roland quality

8/10

MeldaProduction PC MAC
MMultiBandChorus €30

cm DVD ON THE DVD
Hear it in action, read the manual and try out the demo

A chorus of choruses? That's what we have on offer here, courtesy of these prolific Czech plug-in vendors

> It's not often that we see a worthwhile new spin on an established effect, but MeldaProduction's MMultibandChorus is just that. It utilises up to six fully adjustable bands, each being essentially a separate chorus effect working on a specific frequency range.

On first loading the plug-in, a single band covers the entire frequency spectrum, so it works like a standard chorus. Each band can produce between one and ten voices (higher values give increasingly synth-like ensemble/unison effects), and MMBC has a variety of Spread modes to give stereo width: panorama, which pans the voices; phase, whereby the phase of each voice's modulation LFO is offset between the left and right channels; and 2, 4, 8, 16 or 32ms Haas, which offsets the channels with a short delay. The latter is our preferred choice for thick, analogue-style chorusing.

Clicking a band brings up its settings, and each one can be muted or soloed as required. MeldaProduction have done an excellent job of providing comprehensive per-band chorus control, and as well as the usual suspects, such as rate and depth, you can also tweak the variability between voices for many parameters. There's even a low-/high-pass filter that can be applied to the wet portion of each band.

Ride the waves

Each band has its own LFO, with a rate ranging from 128 to 1/128 bars, in straight, triplet and dotted rhythms. There's a huge variety of LFO shapes, including standard sine, square and saw waveforms, as well as exponential and 'mess' (a sort of noise), and you can smoothly sweep between one shape and the next. The Advanced settings window lets you dial in custom wave shapes – advanced stuff indeed!

We found MMBC to be highly useful on synth sounds, especially basses, as you can leave the lower frequencies chorus-free, thus avoiding bass phasing issues, while spreading the upper frequencies to create a wider stereo field. The built-in per-band tube saturation, meanwhile, provides warmth or, if pushed, grit.

Chorused clean guitar is a classic sound – think Kurt Cobain or Johnny Marr – and MMBC excels at creating shimmering axe tones. You can easily add subtle modulation to specific frequency ranges, or have each band operate independently for true modulation mayhem – even the band crossover points can be modulated! Indeed, experimentalists should take note, as more extreme settings can give rise to some weird modulating 'microdelays' and IDM-esque glitchiness.

At first, we were sceptical of the concept of a multiband chorus – it almost seemed that MeldaProduction had created one purely for the sake of it. In use, however, MMBC immediately proved to be more than mere novelty, due to its ability to precisely target the frequencies to be chorused, thus gaining shimmer or stereo width only where needed, while retaining solidity elsewhere.

It's simply a great-sounding, inspirational effect, and at this price, it's impossible to rule out MMBC if you're in the market for a new chorus unit, since it can do everything from traditional analogue wobbling warmth to completely screwed-up craziness. **cm**

Contact info@meldaproduction.com
Web www.meldaproduction.com

Decisions, decisions

There's a dazzling array of options that can be accessed via the Settings button at the top right-hand corner. For example, you can choose between Analog, Linear-phase and Hybrid crossover algorithms; higher-quality upsampling (which comes at the expense of an increased CPU hit); and whether you want MMBC to process mono, stereo or surround signals.

With the latter mode engaged, the plug-in takes input from up to eight channels, which should pique the curiosity of film, TV and videogame composers. You can also resize and recolour the GUI to your liking.

If inspiration is running low, you can hit the Randomize button to generate new settings, and holding Ctrl while doing this will only subtly change the parameters, which is a nice touch. You can also morph between four sets of settings using the ABCD strip at the bottom of the interface.

System requirements

PC Intel/AMD CPU, Windows XP/Vista/7 (32-/64-bit), VST host

Mac Intel CPU, OS X 10.5, 32-bit, AU/VST host

Alternatively

Audio Damage Fluid
cm122 >> 9/10 >> $29
One of the best analogue-modelled choruses on the market, including flanger-style feedback control

D16 Group Syntorus
cm151 >> 9/10 >> €35
Another terrific analogue-style chorus, with dual paths and adjustable high-pass filter

Verdict

For Superb, highly adaptable sound
Unique multiband functionality
Great modulation options
Deep level of control

Against Nothing to speak of

Multiband chorus might sound crazy, but MeldaProduction have proved that the concept is sound with this great plug-in

9/10

MeldaProduction PC MAC

MMultiBandDistortion €30

cm DVD
ON THE DVD
Hear dirty guitar, drums and synths, try the demo and read the manual

As well as chorus, MeldaProduction have also applied their multiband mastery to amp simulation and distortion

> Melda's second plug-in this month is billed as being for processing guitars and synths, but with a possibly wider range of uses thanks to its deep structure (see boxout).

The multiband and modulation aspects of MMultiBandDistortion are identical to MMultiBandChorus, on the opposite page, so we won't labour the point here – the manual is on the **cm** DVD if you'd like more details. Suffice to say, the plug-in offers up to six adjustable bands, up to 4x upsampling, MIDI learn, four global modulators, definable LFO shapes, full automation and randomisation, and the ability to process mono, stereo or up to eight channels simultaneously for working in surround sound.

Each band has amp simulator and 'destroyer' sections, the former offering emulations of generic styles of guitar amp (no specific brands or models are named), while the latter houses five purely digital distortion algorithms, flanked by a rather silly skull graphic. The aim is to provide a versatile sound that covers everything from clean amp sounds, passing through high-gain tones and on through to over-the-top decimation of your signal. In fact, it's very easy to overdo things and end up with a complete mess that produces screaming feedback, even with no input signal present.

There are 12 amp types: two bass, two 'deep', two rock and five metal, as well as single models for pop, country and alternative styles. While they don't have the same level of sophistication found in dedicated amp sims such as Guitar Rig or AmpliTube, they do cover a wide spectrum of axe-based tones. Once you've opted for the amp type, there are further controls for things like the Drive, Color (or tone) and Feedback, as well as quirkier parameters such as Bias, where you can choose between extreme, tube and transistor sounds. The amp models also include cabinet/mic simulation, although this isn't adjustable.

The five digital distortion algorithms are represented as six sliders, so that's one slider

each, except for Bitcrusher, which has two. These can be employed simultaneously per band and, when used sensibly, can add an edge to the amp sim tones. Right at the bottom, there's a basic EQ section, comprising bass, middle, presence and treble controls for further sculpting of each band's tone.

Start your engines

MeldaProduction's multiband engine provides an enormously flexible palette of sounds, from quick one-band presets for instant tones, to extremely complex six-band setups that would be practically impossible to recreate with hardware – well, unless you happen to have six different amps and a device to split the signal into as many frequency bands!

Then there's the excellent MeldaProduction Envelope System (see the manual for details) for modulating parameters – including the band positions themselves – via the syncable or envelope-based LFOs. All of this adds up to a remarkably deep plug-in that offers a seemingly endless range of distortion effects.

MMBD doesn't really replace dedicated amp sims for axe-wielding computer musicians, but for those looking for a truly flexible distortion plug-in, we'd highly recommend giving MeldaProduction's creation a trial run. **cm**

Contact info@meldaproduction.com
Web www.meldaproduction.com

System requirements

PC Intel/AMD CPU, Windows XP/Vista/7 (32-/64-bit), VST host

Mac Intel CPU, OS X 10.5, AU/VST host (32-bit)

Alternatively

D16 Group Devastor
cm126 >> 9/10 >> €35
This triple-filtered distortion isn't truly multiband, but it is one of the gnarliest dirtboxes we've used

iZotope Trash
cm61 >> 9/10 >> $200
A multiband plug-in that's packed with distortion algorithms

Verdict

For Sonically versatile
Deep level of control
Modulation/automation options aplenty
Great presets

Against Can get out of control
Cheesy GUI graphics
There are better pure amp sims

Another multiband winner from MeldaProduction and, once again, it comes at a price that's hard to resist

8/10

No axe to grind?

MeldaProduction have aimed this plug-in at forward-thinking guitarists who want to add distortion effects to their axe sounds. Synth users who are in need of a multi-faceted distortion unit are also on their hitlist, and we can concur with their choice of target audience. The plug-in's multiband nature lends itself perfectly to effecting bass and lead guitar tones, whether you want to zero in on the low-end to warm your sounds up, or produce some gnarly high-end frequencies in order to give your patches a bit of added bite.

However, there's no reason to stop there. MMultiBandDistortion is a flexible plug-in and it works well with other instruments too. For example, it's highly adept at trashing and scuzzing up drum tracks. You could easily slap some low-end grit on the kick drum or, conversely, decimate the hi-hats or snares, while leaving any bassier percussive elements punchy and defined.

cm mini reviews

A duo of iPad apps and a sample library blowout

Wizdom Music
MorphWiz £5.99

Contact support@morphwiz.com
Web www.morphwiz.com
Format iPad app

Kevin Chartier and keyboardist extraordinaire Jordan Rudess have teamed up to bring us what may be the first serious performance instrument designed specifically for the iPad. Inspired by Lippold Haken's Continuum controller, MorphWiz presents a control system wherein notes of a given (and user-definable) scale are laid out across the screen as vertical lines. As on a traditional keyboard, notes range from low to high as you travel from left to right. However, sounds can morph from one timbre to another as you drag your finger vertically along a given note. You can also play between the notes by placing your finger just between the B and C lines. Additionally, MorphWiz taps the iPad's accelerometer – you can tilt the device to tweak the sound of the built-in synthesiser.

On that synthesiser, it's refreshingly direct, with a smattering of parameters that draw upon basic waveshaping, FM and 'Wavesync' synthesis to shape the sounds, with a few effects to spice things up. While FM synthesis is tricky to master, even the greenest neophyte isn't going to get lost with MorphWiz's simple implementation. There's just enough flexibility to personalise the sound, but not enough to distract you from the performance.

And that's what MorphWiz is all about: performance. Rudess' experience shows in the design of the instrument and the immediately playable factory patches.

MorphWiz provides a built-in recording function with looped overdubbing capabilities. You can adjust the number of beats and measures and there's a metronome to guide you. The results can be exported, emailed or sent to apps that support AudioPaste.

MorphWiz turns the iPad into an expressive performance instrument. Is it perfect? No. There are a lot of pages to work through and there's no MIDI-over-Wi-Fi, unfortunately. Even these drawbacks aren't enough to tear us away from it, however.

8/10

4Pockets
Aurora Sound Studio HD £23.99

Contact sales@4pockets.com
Format iPad app

The preview video for Aurora Sound Studio HD had certain **cm** team members compulsively checking the App Store for its release. It promised a full production studio for the iPad. Not a DAW, mind you – no audio recording would be provided, for one thing – but an electronic studio with everything you need to compose and perform electronic music: drums, subtractive and waveshaping synthesisers, a sampler, mixer and effects, all tied to a multitouch grid interface resembling the iconic Yamaha Tenori-On.

Aurora HD delivers on its promise in spades, albeit with a couple of caveats. The interface is divided into tabbed pages, some of which are geared towards arranging your sequences, while others are aimed at live performance with instruments and effects. Sequences are arranged in 14 layers, each with a fully editable instrument assigned.

Each layer has three send knobs, for routing the signal to a trio of aux send channels, with a choice of nine effects for each. Additionally, you can apply the Atomizer and M-Gun functions in real time, the former being a sort of sample-and-hold function (think Ableton Live's Beat Repeat), while the latter is a per-sound 'drum roll' function. Songs can be exported as WAV and AAC files, or even as MIDI. The latter ensures that compositions sketched out on Aurora can be reworked using your DAW's instruments and effects.

So what are those caveats we mentioned earlier? Well, the big one is that there's no way to write any sort of velocity data to the individual layers. You can, however, fake it using the synthesiser's built-in MSEQ function, but this is only available to the analogue synth.

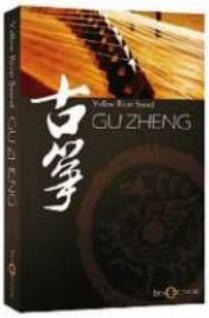
Also, a mere three effects slots seems miserly, and there's no compressor. In addition, while you can upload and share songs via an online Song Library, this can't be done with songs that include your own samples.

Nevertheless, 4Pockets have brought in a winner, albeit one that carries a price tag considerably higher than those to which App Store customers are currently accustomed. The problems are few and do nothing to get in the way of what is a truly inspiring production environment. If you're an iPad owner in the market for a portable production tool, you definitely won't want to pass this one up.

8/10

Soundware round-up

Yellow River Sound
Gu Zheng £109
Contact support@bestservice.de
Web www.bestservice.de
Format Best Service Engine

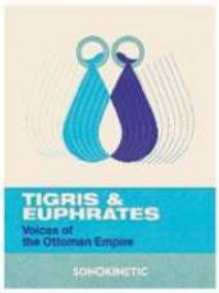


Powered by the provided Engine sample player, this title features a modern Chinese zither (1.6GB sample set) recorded at the China Conservatory of Music. Patches offer single articulations (17) and keyswitching (three), with the latter including a rather useful pentatonic patch. Articulations include harmonics, tremolo, bends (slow/fast), vibrato (normal/fast) and pentatonic glissandos (up/down).

Yellow River Sound have attempted to deliver the most authentic sound possible, and we have to say that they've succeeded, achieving a rounded sound without too much ambience. It doesn't come cheap, but you get your money's worth.

9/10

Sonokinetic DOWNLOAD
Tigris & Euphrates €80
Contact info@sonokinetic.com
Web www.sonokinetic.com
Format Kontakt 4



This pack is a fresh addition to Sonokinetic's Classical product category. Aimed squarely at anyone needing Middle Eastern choir sounds, it uses the Kontakt 4 sampler format to deliver 16 instruments and four multis, with three mosque-derived convolution reverbs. Sounds vary from chant and song (both male and female voice) to prayer (male voice) and a couple of effected patches.

Sonically, this is excellent stuff, albeit very specific and specialist. And although the microtonal nature of the content can be rather confusing, clever use of both the interface for visual feedback and keyswitching for root note selection helps considerably.

9/10

Sample Logic DOWNLOAD
Acoustix £70
Contact Time+Space, 01837 55200
Web www.samplelogic.com
Format Ableton Live 8

Acoustix is an Ableton Live pack from sound design gurus Sample Logic. The 1.6GB of content includes 200 instrument racks (each with full Macro controls) and 63 tempo-synced rhythmic loops (MIDI and audio format). You also get 14 performance-ready construction kits combining multiple instruments and clips, and four full demo songs.

In typical SL style, sounds include atmospheres, percussives and melodic loops, with cinematic and ethnic sounds to the fore. Although quite processed, the high quality of the original acoustic sources comes through. At times the loops can sound similar, but overall, the careful Live implementation more than compensates for this.

9/10

Wave Alchemy DOWNLOAD
Drum Machines 2 £25
Contact info@wavealchemy.co.uk
Web www.loopmasters.com/wavealchemy
Format WAV, Battery, Kontakt, HALion, EXS24, NN-XT, SFZ

Here we have samples from four drum machines: Roland TR-808 and TR-909, Drumfire DF-2000 and MFB Schlagzwerg. The result is 1513 24-bit samples with nine sampler patches. In addition to a full set of clean samples, the 808 and 909 samples have also been processed using desirable hardware, including saturation courtesy of Empirical Labs' FATSO.

To make the most of Drum Machines 2, we had to venture beyond the quite basic sampler patches and seek out the many variations. Admittedly, much of this pack is old ground revisited, but that doesn't preclude the sounds from being highly useful and relevant.

9/10

Ueberschall
Score Elements €99
Contact mail@bestservice.de
Web www.bestservice.de
Format Elastik Instrument Soundbank

Score Elements uses Ueberschall's Elastik Player to deliver 792 loops and samples (2.51GB in total). Aimed at the scoring fraternity, the five main categories supply accents, ambient beds, impacts, transitions and whooshes.

Menu subfolders help divide the content further (dark, bright, fast, slow and so on), and overall, we found sounds quickly and easily. The Elastik player also makes tempo, playback direction and pitch adjustments very simple, while the 'LoopEye' graphic gives you instant visual feedback.

Overall, this is a useful and flexible sound set, but style-wise, it's very focused. As ever, though, we wish Ueberschall offered their content in good old WAV format too.

8/10

Prime Loops £20 DOWNLOAD
NYC Piano Sessions
Contact info@primeloops.com
Web www.primeloops.com
Format WAV, Acidized WAV, Apple Loops, Live Pack, Akai MPC, FL Studio

If programming piano parts from scratch fills you with dread, then NYC Piano Session could be right up your street. The 206 piano loops are in various styles: ballad, blues, classical, jazz, Latin, pop and rock. And with the tempo and starting chord also included in the loop naming, files can easily be used in non-loop-based hosts.

The set clearly covers a lot of musical ground, and this, combined with a pretty generic piano sound, means it struggles to stand out. Although there are loops we like, on balance – and given the many decent piano instruments out there – we would probably prefer them to be in MIDI file format.

7/10

Soundware round-up

Sample Magic DOWNLOAD
Ultimate FX £47

Contact Time+Space, 01837 55200
Web www.samplemagic.com
Format WAV, Stylus RMX, REX2, Apple Loops, EXS24, HALion, Kontakt 3, NN-XT

Ultimate FX's 1.1GB of dance-oriented content is a cut above your average filtered noise workout. There's a selection of good crashes, and numerous risers/fallers, all labelled with tempo and their length in bars (1, 2, 4, 8 or 16). The 137 drum fills have plenty of character, pop and punch, while the 36 twisted vocal fills will give your tracks an instant fidget house flavour. Elsewhere, you'll find booming impacts, chattering machinery, ear-tickling loops of peculiar noises, synth FX, and tape/vinyl/static recordings. As usual with Sample Magic, the production is superb and it all sounds right up to the minute, which is just what we like to hear.

9/10

Loopmasters DOWNLOAD
GU Sample Series 6 – Wally Lopez £20

Contact info@loopmasters.com
Web www.loopmasters.com
Format WAV, Acid, REX 2, Reason ReFill, Ableton Live Pack, Apple Loops, HALion, Kontakt, EXS, SFZ, NN-XT, GarageBand

The sixth Global Underground collection is packed with loops, shots and squelches, perfect for the tech house sound. There's not a lot to this pack – just 148 samples – but for the low price, the very targeted sound makes up for the low quantity. If you're a REX file user, you'll rejoice because every loop comes with a REX version, which is almost worth the price alone.
One-shot-wise, there's not a lot going on, but for fans of Lopez, tech house producers and anyone who makes nine-minute tracks featuring one synth stab, their £20 will be well spent.

7/10

Loopmasters DOWNLOAD
Untold – Dubstep Producer £25

Contact info@loopmasters.com
Web www.loopmasters.com
Format WAV, Acidized WAV, REX, Reason ReFill, Live Pack, Apple Loops, HALion, Kontakt, EXS, SFZ, Stylus RMX, Ableton Live Presets, NN-XT, GarageBand

Untold, AKA Jack Dunning, delivers gritty beats, dirty synths and explosive samples and effects in his first sample pack. Ranging in tempo from 132 to 145bpm, Dubstep Producer covers DnB and grime too, and the varied one-shots mean its suitable for most genres. Loops are separated into three categories – drum, full and music – and the sounds within are unique and definitely don't sound clichéd. Overall, this is a great pack with lots to get your teeth into.

8/10

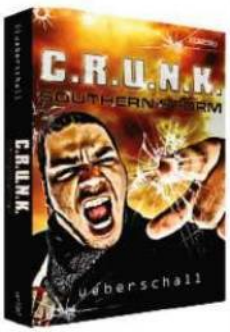
Loopmasters DOWNLOAD
David Carbone – S:amplify £40

Contact info@loopmasters.com
Web www.loopmasters.com
Format Wav, Acidized WAV, Rex2, Reason ReFill, Live Pack, Apple Loops, HALion, Kontakt, EXS, SFZ, Stylus RMX, Ableton Live Presets, NN-XT, GarageBand

Anyone who keeps half an eye on the sample world will know Carbone's name well, as he's provided plenty of DnB weaponry in the past. His experience shines through with this pack of top-quality samples and loops. There are some surprises too, as Carbone focuses on the musical side of DnB, with emotive piano loops, rock guitar riffs and soulful sax solos. Of course, there are also the typical wobbly basslines and powerful drum loops. A versatile and high-quality package.

8/10

Ueberschall
C.R.U.N.K. Southern Storm €99

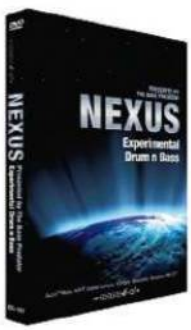


Contact mail@bestservice.de
Web www.bestservice.de
Format Elastik Instrument Soundbank

Once you get over the awesome cover and before you get into the 3.2GB library, you've got to install Ueberschall's annoying Elastik Player. After that, though, you can truly get your crunk on, if you're that way inclined. With over 1313 loops, there are plenty of rave-style horns, tight claps and sub kicks to make even the weakest pool party bounce. Despite the content being very clichéd and even a bit cringey at times, each synth line, bassline, drum loop, vocal phrase and FX definitely ticks all the crunk boxes. Without any one-shots or kits though, it's more of a Crunk-on-tap affair than a proper production palette.

6/10

Zero-G
Nexus Experimental Drum & Bass £59



Contact Time+Space, 01837 55200
Web www.timespace.com
Format WAV, Acidized WAV, AIFF, Apple Loops, EXS24, Reason ReFill, NN-XT, Kontakt

While this collection clocks in at just under 2GB, there are only 600 files here, as it focuses on construction kit-style loops, with a finished idea presented as stems (well, most of the time), contained within appropriate folders. With no one-shots or REX files, it's not suitable for producers who like to construct their own beats, and even the loops themselves are a bit uninspiring, with underwhelming production that doesn't cut it for modern DnB. A lot of the parts don't bother stemming out to their individual parts and just provide a lacklustre 'finished' loop to play with. Overall, a pretty pointless sample pack.

4/10

Mutekki Media DOWNLOAD

Source €60

Contact via website
Web www.mutekki-media.de
Format WAV, Battery, EXS24, Halion, Kontakt 2/3, Apple Loops, REX

Here, Mutekki deviate from their stock-in-trade of genre-specific dance libraries. This one isn't as hard-hitting, and instead offers about 1.7GB of quirky 'sound designed' material for bolstering productions, with some subtle stylistic nods to genres like DnB, dubstep, electro, etc. You get a bunch of 'atmospheres', many with a spectrally manipulated tone; 200 FX noises; about 600 drum hits; around 200 dirty bass/synth noises (including funky glottal/vowel sounds); and a handful of multisamples. There are 287 bass, beat, percussion and synth loops, and most are raw enough to be prime slicing fodder. For those who like to keep their bag mixed, this well-produced pack is worth a pop.

7/10

Zenhiser DOWNLOAD

Ultra Breaks & Grooves 01 £6

Contact via website
Web www.zenhiser.com
Format WAV, EXS

This pack presents 20 each of breakbeat-style drum loops, basslines and percussive FX loops. The basslines are OK, though we'd have preferred one-shots of the same sounds. The FX Loops folder contains crunchy rhythms to layer with your main beats, and quite varied they are too. The characterful breaks-style drum loops are the main event, though, being well worth the tiny asking price alone. Some beats have a fair bit of reverb, which lends an old-school 'rolling' feel, begging for them to be pitched up and chopped about. You don't get the constituent parts of the beats, sadly, but for this kind of money, we shouldn't complain.

8/10

Producer Loops DOWNLOAD

Kings of Bhangra £20

Contact Producer Loops, 0845 0943077
Web www.producerloops.com
Format Acidized WAV, Apple Loops, REX2, Reason ReFill

If you've ever wondered what would happen if you took the bang out of bhangra, then this sample pack will satisfy your curiosity, with five construction kits featuring average drums and weak, often cheesy bass. It's not all bad, though, because the bhangra instruments, such as a powerful and exciting dhol drum ensemble, algoze (Punjabi flute) and twangin' tumbi (plucked string) are well recorded, the performances are compelling and the sound is dry enough that you can treat it as you wish. What's more, there are 80 or so 'bonus' instrument loops. This one is best snapped up for its authentic recordings, though you may then feel that you're not getting your full money's worth.

6/10

Goldbaby DOWNLOAD

Tape Drum Machines Volume 3

$29

Web goldbaby.co.nz
Format Battery 3, GURU, WAV

Goldbaby's extensive classic hardware collection is fired up once again for yet another drum machine sample pack. Recorded onto three different tape machines, using a variety of processing, each of the 3498 samples is labelled to help you keep track of what signal path it travelled down, all of which are fully explained in the manual. Speaking of the manual, once again Goldbaby have delivered photos and descriptions of every piece of gear used for the collection. Each drum machine, ranging from the early 70s to 2009, is organised into its own folder, with every element of the kit sampled in various forms.

Keeping the price of this pack in mind, the amount of work that went into creating it and the enormous amount of content provided is quite simply astounding. Needless to say, the sound is top class and the variety incredibly wide. Overall, then, this is another flawless package from Goldbaby.

10/10

Totalmusik DOWNLOAD

Polyphonic Wretch Machine $65

TOTALMUSIK
POLYPHONIC
WRETCH MACHINE

Contact support@totalmusik.com
Web www.totalmusik.com
Format Kontakt 3.5

Grrrr! Growling analogue synth tones ahoy, with over 2GB of multisamples from the esoteric Metasonix S-1000 Wretch Machine vacuum tube hardware synth. The raw saw, square and sub shapes of each oscillator have been recorded both direct and via a reel-to-reel tape deck, with an extra sub-oscillator created by running the deck at half speed. The sound is superb – warm, throbbing and undeniably 'analogue', especially when you combine oscillators, which leads to wonderful unison-style interactions due to the inconsistency of tubes 'n' tape. Everything from evil dubstep wobbles through to sublime string pads and groovy electro stabs can be had. Synth maniacs, take note!

10/10

cm/recommends

The best new gear from the last three issues...

SoundToys $495 PC MAC

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 units 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 PC MAC

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."

Iced Audio $69 MAC

AudioFinder 5

Rating 10/10
Reviewed cm154
Contact software@icedaudio.com
Web www.icedaudio.com

What is it? An audio file organiser, AudioFinder is, as far as we're aware, the only program of its kind. You can browse files by directory, preview them (or play them via a MIDI keyboard), detect pitch/tempo, make edits and apply effects, use batch processing/renaming, and much, much more. New for v5 is a powerful metadata tagging system with similarly adept searching functions.
Verdict "It's not the sexiest bit of music software, but when it comes to getting a grip on your samples, nothing beats AudioFinder"

What we've been using this month

Ronan Macdonald
Editor

Blip Interactive's NanoStudio for iPhone/iPod touch has raised the bar for the pocket-sized DAW in terms of ergonomics, usability and sound. Sometimes, it would seem, the best things really do come in small packages.

Lee du-Caine
Deputy Editor

I love all waveforms equally, so it's a real dilemma when I'm forced to choose between them. The heartbreak is over now, though, as I can smoothly shift between shapes with the mighty morphin' oscillators of XILS-lab's PolyKB.

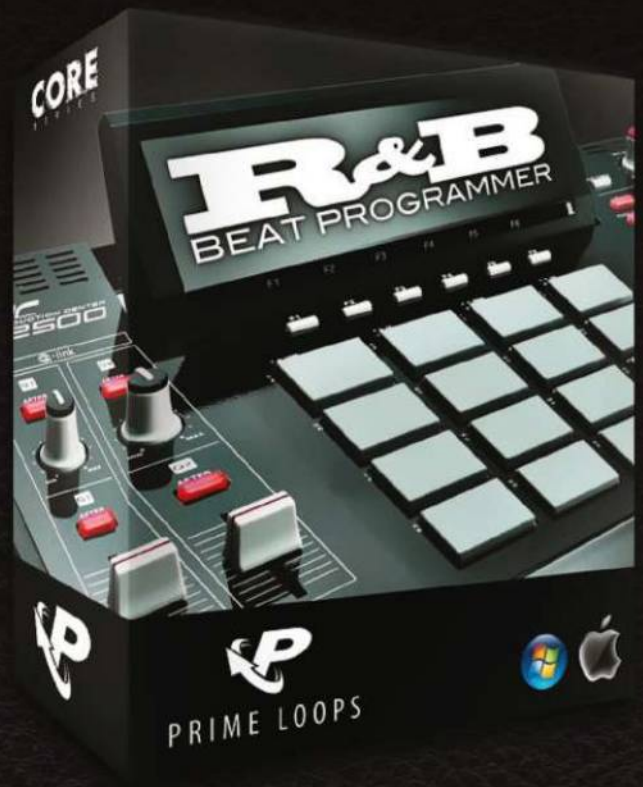
Tim Cant
Multimedia Editor

Locating audio material has always been a challenge for me, and friends have commented that I couldn't find my brass with both hands. However, thanks to Iced Audio's Audio Finder, I've got a grip on it at last.

PRIME LOOPS

WE'RE IN THE MIX

Prime Loops provide award-winning sound libraries, fresh in-tune with the evolving music scene. We are an extremely passionate team of engineers, sound designers & DJs, hailing from London, UK



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Prime Loops are proud to announce the arrival of one of their most inspiring, genre-spanning sound suites to date. Inside this royalty free songwriting pack you will find over 200 expertly recorded Grand & Upright Piano Loops from a wide selection of styles, vibes and genres, ranging from 60-190Bpm.

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XXL DANCE FX

Inside this pack you will find an inspired arsenal of over 200 expertly designed sound effects and DJ samples, featuring transition sweeps, bleeps, vocal chops, cymbal FX, orchestra hits, impact sounds, vinyl spins, atmospheric intro textures and much, much more!

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FINGALICKIN' HIP HOP

If you roll deeper than the rest, "Fingalickin' Hip Hop Grooves" is here to fill your pockets with the heaviest hip hop beats from the brighter side of the street. Grab your shades and get ready to be blinded by the paparazzi when you step outside with this suitcase full of 17 explosive hip hop construction kits.

£17.95

COMPUTER music

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www.primeloops.com

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- Producer Masterclass: Jayce Lewis
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- Sounds of sci-fi II
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- Mid/side mastering
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>Your questions answered

Q&A

Thinking of switching DAWs? Having trouble getting all your kit playing together nicely? Or do you just want to recreate the sound of your favourite artist? Send your questions to our experts at **cmhelp@futurenet.co.uk**

Scores on the DAWs

Question **Every month I watch the *Producer Masterclass* video on your cover DVD, and every month I notice that the artist is using Ableton Live, Logic or Cubase.**

Over the past few months, I've been upgrading my studio, and during this time I've started to look into upgrading my DAW. At the moment I'm using a high-end PC with FL Studio – which I think is underrated – and a MacBook Pro running Traktor and Reaktor 5 for performing.

There is a clear advantage to using Live or Cubase as they are both cross-platform, but Logic seems to be a good choice, as I've heard great things about it and all the reviews are good. The question is whether to upgrade or not, as this will mean having to learn how to do everything again.

All the DAWs cost roughly £400, so if I didn't upgrade, I could spend this money on new equipment instead. What, in your opinion, would be the best way forward for my studio?

Nathan Zascirinskis

Anthony Peters, AKA Subscape, using Logic to make his dubstep sounds in cm148's *Producer Masterclass*

Answer While you say you're happy with FL Studio, you're clearly DAW-curious. If FL Studio really does fulfil all your needs, then you're right – migrating to a different software package will be an expensive and time-consuming process. However, if you've only ever used one DAW, it's hard to know what features you might be missing out on.

All of the major DAWs have their own advantages and disadvantages. For instance, Logic is extremely popular, but you'll be limited to running it on your Mac. Cubase is cross-platform and has arguably the best audio and MIDI editing capabilities of the three biggest DAWs, but its built-in library of effects and instruments isn't up to the same standard as the other two. Finally, as well as its live performance functionality, Live has convenient effect routing capabilities and is great for working with samples, but on the downside, its idiosyncratic approach to audio editing puts some musicians off.

Currently there's no demo version of Logic, but you can download a free trial version of Ableton Live, so we'd definitely recommend checking that out on your PC and Mac so you can experience first-hand how it performs and whether it offers you anything over and above the features of FL Studio.

If you get the feeling that you'd benefit from investing time and money in a different DAW but that Live isn't for you, we suggest asking your local music store to give you a demonstration of Logic and Cubase, which they should be more than happy to do.

There's also a 30-day trial version of Cubase 5 that you can download from the Steinberg site, but that requires a hardware USB eLicenser to run. These can be bought from the Steinberg website (**www.steinberg.net**) for £18.

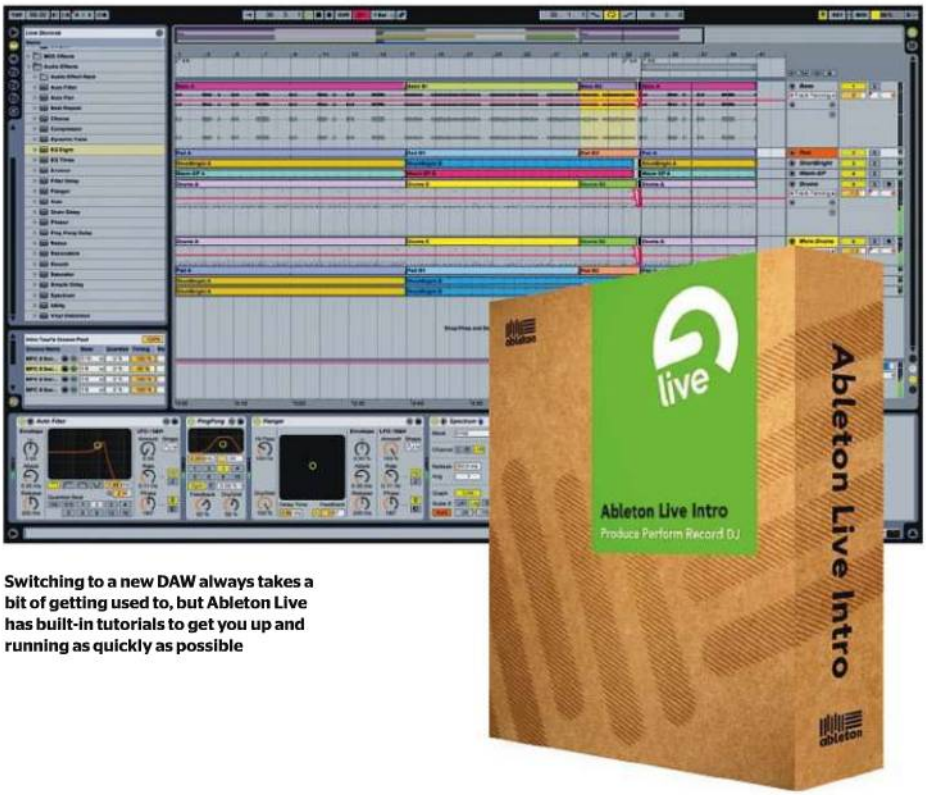
It's worth noting that all three DAWs are available in cut-down editions: Live Intro (RRP €129), Logic Express (RRP £163) and Cubase Essential 5 (RRP £127). They can be upgraded to the full version should you find that you like their performance and require the extra functionality, so you might find that investing in one of these cheaper versions makes sense, rather than going the whole hog right away.

Of course, you can find them for cheaper than their RRPs if you shop around, and Live Intro can be bought for €99 from Ableton's website (**www.ableton.com**) as a download.

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



Switching to a new DAW always takes a bit of getting used to, but Ableton Live has built-in tutorials to get you up and running as quickly as possible

Hip-hop hopes

COMPUTER MUSIC QUESTION OF THE MONTH

Question **I have a query about the samples on cm151's DVD. I've been trying to make synth sounds similar to those used by ASCII Beat. I hear these sounds used in countless hip-hop, RnB and pop songs on the radio. Could you tell me how I can recreate this sound, what waveforms were used and any other information you think is relevant?**

Harrison Kropach

Answer We quizzed ASCII Beat's Ali Jamiseon about how he created those slick hip-hop sounds. "For a modern hip-hop lead sound, pretty much any virtual analogue synthesiser will do," he reveals. "The sound is comprised of two detuned sawtooth oscillators – 10 cents apart will do. These are rich in harmonics and will cut through even the toughest of mixes.

"Be sure that your filter cutoff is fully open, and enable your synth's unison detune. If the synth you're using doesn't have a unison detune, a chorus effect will add the width needed. A touch of saturation will give the sound some more bite, and some light compression will smooth it out. You can add some 'bounce' to the sound with a slapback delay of around 60ms with minimal feedback."

Thanks, Ali! See *Making a hip-hop saw lead*, right, for a step-by-step guide to creating this sound using **cm** Studio plug-ins.

The secret of Live

Question **For many years I've been using the now ancient Cubasis 5 VST to write and make music as a hobby. It works for me, but I recently took the giant step of buying Ableton Live Intro. To be honest, I'm struggling to get to grips with the change as I'm so used to using Cubasis. I'll continue to persevere and get to grips with it, but can you suggest where to begin with this? Am I making a mountain out of a molehill?**

I'd also like to know whether there's some way I can open my project files from Cubasis in Ableton Live. Is there software that converts from one to the other? Or do I have to render all of my tracks to WAV files and open them in Ableton Live?

David Priestley

Answer Learning a new piece of music software can be a daunting business, and even though there is considerable overlap in the fundamental functionality offered by Cubasis and Live Intro, they are quite different in terms of operation and features. While Live can be an intimidating piece of software at first, it's actually extremely sensibly designed, with built-in tutorials included to help users get the most out of it quickly and easily.

We'd highly recommend working your way through these tutorials, which can be accessed by loading up the software and activating

"While Live can be an intimidating piece of software at first, it's actually extremely sensibly designed, with built-in tutorials"

> Step by step

Making a hip-hop saw lead

1 > It's possible to create a version of this sound using many of the **cm** Studio synths, but you'll get the best results using unison detune, so we've opted for ZebraCM. Start with the default patch and turn the filter **Cutoff** all the way up, so that the filter isn't affecting the sound.

2 > Turn up the **Sustain** knob on the first envelope to give you a consistent volume level. Next, set both oscillators' **Voice** modes to **Quad**. Set Osc1's **Detune** level to **-20**, and Osc2's **Detune** level to **+20**. Increasing the number of Voices and detuning them further gives you a thicker timbre, which is the secret to this sound.

3 > Chorus and delay effects work well on this sound, and ZebraCM has a great built-in effects section. Activate the **Chorus** and **Delay** by double-clicking the **ModFX1** and **Delay1** boxes at the bottom left-hand corner of the interface. The Delay effect is a little too much at its default settings, but turn down the **Mix** knob in the Delay panel slightly and you're good to go.

> Step by step

Setting up output routing in Live

1 > The first thing to do when setting up your hardware output configuration in Live is to open the **Options»Preferences** window and select the **Audio** tab. Ensure the correct driver and audio device type are selected at the top of the window, then click the **Output Config** button.

2 > Ensure all the outputs that you want to use are highlighted. When you're done, click the **OK** button and close the **Preferences** menu. Now the hardware outputs you've selected will be available for each track.

3 > Create a couple of audio tracks. These will be routed to the Master. Click where it says **Master** and select **Ext. Out**. This routes the audio to a hardware out. The menu below where it says **Ext. Out** will now be available. Route the first channel to one output, and the second to another. Connect the physical outs to your hardware mixer.

The Akai APC40 can be set up as an integral part of a live DJ's kit

View»Help View. A list of help topics will appear on the right-hand side of the screen. Click **View** to see the full list of Ableton Lessons and select the tour of Live to kick things off. This will give you a good idea of what the software is capable of, and the rest of the lessons will guide you through Live's many features.

Unfortunately, converting projects between Cubasis and Live isn't such a straightforward task. Rendering the tracks is probably the simplest way to go, and you could save time by routing sets of tracks to busses (drums, synths, etc) and rendering those, rather than exporting each track individually.

If you'd like more control of your virtual instrument parts, you can export your MIDI and instrument patches from Cubasis and load them up in Live.

Going live

Question **I've recently decided to get into the live DJing scene, and I've got my hands on an Akai APC40 controller. So far, I've managed to set it up with Ableton Live 8 on my MacBook. However, I was wondering how I would go about connecting it to a Pioneer DJM-800 mixer with my Focusrite Saffire 6 USB.**

If I want to record a mix with Ableton and the APC40, is there any way I can connect it to the DJM-800 and use the EQs on the DJM-800 to control the low, mid and high frequencies, or are the Ableton EQ Three and EQ Eight my only options?

Cameron Duff

Answer It's certainly possible to use the DJM-800 in conjunction with your existing setup – see the tutorial *Setting up output routing in Live*, left, to see how this is done. The Focusrite Saffire 6 USB has two sets of RCA/phono outputs. In Live, you could route a stereo audio channel to each pair and use the DJM-800 to cue and mix between them, as if you were using a traditional DJ format, such as vinyl or CD. You could then use the DJM-800's EQs and effects, but you'd need to record the mix as audio, either in your laptop, if it can handle it, or onto some other recorder.

Unless you're really desperate to use the DJM-800s EQs and effects, we'd suggest using the APC40 to control Live's built-in crossfader, and setting up the knobs to control the EQ Three and EQ Eight. The advantages of this setup are that you won't need to use the DJM-800 at all – so you can perform using, essentially, a single piece of hardware – and you'll be able to record all your mixes as sequences in Live, rather than audio. This means you can tweak them later, should you so wish, and you won't have to worry about clipping or any of the other issues associated with recording audio.

Big up the bass

Question **I make techy DnB, so I need to make the bass part sound as big as possible. At the moment, I use slapback delay and distortion, but I was wondering if there were any other methods of getting the bass sounding big. What do you suggest?**

Neil Brassington

"It can take some careful balancing of your distortion levels to get the bass sounding tough and gnarly without it simply becoming an overblown mess"

Answer When we say a sound is 'big', this generally refers to a few separate attributes: stereo width, its frequency range/distribution, its perceived loudness, and often some combination of all of these.

There are many ways to get a wide bass sound, but we wouldn't recommend using slapback delay as-is, because this will muddy up the low frequencies – not ideal when you want the lows to be as punchy and full-on as possible.

If your bass parts are split into different frequency ranges – for example, you have a subby reese line and another with the lows cut out layered on top – then a subtle slapback delay could work on the higher part, and if it's a stereo delay, it could add width to the sound. The tech-step classic *Shadow Boxing* by Nasty Habits, AKA Doc Scott, uses this approach on its dirty synth line to great effect. If your sound is not layered but uses a single synth as its source, you should at least put a high-pass filter on the delayed part of the signal to remove the bass frequencies from it.

Another way to make the high parts of your bass noises sound wider is to use a chorus or phaser effect – again, it makes sense to use a high-pass filter on the wet part of the signal, so that the lowest bass frequencies aren't adversely affected, and some effects have such a filter built in. Speaking of which, stereo filters can also work well for adding stereo width, especially if you sync the modulation to the tempo of the track.

As for frequency range, EQ can help to give a more balanced frequency response, thus making it seem more far-reaching, but you can only boost or cut what's already there. If your bass sound is lacking in the mids or highs, you may find that layering a simple saw wave in a higher octave helps fill up the space.

As you've discovered, distortion can help bass to sound bigger by adding harmonics, but again, you need to be careful in case the distortion adversely impacts the lower ranges of your bass noise. It can help to use a spectral analyser such as Blue Cat Audio's FreqAnalyst CM or Voxengo SPAN to help you see exactly what's going on in the lower registers.

Getting this sounding 'loud' is an important part of DnB, and here distortion, too, has its place – judicious use of saturation or clipping effects can help you get your bass noises sounding as full-on as possible, and limiting the sound after that can make it firmer still. It can take some careful balancing of distortion levels to make the bass tough and gnarly without it simply becoming an overblown mess.

For a full step-by-step guide to getting big bass sounds using the synths in the **cm** studio, see *Making a big, techy DnB bass* below.

Sight and sound

Question **Is there any free software I can use to make a music video? Also, how do I record my own voice into Synapse Audio Orion via my laptop's internal soundcard?**

Greg Mitchinson

> Step by step Making a big, techy DnB bass

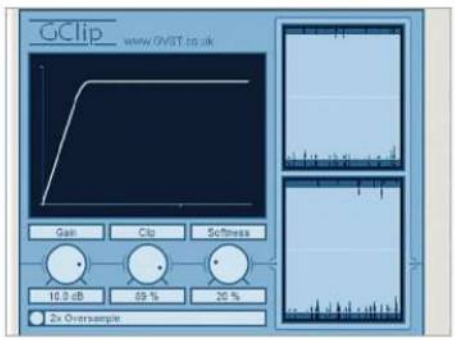
1 > It's possible to get some big, bad bass noises out of several synths in the **cm** Studio, but we're going to use ZebraCM because it has features particularly well suited to the task, including filters with drive control, unison detune and chorus. Load the synth and turn down the **Vol**ume control on the second oscillator. Set the first oscillator's **Vol**ume level to **140**.

2 > We're after a sustained, solid sound. By default, Env1, the topmost of the two envelopes, is set up to control the volume level. Set the **Sustain** level of this envelope to full. We're going to use unison detune to get a fat, wide sound. Click where is says **Dual** in the Oscillator 1 panel and change the **Voice Mode** to **quad**.

3 > Change the **Reset** mode from **Off** to **On**, so that each voice retriggers with each new note, and set the **Detune** level to **40**. The sound will gradually get duller as a note is played because the second envelope is affecting the filter cutoff. In the filter panel, turn the **Env2** modulation amount down to **0**.

4 > In order to hear the sound again, turn the **Cutoff** knob all the way up to maximum. Change the Filter mode to **LP OldDrive**, and set the **Drive** level to **25** and the **Res**onance to **21**. So far, so good, but the sound isn't quite there yet.

5 > To really give the sound that techy feel, activate ZebraCM's Chorus effect by clicking the **ModFX1** box at the bottom left-hand corner of the interface. This adds a silky sheen to the sound, giving it a futuristic DnB vibe.



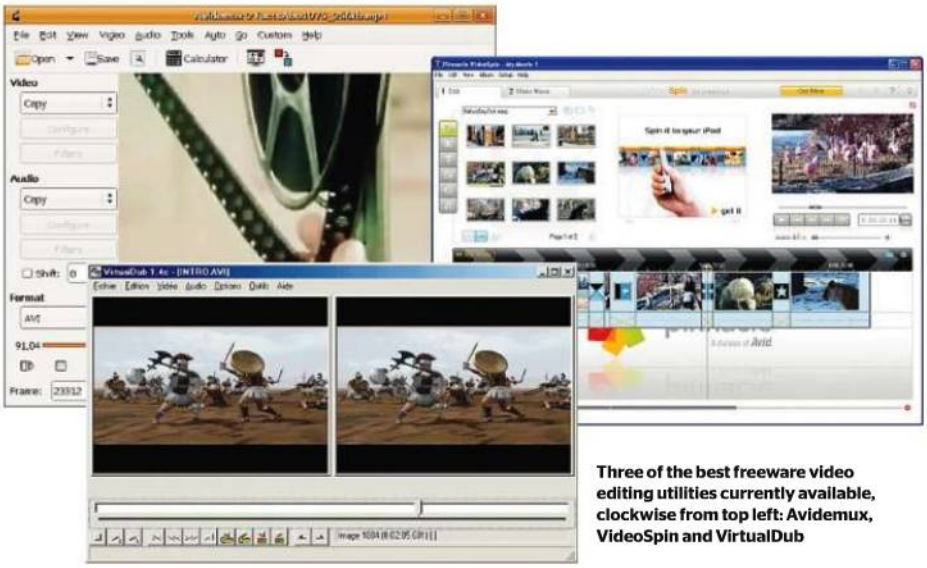
6 > For the final touch, add a soft clipper plug-in. We're using GVST's GClip, with **10dB Gain**, and **Clip** and **Softness** settings of **89%** and **20%** respectively. If you want to give the sound more character, you can add an EQ before the clipper to boost specific frequencies.

Answer You may be surprised to learn that there are actually some very handy and versatile video editing tools included with both Mac OS X and Windows. As you're a Windows user, you should find Windows Movie Maker is already available on your system – simply use Windows' search function to locate it.

If that's not to your taste, there are plenty of freeware alternatives available to download, including VideoSpin (**videospin.com**), Avidemux (**fixounet.free.fr/avidemux**), and VirtualDub (**www.virtualdub.org**).

Mac users have iMovie, part of Apple's handy iLife suite, which comes preinstalled on new Macs, so you may well find it's already on your system.

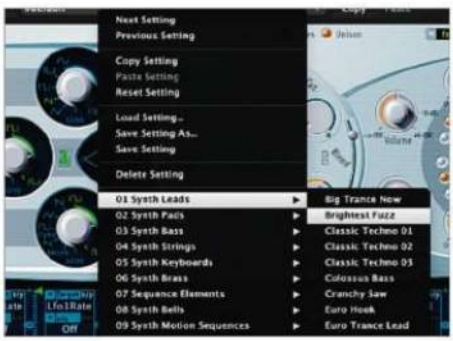
As for your second question, it's relatively easy to record your own voice in this way – see *Recording vocals using a laptop microphone and Synapse Audio Orion* on the facing page for a step-by-step guide.



Three of the best freeware video editing utilities currently available, clockwise from top left: Avidemux, VideoSpin and VirtualDub

Question How do I make a Daft Punk-style synth guitar sound in Logic Express?

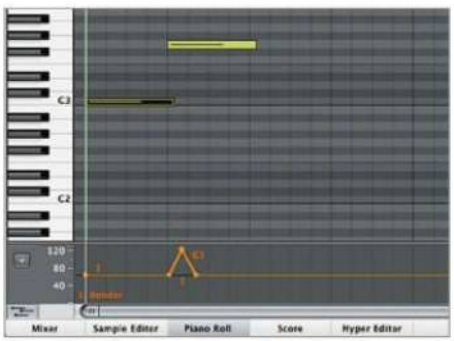
Skipper af Rosenborg



1 > A great deal of the character of the sound comes from the processing the synth is subjected to, and Logic Express comes packed with plenty of excellent plug-ins. Create a software instrument track and insert an **ES2** synth.

2 > You don't really need a complex synth patch to get this kind of effect, but as ES2 has some cool built-in presets, we might as well use one of them. Select **01 Synth Leads»Brightest Fuzz**. This is a big, thick synth lead that already packs plenty of punch.

3 > It doesn't sound particularly guitar-like yet, but we can swiftly remedy that by adding some distortion. In the channel's **Inserts** section, select **Distortion»Overdrive**. Turn the **Tone** knob fully up and crank the **Drive** up as high as possible. This processing is unsophisticated, but it gives us a chunky tone to play with.



4 > To warm up the sound, let's apply some chorus. Add another insert effect – this time select **Modulation»Chorus**. Set the **Rate** to **1.633Hz** and the **Intensity** to **25%**. Not only does this give the sound a much more organic feel, it also adds stereo width and movement.

5 > Let's add another Insert before we start to program the part. This time, select **Delay»Tape Delay** from the list of effects. The default settings are OK for our purposes but the **Wet** level is a little high, so turn it down to **10%**.

6 > You've now got a Strat-ospheric synth sound that you can really rock out with. For that authentic Daft Punk feel, you'll want to get a bit widdly, so we recommend liberal use of pitch bend and modulation to get as convincing a guitar feel as possible.

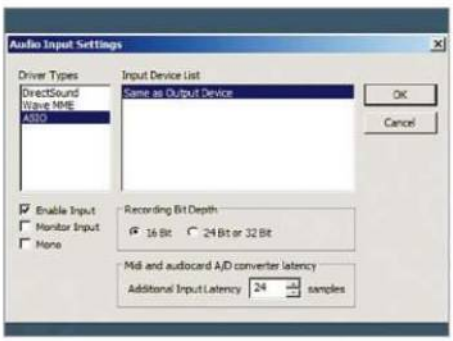
> Step by step

Recording vocals using a laptop microphone and Synapse Audio Orion

1 > You're unlikely to get great quality recordings using your laptop's built-in microphone, but if you're just after something quick and dirty, it'll serve the purpose. Start by installing the ASIO4ALL universal audio driver (from **www.asio4all.com** or in the **Library** folder on this month's **cm** DVD), which will enable you to use your laptop's soundcard as an ASIO device.

2 > Once ASIO4ALL is installed, load Orion and go to **Options»Audio Output Settings**. Select **ASIO** as the **Driver Type**, then **ASIO4ALL v2** from the **Output Device List**. Click the **ASIO** panel button to bring up ASIO4ALL's interface.

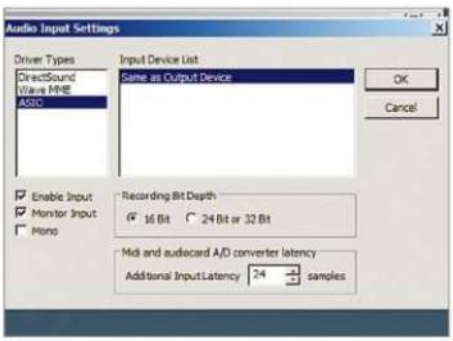
3 > Click the spanner icon at the bottom right-hand corner of the interface to view the hardware inputs and outputs. Now click the **+** button by your laptop's soundcard and the **Out** and **In** settings will appear. Ensure that neither of these has a cross next to it. If one does, try closing and re-opening Orion.



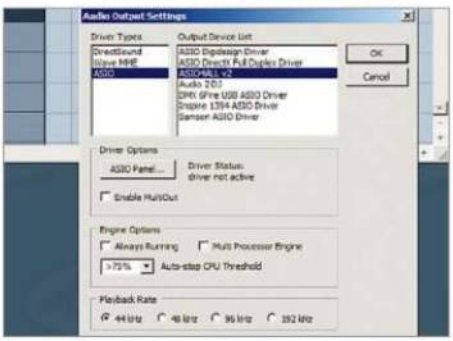
4 > Close the window and click **OK** to exit the Audio Output Settings window. Open the **Options»Audio Input Settings** menu, make sure the **Driver Type** is set to **ASIO** and the **Enable Input** option is selected, then close this window.

5 > Open the project you want to record your vocal along with and make sure Orion is in **Song** mode. Create a new audio track for your vocal by selecting **Insert»Audio Track»Stereo Input 1/2**.

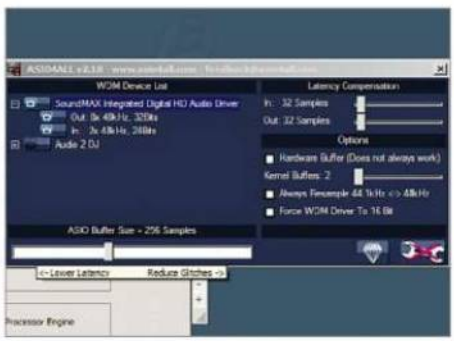
6 > Arm the new track for recording by clicking the **R** button on its Track Info panel on the left. Next, click the **Record** button, then the **Play** button on the Transport bar at the top of the screen. The mic's input will be recorded and a waveform will appear when you click the **Stop** button.



7 > This is all fine, but you won't be able to hear your vocal in the mix. It's possible to monitor your vocal as you record by activating the **Monitor Input** option in the **Audio Input Settings** menu. However, your soundcard's latency may mean you hear the vocal shortly after you've sung it, which can be disconcerting.



8 > Ideally, you'd use a quality audio interface with direct input monitoring to get around this issue, but if that's not an option, you can reduce the latency by turning down the **ASIO Buffer Size** in the **ASIO4ALL** window we looked at earlier.



9 > If you turn down the level too much, the audio will start to break up – **256** samples works OK on our system. If your project won't play nice at this buffer size, render the whole thing out as audio and load that up as a fresh project. If you've been using a lot of plug-ins, this will reduce the CPU load enormously. **cm**

cm ON THE DVD

Check out our patches and audio clips in the **Tutorial Files** folder

>cmfocus

FILTERS

Understanding your filters is key to getting authentic electronic sounds, so we've – ahem – filtered through the facts to bring you our essential guide to mastering this vital element of music production

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> Less is more, as the saying has it, and nothing proves this like the prevalence of filters in music production. From their most basic application (removing unwanted frequencies from your tracks in order to create cleaner-sounding mixes) to more sophisticated sonic sculpting and advanced sound design, filters are an indispensable part of the computer musician's arsenal.

Although equaliser filters (EQ) have been part of music production since the early 20th century – and are, of course, a fundamental component of subtractive synthesis – filters have only really become a popular effect in their own right since their introduction in digital samplers and software effects over the past couple of decades.

While acid house was heavily reliant on the Roland TB-303's characteristic filters, and old-school hip-hop production commonly used filters to separate the different elements of sampled loops, the effect really entered the mainstream consciousness as a result of filtered house records such as Stardust's *Music Sounds Better With You* and Cassius' *1999*.

Simply applying a gradually opening low-pass filter to a sampled musical loop became a dance music cliché, but an effective one – beginning with just the bass groove, then slowly revealing the higher frequencies, the effect builds anticipation, gets more mileage out of a sample and, well, just sounds really good.

This basic processing is only the tip of the iceberg – there are plenty of other cool effects that filters can be used to create, and we're going to show you how to achieve some of the best ones throughout the course of this tutorial.

"The effect gets more mileage out of a sample and, well, just sounds really good"

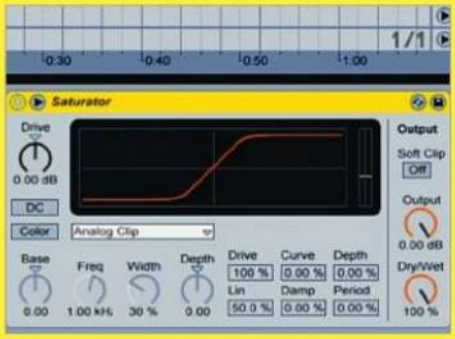
From making filter cutoff modulation-based synth tones and effects to processing sounds with comb filters and getting dirty, driven filter sweeps, it's all here.

We'll also look at some of the best software filter options and list some of our favourite filter-heavy tracks. Load up the **cm** DVD for an array of plug-ins and all the sounds you need to follow these tutorials.

> Step by step Taming resonant filter sweeps

1 > Using swept resonant low-pass filters on loops is a good way to bring them in gradually or add interest by making them evolve over time. However, when working with high resonance levels, it's easy to overload your channels. There are various solutions to this issue. Start by loading **SynthChord.wav** onto an audio track in Ableton Live. Add the Auto Filter effect to the audio track.

2 > Turn the **Q** (resonance) level up to maximum and sweep the cutoff level up and down quickly. You'll notice that this overloads the mixer channel. The easiest way to avoid this is to place a Limiter directly after the Auto Filter. This will automatically limit any peaks over 0dB.



3 > If you're after a more characterful sound, try using a Saturator instead. This will also stop the signal peaking over 0dB, as well as adding satisfying, crusty distortion. To increase the distortion, turn up the **Drive** knob on the Saturator.

> Step by step Making an evolving pad sound

1 > Evolving, rhythmic pad sequences can be made using little more than a few oscillators and some filter cutoff modulation. We'll use Native Instruments' Massive synth for this because it's got tons of flexible modulation sources. Select **File»New Sound**, then activate the second and third oscillators and tune them down and up an octave respectively.

2 > Set the third oscillator's wavetables to **Sin-Squ**are, and turn the **Wt-position** knob to the far left. This gives us a thick, harmonically rich tone. We can enhance this in the Voicing panel – set **Unisono** to **4**, activate the **Pitch Cutoff** and turn up the fader, as we have here. Turn the **Master** down so that the output doesn't distort when you play a chord.

3 > Activate **Filter 1** and set it to **Lowpass 2** mode. Put the filter **Cutoff** knob at ten o'clock, then bring up Modulator 5 by clicking the central panel where it says **5 LFO**. Set up the modulator as we have here by selecting **Expo Down X4** in the **Curve Select** menu, and syncing it to eighth-notes.

4 > Drag the modulation handle from this modulator to the first slot under the filter **Cutoff** and turn up the modulation amount slightly. Now when you play a chord, you'll hear the sound pulse along on eighth-notes. This needs a bit more movement, so select **6 LFO** and sync this to **8/1** bars with a sine shape. Use this to modulate the filter Cutoff too.

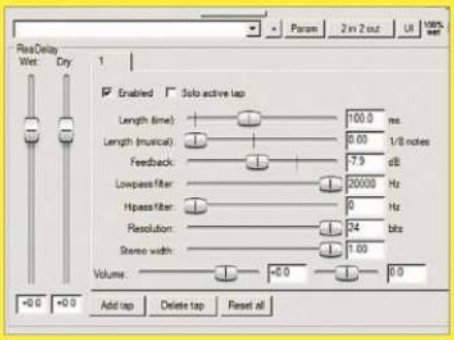
5 > This makes the sound evolve slowly over the course of eight bars, which makes long, sustained chords more interesting. We're not done yet, though! Select the **7 LFO** modulator. Set its mode to **Stepper**, sync this to **1/8** and program a funky little pattern, as we've done here.

6 > Use the stepper to modulate the filter **Cutoff**, as shown. For the final touch, add some **Chorus** and **Delay** from Massive's internal effects. **Reverb** also works well on this sound, but as Massive only has two built-in effect slots, you'll have to add this in your DAW.

> Step by step Self-resonating filter FX

1 > Through the creative use of filters, we can make cool sci-fi sound effects without any audio or instruments in sight. Put OhMyGod! (on the DVD) on a track in your DAW and turn the **Reso**nance knob in the **Filter** section fully up. Watch your output level, because we're going to blast out some extreme frequencies that could damage your speakers/ears if played back too loudly!

2 > Turn the **Feedback** in the Comb Filter section down, and, with the **Reso**nance turned fully up, sweep the **Cutoff** knob around. You'll hear a simple sine tone that follows the movement of the Cutoff knob. What you're hearing is the sound of the filter self-resonating. We can use this to create sweeping effects.



3 > Add a delay plug-in with a short (around 100ms) delay time after OhMyGod! This gives us a vintage sci-fi tone that'll bring back memories of *The Clangers* to readers of a certain age. We can give this sound more character by adding an overdrive or sample-rate reduction plug-in before the delay. Check out the interesting aliasing effects that occur at higher frequencies!

Dedicated effects

Most DAWs have decent built-in filter effects, with special commendation going to Logic's comprehensive array and Live's simple but flexible Auto Filter. However, if you're looking for more creative possibilities, there are plenty of superb third-party effects out there.

In terms of freeware, we highly recommend Ohm Force's excellent Frohmage, as well as Kjaerhus's useful PC VST Auto Filter. As its name suggests, this has built-in modulation in the shape of an envelope follower and an LFO. You can find both of these plug-ins in the Library section of the Software folder on this issue's cm DVD.

On the commercial front, FabFilter's Volcano 2 (£84, www.fabfilter.com) offers tons of filter modes and a wealth of routing options. FabFilter's Micro (£17) is a great alternative for those who just want simple low- and high-pass filters, without the added complications of too many different modes or modulation options. Sonalksis TBK1 (€94, www.sonalksis.com) is also light on modulation, but boasts a variety of other options for shaping its sound.

For the ultimate in software filtering, the UAD Moog Multimode Filter ($199, www.uaudio.com) demands attention. It combines classic Moog filter design with elements taken from the Voyager hardware synth. The downside is that you need a UAD DSP card to run it, but for gorgeous analogue tones, it's hard to beat.

> Step by step Comb filtering

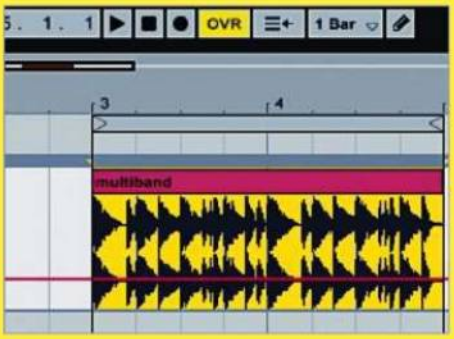
1 > Comb filtering is just the thing for adding a 'pitched' quality to rhythmic material. OhmForce's excellent OhMyGod!, in the cm Studio, features comb filtering functionality. Load the **Tutorial Files/CM Focus/Rhythm.wav** sample from the DVD onto an audio track in your DAW and insert the OhMyGod! effect.

2 > You'll hear the comb filtering on playback. Make cool sweeping effects by automating the **Frequency** knob in the Comb Filter panel, and make the effect more or less intense by turning the **Feedback** knob, next to the **Frequency** knob, up or down.

3 > To get rapid frequency modulations, click the **Frequency** knob – an orange ring will appear around it. Turn up the **Amp**litude button in the LFO panel. The LFO will now modulate the frequency. The **Per**iod knob controls the frequency of the modulation. This is tempo-synced, but can be turned off by clicking the **BPM** button.

4 > It's also possible to control the frequency of the comb filter via MIDI. To do this, change the **Mode** on the left-hand side of the interface to **MIDI Mono** or **MIDI Poly**. Now route a MIDI channel to the effect and you can send it pitch information via MIDI. LFO settings will still apply, so you can even create vibrato effects using this method.

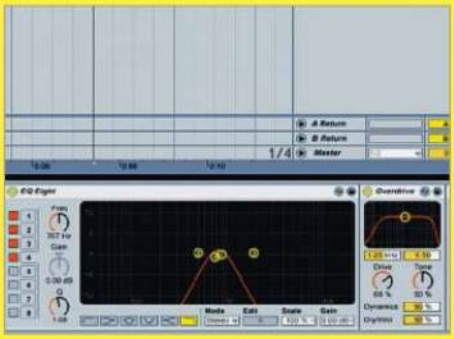
> Step by step
Filter splits in Ableton Live



1 > When working with complex audio material such as sampled musical loops, it can help to process different parts of the frequency spectrum independently. Usually this involves creating copies of the material on separate tracks, but in Ableton Live you can easily perform such processing on a single track. Start by putting **Multiband.wav** (on the DVD) onto a new audio track.

2 > Drag an **EQ Eight** onto the audio track. Right-click it and select **Group**. This creates a new group containing a single effect chain. Click the **Show/Hide Chain List** button to display the list of chains. We're going to use three chains, so right-click the existing one and select **Duplicate** to make another, then again to make a third.

3 > In the first chain, set the first EQ band to high-pass and set its **Freq**uency to **2000Hz**. Then select the second chain and set a high-pass band to **770Hz** and a low-pass band to **900Hz**. For the final band, set a low-pass filter at **500Hz**.



4 > Now we have three frequency bands that we can process independently of each other – use the **S** buttons to solo each band. Add an Overdrive to the second, mid-band chain and turn up the drive level, as shown.

5 > This distorts just the synth tom sounds and leaves the hi-hat and kick sounds intact. It would be nice to be able to add some air to this loop, but if we apply reverb to the whole thing, the bass will make it sound muddy. Add a reverb to the high band using the settings shown here.

6 > You'll notice that the beat clips the master output slightly. To get around this, you can turn down the chains in the group, add a Utility effect and turn the whole channel down, or apply a Limiter.

Recommended listening

Josh Wink
Higher State Of Consciousness
It may have come out many years after 1988's summer of love, but for many, *Higher State*... is the ultimate acid track. The Tweekin' *Acid Funk* mix from the original Strictly Rhythm 12" became a worldwide hit in its own right, thanks to that famous 303 riff that gradually filters up and eventually completely freaks out, with dancefloor-devastating results.
http://bit.ly/aCkZmu

Hatiras
Spaced Invader
The archetypal filter house track, *Spaced invader* is based around pretty simple source material – a straightforward one-bar loop – but thanks to economic use of a filter, clever arrangement and some choice FX, the resulting track is absolutely massive. The DnB mixes are well worth checking out, too.
http://bit.ly/q1dif

Pete Rock and CL Smooth
T.R.O.Y.
A classic from the golden age of hip-hop, *T.R.O.Y.* is a masterclass in sound isolation – the bassline, horns and vocals are expertly EQed and placed in the mix. Check it out, then listen to the sample source, Tom Scott's *Today*, to hear just how clever and creative sample-based production can be.
http://bit.ly/4f1vsm

Artificial Intelligence
Switch On
Today, the Artificial Intelligence name has become synonymous with tasteful LFO-driven filtered basslines, and this early example of their work demonstrates that wobbly b-lines can work well in more musical tracks, as well as dancefloor stompers. Working with the mix, rather than dominating it, *Switch On*'s wobble gives the track a hi-tech soul feel.
http://bit.ly/9glWMC

Filters, filters everywhere...

Filters find their way into the majority of plug-ins, including pretty much all synths. Native Instruments' Massive (€179, www.native-instruments.com) is a prime example, offering 12 filter types, from straightforward low- and high-pass effects to interesting Double Notch and Roland TB-303-style 'Acid' modes. u-he's Zebra 2 ($199, www.u-he.com) has 20 filter types, including All-Pass and Sample Rate Reduction modes.

Many delay plug-ins also feature filters. OhmForce's dub-inspired Ohm Boyz (€49, www.ohmforce.com), for example, includes a multimode filter in its feedback loop that enables the creation of evolving, distorted feedback effects.

Most reverbs use filters in their damping components to control early and late reflections, and you'll also find filter effects on the sidechain inputs of dynamic processing plug-ins. These enable you to specify exactly which frequencies from the input will trigger the sidechain.

Filters are also a key component in step-sequencing effects, such as Sugar Bytes' Effectrix (€99, www.sugar-bytes.de) and Audio Damage's BigSeq2 ($49, www.audiodamage.com). With this type of processor, you can sequence your own detailed filter modulation patterns to create truly out-there sounds.

> Step by step: Creating clever filter cutoff shapes

1 > Modulating filter cutoff frequency is a common technique when making dance music basslines. For this example, we're using Rob Papen's Albino 3, but any decent virtual analogue synth will be up to the job. Start by loading the **Diverse Sounds»z_initial preset** patch.

2 > Set the first oscillator to the square waveform, then turn your attention to the filter's Cutoff panel. Turn the **Env**elope knob all the way down, and set the **Cutoff**, **Res**onance and **Track** (keytracking) knobs to 12 o'clock. This give us quite a dull tone with high resonance and the cutoff frequency tracking the note played.

3 > We're going to use two LFOs to modulate the filter cutoff frequency. Start by setting up LFO2 as shown here. It's a sine wave synced to quarter-notes - pretty basic. Set up LFO3 exactly the same, but set its **Delay** time to **0.25**. It's going to perform the same modulation as LFO2, but kicking in a little later.

4 > In the **Mod**ulation **Matrix**, set the second line up to read **LFO3**, **0.2399**, **Fil 1 Cutoff**, and the third line to read **LFO2**, **-0.1398**, **Fil 1 Cutoff**. Now when you play a note, you'll get a standard sine wobble that's rudely interrupted by a weaker sine modulation in the opposite direction (reverse polarity).

> Step by step: Filter-generated phaser effects

1 > While lots of synths boast built-in phaser effects, they're often not that easy to control, and sometimes they can't be tempo-synced. You can get highly controllable phaser-style effects using a band-stop or all-pass filter, however. ZebraCM (in the **cm** Studio) is bursting with filter modes. Load it in your DAW and turn the first envelope's **Sus**tain level up.

2 > In the **Filter** panel, turn all the knobs down to **0** and change the **Filter Type** to **BR Notch**. You can now get a phaser-style effect by sweeping the filter **Cutoff**. Automate the Cutoff for the ultimate in control, or assign an LFO to modulate it for a more traditional phaser effect.

3 > For more extreme phasing, use ZebraCM's dedicated AP (all-pass) filter modes. These won't actually make much of a difference to the sound until you turn up the **Res**onance, when they'll have quite a drastic effect. **cm**

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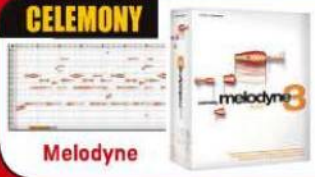

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